IV. APPENDICES
3.A BROWNFIELD SITE CLEANUP AGREEMENTS

NEW YORK STATE DEPARTMENT
OF ENVIRONMENTAL CONSERVATION

In the Matter of a Remedial Program for Former General Motors Corporation North Tarrytown Assembly Plant, New York, under Article 27, Title 14 of the Environmental Conservation Law

BROWNFIELD SITE CLEANUP AGREEMENT

Index # A3-0513-0305

by:
General Motors Corporation, Participant and
Roseland/Sleepy Hollow, LLC, Volunteer

WHEREAS, the Brownfield Cleanup Program Act was enacted to encourage the voluntary remediation of brownfield sites for reuse and redevelopment so as to advance the policy of the State of New York to conserve, improve, and protect its natural resources and environment, and control water, land, and air pollution; and

WHEREAS, the Department of Environmental Conservation (the "Department") is authorized to administer the Brownfield Cleanup Program contained in Article 27, Title 14 of the Environmental Conservation Law ("ECL"); and

WHEREAS, General Motors Corporation ("Participant") and Roseland/Sleepy Hollow, LLC ("Volunteer"), (hereinafter "Applicants" unless otherwise noted) entered into a Voluntary Cleanup Agreement ("VCA") Index No. A3-0468-0902 with the Department, effective December 2, 2002, relative to the Former General Motors North Tarrytown Assembly Plant (the "Property") located at Beekman Avenue, Westchester County, New York. The VCA and map of the Property is attached hereto as Exhibit "A"; and

WHEREAS, the Applicants plan to conduct a remedial program at the Property which includes investigation and remediation of the Property. By letter dated September 29, 2003, the Department approved the Site Investigation Work Plan for the on-site area dated September 2003. The Department also approved the May 2004 revised Supplemental Sediment Sampling Plan by letter dated June 14, 2004. Further, by letter dated April 12, 2004, the Department conditionally approved the draft Conceptual Remedial Action Work Plan Summary (On-Site Component) which was dated March 25, 2004. The intended use of the property is mixed, restricted residential/commercial, and public open space; and

WHEREAS, the Property will be redeveloped as two Parcels, the "East Parcel" and the "West Parcel," as designated on the Parcel Map attached hereto as Exhibit "B-1." In light of the companion Brownfield Cleanup Agreement, the Department will make an effort to minimize duplication of costs and required submissions; and

WHEREAS, this Agreement will apply only to the East Parcel, designated by the Village of Sleepy Hollow as Tax Section 15, Block 15, Lot 1 and Section 15, Block 7, Lot 11 (the "Site"), and further defined by the metes and bounds description attached hereto as Exhibit "B-2"; and

WHEREAS, by letters and certifications dated June 1, 2004, the Applicants submitted requests to participate in the Brownfield Cleanup Program for the Property located at Beekman Avenue and have certified that they are eligible to participate in such program. The Department has determined based upon the certification submitted by General Motors Corporation that it is eligible to participate in the Brownfield Cleanup Program as a Participant as defined in ECL 27-1405 (1)(a). The Department has also determined based upon the certification submitted by Roseland/Sleepy Hollow, LLC., that it is eligible to participate in the Brownfield Cleanup Program as a Volunteer as defined in ECL 27-1405 (1)(b).

NOW, THEREFORE, IN CONSIDERATION OF AND IN EXCHANGE FOR THE MUTUAL COVENANTS AND PROMISES, THE PARTIES AGREE TO THE FOLLOWING:

I. Citizen Participation Plan

Within twenty (20) Days after the effective date of this Agreement, Applicants shall submit revisions to the written citizen participation plan which was prepared pursuant to the VCA and which shall be revised to comply with the requirements of ECL 27-1417 and shall (i) update the names and addresses of the interested public and include a brownfield site contact list; (ii) identify major issues of public concern related to the Site; (iii) include a description of citizen participation activities already performed; and (iv) include a description and schedule of public participation activities that are either specifically required by law or are needed to address public concerns related to the Site. The revised Citizen Participation Plan shall be attached to and incorporated into this Agreement as Exhibit "C."

II. Development, Performance, and Reporting of Work Plans

A. Work Plan Requirements

The work plans ("Work Plan" or "Work Plans") under this Agreement shall be prepared and implemented in accordance with the requirements of ECL Article 27, Title 14 and all applicable laws, rules, regulations, and guidance documents. The Work Plans shall be captioned as follows:

1. "Remedial Investigation Work Plan" if the Work Plan provides for the investigation of the nature and extent of contamination within the boundaries of the Site and emanating from such Site;

2. "Remedial Work Plan" if the Work Plan provides for the development and implementation of a Remedial Program for contamination within the boundaries of the Site and

contamination that has migrated from such Site;

3. "IRM Work Plan" if the Work Plan provides for an interim remedial measure; or

4. "OM&M Work Plan" if the Work Plan provides for operation, maintenance, and/or monitoring.

B. <u>Submission/Implementation of Work Plans</u>

1. The "Remedial Investigation Work Plan," dated September, 2003, the revised Supplemental Sediment Sampling Plan dated May, 2004 and the draft Conceptual Remedial Action Work Plan Summary (On-Site Component) dated March 25,2004, have been approved or conditionally approved by the Department and are attached to and incorporated into this Agreement in Exhibit "D". Hereafter, the Applicants can submit such other and additional Work Plans as it deems appropriate.

2. All proposed Work Plans shall be submitted for the Department's review and approval and shall include, at a minimum, a chronological description of the anticipated activities, a schedule for performance of those activities, and sufficient detail to allow the Department to evaluate that Work Plan. The Department shall use best efforts to approve, modify, or reject a proposed Work Plan within forty-five (45) Days from its receipt or within fifteen (15) Days from the close of the comment period, if applicable, whichever is later.

i) Upon the Department's written approval of a Work Plan, such Department-approved Work Plan shall be incorporated into and become an enforceable part of this Agreement as Exhibit "D" and shall be implemented in accordance with the schedule contained therein.

ii) If the Department modifies a Work Plan, the reasons for such modification shall be provided in writing. Within twenty (20) Days after receiving written notice of such modification, Applicants shall elect in writing to (a) implement the Work Plan as modified; (b) implement any other Department-approved Work Plan(s); (c) invoke dispute resolution pursuant to Paragraph XIV; or (d) terminate this Agreement pursuant to Paragraph XIII.

iii) If the Department disapproves a Work Plan, the reasons for such disapproval shall be provided in writing. In the event the Department disapproves a Work Plan, within twenty (20) Days after receiving written notice of such disapproval, Applicants shall elect in writing to (a) modify or expand it within thirty (30) Days of receipt of the written disapproval notice; (b) complete any other Department-approved Work Plan(s); (c) invoke dispute resolution pursuant to Paragraph XIV; or (d) terminate this Agreement pursuant to Subparagraph XIII.

3. An OM&M Work Plan, if necessary, shall be submitted in accordance with the schedule set forth in the IRM Work Plan or Remedial Work Plan.

4. During all field activities, Applicants shall have an on-Site a representative who is qualified to supervise the activities undertaken. Such representative may be an employee or a consultant retained by Applicants to perform such supervision.

C. <u>Revisions to Work Plans</u>

If revisions to a Work Plan are required to satisfy the objectives of such Work Plan, the parties will negotiate revisions which shall be attached to and incorporated into the relevant Work Plan and which shall be enforceable under this Agreement. If the parties cannot agree upon revisions to the relevant Work Plan, then unless the Applicants invoke dispute resolution pursuant to Paragraph XIV, either party may terminate this Agreement pursuant to Paragraph XIII.

D. <u>Submission of Final Reports</u>

1. In accordance with the schedule contained in a Work Plan, Applicants shall submit a Final Report that shall include but not be limited to: all data generated relative to the Site and all other information obtained as part of the implementation of the subject Work Plan; all of the assessments and evaluations required by the subject Work Plan; a statement of any additional data that must be collected; and "as-built" drawings.

i) The Final Report for an Investigation Work Plan shall comply with the requirements set forth at ECL 27-1411(1) and shall contain a certification by the person with primary responsibility for the day to day performance of the activities under this Agreement that those activities were performed in full accordance with the Investigation Work Plan. If such Final Report concludes that no remediation is necessary, and the Site does not meet the requirements for Track 1, Applicants shall submit an Alternatives Analysis prepared in accordance with ECL 27-1413 that supports such determination.

ii) A Final Engineering Report certifying that remediation of the Site has been performed in accordance with this Agreement shall be prepared by a Professional Engineer (or other expert approved by the Department) with primary responsibility for the day to day performance of the activities under this Agreement. The Report shall be prepared in accordance with the requirements of ECL 27-1419(1) and (2) and shall contain a certification that all such activities were performed in accordance with the Department approved Work Plan. The Department shall review such Report, the submittals made pursuant to the Agreement, and any other relevant information regarding the Site and make a determination as to whether the goals of the remedial program have been or will be achieved in accordance with established time frames; if so, a written Certificate of Completion will be issued in accordance with the requirements of ECL 27-1419. Such Certificate of Completion may be modified or revoked, after notice and an opportunity for hearing, upon a finding that (a) Applicants failed to comply with this Agreement; (b) Applicants made a misrepresentation of material fact in connection with their Application or their certification that cleanup levels required by this Agreement were reached; or (c) good cause exists for such modification or revocation.

iii) All other Work Plan Final Reports shall contain a certification by a Professional Engineer with primary responsibility for the day to day performance of the activities under this Agreement that all such activities were performed in full accordance with the Department approved Work Plan.

2. Within sixty (60) Days of the Department's approval of a Final Report, Applicants shall submit such additional Work Plans as they propose to implement. Failure to submit any additional Work Plans within such period shall, unless other Work Plans are under review by the Department or being implemented by Applicants, result in the termination of this Agreement pursuant to Paragraph XIII.

E. Review of Submittals other than Work Plans

1. The Department shall timely notify Applicants in writing of its approval or disapproval of each submittal other than a Work Plan. All Department-approved submittals shall be incorporated into and become an enforceable part of this Agreement.

2. If the Department disapproves a submittal covered by this Subparagraph, it shall specify the reasons for its disapproval and may request Applicants to modify or expand the submittal. Within twenty (20) Days after receiving written notice that Applicants' submittal has been disapproved, Applicants shall elect in writing to either (i) modify or expand it within thirty (30) Days of receipt of the written notice of disapproval; (ii) complete any other Department-approved Work Plan(s); (iii) invoke dispute resolution pursuant to Paragraph XIV; or (iv) terminate this Agreement pursuant to Paragraph XIII. If Applicants submit a revised submittal and it is disapproved, the Department and Applicants may pursue whatever remedies may be available under this Agreement or under law.

F. Department's Determination of Need for Remediation

The Department shall determine upon its approval of each Final Report dealing with the investigation of the Site whether remediation, or additional remediation as the case may be, is needed for protection of public health and the environment.

1. If the Department makes a preliminary determination that remediation, or additional remediation, is not needed for protection of public health and the environment, the Department shall notify the public of such determination and seek public comment in accordance with ECL 27-1417(3)(e). The Department shall provide timely notification to the Applicants of its

final determination following the close of the public comment period.

2. If the Department determines that additional remediation is not needed and such determination is based upon use restrictions, Applicants shall cause to be filed an Environmental Easement in accordance with Paragraph X within sixty (60) Days of receipt of the Department's determination.

3. If the Department determines that remediation, or additional remediation, is needed, Applicants may elect to submit for review and approval a proposed Remedial Work Plan (or a revision to an existing Work Plan for the Site) for a remedy selected upon due consideration of the factors set forth in ECL 27-1415(3). A proposed Remedial Work Plan addressing the Site's remediation will be noticed for public comment in accordance with ECL 27-1417(3)(c) and the Citizen Participation Plan developed pursuant to Paragraph I of this Agreement. If the Department determines following the close of the public comment period that revisions are needed, Applicants agree to negotiate revisions to the proposed Remedial Work Plan in accordance with Paragraph II.C. If Applicants elect not to develop a Work Plan under this Subparagraph or if either party concludes that a mutually acceptable Work Plan under this Subparagraph cannot be negotiated, then this Agreement shall terminate in accordance with Subparagraph XIII.

G. <u>Submission of Annual Reports, if required</u>

In the event that the remedy for the Site, if any, or any Work Plan for the Site requires operation, maintenance, and monitoring (OM&M), including reliance upon institutional or engineering controls, Applicants shall file a report annually (unless a different frequency is specified in an approved Work Plan) on the 1st day of the month following the anniversary of the start of the OM&M and continuing until the Department notifies Applicants in writing that such report may be discontinued. Such report shall be signed by a Professional Engineer or by an expert approved by the Department to perform that function and certified under penalty of perjury that the institutional and/or engineering controls are unchanged from the previous certification and that nothing has occurred that would impair the ability of such controls to protect public health and the environment or constitute a violation or failure to comply with the approved OM&M Plan. Applicants shall notify the Department within twenty-four (24) hours of discovery of any upset, interruption, or termination of one or more controls without the prior approval of the Department. Further, Applicants shall take all actions required by the Department to maintain conditions at the Site that achieve the objectives of the remedy and/or the Work Plan and are protective of public health and the environment. An explanation of such upset, interruption, or termination of one or more controls and the steps taken in response shall be included in the foregoing notice and in the report required by this Subparagraph as well as in any progress reports required by Paragraph XI. Applicants can petition the Department for a determination that the institutional and/or engineering controls may be terminated. Such petition must be supported by a Professional Engineer or other expert approved by the Department stating that such controls are no longer necessary. The Department shall not unreasonably withhold its approval of such petition.

III. Enforcement

This Agreement shall be enforceable as a contractual agreement under the laws of the State of New York. Applicants shall not suffer any penalty or be subject to any proceeding or action if they cannot comply with any requirement of this Agreement as a result of a Force Majeure Event provided they notify the Department in writing within ten (10) days of when they obtain knowledge of any such event. Applicants shall include in such notice the measures taken and to be taken to prevent or minimize any delays and shall request an appropriate extension or modification of this Agreement. Applicants shall have the burden of proving by a preponderance of the evidence that an event qualifies as a Force Majeure Event pursuant to this Paragraph.

IV. Entry upon Site

A. Applicants hereby agree to provide access to the Site and to all relevant information regarding activities at the Site in accordance with the provisions of ECL 27-1431.

B. The Department shall have the right to periodically inspect the Site to ensure that the use of the property complies with the terms and conditions of this Agreement.

V. Payment of State Costs

A. Within forty-five (45) Days after the effective date of this Agreement, Participant shall pay to the Department the sum of $97,608.02, which shall represent reimbursement for State Costs incurred pursuant to the VCA referenced herein, as set forth in the cost summary attached as Exhibit "E."

B. Within forty-five (45) Days after receipt of an itemized invoice from the Department, Applicants shall pay to the Department a sum of money which shall represent reimbursement for State costs for work performed at or in connection with the Site prior to the effective date of this Agreement, as well as for negotiating this Agreement, and all costs associated with this Agreement up to and including the date upon which the Certificate of Completion is issued, the Department approves the Final Report relative to OM&M, or this Agreement is terminated pursuant to Paragraph XIII, whichever is later.

C. Personal service costs shall be documented by reports of Direct Personal Service, which shall identify the employee name, title, biweekly salary, and time spent (in hours) on the project during the billing period, as identified by an assigned time and activity code. Approved agency fringe benefit and indirect cost rates shall be applied. Non-personal service costs shall be summarized by category of expense (*e.g.*, supplies, materials, travel, contractual) and shall be documented by expenditure reports. The Department shall not be required to provide any other documentation of costs, provided however, that the Department's records shall be available consistent with, and in accordance with, Article 6 of the Public Officers Law.

D. Such invoice shall be sent to Applicants at the following addresses:

Jonathan Stein
Roseland/Sleepy Hollow, LLC
c/o Roseland Property Company
233 Canoe Brook Road
Short Hills, New Jersey 07078

Mark Chertok, Esq.
Sive, Paget & Riesel, P.C.
460 Park Avenue
New York, New York 10022

James F. Hartnett
Remediation Program Manager
General Motors Corporation
1 General Motors Drive, STE2
Syracuse, New York 13206

Scott Fein, Esq.
Whiteman Osterman & Hanna
One Commerce Plaza
Albany, New York 12260

E. Each such payment shall be made payable to the Department of Environmental Conservation and shall be sent to:

Bureau of Program Management
Division of Environmental Remediation
New York State Department of Environmental Conservation
625 Broadway, Albany, NY 12233-7012

F. Each party shall provide written notification to the other within ninety (90) Days of any change in the foregoing addresses.

G. Applicants may contest, in writing, invoiced costs under this Agreement if they believe (i) the cost documentation contains clerical, mathematical, or accounting errors; (ii) the costs are not related to the State's activities reimbursable under this Agreement; or (iii) the Department is not otherwise legally entitled to such costs. If Applicants object to an invoiced cost, Applicants shall pay all costs not objected to within the time frame set forth in Subparagraphs V.A and V.B and shall, within thirty (30) Days of receipt of an invoice, identify in writing all costs objected to and identify the basis of the objection. This objection shall be filed with the Director of the Bureau of

Program Management ("BPM Director") who shall have the authority to relieve Applicant of the obligation to pay invalid costs. Within forty-five (45) Days of the Department's determination of the objection, Applicants shall pay to the Department the amount which the BPM Director or the BPM Director's designee determines Applicants are obligated to pay or commence an action or proceeding seeking appropriate judicial relief.

H. In the event any instrument for the payment of any money due under this Agreement fails of collection, such failure of collection shall constitute a violation of this Agreement, provided (i) the Department gives Applicants written notice of such failure of collection, and (ii) the Department does not receive from Applicants a certified check or bank check within fourteen (14) Days after the date of the Department's written notification.

I. In the event that an eligible party applies for a technical assistance grant in connection with the Site, Participant may be required to provide such a grant, in accordance with ECL 27-1417(4), in and amount not to exceed $50,000, with the cost of such grant serving as an offset against State Costs payable pursuant to this Paragraph.

VI. Liability Limitation

Subsequent to the issuance of a Certificate of Completion pursuant to this Agreement, Applicants shall be entitled to the Liability Limitation set forth at ECL 27-1421, subject to the terms and conditions stated therein. A Notice of the Liability Limitation shall be filed with the recording officer of the county in which the Site is located within thirty (30) Days of (i) the effective date of the Certificate of Completion or (ii) the date Applicants acquire title to the Site, whichever is later.

VII. Reservation of Rights

A. Except as provided in Subparagraph VII.B, Applicants reserve all rights and defenses under applicable law to contest, defend against, dispute, or disprove any action, proceeding, allegation, assertion, determination, or order of the Department, including any assertion of remedial liability by the Department against Applicants, and further reserve all rights including the rights to notice, to be heard, to appeal, and to any other due process respecting any action or proceeding by the Department, including the enforcement of this Agreement. The existence of this Agreement or Applicants' compliance with it shall not be construed as an admission of any liability, fault, wrongdoing, or violation of law by Applicants, and shall not give rise to any presumption of law or finding of fact which shall inure to the benefit of any third party.

B. Notwithstanding the foregoing, Applicants hereby waive any right they may have to make a claim pursuant to Article 12 of the Navigation Law with respect to the Site and release the State and the New York Environmental Protection and Spill Compensation Fund from any and all legal or equitable claims, suits, causes of action, or demands whatsoever with respect to the Site that Applicants may have as a result of Applicants' entering into or fulfilling the terms of this Agreement.

VIII. Indemnification

Applicants shall indemnify and hold the Department, the State of New York, and their representatives, (Volunteer shall also hold the Trustee) and employees harmless from any claim, suit, action, and cost of every name and description arising out of or resulting from the fulfillment or attempted fulfillment of this Agreement or the VCA by Applicants prior to the Termination Date except for those claims, suits, actions, and costs arising from the State's gross negligence or willful or intentional misconduct by the Department, the State of New York, and/or their representatives and employees during the course of any activities conducted pursuant to this Agreement. The Department shall provide Applicants with written notice no less than thirty (30) Days prior to commencing a lawsuit seeking indemnification pursuant to this Paragraph.

IX. Change of Use

Applicants shall notify the Department at least sixty (60) Days in advance of any change of use, as defined in ECL 27-1425, which is proposed for the Site. In the event the Department determines that the proposed change of use is prohibited, the Department shall notify Applicants of such determination within forty-five (45) Days of receipt of such notice.

X. Environmental Easement

A. Within thirty (30) Days after the Department's approval of a Remedial Work Plan which relies upon one or more institutional and/or engineering controls, or within thirty (30) Days after the Department's determination pursuant to Subparagraph II.F.2 that additional remediation is not needed based upon use restrictions, Applicants shall submit to the Department for approval an Environmental Easement to run with the land in favor of the State which complies with the requirements of ECL Article 71, Title 36. Applicants shall cause such instrument to be recorded with the recording officer for the county in which the Site is located within thirty (30) Days after the Department's approval of such instrument. Applicants shall provide the Department with a copy of such instrument certified by the recording officer to be a true and faithful copy within thirty (30) Days of such recording (or such longer period of time as may be required to obtain a certified copy provided Applicants advise the Department of the status of their efforts to obtain same within such thirty (30) Day period). Such instrument shall be attached hereto as Exhibit "F."

B. Applicants or the owner of the Site may petition the Department to modify or extinguish the Environmental Easement filed pursuant to this Agreement at such time as it can certify that the Site is protective of human health and the environment without reliance upon the restrictions set forth in such instrument. Such certification shall be made by a Professional Engineer or other expert approved by the Department. The Department will not unreasonably withhold its consent.

XI. Progress Reports

Applicants shall submit a written progress report of their actions under this Agreement to the parties identified in Subparagraph XII.A.1 by the 10th Day of each month commencing with the month subsequent to the approval of the first Work Plan and ending with the Termination Date, unless a different frequency is set forth in a Work Plan. Such reports shall, at a minimum, include: all actions relative to the Site during the previous reporting period and those anticipated for the next reporting period; all approved activity modifications (changes of work scope and/or schedule); all results of sampling and tests and all other data received or generated by or on behalf of Applicants in connection with this Site, whether under this Agreement or otherwise, in the previous reporting period, including quality assurance/quality control information; information regarding percentage of completion; unresolved delays encountered or anticipated that may affect the future schedule and efforts made to mitigate such delays; and information regarding activities undertaken in support of the Citizen Participation Plan during the previous reporting period and those anticipated for the next reporting period.

XII. Communications

A. All written communications required by this Agreement shall be transmitted by United States Postal Service, by private courier service, or hand delivered.

1. Communication from Applicants shall be sent to:

Edward Belmore
New York State Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway
Albany, New York 12233-7010
Note: three copies (one unbound) of work plans are required to be sent.

Gary Litwin
Bureau of Environmental Exposure Investigation
New York State Department of Health
Flanigan Square
547 River Street
Troy, New York 12180-2216
Note: two copies of work plans are required to be sent, and

Patricia J. Mastrianni, Esq
Division of Environmental Enforcement
New York State Department of Environmental Conservation
625 Broadway

Albany, New York 12233-5550
Correspondence only

2. Communication from the Department to Applicants shall be sent to:

Jonathan Stein
Roseland/Sleepy Hollow, LLC
c/o Roseland Property Company
233 Canoe Brook Road
Short Hills, New Jersey 07078

Mark Chertok, Esq.
Sive, Paget & Riesel, P.C.
460 Park Avenue
New York, New York 10022

James F. Hartnett
Remediation Program Manager
General Motors Corporation
1 General Motors Drive, STE2
Syracuse, New York 13206

Scott Fein, Esq.
Whiteman Osterman & Hanna
One Commerce Plaza
Albany, New York 12260

B. The Department and Applicants reserve the right to designate additional or different addressees for communication on written notice to the other.

C. Each party shall notify the other within ninety (90) Days after any change in the addresses listed in this Paragraph XII or in Paragraph V.

XIII. Termination of Agreement

Applicants may terminate this Agreement at any time by providing written notification to the parties listed in Subparagraph XII.A.1. The Department may terminate this Agreement at any time pursuant to Subparagraph XV.A or in the event Applicants fail to substantially comply with the Agreements' terms and conditions. The Department shall provide written notification to Applicants setting forth the basis for termination of the Agreement. The termination shall be effective the 5th day after the non-terminating party's receipt of such written notification, except that such termination shall not affect the provisions contained in Paragraphs V, VII.B, and VIII.

XIV. Dispute Resolution

A. In the event disputes arise regarding any notice of disapproval of a submittal, proposed Work Plan or Final Report, or during the implementation of any Work Plan, Applicants may, within thirty (30) Days of receipt of such notice, request in writing informal negotiations with the Department in an effort to resolve the dispute. The Department and Applicants shall consult together in good faith and exercise best efforts to resolve any differences or disputes without resort to the procedures described in Subparagraph XIV.B. The period for informal negotiations shall not exceed thirty (30) Days from Applicants' request for informal negotiations. If the parties cannot resolve a dispute by informal negotiations during this period, the Department's position shall be considered binding unless Applicants notify the Department in writing within thirty (30) Days after the conclusion of the thirty (30) Day period for informal negotiations that it invokes the dispute resolution provisions provided under Subparagraph XIV.B.

B. 1. Applicants shall file with the Office of Hearings and Mediation ("OH&M") a request for formal dispute resolution and a written statement of the issues in dispute, the relevant facts upon which the dispute is based, factual data, analysis, or opinion supporting its position, and all supporting documentation upon which Applicants rely (hereinafter called the "Statement of Position"). A copy of such request and written statement shall be provided contemporaneously to the Director of the Division of Environmental Remediation ("DER Director") and to the parties listed under Subparagraph XII.A.1.

2. The Department shall serve its Statement of Position no later than twenty (20) Days after receipt of Applicants' Statement of Position.

3. Applicants shall have the burden of proving by substantial evidence that the Department's position does not have a rational basis and should not prevail. The OH&M can conduct meetings, in person or via telephone conferences, and request additional information from either party if such activities will facilitate a resolution of the issues.

4. The OH&M shall prepare and submit a report and recommendation to the DER Director who shall issue a final decision resolving the dispute in a timely manner. The final decision shall constitute a final agency action and Applicants shall have the right to seek judicial review of the decision pursuant to Article 78 of the CPLR provided that Applicants notify the Department within thirty (30) Days after receipt of a copy of the final decision of its intent to commence an Article 78 proceeding and commences such proceeding within sixty (60) Days after receipt of a copy of the Director's final decision. Applicants shall be in violation of this Agreement if they fail to comply with the final decision resolving this dispute within sixty (60) Days after the date of such final decision, or such other time period as may be provided in the final decision, unless they seek judicial review of such decision within the sixty (60) Day period provided. In the event that Applicants seek judicial review, Applicants shall be in violation of this Agreement if they fail to comply with the final Court Order or settlement within thirty (30) Days after the effective date of

such Order or settlement, unless otherwise directed by the Court. For purposes of this Subparagraph, a Court Order or settlement shall not be final until the time to perfect an appeal of same has expired.

5. The invocation of dispute resolution shall not extend, postpone, or modify Applicants' obligations under this Agreement with respect to any item not in dispute unless or until the Department agrees or a Court determines otherwise. The invocation of the procedures set forth in this Paragraph XIV shall constitute a waiver of any and all other administrative remedies which may otherwise be available to Applicants regarding the issue in dispute.

6. The Department shall keep an administrative record of any proceedings under this Paragraph XIV which shall be available consistent with Article 6 of the Public Officers Law.

7. Nothing in this Paragraph XIV shall be construed as an agreement by the parties to resolve disputes through administrative proceedings pursuant to the State Administrative Procedure Act, the ECL, or 6 NYCRR Part 622 or Section 375-2.1.

XV. Miscellaneous

A. If the information provided and any certifications made by Applicants are not materially accurate and complete, this Agreement, except with respect to Applicants' obligations pursuant to Paragraphs V, VII.B and VIII, shall be null and void *ab initio* fifteen (15) Days after the Department's notification of such inaccuracy or incompleteness or fifteen (15) Days after issuance of a final decision resolving a dispute pursuant to Paragraph XIV, whichever is later, unless Applicants submit information within that fifteen (15) Day time period indicating that the information provided and the certifications made were materially accurate and complete. In the event this Agreement is rendered null and void, any Certificate of Completion and/or Liability Limitation that may have been issued or may have arisen under this Agreement shall also be null and void *ab initio*, and the Department shall reserve all rights that it may have under law.

B. Applicants shall allow the Department to attend, and shall notify the Department at least seven (7) Days in advance of, any field activities to be conducted pursuant to this Agreement, as well as any pre-bid meetings, job progress meetings, substantial completion meeting and inspection, and final inspection and meeting; nothing in this Agreement shall be construed to require Applicants to allow the Department to attend portions of meetings where privileged matters are discussed.

C. The Department may exempt Applicants from the requirement to obtain any state or local permit or other authorization for any activity conducted pursuant to this Agreement that (i) is conducted on the Site or on different premises that are under common control or contiguous to or physically connected with the Site and such activity manages exclusively hazardous waste and/or petroleum from such Site, and (ii) satisfies all substantive technical requirements applicable to like activity conducted pursuant to a permit, as determined by the Department.

D. Applicants shall use "best efforts" to obtain all Site access, permits, easements, rights-of-way, rights-of-entry, approvals, institutional controls, or authorizations necessary to perform Applicants' obligations under this Agreement. If, despite Applicants' best efforts, any access, permits, easements, rights-of-way, rights-of-entry, approvals, institutional controls, or authorizations required to perform this Agreement are not obtained, Applicants shall promptly notify the Department, and include a summary of the steps taken to obtain access. The Department may, as it deems appropriate and within its authority, assist Applicants in obtaining same. If an interest in property is needed to implement an institutional control required by a Work Plan and such interest cannot be obtained, the Department may require Applicants to modify the Work Plan pursuant to Subparagraph II.C of this Agreement to reflect changes necessitated by the lack of access and/or approvals.

E. All approved Work Plans, Final Reports, and other documents required under this Agreement shall be submitted to the Department in an electronic format acceptable to the Department within thirty (30) Days of approval. If any document cannot be converted into electronic format, Applicants shall so advise the Department and, if the Department concurs, submit such document in an alternative format acceptable to the Department.

F. Applicants shall provide a copy of this Agreement to each contractor hired to perform work required by this Agreement and shall condition all contracts entered into for the obligations identified in this Agreement upon performance in conformity with the terms of this Agreement. Applicants or their contractor(s) shall provide written notice of this Agreement to all subcontractors hired to perform any portion of the work required by this Agreement. Applicants shall nonetheless be responsible for ensuring that Applicants' contractors and subcontractors perform the work in satisfaction of the requirements of this Agreement.

G. The paragraph headings set forth in this Agreement are included for convenience of reference only and shall be disregarded in the construction and interpretation of any provisions of this Agreement.

H. 1. The terms of this Agreement shall constitute the complete and entire agreement between the Department and Applicants concerning the implementation of the activities required by this Agreement. No term, condition, understanding, or agreement purporting to modify or vary any term of this Agreement shall be binding unless made in writing and subscribed by the party to be bound. No informal advice, guidance, suggestion, or comment by the Department shall be construed as relieving Applicants of their obligation to obtain such formal approvals as may be required by this Agreement. In the event of a conflict between the terms of this Agreement and any Work Plan submitted pursuant to this Agreement, the terms of this Agreement shall control over the terms of the Work Plan(s) attached as Exhibit "D." Applicants consent to and agree not to contest the authority and jurisdiction of the Department to enter into or enforce this Agreement.

2. i. Except as set forth herein, if Applicants desire that any provision of this

Agreement be changed, other than a provision of a Work Plan or a time frame, Applicants shall make timely written application to the Commissioner with copies to the parties listed in Subparagraph XII.A.1.

ii. Changes to the Work Plan shall be accomplished as set forth in Subparagraph II.C of this Agreement.

iii. Requests for a change to a time frame set forth in this Agreement shall be made in writing to the Department's project attorney and project manager; such requests shall not be unreasonably denied and a written response to such requests shall be sent to Applicants promptly.

I. 1. If there are multiple parties signing this Agreement, the obligations of each such party under this Agreement are joint and several, and the insolvency of or failure by any Applicant to implement any obligations under this Agreement shall not affect the obligations of the remaining Applicant(s) under this Agreement.

2. If either Applicant is a partnership, the obligations of all general partners (including limited partners who act as general partners) under this Agreement are joint and several and the insolvency or failure of any general partner to implement any obligations under this Agreement shall not affect the obligations of the remaining partner(s) under this Agreement.

3. Notwithstanding the foregoing Subparagraphs XV.I.1 and 2, if multiple parties sign this Agreement as Applicants but not all of the signing parties elect to implement a Work Plan, all Applicants are jointly and severally liable for each and every obligation under this Agreement through the completion of activities in such Work Plan that all such parties consented to; thereafter, only those Applicants electing to perform additional work shall be jointly and severally liable under this Agreement for the obligations and activities under such additional Work Plan(s). The parties electing not to implement the additional Work Plan(s) shall have no obligations under this Agreement relative to the activities set forth in such Work Plan(s). Further, only those Applicants electing to implement such additional Work Plan(s) shall be eligible to receive the Liability Limitation referenced in Paragraph VI.

J. Applicants shall be entitled to contribution protection to the extent authorized by ECL 27-1421(6).

K. Applicants shall not be considered an operator of the Site solely by virtue of having executed and/or implemented this Agreement.

L. Applicants and Applicants' agents, grantees, lessees, sublessees, successors, and assigns shall be bound by this Agreement. Any change in ownership of Applicants including, but not limited to, any transfer of assets or real or personal property, shall in no way alter Applicants' responsibilities under this Agreement.

M. Unless otherwise expressly provided herein, terms used in this Agreement which are defined in ECL Article 27 or in regulations promulgated thereunder shall have the meaning assigned to them under said statute or regulations. Whenever terms listed in the Glossary attached hereto are used in this Agreement or its Exhibits, the definitions set forth in the Glossary shall apply. In the event of a conflict, the definition set forth in the Glossary shall control.

N. Applicants' obligations under this Agreement represent payment for or reimbursement of response costs, and shall not be deemed to constitute any type of fine or penalty.

O. This Agreement may be executed for the convenience of the parties hereto, individually or in combination, in one or more counterparts, each of which shall be deemed to have the status of an executed original and all of which shall together constitute one and the same.

P. This Agreement supersedes and replaces the Voluntary Cleanup Agreement referenced herein.

Q. The effective date of this Agreement is the date it is signed by the Commissioner or the Commissioner's designee.

DATED: MAY 1 2 2005

DENISE SHEEHAN, ACTING COMMISSIONER
NEW YORK STATE DEPARTMENT
OF ENVIRONMENTAL CONSERVATION

By: ______________________
Dale A. Desnoyers
Director, Division of Environmental Enforcement

CONSENT BY APPLICANT
GENERAL MOTORS CORPORATION

Applicant hereby consents to the issuing and entering of this Agreement, waives Applicant's right to a hearing herein as provided by law, and agrees to be bound by this Agreement.

NAME

By: Raymond J Tessier

Title: Group Director

Date: March 31, 2005

STATE OF Michigan)
) ss:
COUNTY OF Wayne)

On the 31st day of March, in the year 2005, before me, the undersigned, personally appeared Raymond Tessier, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

Janet Maxwell

Signature and Office of individual taking acknowledgment

JANET MAXWELL
Notary Public, Wayne County, MI
My Commission Expires Feb. 5, 2008

CONSENT BY VOLUNTEER
ROSELAND/SLEEPY HOLLOW, LLC

Volunteer hereby consents to the issuing and entering of this Agreement, waives Volunteer's right to a hearing herein as provided by law, and agrees to be bound by this Agreement.

CARL GOLDBERG

By: ______________________

Title: Member

Date: 3/31/05

STATE OF NEW ~~YORK~~ JERSEY)
) ss:
COUNTY OF ESSEX)

On the 31st day of MARCH, in the year 2005, before me, the undersigned, personally appeared CARL GOLDBERG, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

Marie Buckalew
Signature and Office of individual taking acknowledgment

MARIE BUCKALEW
NOTARY PUBLIC OF NEW JERSEY
MY COMMISSION EXPIRES JULY 5, 2006

NEW YORK STATE DEPARTMENT
OF ENVIRONMENTAL CONSERVATION

In the Matter of a Remedial Program for Former General Motors Corporation North Tarrytown Assembly Plant, New York, under Article 27, Title 14 of the Environmental Conservation Law	BROWNFIELD SITE CLEANUP AGREEMENT Index # A3-0514-0305

by:
General Motors Corporation, Participant and
Roseland/Sleepy Hollow, LLC, Volunteer

WHEREAS, the Brownfield Cleanup Program Act was enacted to encourage the voluntary remediation of brownfield sites for reuse and redevelopment so as to advance the policy of the State of New York to conserve, improve, and protect its natural resources and environment, and control water, land, and air pollution; and

WHEREAS, the Department of Environmental Conservation (the "Department") is authorized to administer the Brownfield Cleanup Program contained in Article 27, Title 14 of the Environmental Conservation Law ("ECL"); and

WHEREAS, General Motors Corporation ("Participant") and Roseland/Sleepy Hollow, LLC ("Volunteer"), (hereinafter "Applicants" unless otherwise noted) entered into a Voluntary Cleanup Agreement ("VCA") Index No. A3-0468-0902 with the Department, effective December 2, 2002, relative to the Former General Motors North Tarrytown Assembly Plant (the "Property") located at Beekman Avenue, Westchester County, New York. The VCA and map of the Property is attached hereto as Exhibit "A"; and

WHEREAS, the Applicants plan to conduct a remedial program which includes investigation and remediation of the Property. By letter dated September 29, 2003, the Department approved the Site Investigation Work Plan for the on-site area dated September 2003. The Department also approved the May 2004 revised Supplemental Sediment Sampling Plan by letter dated June 14, 2004. Further, by letter dated April 12, 2004, the Department conditionally approved the draft Conceptual Remedial Action Work Plan Summary (On-Site Component) which was dated March 25, 2004. The intended use of the property is mixed, restricted residential/commercial, and public open space; and

WHEREAS, the Property will be redeveloped as two Parcels, the "East Parcel" and the "West Parcel," as designated on the Parcel Map attached hereto as Exhibit "B-1." In light of the companion Brownfield Cleanup Agreement, the Department will make an effort to minimize duplication of costs and required submissions; and

WHEREAS, this Agreement will apply only to the West Parcel, designated by the Village of Sleepy Hollow as Tax Section 15, Block 1, Lot 1 and Section 16, Block 2, Lot 27 (the "Site"), and further defined by the metes and bounds description attached hereto as Exhibit "B-2"; and

WHEREAS, all land waterward of the top of the slope of the riprap along the Hudson River shoreline of the West Parcel shall be treated as off site for the purposes of the Department's determination as to the issuance of Volunteer's Certificate of Completion; and

WHEREAS, by letters and certifications dated June 1, 2004, the Applicants submitted requests to participate in the Brownfield Cleanup Program for the Property located at Beekman Avenue and have certified that they are eligible to participate in such program. The Department has determined based upon the certification submitted by General Motors Corporation that it is eligible to participate in the Brownfield Cleanup Program as a Participant as defined in ECL 27-1405 (1)(a). The Department has also determined based upon the certification submitted by Roseland/Sleepy Hollow, LLC., that it is eligible to participate in the Brownfield Cleanup Program as a Volunteer as defined in ECL 27-1405 (1)(b).

NOW, THEREFORE, IN CONSIDERATION OF AND IN EXCHANGE FOR THE MUTUAL COVENANTS AND PROMISES, THE PARTIES AGREE TO THE FOLLOWING:

I. Citizen Participation Plan

Within twenty (20) Days after the effective date of this Agreement, Applicants shall submit revisions to the written citizen participation plan which was prepared pursuant to the VCA and which shall be revised to comply with the requirements of ECL 27-1417 and shall (i) update the names and addresses of the interested public and include a brownfield site contact list; (ii) identify major issues of public concern related to the Site; (iii) include a description of citizen participation activities already performed; and (iv) include a description and schedule of public participation activities that are either specifically required by law or are needed to address public concerns related to the Site. The revised Citizen Participation Plan shall be attached to and incorporated into this Agreement as Exhibit "C."

II. Development, Performance, and Reporting of Work Plans

A. Work Plan Requirements

The work plans ("Work Plan" or "Work Plans") under this Agreement shall be prepared and implemented in accordance with the requirements of ECL Article 27, Title 14 and all applicable laws, rules, regulations, and guidance documents. The Work Plans shall be captioned as follows:

1. "Remedial Investigation Work Plan" if the Work Plan provides for the investigation of the nature and extent of contamination within the boundaries of the Site and

emanating from such Site;

2. "Remedial Work Plan" if the Work Plan provides for the development and implementation of a Remedial Program for contamination within the boundaries of the Site and contamination that has migrated from such Site;

3. "IRM Work Plan" if the Work Plan provides for an interim remedial measure; or

4. "OM&M Work Plan" if the Work Plan provides for operation, maintenance, and/or monitoring.

B. Submission/Implementation of Work Plans

1. The "Remedial Investigation Work Plan," dated September, 2003, the revised Supplemental Sediment Sampling Plan dated May, 2004 and the draft Conceptual Remedial Action Work Plan Summary (On-Site Component) dated March 25,2004, have been approved or conditionally approved by the Department and are attached to and incorporated into this Agreement in Exhibit "D". Hereafter, the Applicants can submit such other and additional Work Plans as it deems appropriate.

2. All proposed Work Plans shall be submitted for the Department's review and approval and shall include, at a minimum, a chronological description of the anticipated activities, a schedule for performance of those activities, and sufficient detail to allow the Department to evaluate that Work Plan. The Department shall use best efforts to approve, modify, or reject a proposed Work Plan within forty-five (45) Days from its receipt or within fifteen (15) Days from the close of the comment period, if applicable, whichever is later.

i) Upon the Department's written approval of a Work Plan, such Department-approved Work Plan shall be incorporated into and become an enforceable part of this Agreement as Exhibit "D" and shall be implemented in accordance with the schedule contained therein.

ii) If the Department modifies a Work Plan, the reasons for such modification shall be provided in writing. Within twenty (20) Days after receiving written notice of such modification, Applicants shall elect in writing to (a) implement the Work Plan as modified; (b) implement any other Department-approved Work Plan(s); (c) invoke dispute resolution pursuant to Paragraph XIV; or (d) terminate this Agreement pursuant to Paragraph XIII.

iii) If the Department disapproves a Work Plan, the reasons for such disapproval shall be provided in writing. In the event the Department disapproves a Work Plan, within twenty (20) Days after receiving written notice of such disapproval, Applicants shall elect in writing to (a) modify or expand it within thirty (30) Days of receipt of the written disapproval notice; (b) complete any other Department-approved Work Plan(s); (c) invoke dispute resolution pursuant to Paragraph XIV; or (d) terminate this Agreement pursuant to Subparagraph XIII.

3. An OM&M Work Plan, if necessary, shall be submitted in accordance with the schedule set forth in the IRM Work Plan or Remedial Work Plan.

4. During all field activities, Applicants shall have an on-Site a representative who is qualified to supervise the activities undertaken. Such representative may be an employee or a consultant retained by Applicants to perform such supervision.

C. Revisions to Work Plans

If revisions to a Work Plan are required to satisfy the objectives of such Work Plan, the parties will negotiate revisions which shall be attached to and incorporated into the relevant Work Plan and which shall be enforceable under this Agreement. If the parties cannot agree upon revisions to the relevant Work Plan, then unless the Applicants invoke dispute resolution pursuant to Paragraph XIV, either party may terminate this Agreement pursuant to Paragraph XIII.

D. Submission of Final Reports

1. In accordance with the schedule contained in a Work Plan, Applicants shall submit a Final Report that shall include but not be limited to: all data generated relative to the Site and all other information obtained as part of the implementation of the subject Work Plan; all of the assessments and evaluations required by the subject Work Plan; a statement of any additional data that must be collected; and "as-built" drawings.

i) The Final Report for an Investigation Work Plan shall comply with the requirements set forth at ECL 27-1411(1) and shall contain a certification by the person with primary responsibility for the day to day performance of the activities under this Agreement that those activities were performed in full accordance with the Investigation Work Plan. If such Final Report concludes that no remediation is necessary, and the Site does not meet the requirements for Track 1, Applicants shall submit an Alternatives Analysis prepared in accordance with ECL 27-1413 that supports such determination.

ii) A Final Engineering Report certifying that remediation of the Site has been performed in accordance with this Agreement shall be prepared by a Professional Engineer (or other expert approved by the Department) with primary responsibility for the day to day performance of the activities under this Agreement. The Report shall be prepared in accordance with the requirements of ECL 27-1419(1) and (2) and shall contain a certification that all such activities were performed in accordance with the Department approved Work Plan. The Department shall review such Report, the submittals made pursuant to the Agreement, and any other relevant information regarding the Site and make a determination as to whether the goals of the remedial program have been or will be achieved in accordance with established time frames; if so, a written Certificate of Completion will be issued in accordance with the requirements of ECL 27-1419. Such Certificate of Completion may be modified or revoked, after notice and an opportunity for hearing, upon a finding that (a) Applicants failed to comply with this Agreement; (b) Applicants made a misrepresentation of material fact in connection with their Application or their certification that cleanup levels required by this Agreement were reached; or (c) good cause exists for such modification or revocation.

iii) All other Work Plan Final Reports shall contain a certification by a Professional Engineer with primary responsibility for the day to day performance of the activities under this Agreement that all such activities were performed in full accordance with the Department approved Work Plan.

2. Within sixty (60) Days of the Department's approval of a Final Report, Applicants shall submit such additional Work Plans as they propose to implement. Failure to submit any additional Work Plans within such period shall, unless other Work Plans are under review by the Department or being implemented by Applicants, result in the termination of this Agreement pursuant to Paragraph XIII.

E. Review of Submittals other than Work Plans

1. The Department shall timely notify Applicants in writing of its approval or disapproval of each submittal other than a Work Plan. All Department-approved submittals shall be incorporated into and become an enforceable part of this Agreement.

2. If the Department disapproves a submittal covered by this Subparagraph, it shall specify the reasons for its disapproval and may request Applicants to modify or expand the submittal. Within twenty (20) Days after receiving written notice that Applicants' submittal has been disapproved, Applicants shall elect in writing to either (i) modify or expand it within thirty (30) Days of receipt of the written notice of disapproval; (ii) complete any other Department-approved Work Plan(s); (iii) invoke dispute resolution pursuant to Paragraph XIV; or (iv) terminate this Agreement pursuant to Paragraph XIII. If Applicants submit a revised submittal and it is disapproved, the Department and Applicants may pursue whatever remedies may be available under this Agreement or under law.

F. Department's Determination of Need for Remediation

The Department shall determine upon its approval of each Final Report dealing with the investigation of the Site whether remediation, or additional remediation as the case may be, is needed for protection of public health and the environment.

1. If the Department makes a preliminary determination that remediation, or additional remediation, is not needed for protection of public health and the environment, the Department shall notify the public of such determination and seek public comment in accordance with ECL 27-1417(3)(e). The Department shall provide timely notification to the Applicants of its final determination following the close of the public comment period.

2. If the Department determines that additional remediation is not needed and such determination is based upon use restrictions, Applicants shall cause to be filed an Environmental Easement in accordance with Paragraph X within sixty (60) Days of receipt of the Department's determination.

3. If the Department determines that remediation, or additional remediation, is needed, Applicants may elect to submit for review and approval a proposed Remedial Work Plan (or a revision to an existing Work Plan for the Site) for a remedy selected upon due consideration of the factors set forth in ECL 27-1415(3). A proposed Remedial Work Plan addressing the Site's remediation will be noticed for public comment in accordance with ECL 27-1417(3)(e) and the Citizen Participation Plan developed pursuant to Paragraph I of this Agreement. If the Department determines following the close of the public comment period that revisions are needed, Applicants agree to negotiate revisions to the proposed Remedial Work Plan in accordance with Paragraph II.C. If Applicants elect not to develop a Work Plan under this Subparagraph or if either party concludes that a mutually acceptable Work Plan under this Subparagraph cannot be negotiated, then this Agreement shall terminate in accordance with Subparagraph XIII.

G. <u>Submission of Annual Reports, if required</u>

In the event that the remedy for the Site, if any, or any Work Plan for the Site requires operation, maintenance, and monitoring (OM&M), including reliance upon institutional or engineering controls, Applicants shall file a report annually (unless a different frequency is specified in an approved Work Plan) on the 1st day of the month following the anniversary of the start of the OM&M and continuing until the Department notifies Applicants in writing that such report may be discontinued. Such report shall be signed by a Professional Engineer or by an expert approved by the Department to perform that function and certified under penalty of perjury that the institutional and/or engineering controls are unchanged from the previous certification and that nothing has occurred that would impair the ability of such controls to protect public health and the environment or constitute a violation or failure to comply with the approved OM&M Plan. Applicants shall notify the Department within twenty-four (24) hours of discovery of any upset, interruption, or termination of one or more controls without the prior approval of the Department. Further, Applicants shall take all actions required by the Department to maintain conditions at the Site that achieve the objectives of the remedy and/or the Work Plan and are protective of public health and the environment. An explanation of such upset, interruption, or termination of one or more controls and the steps taken in response shall be included in the foregoing notice and in the report required by this Subparagraph as well as in any progress reports required by Paragraph XI. Applicants can petition the Department for a determination that the institutional and/or engineering controls may be terminated. Such petition must be supported by a Professional Engineer or other expert approved by the Department stating that such controls are no longer necessary. The Department shall not unreasonably withhold its approval of such petition.

III. Enforcement

This Agreement shall be enforceable as a contractual agreement under the laws of the State of New York. Applicants shall not suffer any penalty or be subject to any proceeding or action if they cannot comply with any requirement of this Agreement as a result of a Force Majeure Event provided they notify the Department in writing within ten (10) days of when they obtain knowledge of any such event. Applicants shall include in such notice the measures taken and to be taken to prevent or minimize any delays and shall request an appropriate extension or modification of this Agreement. Applicants shall have the burden of proving by a preponderance of the evidence that an event qualifies as a Force Majeure Event pursuant to this Paragraph.

IV. Entry upon Site

A. Applicants hereby agree to provide access to the Site and to all relevant information regarding activities at the Site in accordance with the provisions of ECL 27-1431.

B. The Department shall have the right to periodically inspect the Site to ensure that the use of the property complies with the terms and conditions of this Agreement.

V. Payment of State Costs

A. Within forty-five (45) Days after the effective date of this Agreement, Participant shall pay to the Department the sum of $97,608.02, which shall represent reimbursement for State Costs incurred pursuant to the VCA referenced herein, as set forth in the cost summary attached as Exhibit "E."

B. Within forty-five (45) Days after receipt of an itemized invoice from the Department, Applicants shall pay to the Department a sum of money which shall represent reimbursement for State costs for work performed at or in connection with the Site prior to the effective date of this Agreement, as well as for negotiating this Agreement, and all costs associated with this Agreement up to and including the date upon which the Certificate of Completion is issued, the Department approves the Final Report relative to OM&M, or this Agreement is terminated pursuant to Paragraph XIII, whichever is later.

C. Personal service costs shall be documented by reports of Direct Personal Service, which shall identify the employee name, title, biweekly salary, and time spent (in hours) on the project during the billing period, as identified by an assigned time and activity code. Approved agency fringe benefit and indirect cost rates shall be applied. Non-personal service costs shall be summarized by category of expense (*e.g.*, supplies, materials, travel, contractual) and shall be documented by expenditure reports. The Department shall not be required to provide any other documentation of costs, provided however, that the Department's records shall be available consistent with, and in accordance with, Article 6 of the Public Officers Law.

D. Such invoice shall be sent to Applicants at the following addresses:

Jonathan Stein
Roseland/Sleepy Hollow, LLC
c/o Roseland Property Company
233 Canoe Brook Road
Short Hills, New Jersey 07078

Mark Chertok, Esq.
Sive, Paget & Riesel, P.C.
460 Park Avenue
New York, New York 10022

James F. Hartnett
Remediation Program Manager
General Motors Corporation
1 General Motors Drive, STE2
Syracuse, New York 13206

Scott Fein, Esq.
Whiteman Osterman & Hanna
One Commerce Plaza
Albany, New York 12260

E. Each such payment shall be made payable to the Department of Environmental Conservation and shall be sent to:

Bureau of Program Management
Division of Environmental Remediation
New York State Department of Environmental Conservation
625 Broadway, Albany, NY 12233-7012

F. Each party shall provide written notification to the other within ninety (90) Days of any change in the foregoing addresses.

G. Applicants may contest, in writing, invoiced costs under this Agreement if they believe (i) the cost documentation contains clerical, mathematical, or accounting errors; (ii) the costs are not related to the State's activities reimbursable under this Agreement; or (iii) the Department is not otherwise legally entitled to such costs. If Applicants object to an invoiced cost, Applicants shall pay all costs not objected to within the time frame set forth in Subparagraphs V.A and V.B and shall, within thirty (30) Days of receipt of an invoice, identify in writing all costs objected to and identify the basis of the objection. This objection shall be filed with the Director of the Bureau of Program Management ("BPM Director") who shall have the authority to relieve Applicant of the obligation to pay invalid costs. Within forty-five (45) Days of the Department's determination of the objection, Applicants shall pay to the Department the amount which the BPM Director or the BPM Director's designee determines Applicants are obligated to pay or commence an action or proceeding seeking appropriate judicial relief.

H. In the event any instrument for the payment of any money due under this Agreement fails of collection, such failure of collection shall constitute a violation of this Agreement, provided (i) the Department gives Applicants written notice of such failure of collection, and (ii) the Department does not receive from Applicants a certified check or bank check within fourteen (14) Days after the date of the Department's written notification.

I. In the event that an eligible party applies for a technical assistance grant in connection with the Site, Participant may be required to provide such a grant, in accordance with ECL 27-1417(4), in and amount not to exceed $50,000, with the cost of such grant serving as an offset against State Costs payable pursuant to this Paragraph.

VI. <u>Liability Limitation</u>

Subsequent to the issuance of a Certificate of Completion pursuant to this Agreement, Applicants shall be entitled to the Liability Limitation set forth at ECL 27-1421, subject to the terms and conditions stated therein. A Notice of the Liability Limitation shall be filed with the recording officer of the county in which the Site is located within thirty (30) Days of (i) the effective date of the Certificate of Completion or (ii) the date Applicants acquire title to the Site, whichever is later.

VII. <u>Reservation of Rights</u>

A. Except as provided in Subparagraph VII.B, Applicants reserve all rights and defenses under applicable law to contest, defend against, dispute, or disprove any action, proceeding, allegation, assertion, determination, or order of the Department, including any assertion of remedial liability by the Department against Applicants, and further reserve all rights including the rights to notice, to be heard, to appeal, and to any other due process respecting any action or proceeding by the Department, including the enforcement of this Agreement. The existence of this Agreement or Applicants' compliance with it shall not be construed as an admission of any liability, fault, wrongdoing, or violation of law by Applicants, and shall not give rise to any presumption of law or finding of fact which shall inure to the benefit of any third party.

B. Notwithstanding the foregoing, Applicants hereby waive any right they may have to make a claim pursuant to Article 12 of the Navigation Law with respect to the Site and release the State and the New York Environmental Protection and Spill Compensation Fund from any and all legal or equitable claims, suits, causes of action, or demands whatsoever with respect to the Site that Applicants may have as a result of Applicants' entering into or fulfilling the terms of this Agreement.

VIII. Indemnification

Applicants shall indemnify and hold the Department, the State of New York, and their representatives, (Volunteer shall also hold the Trustee) and employees harmless from any claim, suit, action, and cost of every name and description arising out of or resulting from the fulfillment or attempted fulfillment of this Agreement or the VCA by Applicants prior to the Termination Date except for those claims, suits, actions, and costs arising from the State's gross negligence or willful or intentional misconduct by the Department, the State of New York, and/or their representatives and employees during the course of any activities conducted pursuant to this Agreement. The Department shall provide Applicants with written notice no less than thirty (30) Days prior to commencing a lawsuit seeking indemnification pursuant to this Paragraph.

IX. Change of Use

Applicants shall notify the Department at least sixty (60) Days in advance of any change of use, as defined in ECL 27-1425, which is proposed for the Site. In the event the Department determines that the proposed change of use is prohibited, the Department shall notify Applicants of such determination within forty-five (45) Days of receipt of such notice.

X. Environmental Easement

A. Within thirty (30) Days after the Department's approval of a Remedial Work Plan which relies upon one or more institutional and/or engineering controls, or within thirty (30) Days after the Department's determination pursuant to Subparagraph II.F.2 that additional remediation is not needed based upon use restrictions, Applicants shall submit to the Department for approval an Environmental Easement to run with the land in favor of the State which complies with the requirements of ECL Article 71, Title 36. Applicants shall cause such instrument to be recorded with the recording officer for the county in which the Site is located within thirty (30) Days after the Department's approval of such instrument. Applicants shall provide the Department with a copy of such instrument certified by the recording officer to be a true and faithful copy within thirty (30) Days of such recording (or such longer period of time as may be required to obtain a certified copy provided Applicants advise the Department of the status of their efforts to obtain same within such thirty (30) Day period). Such instrument shall be attached hereto as Exhibit "F."

B. Applicants or the owner of the Site may petition the Department to modify or extinguish the Environmental Easement filed pursuant to this Agreement at such time as it can certify that the Site is protective of human health and the environment without reliance upon the restrictions set forth in such instrument. Such certification shall be made by a Professional Engineer or other expert approved by the Department. The Department will not unreasonably withhold its consent.

XI. Progress Reports

Applicants shall submit a written progress report of their actions under this Agreement to the parties identified in Subparagraph XII.A.1 by the 10th Day of each month commencing with the month subsequent to the approval of the first Work Plan and ending with the Termination Date, unless a different frequency is set forth in a Work Plan. Such reports shall, at a minimum, include: all actions relative to the Site during the previous reporting period and those anticipated for the next reporting period; all approved activity modifications (changes of work scope and/or schedule); all results of sampling and tests and all other data received or generated by or on behalf of Applicants in connection with this Site, whether under this Agreement or otherwise, in the previous reporting period, including quality assurance/quality control information; information regarding percentage of completion; unresolved delays encountered or anticipated that may affect the future schedule and efforts made to mitigate such delays; and information regarding activities undertaken in support of the Citizen Participation Plan during the previous reporting period and those anticipated for the next reporting period.

XII. Communications

A. All written communications required by this Agreement shall be transmitted by United States Postal Service, by private courier service, or hand delivered.

1. Communication from Applicants shall be sent to:

Edward Belmore
New York State Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway
Albany, New York 12233-7010
Note: three copies (one unbound) of work plans are required to be sent.

Gary Litwin
Bureau of Environmental Exposure Investigation
New York State Department of Health
Flanigan Square
547 River Street
Troy, New York 12180-2216
Note: two copies of work plans are required to be sent, and

Patricia J. Mastrianni, Esq
Division of Environmental Enforcement
New York State Department of Environmental Conservation
625 Broadway
Albany, New York 12233-5550
Correspondence only

2. Communication from the Department to Applicants shall be sent to:

Jonathan Stein
Roseland/Sleepy Hollow, LLC
c/o Roseland Property Company
233 Canoe Brook Road
Short Hills, New Jersey 07078

Mark Chertok, Esq.
Sive, Paget & Riesel, P.C.
460 Park Avenue
New York, New York 10022

James F. Hartnett
Remediation Program Manager
General Motors Corporation
1 General Motors Drive, STE2
Syracuse, New York 13206

Scott Fein, Esq.
Whiteman Osterman & Hanna
One Commerce Plaza
Albany, New York 12260

B. The Department and Applicants reserve the right to designate additional or different addressees for communication on written notice to the other.

C. Each party shall notify the other within ninety (90) Days after any change in the addresses listed in this Paragraph XII or in Paragraph V.

XIII. Termination of Agreement

Applicants may terminate this Agreement at any time by providing written notification to the parties listed in Subparagraph XII.A.1. The Department may terminate this Agreement at any time pursuant to Subparagraph XV.A or in the event Applicants fail to substantially comply with the

Agreements' terms and conditions. The Department shall provide written notification to Applicants setting forth the basis for termination of the Agreement. The termination shall be effective the 5th day after the non-terminating party's receipt of such written notification, except that such termination shall not affect the provisions contained in Paragraphs V, VII.B, and VIII.

XIV. Dispute Resolution

A. In the event disputes arise regarding any notice of disapproval of a submittal, proposed Work Plan or Final Report, or during the implementation of any Work Plan, Applicants may, within thirty (30) Days of receipt of such notice, request in writing informal negotiations with the Department in an effort to resolve the dispute. The Department and Applicants shall consult together in good faith and exercise best efforts to resolve any differences or disputes without resort to the procedures described in Subparagraph XIV.B. The period for informal negotiations shall not exceed thirty (30) Days from Applicants' request for informal negotiations. If the parties cannot resolve a dispute by informal negotiations during this period, the Department's position shall be considered binding unless Applicants notify the Department in writing within thirty (30) Days after the conclusion of the thirty (30) Day period for informal negotiations that it invokes the dispute resolution provisions provided under Subparagraph XIV.B.

B. 1. Applicants shall file with the Office of Hearings and Mediation ("OH&M") a request for formal dispute resolution and a written statement of the issues in dispute, the relevant facts upon which the dispute is based, factual data, analysis, or opinion supporting its position, and all supporting documentation upon which Applicants rely (hereinafter called the "Statement of Position"). A copy of such request and written statement shall be provided contemporaneously to the Director of the Division of Environmental Remediation ("DER Director") and to the parties listed under Subparagraph XII.A.1.

2. The Department shall serve its Statement of Position no later than twenty (20) Days after receipt of Applicants' Statement of Position.

3. Applicants shall have the burden of proving by substantial evidence that the Department's position does not have a rational basis and should not prevail. The OH&M can conduct meetings, in person or via telephone conferences, and request additional information from either party if such activities will facilitate a resolution of the issues.

4. The OH&M shall prepare and submit a report and recommendation to the DER Director who shall issue a final decision resolving the dispute in a timely manner. The final decision shall constitute a final agency action and Applicants shall have the right to seek judicial review of the decision pursuant to Article 78 of the CPLR provided that Applicants notify the Department within thirty (30) Days after receipt of a copy of the final decision of its intent to commence an Article 78 proceeding and commences such proceeding within sixty (60) Days after receipt of a copy of the Director's final decision. Applicants shall be in violation of this Agreement

if they fail to comply with the final decision resolving this dispute within sixty (60) Days after the date of such final decision, or such other time period as may be provided in the final decision, unless they seek judicial review of such decision within the sixty (60) Day period provided. In the event that Applicants seek judicial review, Applicants shall be in violation of this Agreement if they fail to comply with the final Court Order or settlement within thirty (30) Days after the effective date of such Order or settlement, unless otherwise directed by the Court. For purposes of this Subparagraph, a Court Order or settlement shall not be final until the time to perfect an appeal of same has expired.

5. The invocation of dispute resolution shall not extend, postpone, or modify Applicants' obligations under this Agreement with respect to any item not in dispute unless or until the Department agrees or a Court determines otherwise. The invocation of the procedures set forth in this Paragraph XIV shall constitute a waiver of any and all other administrative remedies which may otherwise be available to Applicants regarding the issue in dispute.

6. The Department shall keep an administrative record of any proceedings under this Paragraph XIV which shall be available consistent with Article 6 of the Public Officers Law.

7. Nothing in this Paragraph XIV shall be construed as an agreement by the parties to resolve disputes through administrative proceedings pursuant to the State Administrative Procedure Act, the ECL, or 6 NYCRR Part 622 or Section 375-2.1.

XV. Miscellaneous

A. If the information provided and any certifications made by Applicants are not materially accurate and complete, this Agreement, except with respect to Applicants' obligations pursuant to Paragraphs V, VII.B and VIII, shall be null and void *ab initio* fifteen (15) Days after the Department's notification of such inaccuracy or incompleteness or fifteen (15) Days after issuance of a final decision resolving a dispute pursuant to Paragraph XIV, whichever is later, unless Applicants submit information within that fifteen (15) Day time period indicating that the information provided and the certifications made were materially accurate and complete. In the event this Agreement is rendered null and void, any Certificate of Completion and/or Liability Limitation that may have been issued or may have arisen under this Agreement shall also be null and void *ab initio*, and the Department shall reserve all rights that it may have under law.

B. Applicants shall allow the Department to attend, and shall notify the Department at least seven (7) Days in advance of, any field activities to be conducted pursuant to this Agreement, as well as any pre-bid meetings, job progress meetings, substantial completion meeting and inspection, and final inspection and meeting; nothing in this Agreement shall be construed to require Applicants to allow the Department to attend portions of meetings where privileged matters are discussed.

C. The Department may exempt Applicants from the requirement to obtain any state or local permit or other authorization for any activity conducted pursuant to this Agreement that (i) is conducted on the Site or on different premises that are under common control or contiguous to or physically connected with the Site and such activity manages exclusively hazardous waste and/or petroleum from such Site, and (ii) satisfies all substantive technical requirements applicable to like activity conducted pursuant to a permit, as determined by the Department.

D. Applicants shall use "best efforts" to obtain all Site access, permits, easements, rights-of-way, rights-of-entry, approvals, institutional controls, or authorizations necessary to perform Applicants' obligations under this Agreement. If, despite Applicants' best efforts, any access, permits, easements, rights-of-way, rights-of-entry, approvals, institutional controls, or authorizations required to perform this Agreement are not obtained, Applicants shall promptly notify the Department, and include a summary of the steps taken to obtain access. The Department may, as it deems appropriate and within its authority, assist Applicants in obtaining same. If an interest in property is needed to implement an institutional control required by a Work Plan and such interest cannot be obtained, the Department may require Applicants to modify the Work Plan pursuant to Subparagraph II.C of this Agreement to reflect changes necessitated by the lack of access and/or approvals.

E. All approved Work Plans, Final Reports, and other documents required under this Agreement shall be submitted to the Department in an electronic format acceptable to the Department within thirty (30) Days of approval. If any document cannot be converted into electronic format, Applicants shall so advise the Department and, if the Department concurs, submit such document in an alternative format acceptable to the Department.

F. Applicants shall provide a copy of this Agreement to each contractor hired to perform work required by this Agreement and shall condition all contracts entered into for the obligations identified in this Agreement upon performance in conformity with the terms of this Agreement. Applicants or their contractor(s) shall provide written notice of this Agreement to all subcontractors hired to perform any portion of the work required by this Agreement. Applicants shall nonetheless be responsible for ensuring that Applicants' contractors and subcontractors perform the work in satisfaction of the requirements of this Agreement.

G. The paragraph headings set forth in this Agreement are included for convenience of reference only and shall be disregarded in the construction and interpretation of any provisions of this Agreement.

H. 1. The terms of this Agreement shall constitute the complete and entire agreement between the Department and Applicants concerning the implementation of the activities required by this Agreement. No term, condition, understanding, or agreement purporting to modify or vary any term of this Agreement shall be binding unless made in writing and subscribed by the party to be bound. No informal advice, guidance, suggestion, or comment by the Department shall be construed as relieving Applicants of their obligation to obtain such formal approvals as may be required by this

Agreement. In the event of a conflict between the terms of this Agreement and any Work Plan submitted pursuant to this Agreement, the terms of this Agreement shall control over the terms of the Work Plan(s) attached as Exhibit "D." Applicants consent to and agree not to contest the authority and jurisdiction of the Department to enter into or enforce this Agreement.

2. i. Except as set forth herein, if Applicants desire that any provision of this Agreement be changed, other than a provision of a Work Plan or a time frame, Applicants shall make timely written application to the Commissioner with copies to the parties listed in Subparagraph XII.A.1.

ii. Changes to the Work Plan shall be accomplished as set forth in Subparagraph II.C of this Agreement.

iii. Requests for a change to a time frame set forth in this Agreement shall be made in writing to the Department's project attorney and project manager; such requests shall not be unreasonably denied and a written response to such requests shall be sent to Applicants promptly.

I. 1. If there are multiple parties signing this Agreement, the obligations of each such party under this Agreement are joint and several, and the insolvency of or failure by any Applicant to implement any obligations under this Agreement shall not affect the obligations of the remaining Applicant(s) under this Agreement.

2. If either Applicant is a partnership, the obligations of all general partners (including limited partners who act as general partners) under this Agreement are joint and several and the insolvency or failure of any general partner to implement any obligations under this Agreement shall not affect the obligations of the remaining partner(s) under this Agreement.

3. Notwithstanding the foregoing Subparagraphs XV.I.1 and 2, if multiple parties sign this Agreement as Applicants but not all of the signing parties elect to implement a Work Plan, all Applicants are jointly and severally liable for each and every obligation under this Agreement through the completion of activities in such Work Plan that all such parties consented to; thereafter, only those Applicants electing to perform additional work shall be jointly and severally liable under this Agreement for the obligations and activities under such additional Work Plan(s). The parties electing not to implement the additional Work Plan(s) shall have no obligations under this Agreement relative to the activities set forth in such Work Plan(s). Further, only those Applicants electing to implement such additional Work Plan(s) shall be eligible to receive the Liability Limitation referenced in Paragraph VI.

J. Applicants shall be entitled to contribution protection to the extent authorized by ECL 27-1421(6).

K. Applicants shall not be considered an operator of the Site solely by virtue of having executed and/or implemented this Agreement.

L. Applicants and Applicants' agents, grantees, lessees, sublessees, successors, and assigns shall be bound by this Agreement. Any change in ownership of Applicants including, but not limited to, any transfer of assets or real or personal property, shall in no way alter Applicants' responsibilities under this Agreement.

M. Unless otherwise expressly provided herein, terms used in this Agreement which are defined in ECL Article 27 or in regulations promulgated thereunder shall have the meaning assigned to them under said statute or regulations. Whenever terms listed in the Glossary attached hereto are used in this Agreement or its Exhibits, the definitions set forth in the Glossary shall apply. In the event of a conflict, the definition set forth in the Glossary shall control.

N. Applicants' obligations under this Agreement represent payment for or reimbursement of response costs, and shall not be deemed to constitute any type of fine or penalty.

O. This Agreement may be executed for the convenience of the parties hereto, individually or in combination, in one or more counterparts, each of which shall be deemed to have the status of an executed original and all of which shall together constitute one and the same.

P. This Agreement supersedes and replaces the Voluntary Cleanup Agreement referenced herein.

Q. The effective date of this Agreement is the date it is signed by the Commissioner or the Commissioner's designee.

DATED: MAY 12 2005

DENISE SHEEHAN, ACTING COMMISSIONER
NEW YORK STATE DEPARTMENT
OF ENVIRONMENTAL CONSERVATION

By: ______________________
Dale A. Desnoyers
Director, Division of Environmental Enforcement

CONSENT BY APPLICANT
GENERAL MOTORS CORPORATION

Applicant hereby consents to the issuing and entering of this Agreement, waives Applicant's right to a hearing herein as provided by law, and agrees to be bound by this Agreement.

NAME

By: Raymond J Tessier
Title: Group Director
Date: March 31, 2005

STATE OF Michigan)
) ss:
COUNTY OF Wayne)

On the 31st day of March, in the year 2005, before me, the undersigned, personally appeared Raymond Tessier, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

Janet Maxwell
Signature and Office of individual taking acknowledgment

JANET MAXWELL
Notary Public, Wayne County, MI
My Commission Expires Feb. 5, 2008

CONSENT BY VOLUNTEER
ROSELAND/SLEEPY HOLLOW, LLC

Volunteer hereby consents to the issuing and entering of this Agreement, waives Volunteer's right to a hearing herein as provided by law, and agrees to be bound by this Agreement.

CARL GOLDBERG

By: ____________________

Title: Member

Date: 3/31/05

STATE OF NEW ~~YORK~~ JERSEY)
) ss:
COUNTY OF Essex)

On the 31st day of MARCH, in the year 2005, before me, the undersigned, personally appeared CARL GOLDBERG, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

Marie Buckal

Signature and Office of individual taking acknowledgment

MARIE BUCKALEW
NOTARY PUBLIC OF NEW JERSEY
MY COMMISSION EXPIRES JULY 5, 2006

Glossary of Terms

The following terms shall have the following meanings:

"Day": a calendar day. In computing any period of time under this Agreement, if the last day would fall on a Saturday, Sunday, or State holiday, the period shall run until the close of business of the next working day.

"Force Majeure Event": an event which is brought on as a result of fire, lightning, earthquake, flood, adverse weather conditions, strike, shortages of labor and materials, war, riot, obstruction or interference by adjoining landowners, or any other fact or circumstance beyond Applicant's reasonable control.

"IRM": an interim remedial measure which is a discrete set of activities which can be undertaken without extensive investigation and evaluation to prevent, mitigate, or remedy environmental damage or the consequences of environmental damage attributable to a Site.

"OM&M": operation, maintenance, and monitoring.

"Professional engineer": an individual registered as a professional engineer in accordance with Article 145 of the New York State Education Law. If such individual is a member of a firm, that firm must be authorized to offer professional engineering services in the State of New York in accordance with Article 145 of the New York State Education Law.

"State Costs": all the State's expenses including, but not limited to, direct labor, fringe benefits, indirect costs, travel, analytical costs, and contractor costs incurred by the State of New York for negotiating, implementing, and administering this Agreement. Approved agency fringe benefit and indirect cost rates will be applied.

"Termination Date": the date upon which (i) the Department issues the Certificate of Completion or approves the Final Report relative to the OM&M at the Site, whichever is later, or (ii) the Agreement terminates pursuant to Paragraph XIII or Subparagraph XV.A,.

"Work Plan": a Department-approved work plan, as may be modified, that Applicants shall implement and that is attached to this Agreement.

EXHIBIT "A"

Voluntary Cleanup Agreement

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

In the Matter of the Implementation of a **Voluntary Cleanup Agreement**

for: Former General Motors Corporation North Tarrytown Assembly Plant
by: General Motors Corporation and Roseland/Sleepy Hollow, LLC, 'Volunteers'

Site #: V00598-3 Index #: A3-0468-0902

WHEREAS, the Department is responsible for the enforcement of the ECL and the NL and such laws provide the Department authority to enter into this Agreement;

WHEREAS, the Department has established a Voluntary Cleanup Program to address the environmental, legal, and financial barriers that hinder the redevelopment and reuse of contaminated properties;

WHEREAS, Volunteer represents, and the Department relied upon such representations in entering into this Agreement, that Volunteer's involvement with the Site is limited to the following: Co-Volunteer General Motors Corporation is the beneficial owner and the operator of the General Motors facilities at the site (currently, actual title is held by the Town of Mount Pleasant Industrial Development Agency). Co-Volunteer, Roseland/Sleepy Hollow, LLC, is the contract purchaser of the site.

WHEREAS, the parties are entering into this Agreement in order to set forth a process through which the Department will approve and the Volunteer will implement activities designed to address in whole or in part environmental contamination at the Site; and

WHEREAS, the Department has determined that it is in the public interest to enter into this Agreement as a means to address environmental issues at the Site with private funds while ensuring the protection of human health and the environment;

NOW, THEREFORE, IN CONSIDERATION OF AND IN EXCHANGE FOR THE MUTUAL COVENANTS AND PROMISES, THE PARTIES AGREE TO THE FOLLOWING:

I. Site Specific Definitions

For purposes of this Agreement, the terms set forth in the Glossary attached to, and made a part of, this Agreement shall have the meanings ascribed to them in that Glossary. In addition, for purposes of this Agreement, the following terms shall have the following meanings:

A. "Contemplated Use": The post-remedial development objective is to use the property for restricted residential and restricted commercial purposes.

B. "Existing Contamination": includes elevated levels of metals (e.g., Lead, Arsenic), semi-volatile organic compounds (SVOCs) and volatile organic compounds (VOCs) in soil and groundwater from over 100 years of industrial use and from fill used to expand the property by historic filling operations into the Hudson River. Site conditions have been characterized in the following documents submitted previously to the Department of Environmental Conservation:

- Phase 1 and 2 Environmental Site Assessments, Tarrytown Assembly Plant; EMCON, 1996,97
- Phase 3 Extent of Contamination Study, Tarrytown Assembly Plant; EMCON 2001
- Interim Corrective Measures Completion Report, Tarrytown Assembly Plant; EMCON, 2001
- Data Report for the Sediment Quality Investigation, Hudson River, Near the GM Corporation Former Tarrytown Assembly Plant; Exponent, 1999

The term also includes contamination identified during the implementation of this Agreement, the nature and extent of which were unknown or insufficiently characterized as of the effective date of this Agreement, but which shall have been fully characterized and addressed to the Department's satisfaction.

C. "Site": that parcel of real property located at Beekman Avenue, Westchester County, New York, referenced on County Map as Section 15, Block One, Lot One and Section 16, Lot Two at an approximate latitude of 41°04'56" N and longitude of 73°52'08" W. Exhibit "A" of this Agreement is a map of the Site showing its general location.

D. "Volunteer": Co-Volunteer General Motors Corporation, the beneficial owner and operator of the General Motors facilities at the site is a company incorporated in the State of Delaware. Co-volunteer Roseland/Sleepy Hollow, LLC, the contract purchaser, is located in Short Hills, New Jersey.

II. Development, Performance and Reporting of Work Plans

A. Work Plan Labels

The work plans ("Work Plan" or "Work Plans") under this Agreement shall be captioned as follows:

1. "Investigation Work Plan" if the Work Plan provides for the investigation of the nature and extent of contamination at the Site;
2. "IRM Work Plan" if the Work Plan provides for an interim remedial measure;
3. "Remedial Action Work Plan" if the Work Plan provides for the Site's remediation to cleanup levels sufficient to allow for the Contemplated Use of the Site; or
4. "OM&M Work Plan" if the Work Plan provides for post-remedial construction operation, maintenance, and/or monitoring.

B. Submission/Implementation of Work Plans

1. The first proposed Work Plan to be submitted under this Agreement shall be submitted within forty (40) Days after the effective date of this Agreement. Thereafter, the Volunteer can submit such other and additional work plans it deems appropriate.

2. A proposed Work Plan shall be submitted for the Department's review and approval and shall include, at a minimum, a chronological description of the anticipated activities, a schedule for performance of those activities, and sufficient detail to allow the Department to evaluate that Work Plan. A Professional Engineer must prepare, sign, and seal all Work Plans other than an Investigation Work Plan. Upon the Department's written approval of a Work Plan, such Department-approved Work Plan shall be incorporated into and become an enforceable part of this Agreement and shall be implemented in accordance with the schedule contained therein. If the Department disapproves a Work Plan, the reasons for such disapproval shall be provided in writing. In the event the Department disapproves a Work Plan, within twenty (20) Days after receiving written notice of such disapproval, Volunteer shall elect in writing to (i) modify or expand it; (ii) complete any other Department-approved Work Plan(s); (iii) invoke dispute resolution pursuant to Paragraph XIII; or (iv) terminate this Agreement pursuant to Subparagraph XII.A.

3. During all field activities, Volunteer shall have on-Site a representative who is qualified to supervise the activities undertaken. Such representative may be an employee or a consultant retained by Volunteer to perform such supervision.

C. Revisions to Work Plans

If revisions to a Work Plan are required to satisfy the objectives of such Work Plan, the parties will negotiate revisions which shall be attached to and incorporated into the relevant Work Plan and which shall be enforceable under this Agreement. If the parties cannot agree upon revisions to the relevant Work Plan, then unless the Volunteer invokes dispute resolution pursuant to Paragraph XIII, either party may terminate this Agreement pursuant to Subparagraph XII.A.

D. Submission of Final Reports

1. In accordance with the schedule contained in a Work Plan, Volunteer shall submit a final report which includes the caption of that Work Plan on the cover page. The final report pertaining to that Work Plan's implementation shall include but not be limited to: all data generated relative to the Site and all other information obtained as part of the implementation of the subject Work Plan; all of the assessments and evaluations required by the subject Work Plan; a statement of any additional data that must be collected; and "as-built" drawings, to the extent necessary, showing all changes made during construction. Additionally, the final report for an Investigation Work Plan shall contain a certification by the person with primary responsibility for the day to day performance of the activities under this Agreement that those activities were performed in full accordance with the Investigation Work Plan, and all other Work Plan final reports

must contain such certification made by a Professional Engineer with primary responsibility for the day to day performance of the activities under this Agreement that all such activities were performed in full accordance with the Department approved Work Plan.

2. An OM&M Work Plan, if necessary, shall be submitted in accordance with the schedule set forth in the IRM Work Plan or Remedial Action Work Plan.

E. Review of Submittals other than Work Plans

1. The Department shall timely notify Volunteer in writing of its approval or disapproval of each submittal other than a Work Plan. All Department-approved submittals shall be incorporated into and become an enforceable part of this Agreement.

2. If the Department disapproves a submittal covered by this subparagraph, it shall specify the reasons for its disapproval and may request Volunteer to modify or expand the submittal. Within twenty (20) Days after receiving written notice that Volunteer's submittal has been disapproved, Volunteer shall elect in writing to either (i) modify or expand it; (ii) complete any other Department-approved Work Plan(s); (iii) invoke dispute resolution pursuant to Paragraph XIII; or (iv) terminate this Agreement pursuant to Subparagraph XII.A. If Volunteer submits a revised submittal and it is disapproved, the Department and Volunteer may pursue whatever remedies may be available under this Agreement or under law.

3. Within sixty (60) Days of the Department's approval of a final report, Volunteer shall submit such additional Work Plans as it proposes to implement. Failure to submit any additional Work Plans within such period shall, unless other Work Plans are under review by the Department or being implemented by Volunteer, result in the termination of this Agreement pursuant to Subparagraph XII.B.

4. All approved final reports shall be submitted to the Department in an electronic format acceptable to the Department within thirty (30) Days of approval of such final report. If any document cannot be converted into electronic format, Volunteer shall so advise the Department and, if the Department concurs, submit such document in an alternative format acceptable to the Department.

F. Department's Determination of Need for Remediation

The Department will determine upon its approval of each final report dealing with the investigation of the Site whether remediation, or additional remediation as the case may be, is needed to allow the Site to be used for the Contemplated Use.

1. The Department shall timely notify Volunteer if it determines that remediation, or additional remediation, is not needed to allow the Site to be used for the Contemplated Use. If the Department determines that additional remediation is not needed and such

determination is based upon use restrictions, Volunteer shall cause to be filed a Declaration of Covenants and Restrictions in accordance with Paragraph X within sixty (60) Days of receipt of the Department's determination. Upon receipt of a copy of such instrument, the Department will provide Volunteer with the Release described in Subparagraph II.H.

2. If the Department determines that remediation, or additional remediation, is needed to allow the Site to be used for the Contemplated Use, Volunteer may elect to submit for review and approval a proposed Work Plan (or a revision to an existing Remedial Action Work Plan for the Site) which addresses the remediation of Existing Contamination. Such proposed Work Plan shall include, among other requirements, an evaluation of the proposed remedy considering the factors set forth in 6 NYCRR 375-1.10(c)(1) through (c)(6), excluding consideration of cost-effectiveness. At a minimum, the remedial activities contemplated by the proposed Work Plan must eliminate or mitigate all significant threats to the public health and/or the environment and must result in the Site being protective of public health and the environment for the Contemplated Use. The Department will notice a proposed Work Plan addressing the Site's remediation for public comment in accordance with Subparagraph II.G of this Agreement. If Volunteer elects not to develop a Work Plan under this Subparagraph or either party concludes that a mutually acceptable Work Plan under this Subparagraph cannot be negotiated, then this Agreement shall terminate in accordance with Subparagraph XII.A.

G. Notice of Proposed Work Plan for the Site's Remediation

Whenever a Work Plan for the Site's remediation (other than an IRM Work Plan) is proposed, the Department will timely publish a notice in the Environmental Notice Bulletin to inform the public of the opportunity to submit comments on the proposed Work Plan within thirty (30) Days after the date of the issue in which the notice appears. The Department shall timely mail an equivalent notice to Village of Sleepy Hollow, 28 Beekman Ave., Sleepy Hollow, NY 10591. The Department shall timely notify Volunteer following the close of the public comment period whether the proposed Work Plan needs to be revised. If the Department determines that revisions are necessary for Site conditions to be protective of the public health or the environment based upon the Contemplated Use, Volunteer agrees to negotiate revisions to the proposed Work Plan in accordance with Paragraph II.C. If either party concludes that such revisions cannot be negotiated, then this Agreement shall terminate in accordance with Paragraph XII. If the Department determines that no revisions are required, then the Work Plan shall be attached hereto as Exhibit "B."

H. Release and Covenant Not to Sue

Upon the Department's determination that (i) Volunteer is in compliance with the Agreement; (ii) no requirements other than those remedial actions, exclusive of OM&M activities, already conducted at the Site, if any, are necessary to assure that Site conditions are protective of the public health and the environment based upon the Contemplated Use; and (iii) Volunteer has complied, if required, with Paragraph X, the Department shall timely provide

Volunteer with the Release and Covenant Not to Sue attached hereto as Exhibit "C," subject to the terms and conditions stated therein.

I. Submission of Annual Reports, if required

In the event that the remedy for the Site, if any, or any Work Plan for the Site requires operation, maintenance, and monitoring (OM&M), including reliance upon institutional or engineering controls, Volunteer shall cause the filing of an annual report by the 1st Day of the month following the anniversary of the start of the OM&M. Volunteer shall file such annual report until the Department determines that the Site can be closed out and so notifies Volunteer in writing. Such annual report shall be signed by a Professional Engineer and shall contain a certification that any institutional and engineering controls put in place pursuant to this Agreement are still in place, have not been materially altered, and are still effective in achieving their objectives. Volunteer shall notify the Department within twenty-four (24) hours of discovery of any upset, interruption, or termination of one or more controls without the prior approval of the Department. Further, Volunteer shall take all actions required by the Department to maintain conditions at the Site that achieve the objectives of the remedy and/or the Work Plan and are protective of public health and the environment. An explanation of such upset, interruption, or termination of one or more controls and the steps taken in response shall be included in the foregoing notice and in the annual report required by this Subparagraph as well as in any progress reports required by Paragraph III. Volunteer can petition the Department for a determination that the institutional and/or engineering controls may be terminated. Such petition must be supported by a Professional Engineer stating that such controls are no longer necessary for the protection of public health and the environment. The Department shall not unreasonably withhold its approval of such petition.

III. Progress Reports

Volunteer shall submit a written progress report of its actions under this Agreement to the parties identified in Subparagraph XI.A.1 by the 10th Day of each month commencing with the month subsequent to the approval of the first Work Plan and ending with the Termination Date, unless a different frequency is set forth in a Work Plan. Such reports shall, at a minimum, include: all actions relative to the Site during the previous reporting period and those anticipated for the next reporting period; all approved activity modifications (changes of work scope and/or schedule); all results of sampling and tests and all other data received or generated by or on behalf of Volunteer in connection with this Site, whether under this Agreement or otherwise, in the previous reporting period, including quality assurance/quality control information, information regarding percentage of completion, unresolved delays encountered or anticipated that may affect the future schedule, efforts made to mitigate such delays, and information regarding activities undertaken in support of the Citizen Participation Plan during the previous reporting period and those anticipated for the next reporting period.

IV. Enforcement

This Agreement shall be enforceable as a contractual agreement under the laws of the State of New York. Volunteer shall not suffer any penalty or be subject to any proceeding or action if it cannot comply with any requirement of this Agreement as a result of a Force Majeure Event provided it notifies the Department in writing within ten (10) Working Days of when it obtains knowledge of any such event. Volunteer shall include in such notice the measures taken and to be taken to prevent or minimize any delays and shall request an appropriate extension or modification of this Agreement. Volunteer shall have the burden of proving by a preponderance of the evidence that an event qualifies as a Force Majeure Event pursuant to this Paragraph.

V. Entry upon Site

A. Volunteer hereby consents, upon reasonable notice under the circumstances presented, to entry upon the Site or areas in the vicinity of the Site which may be under the control of Volunteer, by any duly designated officer or employee of the Department or any State agency having jurisdiction with respect to the matters addressed in a Department-approved Work Plan, and by any agent, consultant, contractor, or other person so authorized by the Commissioner, all of whom shall abide by the health and safety rules in effect for the Site, for (i) inspecting, sampling, and copying records related to the contamination at the Site; (ii) implementing the activities under this Agreement; and (iii) testing and any other activities necessary to ensure Volunteer's compliance with this Agreement. Upon request, Volunteer shall (i) provide the Department with suitable office space at the Site, including access to a telephone, to the extent available; and (ii) permit the Department full access to all non-privileged records relating to matters addressed by this Agreement. Raw data is not considered privileged and that portion of any privileged document containing raw data must be provided to the Department.

B. The Department shall have the right to take its own samples and scientific measurements and the Department and Volunteer shall have the right to obtain samples, duplicate samples, or both, of all substances and materials sampled. The Department shall make the results of all sampling and scientific measurements taken under this Subparagraph available to Volunteer.

VI. Payment of State Costs

A. Within forty-five (45) Days after receipt of an itemized invoice from the Department, Volunteer shall pay to the Department a sum of money which shall represent reimbursement for State Costs for work performed at or in connection with the Site prior to the effective date of this Agreement, as well as for negotiating this Agreement, and all costs associated with this Agreement, through and including the Termination Date.

B. Personal service costs shall be documented by reports of Direct Personal Service, which shall identify the employee name, title, biweekly salary, and time spent (in hours) on the project during the billing period, as identified by an assigned time and activity code. Approved agency fringe benefit and indirect cost rates shall be applied. Non-personal service costs shall be summarized by category of expense (*e.g.*, supplies, materials, travel, contractual) and shall be documented by expenditure reports. The Department shall not be required to provide any other documentation of costs, provided however, that the Department's records shall be available consistent with, and in accordance with, Article 6 of the Public Officers Law.

C. Such invoice shall be sent to Volunteer at the following address:

GM Contact
James F. Hartnett
General Motors Corporation
Remediation Program Manager
Remediation Team, Worldwide Facilities Group
General Motors Corporation
6723 Towpath Road
Syracuse, NY 13214

Roseland Contact
Jonathan Stein
Roseland /Sleepy Hollow/ LLC
C/O Roseland Property Company
233 Canoe Brook Road
Short Hills, NJ 07078

D. Each such payment shall be made payable to the Department of Environmental Conservation and shall be sent to:

Bureau of Program Management
Division of Environmental Remediation
New York State Department of Environmental Conservation
625 Broadway, Albany, NY 12233-7010.

E. Each party shall provide written notification to the other within ninety (90) Days of any change in the foregoing addresses.

F. Volunteer may contest, in writing, invoiced costs under Subparagraph VI.A if it believes (i) the cost documentation contains clerical, mathematical, or accounting errors; (ii) the costs are not related to the State's activities reimbursable under this Agreement; or (iii) the Department is not otherwise legally entitled to such costs. If Volunteer objects to an invoiced cost, Volunteer shall pay all costs not objected to within the time frame set forth in Subparagraph VI.A and shall, within thirty (30) Days of receipt of an invoice, identify in writing all costs objected to and identify the basis of the objection. This objection shall be filed with the BPM

Director. The BPM Director or the BPM Director's designee shall have the authority to relieve Volunteer of the obligation to pay invalid costs. Within forty-five (45) Days of the Department's determination of the objection, Volunteer shall pay to the Department the amount which the BPM Director or the BPM Director's designee determines Volunteer is obligated to pay or commence an action or proceeding seeking appropriate judicial relief.

G. In the event any instrument for the payment of any money due under this Agreement fails of collection, such failure of collection shall constitute a violation of this Agreement, provided (i) the Department gives Volunteer written notice of such failure of collection, and (ii) the Department does not receive from Volunteer a certified check or bank check within fourteen (14) Days after the date of the Department's written notification.

VII. <u>Reservation of Rights</u>

A. 1. Except as provided in the Release and Covenant Not to Sue (Exhibit "C") after its issuance and except as provided in Subparagraph VII.A.2, nothing contained in this Agreement shall be construed as barring, diminishing, adjudicating, or in any way affecting any of the Department's or the Trustee's rights or authorities, including, but not limited to, the right to recover natural resource damages, the right to take any investigatory or remedial action deemed necessary, and the right to exercise summary abatement powers with respect to any person, including Volunteer.

2. Except for the Department's right to take any investigatory or remedial action deemed necessary as a result of a significant threat resulting from the Existing Contamination or to exercise summary abatement powers, the Department shall not take any enforcement action under ECL Article 27, Title 13, under CERCLA, under the NL, or under comparable statutory or common law theories of remedial liability with respect to the Existing Contamination, to the extent that such contamination is being addressed under the Agreement, against Volunteer or Volunteer's grantees, successors, or assigns during the implementation of this Agreement, provided such party is in compliance with the terms and provisions of this Agreement, including, without limitation, the requirements of all Work Plans and amendments thereto.

B. Except as otherwise provided in this Agreement, Volunteer specifically reserves all rights and defenses under applicable law to contest, defend against, dispute, or disprove any action, proceeding, allegation, assertion, determination, or order of the Department, including any assertion of remedial liability by the Department against Volunteer, and further reserves all rights including the rights to notice, to be heard, to appeal, and to any other due process respecting any action or proceeding by the Department, including the enforcement of this Agreement. The existence of this Agreement or Volunteer's compliance with it shall not be construed as an admission of any liability, fault, wrongdoing, or violation of law by Volunteer, and shall not give rise to any presumption of law or finding of fact which shall inure to the benefit of any third party.

C. Except as provided in Subparagraph XIV.O, Volunteer reserves such rights as it may have to seek and obtain contribution, indemnification, and/or any other form of recovery from its insurers and from other potentially responsible parties or their insurers, for past or future response and/or cleanup costs or such other costs or damages arising from contamination at the Site as provided under applicable law.

VIII. Indemnification

Volunteer shall indemnify and hold the Department, the Trustee, the State of New York, and their representatives and employees harmless for all claims, suits, actions, damages, and costs of every name and description arising out of or resulting from the fulfillment or attempted fulfillment of this Agreement by Volunteer prior to the Termination Date except for liability arising from (i) vehicular accidents occurring during travel to or from the Site; or (ii) from willful, wanton, or malicious acts or omissions, or acts or omissions constituting gross negligence or criminal behavior by the Department, the State of New York, and/or their representatives and employees during the course of any activities conducted pursuant to this Agreement. The Department shall provide Volunteer with written notice no less than thirty (30) Days prior to commencing a lawsuit seeking indemnification pursuant to this Paragraph.

IX. Public Notice

A. Within thirty (30) Days after the effective date of this Agreement, Volunteer shall cause to be filed a Department-approved Notice of Agreement, which Notice shall be substantially similar to the Notice of Agreement attached to this Agreement as Exhibit "D," with the County Clerk in the county in which the Site is located (or the City Register if the Site is located in Manhattan, Bronx, Kings or Queens County) to give all parties who may acquire any interest in the Site notice of this Agreement. Within thirty (30) Days of such filing (or such longer period of time as may be required to obtain a certified copy provided Volunteer advises the Department of the status of its efforts to obtain same within thirty (30) Days), Volunteer shall provide the Department with a copy of such instrument certified by such County Clerk (or the City Register) to be a true and faithful copy. Volunteer may terminate such Notice on or after the Termination Date of this Agreement.

B. If Volunteer proposes to convey the whole or any part of Volunteer's ownership interest in the Site, or becomes aware of such conveyance, Volunteer shall, not fewer than forty-five (45) Days before the date of conveyance or within forty-five (45) Days after becoming aware of such conveyance, notify the Department in writing of the identity of the transferee and of the nature and proposed date of the conveyance, and shall notify the transferee in writing, with a copy to the Department, of the applicability of this Agreement. However, such obligation shall not extend to the granting of any rights under any mortgage, deed, trust, assignment, judgment, lien, pledge, security agreement, lease, or any other right accruing to a person not affiliated with Volunteer to secure the repayment of money or the performance of a duty or obligation.

X. Declaration of Covenants and Restrictions

A. Within thirty (30) Days after the Department's approval of a Work Plan which relies upon one or more institutional controls, or within thirty (30) Days after the Department's determination pursuant to Subparagraph II.F.1 that additional remediation is not needed based upon use restrictions, Volunteer shall submit to the Department for approval a Declaration of Covenants and Restrictions to run with the land which provides for covenants and restrictions consistent with the Work Plan. The submittal shall be substantially similar to Exhibit "E." Volunteer shall cause such instrument to be recorded with the County Clerk (or the City Register) in the county in which the Site is located within thirty (30) Days after the Department's approval of such instrument. Volunteer shall provide the Department with a copy of such instrument certified by the County Clerk (or the City Register) to be a true and faithful copy within thirty (30) Days of such recording (or such longer period of time as may be required to obtain a certified copy provided Volunteer advises the Department of the status of its efforts to obtain same within such 30 Day period).

B. Volunteer or the owner of the Site may petition the Department to modify or terminate the Declaration of Covenants and Restrictions filed pursuant to this Paragraph at such time as it can certify that the Site is protective of human health and the environment for residential uses without reliance upon the restrictions set forth in such instrument. Such certification shall be made by a Professional Engineer. The Department will not unreasonably withhold its consent.

XI. Communications

A. All written communications required by this Agreement shall be transmitted by United States Postal Service, by private courier service, or hand delivered.

1. Communication from Volunteer shall be sent to:

Note: four copies (one unbound) of work plans are required to be sent.

James Moras
Division of Hazardous Waste Remediation
New York State Department of Environmental Conservation
625 Broadway
Albany, New York 12233-7010

Andrew English, P.E.
Division of Hazardous Waste Remediation
New York State Department of Environmental Conservation
625 Broadway
Albany, New York 12233-7010

Gary Litwin
Bureau of Environmental Exposure Investigation
New York State Department of Health
Flanigan Square
547 River Street
Troy, New York 12180-2216
Note: two copies of work plans are required to be sent, and

Anthony B. Quartararo, Esq.
Acting Chief, State Superfund and Voluntary Cleanup Bureau
New York State Department of Environmental Conservation
625 Broadway, 14th Floor
Albany, New York 12233-5500

2. Communications from the Department to Volunteer shall be sent to:

GM Contact
James F. Hartnett
General Motors Corporation
C/O BBLES
6723 Towpath Road
P.O. Box 66
Syracuse, New York 13214-0066

Roseland Contact
Jonathan Stein
Roseland/Sleepy/Hollow/LLC
C/O Roseland Property Company
233 Canoe Brook Road
Short Hills, NJ 07078

with copies to:

Jeffrey Braun
General Motors Corporation
MC 482-C24-D24
300 Renaissance Center
Detroit, MI 48243

Scott Fein, Esq.
Whiteman, Osterman & Hanna
One Commerce Plaza
Albany, NY 12260

Mark A. Chertok, Esq.
Sive, Paget & Riesel, P.C.
460 Park Avenue
New York, NJ 10022

B. The Department and Volunteer reserve the right to designate additional or different addressees for communication on written notice to the other.

C. Each party shall notify the other within ninety (90) Days after any change in the addresses listed in this Paragraph XI or in Paragraph VI.

XII. <u>Termination of Agreement</u>

A. 1. Volunteer may elect in writing to terminate this Agreement without cause while the Department may only elect to terminate this Agreement for cause, which shall be established so long as the Department's stated reason is not arbitrary and capricious. The Department shall include in its notice of termination the basis for its election to terminate this Agreement.

2. In the event of either party's election to terminate this Agreement, this Agreement shall terminate effective the 5th Day after the non-terminating party's receipt of the written notification terminating this Agreement, except that such termination shall not affect the provisions contained in Paragraphs IV, VI and VIII and in Subparagraph XIV.O, nor Volunteer's obligation to ensure that it does not leave the Site in a condition, from the perspective of human health and environmental protection, worse than that which prevailed before any activities were commenced under this Agreement, which provisions and obligation shall survive the termination of this Agreement.

B. Notwithstanding Subparagraph XII.A, this Agreement shall terminate without notice in the event that Volunteer fails to submit additional Work Plans in accordance with Subparagraph II.E, unless other Work Plans are under review by the Department or being implemented by Volunteer.

XIII. <u>Dispute Resolution</u>

A. If Volunteer disagrees with the Department's notice of disapproval of a submittal or a proposed Work Plan, disapproval of a final report, nullification of this Agreement pursuant to Subparagraph XIV.A.2, or rejection of Volunteer's assertion of a Force Majeure Event, Volunteer may, within thirty (30) Days of receipt of such notice, request in writing informal negotiations with the Department in an effort to resolve the dispute. A copy of such request shall be sent by Volunteer to the appropriate Remedial Bureau Chief in the Department's Central Office. The Department and Volunteer shall consult together in good faith and exercise best efforts to resolve any differences or disputes without resort to the procedures described in Subparagraph XIII.B. The period for informal negotiations shall not exceed thirty (30) Days from Volunteer's request for informal negotiations. If the parties cannot resolve a dispute by informal negotiations during this period, the Department's position shall be considered binding unless Volunteer notifies the Department in writing within thirty (30) Days after the conclusion of the thirty (30) Day period for informal negotiations that it invokes the dispute resolution provisions provided under Subparagraph XIII.B.

B. 1. Volunteer shall file with the OH&M a request for formal dispute resolution and a written statement of the issues in dispute, the relevant facts upon which the dispute is based, factual data, analysis, or opinion supporting its position, and all supporting documentation upon which Volunteer relies (hereinafter called the "Statement of Position"). A copy of such request and written statement shall be provided contemporaneously to the Director and to the parties listed under Subparagraph XI.A.1.

2. The Department shall serve its Statement of Position no later than twenty (20) Days after receipt of Volunteer's Statement of Position.

3. Volunteer shall have the burden of proving by substantial evidence that the Department's position does not have a rational basis and should not prevail. The OH&M can conduct meetings, in person or via telephone conferences, and request additional information from either party if such activities will facilitate a resolution of the issues.

4. The OH&M shall prepare and submit a report and recommendation to the Director. The Director shall issue a final decision resolving the dispute in a timely manner. The final decision shall constitute a final agency action and Volunteer shall have the right to seek judicial review of the decision pursuant to Article 78 of the CPLR provided that Volunteer notifies the Department within thirty (30) Days after receipt of a copy of the final decision of its intent to commence an Article 78 proceeding and commences such proceeding within sixty (60) Days after receipt of a copy of the Director's final decision. Volunteer shall be in violation of this Agreement if it fails to comply with the final decision resolving this dispute within forty-five (45) Days after the date of such final decision, or such other time period as may be provided in the final decision, unless it seeks judicial review of such decision within the forty-five (45) Day period provided. In the event that Volunteer seeks judicial review, Volunteer shall be in violation of this Agreement if it fails to comply with the final Court Order or settlement within thirty (30) Days after the effective date of such Order or settlement, unless otherwise directed by the Court. For purposes of this Subparagraph, a Court Order or settlement shall not be final until the time to perfect an appeal of same has expired.

5. The invocation of dispute resolution shall not extend, postpone, or modify Volunteer's obligations under this Agreement with respect to any item not in dispute unless or until the Department agrees or a Court determines otherwise. The invocation of the procedures set forth in this Paragraph XIII shall constitute a waiver of any and all other administrative

remedies which may otherwise be available to Volunteer regarding the issue in dispute.

6. The Department shall keep an administrative record of any proceedings under this Paragraph XIII which shall be available consistent with Article 6 of the Public Officers Law.

7. Nothing in this Paragraph XIII shall be construed as an agreement by the parties to resolve disputes through administrative proceedings pursuant to the State Administrative Procedure Act, the ECL, or 6 NYCRR Part 622 or Section 375-2.1.

XIV. Miscellaneous

A. 1. Volunteer hereby certifies that all information known to Volunteer and all information in the possession or control of Volunteer and its agents which relates in any way to the contamination existing at the Site on the effective date of this Agreement, and to any past or potential future release of hazardous substances, pollutants, or contaminants at or from the Site, and to its application for this Agreement, has been fully and accurately disclosed to the Department in conjunction with the Volunteer's application for the Voluntary Cleanup Program.

2. If the information provided and certifications made by Volunteer are not materially accurate and complete, this Agreement, except with respect to the provisions of Paragraphs IV, VI and VIII and Subparagraph XIV.O, at the sole discretion of the Department, shall be null and void *ab initio* fifteen (15) Days after the Department's notification of such inaccuracy or incompleteness or fifteen (15) Days after issuance of a final decision resolving a dispute pursuant to Paragraph XIII, whichever is later, and the Department shall reserve all rights that it may have, unless, however, Volunteer submits information within that fifteen (15) Day time period indicating that the information provided and the certifications made were materially accurate and complete.

B. Volunteer shall allow the Department to attend, and shall notify the Department at least seven (7) Working Days in advance of, any field activities to be conducted pursuant to this Agreement, as well as any pre-bid meetings, job progress meetings, substantial completion meeting and inspection, and final inspection and meeting; nothing in this Agreement shall be construed to require Volunteer to allow the Department to attend portions of meetings where privileged matters are discussed.

C. Volunteer shall use "best efforts" to obtain all Site access, permits, easements, rights-of-way, rights-of-entry, approvals, institutional controls, or authorizations necessary to perform Volunteer's obligations under this Agreement, except that the Department may exempt Volunteer from the requirement to obtain any permit issued by the Department for any activity that is conducted on the Site and that the Department determines satisfies all substantive technical requirements applicable to like activity conducted pursuant to a permit. If, despite Volunteer's best efforts, any access, permits, easements, rights-of-way, rights-of-entry, approvals, institutional controls, or authorizations required to perform this Agreement are not obtained within forty-five (45) Days after the effective date of this Agreement or within forty-five (45) Days after the date the Department notifies Volunteer in writing that additional access beyond that previously secured is necessary, Volunteer shall promptly notify the Department, and shall include in that notification a summary of the steps Volunteer has taken to obtain access. The Department may, as it deems appropriate and within its authority, assist Volunteer in obtaining access. If an interest in property is needed to implement an institutional control required by a Work Plan and such interest cannot be obtained, the Department may require Volunteer to modify the Work Plan pursuant to Subparagraph II.C of this Agreement to reflect changes necessitated by the lack of access and/or approvals.

D. Volunteer shall not be considered an operator of the Site solely by virtue of having executed and/or implemented this Agreement.

E. Volunteer shall provide a copy of this Agreement to each contractor hired to perform work required by this Agreement and shall condition all contracts entered into to carry out the obligations identified in this Agreement upon performance in conformity with the terms of this Agreement. Volunteer or its contractor(s) shall provide written notice of this Agreement to all subcontractors hired to perform any portion of the work required by this Agreement. Volunteer shall nonetheless be responsible for ensuring that Volunteer's contractors and subcontractors perform the work in satisfaction of the requirements of this Agreement.

F. The paragraph headings set forth in this Agreement are included for convenience of reference only and shall be disregarded in the construction and interpretation of any provisions of this Agreement.

G. 1. The terms of this Agreement shall constitute the complete and entire agreement between the Department and Volunteer concerning the implementation of the activities required by this Agreement. No term, condition, understanding, or agreement purporting to modify or vary any term of this Agreement shall be binding unless made in writing and subscribed by the party to be bound. No informal advice, guidance, suggestion, or comment by the Department shall be construed as relieving Volunteer of Volunteer's obligation to obtain such formal approvals as may be required by this Agreement. In the event of a conflict between the terms of this Agreement and any Work Plan submitted pursuant to this Agreement, the terms of this Agreement shall control over the terms of the Work Plan(s) attached as Exhibit "B." Volunteer consents to and agrees not to contest the authority and jurisdiction of the Department to enter into or enforce this Agreement.

2. i. Except as set forth herein, if Volunteer desires that any provision of this Agreement be changed, other than a provision of a Work Plan or a time frame, Volunteer shall make timely written application to the Commissioner with copies to the parties listed in Subparagraph XI.A.1. The Commissioner or the Commissioner's designee shall timely respond.

ii. Changes to the Work Plan shall be accomplished as set forth in Subparagraph II.C of this Agreement.

iii. Changes to a time frame set forth in this Agreement shall be accomplished by a written request to the Department's project attorney and project manager, which request shall be timely responded to in writing. The Department's decision relative to a request for a time frame change shall be subject to dispute resolution pursuant to Paragraph XIII.

H. 1. If there are multiple parties signing this Agreement, the term "Volunteer" shall be read in the plural where required to give meaning to this Agreement. Further, the obligations of Volunteers under this Agreement are joint and several and the insolvency of or failure by any Volunteer to implement any obligations under this Agreement shall not affect the obligations of the remaining Volunteer(s) to carry out the obligations under this Agreement.

2. If Volunteer is a partnership, the obligations of all general partners, including limited partners who act as general partners, to finance and perform obligations under this Agreement and to pay amounts owed to the Department under this Order are joint and several. In the event of the insolvency or other failure of any one or more of the general partners to implement the requirements of this Agreement, the remaining general partners shall complete all such requirements.

3. Notwithstanding the foregoing Subparagraphs XIV.H.1 and 2, if multiple parties sign this Agreement as Volunteers but not all of the signing parties elect, pursuant to Subparagraph II.F.2, to implement a Work Plan, then all Volunteers are jointly and severally liable for each and every obligation under this Agreement through the completion of activities in such Work Plan that all such parties consented to; thereafter, only those Volunteers electing to perform additional work shall be jointly and severally liable under this Agreement for the obligations and activities under such additional Work Plan(s). The parties electing not to implement the additional Work Plan(s) shall have no obligations under this Agreement relative to the activities set forth in such Work Plan(s). Further, only those Volunteers electing to implement such additional Work Plan(s) shall be eligible to receive the release and covenant not to sue as provided under Subparagraph II.H.

I. Except as provided in Subparagraph XIV.O, and to the extent authorized under 42 U.S.C. Section 9613, New York General Obligations Law Section 15-108, and any other applicable law, Volunteer shall be deemed to have resolved its liability to the State for purposes of contribution protection provided by CERCLA Section 113(f)(2) for "matters addressed" pursuant to and in accordance with this Agreement. "Matters addressed" in this Agreement shall mean all response actions taken to implement this Agreement for the Site and all response costs incurred and to be incurred by any person or party in connection with the work performed under this Agreement, which costs have been paid by Volunteer, including reimbursement of State Costs pursuant to this Agreement.

J. Volunteer, Volunteer's grantees, lessees, sublessees, successors, and assigns shall be bound by this Agreement. Any change in ownership of Volunteer including, but not limited to, any transfer of assets or real or personal property, shall in no way alter Volunteer's responsibilities under this Agreement.

K. All activities undertaken by Volunteer pursuant to this Agreement shall be performed in accordance with the requirements of all applicable Federal and State laws, regulations, and guidance documents.

L. Unless otherwise expressly provided herein, terms used in this Agreement which are defined in ECL Article 27, Title 13 or in regulations promulgated under such statute shall have the meaning assigned to them under said statute or regulations. Whenever terms listed in the Glossary attached hereto are used in this Agreement or in the attached Exhibits, the definitions set forth in the Glossary shall apply. In the event of a conflict, the definition set forth in the Glossary shall control.

M. Volunteer's obligations under this Agreement represent payment for or reimbursement of response costs, and shall not be deemed to constitute any type of fine or penalty.

N. This Agreement may be executed for the convenience of the parties hereto, individually or in combination, in one or more counterparts, each of which shall be deemed to have the status of an executed original and all of which shall together constitute one and the same.

O. Volunteer and Volunteer's employees, servants, agents, lessees, sublessees, grantees, successors, and assigns hereby waive any right to pursue reimbursement of monies expended by Volunteer prior to the Termination Date as against the State or the Spill Fund, and agree to indemnify and hold harmless the Spill Fund from any and all legal or equitable claims, suits, causes of action, or demands whatsoever with respect to the Site that any of same has or may have as a result of Volunteer's entering into or fulfilling the terms of this Agreement with respect to the Site.

P. The effective date of this Agreement is the 10^{th} Day after the date it is signed by the Commissioner or the Commissioner's designee.

DATED:

ERIN M. CROTTY, COMMISSIONER
NEW YORK STATE DEPARTMENT OF
ENVIRONMENTAL CONSERVATION AND
TRUSTEE OF THE STATE'S NATURAL
RESOURCES

.. 2 2 2002

By: [signature]

Dale A. Desnoyers, Acting Director
Division of Environmental Remediation

CONSENT BY VOLUNTEER-GENERAL MOTORS CORPORATION

Volunteer hereby consents to the issuing and entering of this Agreement, waives Volunteer's right to a hearing herein as provided by law, and agrees to be bound by this Agreement.

General Motors Corporation

By: William J. McFarland

Title: Director

Date: 8/28/02

STATE OF ~~NEW YORK~~ MICHIGAN)
) ss:
COUNTY OF OAKLAND)

On the 28th day of AUGUST, in the year 2002, before me, the undersigned, personally appeared William J. McFarland personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

Signature and Office of individual taking acknowledgment

MICHAEL T. HENISSE
NOTARY PUBLIC WAYNE CO., MI
MY COMMISSION EXPIRES Oct 30, 2003

CONSENT BY VOLUNTEER-ROSELAND/SLEEPY HOLLOW, LLC

Volunteer hereby consents to the issuing and entering of this Agreement, waives Volunteer's right to a hearing herein as provided by law, and agrees to be bound by this Agreement.

Roseland/Sleepy Hollow, LLC.

By: ______________________
JONATHAN STEIN

Title: OPERATING PARTNER

Date: SEPT 5, 2002

STATE OF NEW JERSEY)
) ss:
COUNTY OF ESSEX)

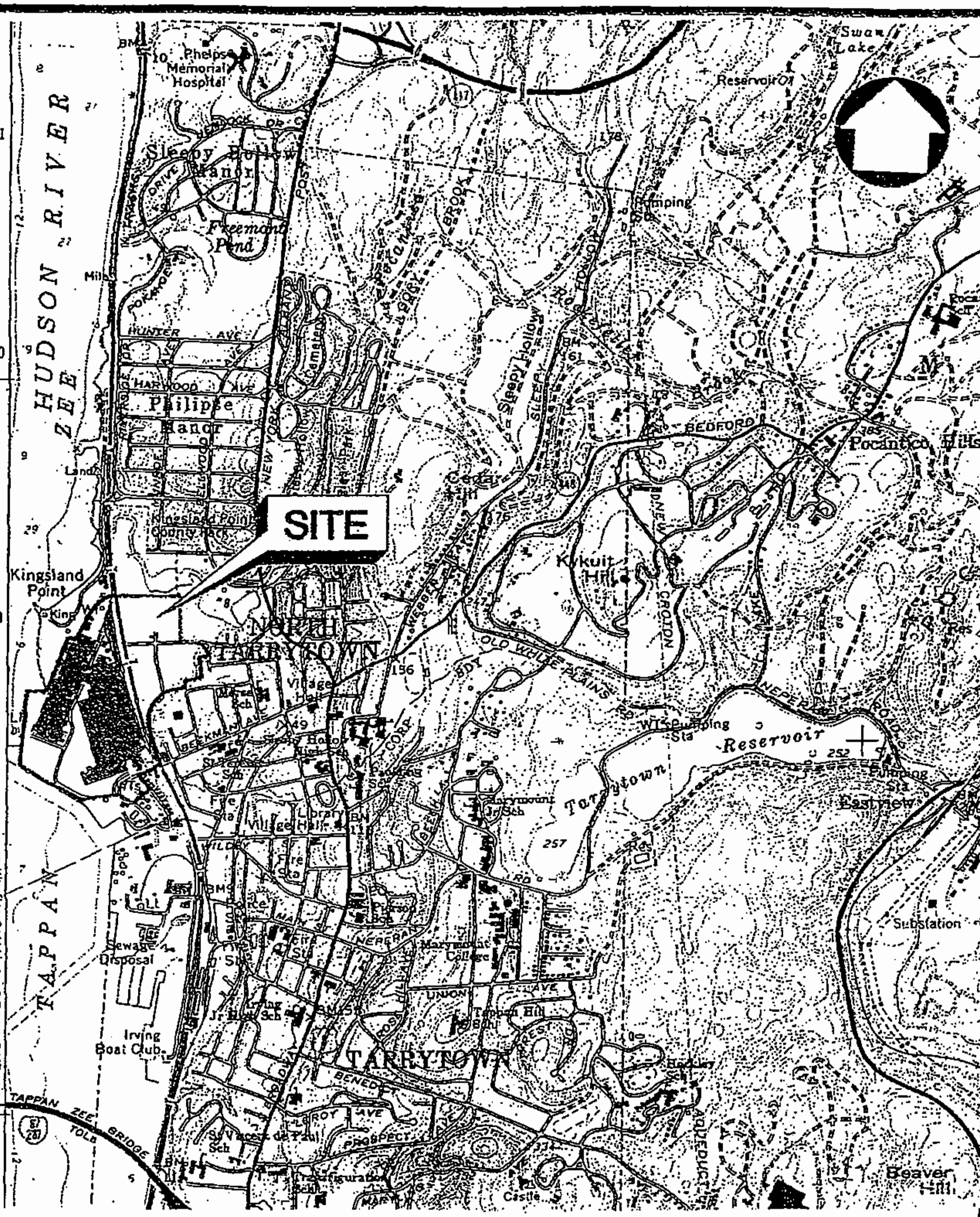
On the 5th day of September, in the year 2002, before me, the undersigned, personally appeared Jonathan Stein personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

Marie Buckalew
Signature and Office of individual taking acknowledgment.

MARIE BUCKALEW
NOTARY PUBLIC OF NEW JERSEY
My Commission Expires July 5, 2006

EXHIBIT "A"

Map of Site



0 2000 4000

SCALE IN FEET

SOURCE: WHITE PLAINS, U.S.G.S. QUADRANGLE, (PHOTOREVISED 1979) 7.5 MIN. SERIES.

EMCON

DATE ______
DWN ______
APP ______
REV ______

GENERAL MOTORS
TARRYTOWN ASSEMBLY PLANT
SLEEPY HOLLOW, NEW YORK

SITE LOCATION MAP

FIGURE
1

PROJECT NO.
85849-001.000

EXHIBIT "B"

Department-Approved Work Plan(s)

EXHIBIT "C"

Release and Covenant Not to Sue

General Motors Corporation
6723 Towpath Road
P.O. Box 66
Syracuse, NY 13214-0066

Unless otherwise specified in this letter, all terms used in this letter shall have the meaning assigned to them under the terms of the Voluntary Cleanup Agreement entered into between the New York State Department of Environmental Conservation (the "Department") and General Motors Corporation ("Volunteer"), Index No. A3-0468-0902 (the "Agreement").

The Department is pleased to report that the Department is satisfied that the Agreement's Work Plan(s) relative to the Site, located at 199 Beekman Avenue, Westchester County, New York, referenced on County Map as Section 15, Block One, Lot One and Section 16, Lot Two, has been successfully implemented.

The Department, therefore, hereby releases and covenants not to sue, and shall forbear from bringing any action, proceeding, or suit pursuant to the Environmental Conservation Law; the NL or the State Finance Law, and from referring to the Attorney General any claim for recovery of costs incurred by the Department, against Volunteer and Volunteer's lessees and sublessees, grantees, successors, and assigns, and their respective secured creditors, for the further investigation and remediation of the Site, based upon the release or threatened release of Covered Contamination, provided that (a) timely payments of the amounts specified in Paragraph VI of the Agreement continue to be or have been made to the Department, (b) appropriate deed restrictions remain recorded in accordance with Paragraph X of the Agreement, and (c) Volunteer and/or its' lessees, sublessees, successors, or assigns promptly commence and diligently pursue to completion the Work Plan providing for OM&M, if any. Nonetheless, the Department hereby reserves all of its rights concerning, and such release and covenant not to sue shall not extend to natural resource damages or to any further investigation or remedial action the Department deems necessary:

- due to migration off-Site of contaminants resulting in impacts that are not inconsequential to environmental resources, to human health, or to other biota and to off-Site migration of petroleum;
- due to environmental conditions or information related to the Site which were unknown at the time this Release and Covenant Not to Sue was issued and which indicate that the Contemplated Use cannot be implemented with sufficient protection of human health and the environment;
- due to Volunteer's failure to implement the Agreement to the Department's satisfaction;

or

- due to fraud committed by Volunteer in entering into or implementing this Agreement.

Additionally, the Department hereby reserves all of its rights concerning, and any such release and covenant not to sue shall not extend to Volunteer nor to any of Volunteer's lessees, sublessees, successors, or assigns who cause or allow a release or threat of release at the Site of any hazardous substance (as that term is defined at 42 USC 9601[14]) or petroleum (as that term is defined in Navigation Law § 172[15]), other than Covered Contamination; or cause or allow the use of the Site to change from the Contemplated Use to one requiring a lower level of residual contamination before that use can be implemented with sufficient protection of human health and the environment; nor to any of Volunteer's lessees, sublessees, successors, or assigns who are otherwise responsible under law for the remediation of the Existing Contamination independent of any obligation that party may have respecting same resulting solely from the Agreement's execution.

Notwithstanding the above, however, with respect to any claim or cause of action asserted by the Department, the one seeking the benefit of this release and covenant not to sue shall bear the burden of proving that the claim or cause of action, or any part thereof, is attributable solely to Covered Contamination.

Notwithstanding any other provision in this release, covenant not to sue, and forbearance,

- if with respect to the Site there exists or may exist a claim of any kind or nature on the part of the New York State Environmental Protection and Spill Compensation Fund against any party, nothing in this letter shall be construed or deemed to preclude the State of New York from recovering such claim.

- except as provided in this letter and the Agreement, nothing contained in this letter or the Agreement shall be construed as barring, diminishing, adjudicating, or in any way affecting any of the Department's rights (including, but not limited to, the right to recover natural resources damages) with respect to any party, including Volunteer.

- nothing contained in this letter shall prejudice any rights of the Department to take any investigatory or remedial action it deems necessary if Volunteer fails to comply with the Agreement or if contamination other than Existing Contamination is encountered at the Site.

- nothing contained in this letter shall be construed to prohibit the Commissioner or his duly authorized representative from exercising any summary abatement powers.

- nothing contained in this letter shall be construed to affect the Department's right to terminate the Agreement under the terms of the Agreement at any time during its implementation if Volunteer fails to comply substantially with the Agreement's terms and conditions.

In conclusion. the Department is pleased to be part of this effort to return the Site to productive use of benefit to the entire community.

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

By:____________________________________

Date: __________________________________

Release and Covenant Not to Sue

Roseland/Sleepy Hollow, LLC
C/O: Roseland Property Company
233 Canoe Brook Road
Short Hills, NJ 07078

Unless otherwise specified in this letter, all terms used in this letter shall have the meaning assigned to them under the terms of the Voluntary Cleanup Agreement entered into between the New York State Department of Environmental Conservation (the "Department") and Roseland/Sleepy Hollow, LLC ("Volunteer"), Index No. A3-0468-0902 (the "Agreement").

The Department is pleased to report that the Department is satisfied that the Agreement's Work Plan(s) relative to the Site, located at 199 Beekman Avenue, Westchester County, New York, referenced on County Map as Section 15, Block One, Lot One has been successfully implemented.

The Department and the Trustee of New York State's natural resources ("Trustee"), therefore, hereby release and covenant not to sue, and shall forbear from bringing any action, proceeding, or suit pursuant to the Environmental Conservation Law, the NL or the State Finance Law, and from referring to the Attorney General any claim for recovery of costs incurred by the Department, against Volunteer and Volunteer's lessees and sublessees, grantees, successors, and assigns, and their respective secured creditors, for the further investigation and remediation of the Site, and for natural resource damages, based upon the release or threatened release of Covered Contamination, provided that (a) timely payments of the amounts specified in Paragraph VI of the Agreement continue to be or have been made to the Department, (b) appropriate deed restrictions remain recorded in accordance with Paragraph X of the Agreement, and (c) Volunteer and/or its' lessees, sublessees, successors, or assigns promptly commence and diligently pursue to completion the Work Plan providing for OM&M, if any. Nonetheless, the Department and the Trustee hereby reserve all of their respective rights concerning, and such release and covenant not to sue shall not extend to any further investigation or remedial action the Department deems necessary:

- due to off-Site migration of petroleum;
- due to environmental conditions or information related to the Site which were unknown at the time this Release and Covenant Not to Sue was issued and which indicate that the Contemplated Use cannot be implemented with sufficient protection of human health and the environment;
- due to Volunteer's failure to implement the Agreement to the Department's satisfaction; or
- due to fraud committed by Volunteer in entering into or implementing this Agreement.

Additionally, the Department and the Trustee hereby reserve all of their respective rights concerning, and any such release and covenant not to sue shall not extend to Volunteer nor to any of Volunteer's lessees, sublessees, successors, or assigns who cause or allow a release or threat of release at the Site of any hazardous substance (as that term is defined at 42 USC 9601[14]) or petroleum (as that term is defined in Navigation Law § 172[15]), other than Covered Contamination; or cause or allow the use of the Site to change from the Contemplated Use to one requiring a lower level of residual contamination before that use can be implemented with sufficient protection of human health and the environment; nor to any of Volunteer's lessees, sublessees, successors, or assigns who are otherwise responsible under law for the remediation of the Existing Contamination independent of any obligation that party may have respecting same resulting solely from the Agreement's execution.

Notwithstanding the above, however, with respect to any claim or cause of action asserted by the Department or the Trustee, the one seeking the benefit of this release and covenant not to sue shall bear the burden of proving that the claim or cause of action, or any part thereof, is attributable solely to Covered Contamination.

Notwithstanding any other provision in this release, covenant not to sue, and forbearance,

- if with respect to the Site there exists or may exist a claim of any kind or nature on the part of the New York State Environmental Protection and Spill Compensation Fund against any party, nothing in this letter shall be construed or deemed to preclude the State of New York from recovering such claim.

- except as provided in this letter and the Agreement, nothing contained in this letter or the Agreement shall be construed as barring, diminishing, adjudicating, or in any way affecting any of the Department's or Trustee's rights (including, but not limited to, the right to recover natural resources damages) with respect to any party, including Volunteer.

- nothing contained in this letter shall prejudice any rights of the Department or Trustee to take any investigatory or remedial action it deems necessary if Volunteer fails to comply with the Agreement or if contamination other than Existing Contamination is encountered at the Site.

- nothing contained in this letter shall be construed to prohibit the Commissioner or his duly authorized representative from exercising any summary abatement powers.

- nothing contained in this letter shall be construed to affect the Department's right to terminate the Agreement under the terms of the Agreement at any time during its implementation if Volunteer fails to comply substantially with the Agreement's terms and conditions.

In conclusion, the Department is pleased to be part of this effort to return the Site to productive use of benefit to the entire community.

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION AND TRUSTEE OF NEW YORK STATE'S NATURAL RESOURCES

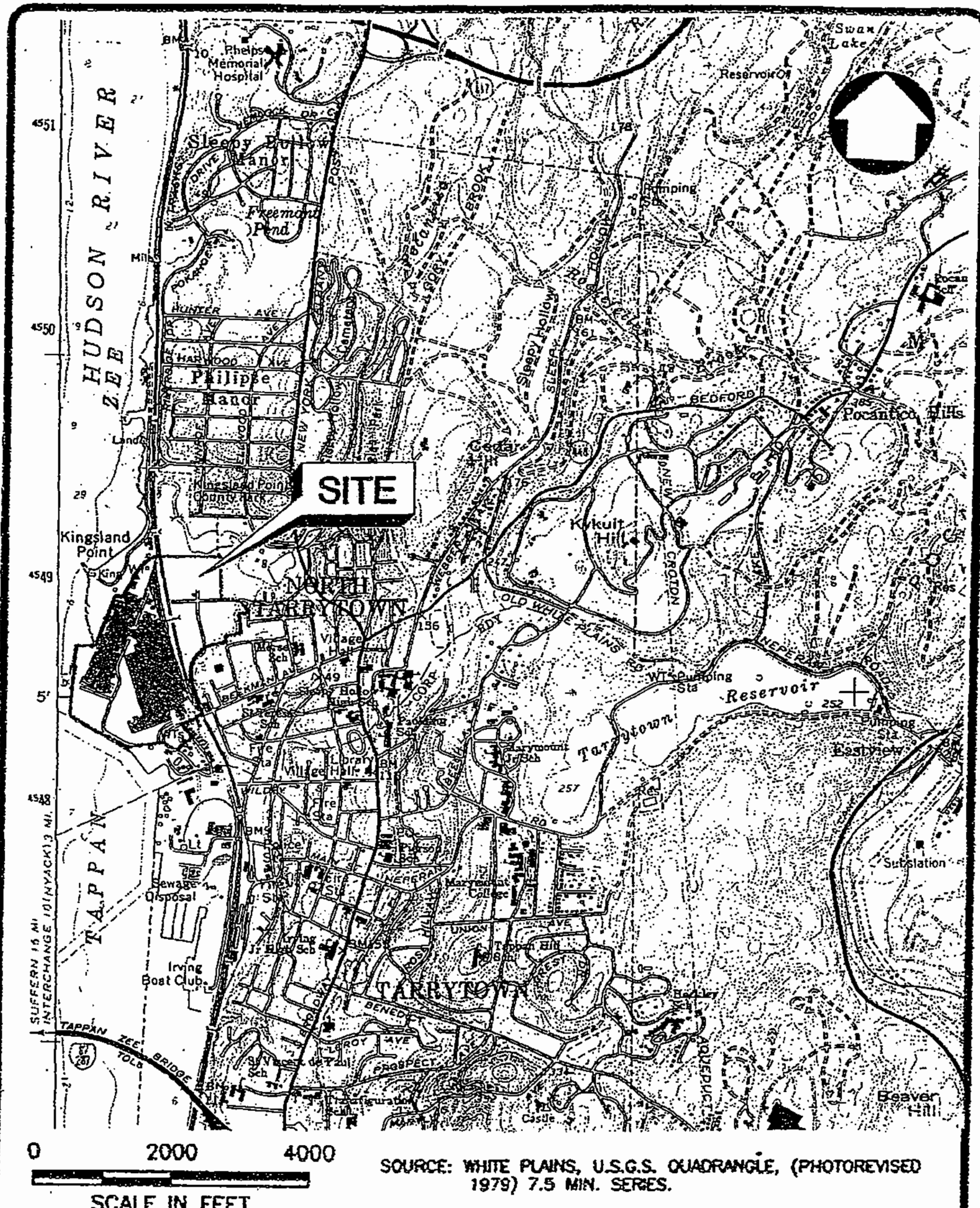
By:____________________________________

Date: ____________________________________

Appendix "A"

(to Exhibit "C")

Map of the Site



SOURCE: WHITE PLAINS, U.S.G.S. QUADRANGLE, (PHOTOREVISED 1979) 7.5 MIN. SERIES.

EMCON

DATE	
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REV	

GENERAL MOTORS
TARRYTOWN ASSEMBLY PLANT
SLEEPY HOLLOW, NEW YORK

SITE LOCATION MAP

FIGURE
1

PROJECT NO.
85849-001.000

Exhibit "D"

NOTICE OF AGREEMENT

This Notice is made as of the _____ day of ________, 2002 by ____________regarding a parcel of real property located at__________________________ bearing Tax Map Number______________________ (the "Property"); and

WHEREAS,____________________("Volunteer"), entered into an agreement with the Department of Environmental Conservation, Index #_______________________(the "Agreement"), concerning contamination which is or may be present on the Property, which Agreement was executed on behalf of the Department on ________________; and

WHEREAS, in return for the remediation of the Property pursuant to the Agreement to the satisfaction of the Department, the Department will provide Volunteer and its lessees and sublessees, grantees, successors, and assigns, including their respective secured creditors, with a release, covenant not to sue, and forbearance from bringing any action, proceeding, or suit related to the Site's further investigation or remediation, subject to certain reservations set forth in the Agreement; and

WHEREAS, pursuant to the Agreement, Volunteer agreed to cause the filing of a notice of the Agreement with the_____________ County Clerk in accordance with Paragraph IX of the Agreement to give all parties who may acquire any interest in the Property notice of the Agreement.

NOW, THEREFORE, Volunteer, for itself and for its successors and assigns, declares that:

1. This Notice of Agreement is hereby given to all parties who may acquire any interest in the Property; and

2. This Notice shall terminate upon the filing of a Notice of Termination of this Agreement after having first received approval to do so from the New York State Department of Environmental Conservation or having terminated the Agreement pursuant to its Paragraph XII.

IN WITNESS WHEREOF, Volunteer has executed this Notice of Agreement by its duly authorized representative.

Dated: By: ____________________________

STATE OF NEW YORK)
) ss:
COUNTY OF)

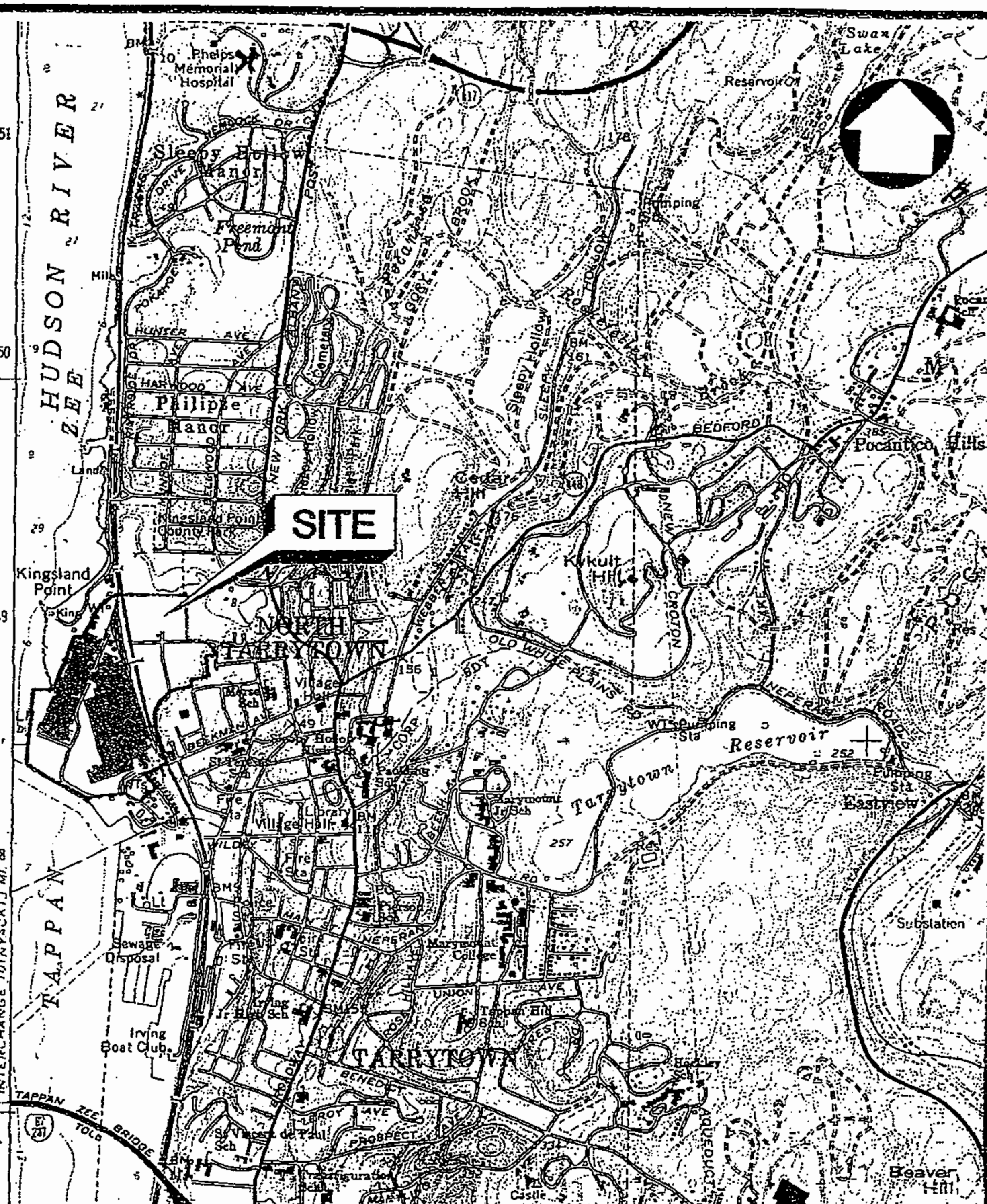
On the _______ day of _________, in the year 2002 before me, the undersigned, personally appeared ________________, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

____
Signature and Office of individual
taking acknowledgment

Appendix "A"

(to Exhibit "D")

Map of the Property



0 2000 4000

SCALE IN FEET

SOURCE: WHITE PLAINS, U.S.G.S. QUADRANGLE, (PHOTOREVISED 1979) 7.5 MIN. SERIES.

emcon

DATE ________
DWN ________
APP ________
REV ________

GENERAL MOTORS
TARRYTOWN ASSEMBLY PLANT
SLEEPY HOLLOW, NEW YORK

SITE LOCATION MAP

FIGURE
1

PROJECT NO.
85849-001.000

Exhibit "E"

DECLARATION of COVENANTS and RESTRICTIONS

THIS COVENANT is made the __ day of __________ 200__, by__________ a [**natural person residing at**______________/**partnership organized and existing under the laws of the State of** ________________ / **corporation organized and existing under the laws of the State of** ______________]and having an office for the transaction of business at________________.

WHEREAS,________________ is the subject of a Voluntary Agreement executed by_________________ as part of the New York State Department of Environmental Conservation's (the "Department's) Voluntary Cleanup Program, namely that parcel of real property located on ______________ in the________of______________, County of ________________. State of New York, which is part of lands conveyed by________________ to ______________ by deed dated_________ and recorded in the ________________ County Clerk's Office on__________ in Book ____ of Deeds at Page ____ and being more particularly described in Appendix "A," attached to this declaration and made a part hereof, and hereinafter referred to as "the Property"; and

WHEREAS, the Department approved a remedy to eliminate or mitigate all significant threats to the environment presented by the contamination disposed at the Property and such remedy requires that the Property be subject to restrictive covenants.

NOW, THEREFORE,________________, for itself and its successors and/or assigns, covenants that:

First, the Property subject to this Declaration of Covenants and Restrictions is as shown on a map attached to this declaration as Appendix "B" and made a part hereof, and consists of [**insert metes and bounds description**]

Second, unless prior written approval by the Department or, if the Department shall no longer exist, any New York State agency or agencies subsequently created to protect the environment of the State and the health of the State's citizens, hereinafter referred to as "the Relevant Agency," is first obtained, there shall be no construction, use or occupancy of the Property that results in the disturbance or excavation of the Property, which threatens the integrity of the soil cap. or which results in unacceptable human exposure to contaminated soils.

Third, the owner of the Property shall maintain the cap covering the Property by maintaining its grass cover or, after obtaining the written approval of the Relevant Agency, by capping the Property with another material.

Fourth, the owner of the Property shall prohibit the Property from ever being used for purposes other than for [**define Use**] without the express written waiver of such prohibition by the Relevant Agency.

Fifth, the owner of the Property shall prohibit the use of the groundwater underlying the Property without treatment rendering it safe for drinking water or industrial purposes, as appropriate, unless the user first obtains permission to do so from the Relevant Agency.

Sixth, the owner of the Property shall continue in full force and effect any institutional and engineering controls required under the Agreement and maintain such controls unless the owner first obtains permission to discontinue such controls from the Relevant Agency.

Seventh, this Declaration is and shall be deemed a covenant that shall run with the land and shall be binding upon all future owners of the Property, and shall provide that the owner and its successors and assigns consent to enforcement by the Relevant Agency of the prohibitions and restrictions that Paragraph X of the Agreement require to be recorded, and hereby covenant not to contest the authority of the Relevant Agency to seek enforcement.

Eighth, any deed of conveyance of the Property, or any portion thereof, shall recite, unless the Relevant Agency has consented to the termination of such covenants and restrictions, that said conveyance is subject to this Declaration of Covenants and Restrictions.

IN WITNESS WHEREOF, the undersigned has executed this instrument the day written below.

[acknowledgment]

Glossary of Terms

The following terms shall have the following meanings:

"BPM Director": the Director of the Bureau of Program Management within the Division of Environmental Remediation.

"CERCLA": the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, 42 U.S.C. 9601 et seq.

"Covered Contamination": the concentrations of Existing Contamination remaining on the Site on the date that the Department issues the Release set forth in Exhibit "C."

"CPLR": the Civil Practice Law and Rules, as amended.

"Day": a calendar day unless expressly stated to be a working day. "Working Day" shall mean a day other than a Saturday, Sunday or State holiday. In computing any period of time under this Agreement, where the last day would fall on a Saturday, Sunday or State holiday, the period shall run until the close of business of the next Working Day.

"Department": the New York State Department of Environmental Conservation.

"Director": the Division Director, Division of Environmental Remediation.

"ECL": the Environmental Conservation Law, Chapter 43-B of the Consolidated Laws of New York, as amended.

"Force Majeure Event": an event which is brought on as a result of fire, lightning, earthquake, flood, adverse weather conditions, strike, shortages of labor and materials, war, riot, obstruction or interference by adjoining landowners, or any other fact or circumstance beyond Volunteer's reasonable control.

"Interim Remedial Measure" or "IRM": an interim remedial measure which is a discrete set of activities, including removal activities, to address both emergency and non-emergency Site conditions, which can be undertaken without extensive investigation or evaluation, to prevent, mitigate, or remedy environmental damage or the consequences of environmental damage attributable to a Site.

"NL": the Navigation Law, as amended.

"OH&M": the Office of Hearings and Mediation Services.

"OM&M": post-construction operation, maintenance, and monitoring; the last phase of a remedial program, which continues until the remedial action objectives for the Site are met.

"Professional Engineer": an individual registered as a professional engineer in accordance with Article 145 of the New York State Education Law. If such individual is a member of a firm, that firm must be authorized to offer professional engineering services in the State of New York in accordance with Article 145 of the New York State Education Law.

"Spill Fund": the New York State Environmental Protection and Spill Compensation Fund as established by Article 12, Part 3 of the NL.

"State Costs": all the State's response expenses related to the Site, including, but not limited to, direct labor, fringe benefits, indirect costs, travel, analytical costs, and contractor costs incurred by the State of New York for negotiating, implementing, overseeing, and administering this Agreement, and any other response costs as defined under CERCLA. Approved agency fringe benefit and indirect cost rates will be applied.

"Termination Date": the date upon which (i) the Release (Exhibit "C") is issued or the Department approves the final report relative to the OM&M at the Site, whichever is later; or (ii) the Agreement terminates pursuant to Paragraph XII or is nullified pursuant to Subparagraph XIV.A.2.

"Trustee": the Trustee of New York State's natural resources.

"USEPA": the United States Environmental Protection Agency.

"Work Plan": a Department-approved work plan, as may be modified, pertaining to the Site, that Volunteer shall implement and that is attached to this Agreement.

Preliminary Draft Remedial Investigation Report

for

Brownfield Cleanup Agreements Former General Motors Assembly Plant Site Sleepy Hollow, New York

Volume I of II

General Motors Corporation
Detroit, Michigan
and
Roseland/Sleepy Hollow, LLC
Short Hills, New Jersey

December 2006

BBL®
an ARCADIS company

Notice

This *Preliminary Draft Remedial Investigation Report* presents findings of the investigations of the East and West Parcels of the Former General Motors Assembly Plant Site performed under the New York State Brownfield Cleanup Program. This draft is provided for public review as background information to support the Applicants' proposed Interim Remedial Measures Scope of Work, and will be updated and revised upon completion of Interim Remedial Measures and/or off-site investigation of the Hudson River.

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Executive Summary

This *Draft Remedial Investigation Report* (RI Report) has been prepared by Blasland, Bouck & Lee, Inc. (BBL) on behalf of General Motors Corporation (GM) and Roseland/Sleepy Hollow, LLC, who are the "Participant" and "Volunteer" parties, respectively, in two Brownfield Cleanup Agreements (BCAs) with the New York State Department of Environmental Conservation (NYSDEC) for the investigation and remediation of the Former GM North Tarrytown Assembly Plant Site located at 199 Beekman Avenue, Village of Sleepy Hollow, New York (Site). The contemplated use of the Site is restricted (i.e., by deed restrictions/environmental easement) mixed commercial and residential development, with public open space, including public access to the waterfront and municipal public works operations.

The Site is situated on the eastern shore of the Hudson River and occupies an area of approximately 96.2 acres within the Village of Sleepy Hollow. It comprises three, non-contiguous parcels: 1) West Parcel (approximately 66.2 acres); 2) East Parcel (approximately 28.3 acres); and 3) South Parcel (approximately 1.7 acres). Separate BCAs were signed for the East and West Parcels. The BCA for the West Parcel encompasses the South Parcel. The Hudson River is an identified offsite area of interest to the West Parcel.

GM and Roseland initiated formal NYSDEC review of Site environmental conditions as Volunteers in a Voluntary Cleanup Agreement (VCA) signed in November 2002. The VCA applied to the entire Site and included investigation of the Hudson River adjacent to the West Parcel. Between 2004 and 2005, the Site transitioned from the Voluntary Cleanup Program (VCP) to the Brownfield Cleanup Program (BCP). During the transition, separate BCAs were developed for the East and West Parcels, signed in May 2005.

Prior to GM purchasing the West Parcel in 1914, the parcel was partially developed with urban fill consisting largely of coal cinders and various aggregate mixtures to extend the waterfront into a portion of the former Pocantico Bay. Industrial operations prior to GM's purchase included a brickyard, a percussion rock drill factory, and two facilities where gasoline and steam-powered automobiles were manufactured and assembled. GM demolished most of the early industrial buildings during the 1920s, filled in the remainder of Pocantico Bay with dredge spoils, and constructed an automotive assembly complex that continued to expand and operate until operations ceased in 1996. In the East Parcel, purchased by GM in 1960 for parking, the former Village of North Tarrytown (Sleepy Hollow) operated a small (<10 acres) municipal refuse and ash landfill during the 1920s and 1930s. The South Parcel, developed on a natural hillside, was previously residential.

Prior to the RI, several environmental investigations were performed to characterize the nature and extent of contamination associated with historical site development and former industrial operations. These studies were conducted by GM between 1996-2000 and by Roseland in 2002. The GM and Roseland findings were used to prepare an Investigation Work Plan (IWP) in 2003, which specified additional sampling to complete the Site characterization pursuant to the VCA program. A separate IWP was prepared and implemented by GM for Hudson River sediments in 2004, the results of which will be presented in a future report.

The RI was completed in two major phases in 2003-2004. Following the first phase, a Conceptual Remedial Action Work Plan (RAWP) prepared within the context of the VCA for the Site, was presented to the NYSDEC and formed the basis for the second phase of investigations. The Conceptual RAWP incorporated both site-wide engineering and institutional controls (primarily in the form of a barrier cap), and location-specific remediation, including source removal. Location-specific remediation was proposed for several areas that contain sources of petroleum and/or volatile organic compound (VOC) contamination, as well as areas that exhibited higher than usual levels of lead or chromium (as compared to the remainder of the Site). The collective findings of the RI and previous investigations will be used to prepare remedial documents, including a Remedial Work Plan (RWP), and to provide the environmental remediation and protection specifications that will support the intended site uses.

Through the collective previous site investigations and the RI, representative sampling has been performed throughout the East and West Parcels, encompassing 47 PAOCs and a known petroleum spill location, as well as all onsite areas containing historic fill and two offsite areas of Kingsland Point Park bordering the Site. These investigations have revealed few, if any, areas meeting Track 1 conditions (TAGM 4046 and Class GA Groundwater Standards and Guidance) as specified in NYSDEC's Draft BCP Guidance. Unless otherwise recommended for location-specific alternatives evaluation, remediation of soil and groundwater is recommended under a Site-wide approach for all areas that do not meet Track 1 conditions. Site-wide remedial actions could include, but may not necessarily be limited to, a functional barrier cap (with demarcation marker) integrated into future structural and landscape features, a soils management plan, post-remediation monitoring, and environmental easement.

Location-specific remedial alternatives are recommended for evaluation in the appropriate remedial documents. These include, but are not limited to the following:

- location-specific remedial plans for areas containing historical fill with elevated lead concentrations, one area containing elevated chromium and trichloroethene (TCE), and the location of a former No.6 fuel oil tank;
- natural attenuation to remediate residual petroleum in three general areas of historical spills;
- general and location-specific measures to address volatile organic vapors that could pose a risk to future residents in an indoor air space, including preventing the intrusion of such vapors into future buildings; and
- general measures to mitigate the possible intrusion of methane into indoor air space if future development plans include buildings over methane source areas and any necessary venting of methane in such areas.

1. Introduction and Purpose

This *Draft Remedial Investigation Report* (RI Report) has been prepared by Blasland, Bouck & Lee, Inc. (BBL) on behalf of General Motors Corporation (GM) and Roseland/Sleepy Hollow, LLC, who are the “Participant” and “Volunteer” parties, respectively, in two Brownfield Cleanup Agreements (BCAs) with the New York State Department of Environmental Conservation (NYSDEC) for the investigation and remediation of the Former GM North Tarrytown Assembly Plant Site located at 199 Beekman Avenue, Village of Sleepy Hollow, New York (Site). The RI Report incorporates comments from NYSDEC on a Draft Site Investigation Report, dated March 2005, prepared under the VCA.

The contemplated use of the Site is restricted (i.e., by deed restrictions/environmental easement) mixed commercial and restricted residential development, with public open space, including public access to the waterfront and municipal public works operations. The proposed Site Development Plan (Figure 2) and other details contemplated for the proposed development are presented in the Draft Environmental Impact Statement for Lighthouse Landing at Sleepy Hollow (DEIS) adopted by the Village of Sleepy Hollow in January 2005 (Divney Tung Schwalbe, 2005). By the time a Final Environmental Impact Statement (FEIS) is completed, modifications will be made to this concept plan in consideration of agency and public comments.

The Site is situated on the eastern shore of the Hudson River (Figure 1A) and occupies an area of approximately 96.2 acres within the Village of Sleepy Hollow (Figure 1B). It comprises three, non-contiguous parcels: 1) former main assembly plant area referred to as the West Parcel (approximately 66.2 acres); 2) eastern parking lot referred to as the East Parcel (approximately 28.3 acres); and 3) former salaried employee parking lot referred to as the South Parcel (approximately 1.7 acres).

GM and Roseland initiated formal NYSDEC review of Site environmental conditions as Volunteers in a Voluntary Cleanup Agreement (VCA) signed in November 2002. The VCA applied to the entire Site and included investigation of the Hudson River adjacent to the West Parcel. In June 2004, the Volunteers expressed their interest in transitioning from the Voluntary Cleanup Program (VCP) to the Brownfield Cleanup Program (BCP). During the transition, separate BCAs were developed for the East and West Parcels, signed in May 2005. The separate BCA for the East Parcel is intended to facilitate the donation of approximately 24.5 acres of this land to the Village of Sleepy Hollow. The BCA for the West Parcel encompasses the South Parcel; the Hudson River is the identified offsite area of interest to the West Parcel.

GM initially purchased properties that comprise the West Parcel in 1914. Prior to that purchase, the parcel had been partially developed with urban fill, consisting largely of coal cinders and various aggregate mixtures to extend the waterfront into a portion of the former Pocantico Bay. Industrial operations prior to GM’s purchase included a brickyard, a percussion rock drill factory, and two facilities where gasoline and steam-powered automobiles were manufactured and assembled. GM demolished most of the early industrial buildings during the 1920s, filled in the remainder of Pocantico Bay with dredge spoils, and constructed an automotive assembly complex that continued to expand and operate for over 70 years. In the East Parcel, purchased by GM in 1960 for parking, the former Village of North Tarrytown operated a small (<10 acres) municipal refuse and ash landfill during the 1920s and 1930s. The South Parcel, developed on a natural hillside, was previously residential. The North Tarrytown Assembly Plant ceased automobile assembly operations in the summer of 1996 and GM commenced an organized process of facility decommissioning. The Village of North Tarrytown was renamed Sleepy Hollow in 1997. All references to North Tarrytown in this report and previous documents apply to the Village of Sleepy Hollow.

Between 1996 and 2000, GM undertook several environmental investigations at the Site to prepare for facility closure. These efforts included Phase I and Phase II Environmental Site Assessments, a Phase III Extent of Contamination Study (EMCON, 1996; 1997; and 2001a), and a Sediment Quality Investigation in the Hudson River (Exponent and EMCON, 1999). In addition, an Interim Corrective Measures Project (EMCON, 2001b) was implemented primarily to remediate fill and soil containing residual petroleum and hydraulic fluids, as well as metals found in crawl spaces beneath floor slabs of the former Chassis and Body Assembly Plants, and to remove two underground fuel storage tanks before these buildings were demolished.

Roseland conducted additional sampling of soil and groundwater during 2002 as part of their due diligence investigation (EcolSciences, 2002). The findings of this investigation, and the earlier investigations conducted by GM, reflect levels of metals, polycyclic aromatic hydrocarbons (PAHs), and petroleum compounds that are typical of historically filled sites along the Hudson River, especially those dedicated to industrial uses. The GM and Roseland findings were used to prepare an Investigation Work Plan (IWP), which specified additional sampling pursuant to the VCA program (AMEC, 2003a).

The IWP described the proposed scope of work, data quality objectives, field sampling procedures, laboratory analytical requirements, and health-and-safety requirements for a supplemental investigation (the RI) of soil and groundwater conditions at the Site. The IWP built upon the findings of the previous investigations by identifying the remaining data needed to characterize the areas that may be subject to remediation.

The field investigation outlined in the IWP was performed from October 6 to November 17, 2003. The scope of the RI was modified (expanded), as required during the field work, based on qualitative field observations and initial laboratory analytical results, to meet the RI objectives and to provide sufficient information to support the RAWP. Addendum 1 to the IWP (AMEC, 2003b) was prepared and implemented during that same period to investigate the potential presence and characteristics of landfill gas on the East Parcel.

A Draft Conceptual Remedial Action Work Plan (RAWP) prepared by AMEC (AMEC, 2004a) was submitted to the NYSDEC in March 2004. This conceptual plan preliminarily identified site-wide and location-specific remedial actions based on the data from the 2003 RI and all previous investigations. For the location-specific remedial actions identified in the Draft Conceptual RAWP, certain data needs were identified. These needs were incorporated into Addendum 2 to the IWP (AMEC, 2004b). The plan presented in Addendum 2 was designed to confirm boundaries of areas suggested for location-specific remediation and to extend the investigation of methane and volatile organic soil vapors onto the West Parcel. A supplemental scope of work (AMEC, 2004c) was added to Addendum 2 to investigate the presence of possible offsite subsurface contamination in Kingsland Point Park and provide additional data on site groundwater quality. Field investigations outlined under Addendum 2, as amended, were performed between April and October 2004. The collective results of all site investigations performed under the VCA and reviewed in the context of the BCA are presented in this report, with reference to relevant data from previous investigations. As a result of transitioning into the BCA, a Fish and Wildlife Exposure Assessment (not included as a requirement of the IWP) is presented in this report.

A separate IWP was prepared and implemented by GM in 2004 for Hudson River sediments, pursuant to the VCA for the Site. The focus of that investigation is the possible impact of historical wastewater discharges on current sediment quality in the Site vicinity. The findings of the sediment investigation will be presented in a future RI report.

2. Site Description and History

2.1 Physical Characteristics and Land Use

At the time of facility closure in 1996, the main assembly plant property (West Parcel) contained two manufacturing buildings (the Body Plant and the Chassis Plant) and support operations consisting of a powerhouse, petroleum bulk storage tanks, a wastewater pretreatment facility, a water storage tank, and miscellaneous day shelters for equipment and personnel. These structures were decommissioned and demolished by 1999, leaving concrete building slabs and asphalt surfaces covering most of the Site (Figure 1B). A stockpile of recycled concrete aggregate from the demolition, some of which was spread on the West Parcel, is situated near the waterfront, landward of the former wastewater treatment plant berm and wall. The West Parcel is separated from the East Parcel by an active railroad corridor owned by Conrail serving Metro-North, AMTRAK, and freight services. The East Parcel was developed by GM as a Parking lot, which remains covered with asphalt. The former salaried employee parking lot is located across Beekman Avenue, directly south of the West Parcel. This paved lot is bordered by Beekman Avenue, Hudson Street, River Street, and property owned by the Village of Sleepy Hollow.

The overall topography of the West Parcel is relatively flat, with significant portions occupied by the remaining building floor slabs of the former Chassis and Body Plants (Figure 1C). Ground surface elevations over much of the West Parcel are within 5 to 20 feet (ft) above mean sea level (MSL), with building slabs at an approximate elevation of 13 ft. The surrounding area rises steeply to the east, away from the Hudson River. The Salaried Parking Lot on the southeast side of the facility is located on this rise, overlooking the plant from an elevation sloping from approximately 20 to 50 ft. Most of the East Parcel is relatively flat, with paved surface elevations between 3-11 feet above MSL, bounded on the south and east perimeter by steep slopes. Under an agreement with GM, the Village of Sleepy Hollow is currently using the East Parcel to temporarily stage materials for municipal public works projects.

Groundwater in the Site vicinity is not used as a potable water supply. A reservoir fed municipal water-supply system services the Sleepy Hollow area, including the Site. Reservoirs for this system (and other community water supplies) are located more than 3 miles upgradient of the Site. The Catskill Aqueduct serves as the main source of water for the Village of Sleepy Hollow. Water is stored in the Village's reservoir in the Rockefeller State Park Preserve. It is unlikely that groundwater beneath the Site would ever be used as a potable water supply because the area is serviced by the local municipal system and the natural water bearing units below the fill are expected to have relatively low yields. Although the fill may represent a zone of significant groundwater yield, such artificially created deposits are typically unsuitable and undesirable as potable supplies.

Current land uses within the immediate site vicinity include a mix of industrial, commercial, residential, and parkland. Most of the industrial property in the surrounding area is located along the Hudson River waterfront, south of the Site. These industrial uses include shipping and receiving of automobiles and other freight, as well as commercial oil distribution and asphalt manufacturing. The oil and asphalt facilities are serviced by barge and land-based traffic. Several non-industrial commercial facilities, as well as the Village of Sleepy Hollow Public Works Facility, are also present within the industrially zoned area south of the Site. The commercial center for the Village of Sleepy Hollow is less than 0.5 miles east of the Site. Lands immediately southeast and east of the Site are primarily residential. Public parklands surround the northern borders of the Site. Kingsland Point Park of Westchester County abuts the northwest border of the Site. The Tarrytown Lighthouse, which is listed on the National Register of Historic Places, is located immediately west of the Site (in the Hudson River) and is accessible to the public through Kingsland Point Park. DeVries Park of Sleepy Hollow abuts the northern border of the Site. Philipsburg Manor, a restored early 18th century farm with public access, adjoins DeVries Park and the northeast corner of the Site. Active freight and passenger rail services run through the Site within a common corridor.

2.2 History of Site Use and Development

2.2.1 Historic Operations

The site was originally part of the Beekman Farm. In 1801, the Beekman family constructed a dock on what is now known as Kingsland Point (north of the Site). In 1830, a Brickyard was established on the southern portion of the Site at the foot of Beekman Avenue, on the south side of the Pocantico Bay (which has since been filled). The brickyard closed in 1861.

In 1885, the Rand Drill Company acquired the abandoned brickyard property. The facility was used to manufacture percussion rock drills. In 1905, the Ingersoll Sergeant Drill Company merged with Rand to become Ingersoll Rand. The Ingersoll Rand Company ceased operations at the Site in 1909.

In 1899, property on the north side of the former bay (adjacent to Kingsland Point) was purchased by the Mobile Company of America (Mobile) and a three-story brick and steel facility was constructed to manufacture steam-powered vehicles. By 1903, Mobile ceased operations, as the internal gasoline engine became more popular.

The Maxwell Briscoe Company (Maxwell Briscoe) purchased the Mobile Facility for the purpose of manufacturing automobiles in 1904. By 1909, Maxwell-Briscoe expanded the former Mobile Site into a complex of assembly buildings, machine shops, woodworking facilities, and painting/varnishing operations.

In 1909, Maxwell Briscoe also acquired the Ingersoll-Rand Property on the south side of the bay, increasing the size of the manufacturing floor space to more than 300,000 square ft. Maxwell Briscoe added a small foundry, and the Ingersoll-Rand buildings were converted to machine, sheet metal, and woodworking shops. United States Motor Company (US Motor) acquired Maxwell Briscoe as a subsidiary in 1913. Later in that same year, US Motor declared bankruptcy and Maxwell Briscoe ceased manufacturing automobiles in Sleepy Hollow.

The Chevrolet Motor Company (which later became a division of GM) originally acquired the former Maxwell Briscoe Property and automobile manufacturing facility in 1914. Since that time, GM has only assembled automobiles at the Site, with the exception of a period during World War II when airplane wings and light military vehicles were assembled at the Site.

2.2.2 Historic Fill

With the exception of the salaried parking lot, commercial and industrial development of the Site was accomplished through progressive advancement of fill (Drawing 1). With the construction of the original Hudson River Railroad in the 1840's, the portion of the Site east of the tracks (East Parcel) was isolated from Pocantico Bay by a strip of fill placed to support the tracks. Prior to 1914, fill had been placed on the West Parcel north and south of Pocantico Bay to develop the Site for the pre-GM industries (Rand, Mobile and Maxwell Briscoe). During the mid-1920s, the lower Pocantico River was re-routed to its current location north of the Site. At that time, GM filled in the remainder of Pocantico Bay and the former outlet to the lower Pocantico River with dredged materials (Drawing 1, Area A), demolished the former Maxwell Briscoe buildings near Beekman Avenue and replaced them with a new automobile assembly plant (first section of Chassis Plant).

GM continued to expand the waterfront for industrial development through 1960. The final extension of the waterfront in 1960 was filled with sediments hydraulically dredged from the Hudson River main navigation channel (Drawing 1, Area K) and finished with stone riprap.

During the 1920s and 1930s, the Village of Sleepy Hollow (formerly Village of North Tarrytown) used part of this East Parcel for municipal refuse and ash disposal (Drawing 1, Refuse Area). The Village eventually filled the remainder of the East Parcel with non-refuse fill (Drawing 1, Area B). By 1960, GM acquired this parcel from the Village. At that time, the same source of dredged material from the Hudson River used to develop the West Parcel waterfront in 1960 was used to finish the grade on the East Parcel, and prepare it for use as a parking lot (Drawing 1, Area L). GM has only used the East Parcel for employee parking and to transfer cars from the assembly line to truck or rail.

2.3 Previous Investigations

Prior to cessation of automotive assembly in 1996, GM initiated a comprehensive facility-decommissioning program that encompassed the identification of environmental management requirements for building deactivation and demolition. The objective of the facility deactivation process was to identify items requiring decontamination, removal, and/or special handling in order to prepare equipment and facilities for plant closure and demolition. Once assembly operations ceased, the areas identified during the facility deactivation process were decommissioned to remove hazardous materials, remove and properly dispose of lead-based paints (from the building structures), remove and properly dispose of regulated asbestos-containing material (ACM), remove and dispose of regulated polychlorinated biphenyl (PCB) equipment, properly close all aboveground storage tanks (ASTs) and underground storage tanks (USTs) in accordance with state and federal regulations, drain chlorofluorocarbon (CFC) containing equipment and properly dispose of CFCs, decontaminate all process equipment and building structures, and dispose of all residues generated during decontamination activities. These activities were completed prior to final demolition of buildings and structures, and are not the subject of this RI.

At the same time the decommissioning process was initiated, GM initiated a Phase I Environmental Site Assessment that entailed a thorough assessment of current and historical GM operations to determine if petroleum or potentially hazardous chemical constituents had been released to the Site environment. This led to a series of subsurface investigations and a focused investigation of sediment quality in the Hudson River. The findings of these investigations can be found in the following reports, which have been previously submitted to the NYSDEC:

- *Phase I Environmental Site Assessment, Tarrytown Assembly Plant* (EMCON, 1996);
- *Phase II Environmental Site Investigation, Tarrytown Assembly Plant* (EMCON, 1997);
- *Phase I Environmental Site Assessment, Salaried Parking Lot* (EMCON 1998);
- *Data Report for the Sediment Quality Investigation, Hudson River near the General Motors Corporation Former Tarrytown Assembly Plant* (Exponent and EMCON, 1999);
- *Phase III Extent of Contamination Study, Former Tarrytown Assembly Plant* (EMCON, 2001a); and
- *Interim Corrective Measures Completion Report, Former Tarrytown Assembly Plant* (EMCON, 2001b).

Additionally, on behalf of Roseland, EcolSciences, Inc. performed soil and groundwater sampling at the Site during August 2002. Their sampling was conducted as part of Roseland's due diligence investigation for the contemplated site use. The findings of that investigation can be found in *Due Diligence Sampling Results for the General Motors Corporation Tarrytown Assembly Plant Property*, (EcolSciences, 2002).

Supplemental Phase II Investigation findings from additional test pit and test borings conducted on behalf of GM during 2000 were also provided to the NYSDEC in a letter dated March 17, 2003 (AMEC, 2003a).

Between the GM and Roseland investigations, a total of 47 potential areas of concern (PAOCs) and two UST spills were identified and sampled at the Site (Drawing 2). GM's focus was on potential spills or releases that may have occurred during its period of operation (1914 through 1996). GM investigated 20 identified PAOCs associated with its former operations and the historical disposal of refuse in the East Parcel by the Village of Sleepy Hollow. One of the UST spills was successfully remediated by GM and closure was approved by the NYSDEC. The other spill was partially remediated in 1998, and is included in the current RI. Areas where non-refuse fill was used for GM's site development were sampled, but were not considered to be PAOCs.

Considering the proposed development of the Site for mixed use, Roseland identified and sampled 24 additional PAOCs. After Roseland completed its sampling, two additional PAOCs (PAOC 45 and 46) were identified and recommended for further investigation, based on a review of supplemental testing performed by GM in spring 2000 (EMCON, 2003). Lastly, PAOC 47 was discovered and characterized during the RI.

Drawing 2 shows the location of all samples collected from the Site during the previous investigations conducted by EMCON and EcolSciences. Data from these investigations are included in Appendix A. Representative sampling of soil and fill was performed in these previous investigations to characterize each PAOC and to evaluate the distribution of potential contaminants in the fill materials placed onsite throughout its industrial history. Groundwater was also sampled at or in the general vicinity of PAOCs. The key findings of these previous investigations are summarized below.

2.3.1 Soil and Fill Quality

Approximately 90% of the Site acreage is developed on fill, which is of varying composition and thickness. Based on information obtained from geotechnical borings performed at the Site since the mid-1930s and borings installed by EMCON, the fill generally comprises fine-to-coarse sands with fewer amounts of gravel, silt, and clay. The pre-1914 fill (Drawing 1) on the West Parcel contains varying amounts of coal cinder and ash fill, particularly on the northern triangular corner of the West Parcel, which was formerly open water and marsh. Varying amounts of construction and demolition debris were encountered within fill Areas F, G, and H, including cinders, brick, and other solid building materials. Dredged materials, consisting of sand, silt, gravel, and shells is found in Areas A, K and L. The general outline of the Refuse Area within the East Parcel was determined from test borings and test pits performed during EMCON's Phase II Investigation (Drawing 1, Refuse Area). The refuse encountered was several feet below the water table. The refuse is typically covered by a layer of coal ash, a soil cap, dredged sands (1960) and asphalt. The remainder of the paved expanse of the East Parcel is filled primarily with urban soil and rock fill, typically with a layer of dredged materials beneath the asphalt cover.

The fill is underlain in areas by soft organic clay and peat deposits associated with the Hudson and Pocantico Rivers. In other areas, varved silt and clay underlies the fill. Beneath these deposits, a layer of compact granular till (silty sand with gravel and occasional cobbles and boulders) overlies the bedrock with a thickness ranging from 1 ft to more than 10 ft. The underlying bedrock is a weathered to relatively sound gneiss. The depth to bedrock is extremely variable across the Site, ranging from less than 20 ft below ground surface (bgs) to greater than 100 ft.

EMCON originally analyzed representative samples of soil for the complete USEPA Target Compound List (TCL) and Target Analyte List (TAL). As part of its due diligence investigation in 2002, EcolSciences collected a representative number of soil samples from additional PAOCs for specific classes of USEPA Priority Pollutants that might have been anticipated for each PAOC investigated. Ranges of constituents detected in soils at levels above TAGM 4046 guidance are summarized by PAOC in Table 1. In general, the soil sampling previously conducted at the Site identified compounds typical of industrialized properties with extensive historical fill along the Hudson River waterfront. Moreover, one century of industrial operations has resulted in the localized presence of residual petroleum hydrocarbons (from fuel and hydraulic fluids) within the West Parcel. The principal contaminants of concern in the fill materials throughout the East Parcel are metals, with evidence of relatively minimal observations of PAHs. Within the fill materials in the West Parcel, metals and PAHs are the principal contaminants of concern. The Due Diligence Report prepared by EcolSciences indicated presence of these constituents at concentrations above the generic TAGM 4046 Recommended Soil Cleanup Objectives (TAGM guidance) developed and commonly used by the NYSDEC to evaluate contaminated sites. VOCs detected in soil samples from the previous investigations are shown in Appendix C. VOCs were primarily found in saturated zone soils, and have generally been attributed to residual petroleum from historic spills. Petroleum-contaminated soil/fill associated with two USTs, as well as hydraulic fluid-contaminated soil/fill and residues containing lead and other metals in building crawl spaces, were removed during GM's ICM project (see Section 2.4). The current RI focused on identifying additional boundaries for possible location-specific remediation, beyond what would be considered for management of the Site fill in general.

Additionally, traces of PCBs were detected in samples of concrete millings that were collected by EcolSciences as part of their due diligence investigation. The concentration of total PCBs detected in the samples (i.e., the combined results for all Aroclors) ranged from 0.39 to 1.69 milligrams per kilogram (mg/kg) (median of 0.62 mg/kg). The millings were derived from the demolition of onsite concrete structures, which had not previously been known to contain PCBs. The current RI sampled millings that have been spread over a portion of the Site.

2.3.2 Groundwater Quality

Based on groundwater elevations obtained during spring 1997 from 23 groundwater monitoring wells onsite, EMCON determined that the direction of groundwater flow is southwest toward the Hudson River with local variations (see Section 6.2 for additional details). Groundwater flow across the East Parcel (east of the railroad tracks) is generally to the west, while flow across the West Parcel (west of the railroad tracks) is generally to the south-southwest. It is noted that the configuration of the groundwater contours appears to be somewhat influenced by the former Pocantico Creek and Bay, which used to run west across the East Parcel and southwest under the Chassis Plant on the West Parcel.

EMCON analyzed groundwater samples from 23 monitoring wells for the complete USEPA Target Compound List (TCL) and Target Analyte List (TAL). As part of its due diligence investigation in 2002, EcolSciences collected a representative number of groundwater samples from existing (permanent) monitoring wells, as well as a series of temporary monitoring wells, and analyzed for USEPA Priority Pollutants. Both filtered and unfiltered samples for metals were included in these previous investigations. Drawing 2 includes the location of all soil and groundwater sampling locations from the EMCON and EcolSciences investigations. Ranges of constituents detected in groundwater at levels above Class GA groundwater standards are summarized in Table 1.

Metals were detected in the groundwater samples collected by EcolSciences at concentrations above the Class GA groundwater standards (Table 1). All of the groundwater samples collected in both the East and West Parcels during the EcolSciences investigation contained detectable concentrations of one or more Target Analyte List (TAL) metals. Typically, between 14 and 20 different metals were detected in the unfiltered samples. However in the filtered samples, the metals detected at concentrations above the Class GA groundwater standards were typically limited to sodium, iron, magnesium, and manganese. These analytical results suggest that the metals detected in the unfiltered samples are derived principally from suspended particulate material contained in underlying fill material.

The previous investigations found no evidence of organic TCL or Priority Pollutant constituents above Class GA groundwater standards in the East Parcel. The distribution of VOCs in groundwater from the previous investigations is summarized in Appendix C. Groundwater in the northern corner of the West Parcel contains relatively low levels of volatile petroleum constituents in monitoring well OW-10 (Drawing 2). Concentration gradients suggest an offsite contributing source. This condition was observed by EMCON and EcolSciences. South (downgradient) of OW-10, within the West Parcel, groundwater exhibited evidence of residual petroleum contamination (VOCs and/or occasional sheen and odor) in the vicinity of an abandoned 10,000-gallon No. 6 fuel oil UST that was removed during the ICM project. The results of previous groundwater sampling show that these constituents are attenuated within a limited area of the Site. EcolSciences observed a sheen or petroleum odor in groundwater samples collected from PAOCs 21 and 39, downgradient of the 10,000-gallon No. 6 fuel oil UST (Drawing 2). Petroleum-stained soils were also observed in a sample from the saturated zone at PAOC 37, although petroleum constituents were not observed above Class GA groundwater standards in this area.

Based on the findings of these previous investigations, the RI focused on the nature and extent of groundwater contamination associated with areas within the West Parcel under consideration for location-specific evaluation or contaminant delineation, and determined baseline groundwater quality along the downgradient side of the West Parcel. The need to evaluate the extent of landfill gases in the East Parcel was recognized and included in the RI, along with soil gas investigations in the West Parcel. The RI studies are described in Section 4.2.

2.4 Interim Corrective Measures

GM completed an Interim Correctives Measures (ICM) Project between November 1997 and April 1998, during the facility decommissioning process. The ICM consisted of soil removal from nine PAOCs where various oils or other non-hazardous fluids had leaked from plant equipment during facility operations, as well as the removal of two out-of-service USTs. Except for the USTs, which were adjacent to the Chassis Plant, the ICM project was conducted within the unfinished basements or crawl spaces of the Chassis Plant and Body Plant. The affected surfaces in these areas consisted of sand fill. Almost all of the work conducted in basement/crawl spaces consisted of pick-and-shovel excavation by crews of laborers because these areas were generally not accessible by excavating equipment. In two areas, access was gained following partial removal of the overlying slabs that were scheduled for demolition.

Following excavation of contaminated soil/fill at each location, confirmatory samples were taken and analyzed before backfilling with clean sand to original grade. According to the ICM Report (EMCON, 2001b), confirmatory sampling of basements and crawl spaces demonstrated that the remaining soils meet NYSDEC STARS Guidelines for Petroleum-Contaminated Soils, and thus confirm the adequacy of petroleum remediation. However, the historical fill in several of these areas contain metals and other constituents at levels above TAGM guidance values. Subsequent soil sampling performed by EcolSciences in 2002 identified petroleum-impacted soils elsewhere at the Site, in which soil contaminants were detected at concentrations above applicable TAGM guidance values. These areas were investigated further during the RI.

The out-of-service USTs removed during this action were one 1,000-gallon gasoline UST originally installed and used by GM, and one 10,000-gallon bunker-fuel tank that was apparently abandoned in place before GM developed that area of the Site in the 1920s. Spills were reported to the NYSDEC for both USTs. The 1,000-gallon UST spill was remediated by soil removal and the spill case was closed to the satisfaction of the

NYSDEC. A limited area of residual petroleum contamination remains at the former 10,000-gallon UST location, which could not be completely removed during the ICM project due to access constraints caused by the ongoing demolition activities. This area was further characterized during the RI to confirm the extent of residual contamination in this area.

Overall, approximately 2,000 cubic yards of soil and several hundred tons of demolished concrete were removed during the ICM project. Excavated soils were shipped offsite to a licensed facility for thermal treatment and recycling. Demolished concrete from the ICM was disposed offsite at a permitted solid waste facility. Wastewater generated from excavation dewatering was pretreated to separate any oily product phase before being processed through GM's wastewater treatment plant, which was operating at that time. Oily water was treated offsite at a permitted facility.

3. Objectives, Scope, and Rationale

The previous investigations described in Section 2.3 fulfilled many of the requirements for site characterization outlined in the BCP guidance, by identifying potential areas of concern (referred to as PAOCs) based on record review, site inspection, and sampling. At this site, the PAOCs are a combination of areas that may have been impacted from past industrial operations and areas impacted from the historical fill placed on the Site during the past century. It was found that much of the historical fill does not meet the NYSDEC's TAGM 4046 guidance for unrestricted use, and that certain areas have been additionally impacted from historical operations. Several of the operationally impacted areas have been remediated through ICMs (summarized in Section 2.4). With the prior studies as a foundation, the RI focused on confirming and delineating areas that appeared to represent potential sources of contaminants, relative to the general condition of the Site. Source areas are portions of a site, typically soil or groundwater, which have the potential to release significant contamination to the environment.

At the request of the NYSDEC, soil sampling was performed at a representative number of PAOCs previously characterized by EMCON to validate the pre-existing data. As such, the RI was designed to supplement the previous investigations, complete the overall site characterization, and support development of an RWP.

The specific objectives of this investigation were as follows:

- characterize the extent of potential contaminant source areas that were identified and confirmed in the previous investigations;
- complete the characterization of site fill;
- complete the characterization of site groundwater, including the Kingsland Point Park Boundary;
- determine if methane and (or) other landfill gases are present at significant levels in the soil gas throughout the Site, characterize the spatial distribution of the soil gases, and determine if landfill gases are currently being generated;
- determine if site contaminants have impacted offsite, downgradient property (Kingsland Point Park); and
- verify that site characterization data are adequate and usable for remedy selection.

This sampling program for soils was intended to distinguish between diffuse, site-wide soil contamination, which can be addressed through institutional and engineering controls, and specific areas that might require additional remedial measures. Many of the previous soil sampling results for metals and PAHs above the TAGM 4046 guidance for unrestricted use are likely to be related to the presence of historically emplaced fill constituents, rather than localized discharges. The investigation was also designed to determine whether the petroleum odor, staining, and (or) sheen that have been observed locally in subsurface soils are the result of incidental spillage of petroleum (i.e., with or without an identifiable source), or whether they are related to previously identified point sources.

4. Scope of Work Overview

The field investigation was conducted in accordance with the approved IWP and Addendums 1 and 2. Tables 2 and 3 contain brief summaries of the work carried out within each PAOC, during 2003 and 2004, respectively.

The field investigation included the following elements:

- Geoprobe® soil and groundwater sampling;
- surface material sampling;
- groundwater monitoring-well installation and sampling;
- geotechnical borings (to support subsequent design for source excavation in a former UST area); and
- soil gas sampling and analysis.

The specific field sampling methods used are discussed in Section 4.11 of the IWP. Soil and groundwater sampling, monitoring well installation, field screening of soils, equipment use and decontamination, sample collection and preservation, and chain-of-custody documentation were performed in accordance with the Standard Operating Procedures (SOPs) provided in Appendix A of the IWP and Addendums 1 and 2 (the specific SOPs referenced below were provided in the IWP or Addendums 1 and 2).

Iterative soil sampling was performed, where necessary, to verify that the extent of contamination in each area of interest was adequately defined (or confirmed to be characteristic of the historical fill). This objective was met either by sampling along transects extending outward from a starting location of interest, or within a grid established around an area of interest. Continuation of the initial sampling was based on the results of qualitative field observations and/or rapid analysis of selected samples in the laboratory, depending upon the constituents of interest. When investigating petroleum contamination, qualitative field observations guided the subsequent sampling for contaminant boundary definition. For lead, which exhibited no qualitatively detectable characteristics, laboratory analysis of collected samples was expedited in an iterative sequence that allowed for continuation of analyses until boundaries of contamination were established.

Generally, subsurface soil samples collected for environmental laboratory analysis were obtained using a truck-mounted or track-mounted Geoprobe® rig equipped with Macro-Core® samplers. The standard soil sampling procedures described in Section 5.2.2 of SOP FP-C-2 were employed. A limited number of the soil borings were also performed using a 4-¼ inch I.D. hollow-stem auger (HSA) rig equipped with 2-inch-diameter split-spoon samplers. The subsurface samples collected for geotechnical analysis were obtained using thin-walled (Shelby) tubes, using the procedures outlined in Section 5.2.3 of SOP FP-C-2.

In general, soil borings were advanced through fill material into the underlying native soils/sediments. Continuous soil cores were obtained, from which soil samples were collected for laboratory analysis, as required. The soil cores were examined and classified according to the Burmeister System, with particular attention paid to the presence of any anthropogenic materials. Further, because traces of petroleum have previously been detected in fill materials at the Site, the soil cores were routinely evaluated for evidence of petroleum (e.g., oil staining, petroleum odor, oily sheen) and field-screened using a hand-held photoionization detector (PID). Field screening was used as a basis for expanding the test boring program in the field so that the apparent boundaries of petroleum contamination could be located. Confirmatory laboratory analyses were frequently limited to these boundary areas.

Surface soil (or fill) samples and samples collected at depths of 12 inches bgs or less were obtained using decontaminated stainless-steel hand-trowels, as per Section 5.3.1 of the SOP FP-C-2. The samples were collected from either 6-inch or 12-inch vertical intervals (depending on the sampling specifications given in Table 2).

The temporary and permanent monitoring wells were constructed in accordance with SOP FP-D-1 (Appendix A of the IWP). The wells were developed in accordance with SOP FP-D-2. Purging of the wells was performed using either a submersible or peristaltic pump, according to the low-flow purging method outlined in Section 5.3.4.2 of SOP FP-D-3. Groundwater samples were collected according to procedures described in Section 5.3.5 of SOP FP-D-3. Disposable bailers were used to collect groundwater samples to be analyzed for VOCs and semivolatile organic compounds (SVOCs), according to Section 5.3.5.1 of the SOP, and sampling for metals was performed according to the low-flow procedure described in Section 5.3.5.2 of the SOP.

To verify that the samples collected for analysis of metals were representative of current groundwater conditions, monitoring wells OW-6, OW-7, OW-10, OW-11, OW-12, OW-20, and OW-22 were redeveloped prior to sampling, according to the procedures outlined in SOP FP-D-2 (IWP, Appendix A). The turbidity of the purged water was monitored using a turbidity meter equipped with a flow-through cell. Consistent with TAGM 4015, well development was continued until either a turbidity value of <50 nephelometric turbidity units (NTU) was achieved, or the turbidity of the purged water was observed to stabilize (i.e., no further reduction in turbidity was practical). In some areas where lead is the primary soil contaminant, extended low-flow sampling was performed in an effort to achieve sample turbidities well below 50 NTU.

The specific sampling strategies used in each area of interest are described below.

4.1 Soil Investigation

The goal of the remedy selection process in the Brownfield Cleanup Program is to select a remedy for a site that is fully protective of public health and the environment, taking into account the current, intended and reasonably anticipated future land use of the Site. The use is determined during the application process and confirmed during the remedy selection process. Applicants may elect to propose an unrestricted use cleanup (thus, the equivalent of Track 1) or a use-based approach (Track 4). As stated in the BCAs for both the East and West Parcels, "the intended use of the property is mixed restricted residential/commercial and public open space". The Applicants entered the BCP and made clear their intentions to propose a site-specific use-based approach, having designed the RI under the former VCP to satisfy the data needs for that approach.

NYSDEC guidance on remedy selection for the BCP is summarized in *Draft DER-10, Division of Environmental Remediation Technical Guidance for Site Remediation* (NYSDEC 2002), as it applies to voluntary cleanups. DER-10 specifies that the remedial goal for voluntary cleanups is to be protective of public health and the environment, given the intended use of the Site. Further, where an identifiable source of contamination exists at a site, it should be removed or eliminated, to the extent feasible. NYSDEC offers further discussion and definition of sources in the Draft BCP Guidance, Section 4.3 *Issues to be Considered in Remedy Selection* (NYSDEC 2004) as well as the newly adopted Part 375 Regulations -- 6 NYCRR § 375-18(c). These issues include source removal, plume stabilization, presumptive remedy/strategy, and innovative technologies. All of these issues were considered during the development of the IWP and will be addressed, where applicable, in the appropriate remedial documents. With regard to the Site soils, the previous investigations had provided most of the necessary soil data to characterize the Site and confirm that a restricted use approach would be necessary due to the extensive presence of historic fill on the Site that does not meet Track 1 objectives for unrestricted use. For the RI, emphasis was placed on identifying and delineating possible sources, as defined further in Section 4.3 of the Draft BCP Guidance.

The following hierarchy of source removal and control remedies is ranked in the newly adopted Part 375 regulations (6 NYCRR § 375-1.8(c) and the Draft BCP Guidance from most preferable to least preferable:

- *Removal and/or treatment:* All free product, concentrated solid or semi-solid hazardous substances, dense-non-aqueous phase liquid, light-non-aqueous phase liquid and/or grossly contaminated soil shall be removed and/or treated to the extent feasible.

- *Containment:* Any source remaining following removal and/or treatment shall be contained to the greatest extent feasible.

- *Elimination of exposure:* Exposure to any source remaining following removal, treatment and/or containment shall be eliminated through additional measures, including but not limited to the timely and sustained provision of alternative water supplies and the elimination of volatilization into buildings to the greatest extent feasible.

- *Treatment of source at the point of exposure:* Including but not limited to, wellhead treatment or the management of volatile contamination within buildings, shall be considered as a measure of last resort.

Review of the previous investigations revealed the need to identify and delineate possible sources of lead in historic fill areas, and petroleum in confirmed or suspected historic petroleum spill areas. During the initial phase of the RI in September - November 2003, a possible source area for chromium and TCE associated with historic facility operations was also identified and delineated in the second phase of the RI during April – October 2004. Other areas were investigated to address data gaps identified by the Department and the Applicants, including groundwater quality and soil gases or vapors. The scope of the soil investigations is presented below. Groundwater and soil gas investigations are summarized in Sections 4.2 and 4.3, respectively.

4.1.1 Areas of Elevated Lead Concentrations

During the development of the IWP, ranges of metals detected in Site soils (primarily historic fill) by the previous investigations were examined to determine if any areas should be considered “sources” of contamination. The previous investigations revealed that lead was frequently found at levels above the TAGM 4046 suggested range of 200-500 ppm for typical urban background, throughout several of the large tracts of historic fill (see Drawing 1 for historic fill locations). None of these areas contain free product, concentrated solid or semi-solid hazardous substances, or non-aqueous phase liquids as a source of lead. However, NYSDEC raised a concern regarding the possibility that certain locations might represent substantive areas of grossly contaminated soil (within the BCP definition of source) due to unusually high levels of lead relative to the rest of the historic fill. Therefore, the entire distribution of lead detected throughout the Site in the previous investigations was subjected to a knee-of-the-curve evaluation to determine what levels of lead were considerably above the typical condition for historic fill on the Site. Grossly contaminated soil may be subject to the priorities of source remediation described in the Draft BCP Guidance, described above.

A frequency distribution curve was developed for all 260 samples collected and analyzed for lead in Site soils (historic fill) prior to the RI (EMCON Phase II/III and EcolSciences Due Diligence Investigation). Post-IRM data were excluded. The pre-RI distribution curve illustrates the general condition, with the curve approaching the maximum condition, followed by a marked departure above the norm for a few samples (Appendix B-1). Approximately 62% of the pre-RI values for lead are less than 500 ppm. As values exceed 500 ppm, they approach 10,000 ppm (38% of the samples) before the marked departure above the curve (3% of the samples) is noted.

Evaluation of the geographical distribution of lead revealed that values above 500 ppm were widely distributed throughout the Site, but were also associated with certain types of historic fill. These are areas where cinders and/or ash are typically encountered, which include the pre-1914 fill, the former Village refuse area, and several of the mid-20th century fill segments (Fill Areas D, E, F, G, and H) shown on Drawing 1. Levels above 10,000 ppm appear to be unusual even for historic fill containing cinders and ash, which are components of fill in each of these areas. For example, the State of New Jersey has published a compilation of analytical results for common fill materials (e.g., construction debris, dredge spoils, incinerator residue, demolition debris, fly ash) in which the measured lead concentrations range from 0.28 to 10,700 ppm [N.J.A.C. 7:26E-Appendix D]. The historic fill containing lead above 500 ppm, but less than 10,000 ppm, was considered to be too extensive in area and volume to be removed or remediated differently than all other Site-wide historic fill exceeding TAGM 4046 guidance, but was investigated further in the RI to isolate possible areas of grossly contaminated soil, relative to the normal range for these fill areas. In contrast, lead in dredged material fill (Areas A, K and L) is well below 500 ppm, but may contain other constituents at levels above TAGM 4046 guidance, and would therefore be subject to remediation based on the pre-RI data. The South Parcel, although incorporated into the BCA for the West Parcel, was not sampled in the RI, due to the absence of PAOCs or historic fill on that parcel.

Lead concentration distribution maps (Appendix B-2, Drawings 1 through 5) were originally presented in the IWP. The distribution of lead was examined by location and by depth, and grouped into the following concentration intervals: ≥500 – <1,200; ≥1,200 – <5,700; ≥5,700 – <10,000; and ≥10,000 mg/kg (ppm). These maps show there are five PAOCs where lead was detected in at least 1 sample at a concentration ≥10,000 ppm. These locations are PAOCs 1, 7, 9, 12 and 29. The distribution of lead ≥10,000 ppm by depth intervals (Appendix B-2, Drawings 2 through 5) shows these values in the shallow (0-2-foot) interval within the crawl space areas under the former Body Plant slab (PAOCS 7 and 9) and the crawl space under the north end of the former Chassis Plant (PAOC 12). The remaining values ≥10,000 ppm are found in deeper intervals in PAOCs 1, 7 and 29. PAOC 12 soils exhibiting elevated lead concentrations were removed as part of the IRM conducted by GM in 1998, before the north end of the Chassis Plant was demolished and the crawl space filled. Confirmatory post-IRM samples were below 400 ppm (EMCON 2001B). Therefore, there was no need to include PAOC 12 in the RI for further investigation or delineation of lead. PAOCs 1 and 9 were recommended for investigation due to a single sample result in each area >10,000 ppm. PAOC 7 was recommended for investigation due to two sample results >10,000 ppm. The PAOC 7 study area for the RI also encompasses three sample locations in the ≥5,700 – <10,000 ppm. Although an IRM had been performed within POAC 7, it was performed on discrete areas of oil-stained soil, which would not have removed a significant volume of fill containing lead. PAOC 29 (as shown on RI Drawing 2) was recommended for investigation in the RI to encompass EcolSciences borings 29-2 and SB-2, which fall into the ≥10,000 ppm interval (Appendix B-2, Drawings 1, though 5). Except for two pre-RI samples in this general area, lead levels elsewhere within the pre-1914 fill present in and around PAOC 29 were an order of magnitude lower.

The 10,000 ppm threshold used in this analysis is not proposed in this Report as a specific clean-up objective for the Site. The cleanup objective for unrestricted use, used by New York State Department of Health (NYSDOH), is the USEPA residential lead hazard standard of 400 ppm in soils, promulgated under Section 403 of the Toxic Substances Control Act (40 CFR Part 745) in 2001. The USEPA standard applies to bare soils in residential play areas, accompanied by a standard of 1,200 ppm (as an average) in bare soil in the rest of a residential yard. The emphasis in the USEPA rule is on bare soil, and does not apply to soils under turf or other suitable clean cover that prevents exposure. In contrast, the selected threshold of 10,000 ppm serves as one criterion for identifying soils that may be considered a "source" in the form of grossly contaminated soil. The 10,000-ppm lead threshold is a Site-specific value that was selected as a logical dividing line for the RI because soils yielding results above this number are anomalous relative to the typical lead concentrations encountered throughout large segments of the Site.

Based on this soils approach, a threshold of 10,000 ppm was incorporated into the IWP to locate and delineate areas of grossly contaminated soils (relative to overall Site soils), if any, at PAOCs 1, 7, 9, and 29. Sampling was initiated relatively close to the previous sample locations exhibiting levels greater than 10,000 ppm (within approximately 5-10 feet from the previous samples before extending further), as described in Tables 2 and 3 and shown in Drawings 3 and 4. An iterative sampling strategy was used to determine if these PAOCs contained any significant volume of grossly contaminated soil/fill. The soil samples were submitted to the laboratory for total lead analysis on an expedited turn-around schedule. The initial sampling results were then evaluated in conjunction with the results of field observations to determine whether further sampling was required to define the distribution of lead at concentrations above 10,000 ppm. The results are presented in Section 6.1.1 of this report. Details pertaining to each of the PAOCs sampled are provided below.

4.1.1.1 Former Village Refuse Area (PAOC 1)

As outlined in Table 2, a series of 11 Geoprobe®/Macrocore® test borings were installed within the former village refuse area (PAOC 1) at the locations shown on Drawing 4 and Figure 3, which ranged in depth from 12 to 20 ft bgs. A total of 52 soil samples, including duplicates, were collected from targeted intervals for laboratory analysis of total lead. One soil boring (SB-1-B1) was situated immediately adjacent to a soil boring previously performed by EcolSciences (EcolSciences Boring 43-9 on Drawing 2), and three other soil borings (SB-1-B2 through B4) were located at a distance of approximately 5 ft measured radially from that point. Additionally, six soil borings were performed immediately beyond the perimeter of a former waste-characterization test pit sampled during the EMCON Phase II Investigation (EMCON test pit location 1J on Drawing 1), and one soil boring was placed directly within the boundaries of that test pit (SI-1-B5 through B11). The test pit outline was identified based on the presence of a series of saw-cuts and an asphalt patch within the existing pavement.

4.1.1.2 Fill Area H – Historical Fill Area (PAOC 7)

Within the PAOC 7 area, 39 soil borings were performed at the locations shown on Drawing 3 and Figure 4C, from which 271 soil samples (including duplicates) were collected from targeted intervals for laboratory analysis of total lead. Borings SI-7-B2 through SI-7-B39 were located within and around the inferred horizontal limits of historical Fill Area H (Figure 4C), which was filled around 1955 (EMCON, 1996). These test borings extended into adjacent fill areas to confirm the boundaries of elevated lead. These include Fill Area K (which consists of fill dredged from the Hudson River during 1960) and Fill Areas E, F, G, and I (which contain various mixtures of pre-1960 structural fill).

4.1.1.3 Basement underneath Body Plant (PAOC 9)

Within the basement under the Body Plant (PAOC 9), shallow soil samples were collected from depth intervals of 0 to 0.5 feet (ft) and 0.5 to 1 ft at each of five locations (total of 10 samples) and were submitted to the laboratory for analysis of total lead (Figure 5). The samples were collected using decontaminated stainless-steel hand trowels, as per the surface sampling methods described in Appendix A of the IWP.

4.1.1.4 Former Maintenance Building Area (PAOC 29)

Soil sampling was performed in the vicinity of the Former Maintenance Building (PAOC 29) to define the horizontal and vertical distribution of fill materials containing lead concentrations greater than 10,000 ppm in the vicinity of EcolSciences Boring SB-2 (Drawing 2). As described in Table 2 and shown on Drawing 3 and Figure 7A, a total of 35 soil borings were advanced to depths of 8 to 12 feet bgs using a Geoprobe® rig. The soil borings were advanced through fill materials into the underlying, native marsh deposits to determine the extent of lead in excess of 10,000 ppm. Twelve of the 35 soil borings were performed in an access road/parking area within Kingsland Point Park because elevated lead was found up to the fence line separating the Site and the park, and the expected continuation of fill from the same era (pre-1914) on both sides of the fence line in this localized area (former marsh). Continuous soil cores were obtained from each boring using a Macrocore® sampler, from which soil samples were collected at 2-ft vertical intervals for laboratory analysis. Iterative analyses were used for the onsite samples to establish a boundary line for fill containing lead greater than 10,000 ppm. As an exception, all soil samples collected in Kingsland Point Park were analyzed.

4.1.2 Confirmation of EMCON Sampling Results (PAOC 2, 4, 6, 7, and 17)

As outlined in Table 2, a representative number of PAOCs previously sampled by EMCON between 1996 and 2000 were resampled and analyzed for the complete Target Compound List (TCL) and the TAL to verify the results of prior soil analyses. The purpose of resampling these areas was to obtain and validate analytical data that meet the requirements of the VCP and generally confirm the acceptability of the EMCON data overall. EMCON's samples had been analyzed by Columbia Analytical Services (CAS) Laboratories, Rochester, New York, who possessed full ELAP certification at that time. However, the EMCON data were in the form of Category A deliverables, which could not undergo the same detailed level of data validation that is required under the VCP. CAS Laboratories in Rochester also analyzed all soil and groundwater samples for the RI and provided full Category B deliverables, which were validated by qualified (NYSDEC-approved) professionals.

For the RI, single Geoprobe®/Macrocore® borings were performed within each of five PAOCs, (PAOCs 2, 4, 6, 7, and 17) at the locations shown on Drawing 3. One soil sample was collected from each soil boring for TCL/ TAL analysis, as outlined in Table 2. The analytical results were evaluated to determine whether they supported the validity of the previous Category A data. The results are presented in Section 6.1.2 of this report.

4.1.3 Recycled Concrete Millings (PAOC 14, 15, and 32)

As proposed in the IWP, samples of recycled concrete aggregate millings (millings) were collected at the locations shown on Drawing 3 for analysis of PCBs. The sample locations are located within PAOCs 14, 15, and 32. The samples were collected using a hand trowel, in accordance with the procedures described in Appendix A of the IWP. The analytical results were compared to EcolSciences' prior results for millings, to verify whether the aggregate placed in these areas is similar in composition to the stockpiled millings. The results are discussed in Section 6.1.3 of this report.

4.1.4 Former Maxwell Briscoe Facilities – South Chassis Plant (PAOC 34 and 37)

As outlined in Table 2, a series of subsurface soil borings were performed at the approximate sites of the former Springfield Gas Machine (PAOC 34) and the former machine shop (PAOC 37) in order to determine if there are concentrated contaminant sources in these areas, and to delineate the extent of associated contamination. The former Springfield Gas Machines and the machine shop were inferred from Sanborn Fire Insurance Maps from the early 1900s, prior to GM's use of the Site.

At PAOC 34, four soil borings were each advanced to a depth of 12 feet bgs (Figure 8A). Two soil samples were collected from each soil boring, at depth intervals of 4.5 to 5 feet and 8 to 8.5 feet bgs, which were submitted to the laboratory for analysis of PAHs. As described by EMCON, the Springfield Gas Machines were cold gasoline vapor production units that likely used underground gasoline tanks (Sanborn Maps labeled these as underground systems). The gas vapors were used for facility lighting before electric lighting was commercially available. As such, the contaminants of concern for this area are petroleum constituents. Sampling by EcolSciences revealed the absence of VOCs in this area, but confirmed the presence of PAHs, which could have been derived either from petroleum or historical fill. No significant source of contamination, as defined by the Draft BCP Guidance, was indicated, although there were qualitative indications of residual petroleum staining and odor within the saturated zone.

Within PAOC-37 (location of the former Machine Shop), 18 soil borings were each advanced to depths of up to 16 feet bgs (Figure 8A). An iterative approach was used to delineate the distribution of residual petroleum observed in the subsurface soils by EcolSciences. Initially, four soil borings (SI-37-B1 through B4) were performed within approximately 15 feet of a location previously sampled by EcolSciences (EcolSciences, 2002) (sample location 37-1). Fourteen additional soil borings were subsequently drilled to define the distribution of a subsurface zone of petroleum-stained soil that was identified during the preliminary phase of the investigation. Soil samples were collected immediately above the water table and within the saturated zone in eight of the 14 soil borings to confirm the horizontal limits of the petroleum-stained soil. The samples were analyzed for STARS-list VOCs and SVOCs.

Additionally, one temporary monitoring well was installed at location SI-37-B1 to assess groundwater quality within the inferred source area, from which one groundwater sample was collected for analysis of STARS list VOCs and SVOCs. The well-screen, which intercepted the water table, extended from 5 to 15 feet bgs (refer to the well construction details in Appendix E). One groundwater sample was collected from this well for analysis of STARS list VOCs and SVOCs.

Based on the extent of degraded residual petroleum and associated groundwater contamination, an attenuation zone within the PAOC 37 area was defined. The attenuation zone represents the approximate "area of residual petroleum", interpolated between test borings yielding positive and negative indications of contamination based on field screening and supporting soil analysis (Figure 8A), plus the approximate downgradient area of groundwater contamination (Figure 8C). Field screening was relied upon to define the area of residual petroleum, and supplemented by laboratory analysis of representative soil samples. Because the historic fill in this area of the Site also contains varying levels of PAHs from ash and cinders, not necessarily indicative of residual petroleum, field screening provided the most reliable indicators of residual petroleum. Natural attenuation was proposed in the Conceptual RAWP, subject to verification of the extent of groundwater contamination. In April 2004, four permanent monitoring wells, screened across the water table interface (Figure 8C and Appendix E) were installed and sampled to confirm the extent of the attenuation zone and serve as future monitoring points. The results are discussed in Sections 6.1.4 and 6.2.3 of this report.

4.1.5 Potential Petroleum Contamination, North Body Plant Area (PAOC 21 and 39)

PAOCs 21 and 39 generally represent historical operational areas that lie within the footprint of the former Body Plant (Drawing 2). EcolSciences collected two subsurface soil samples and one groundwater sample from each of these adjacent areas (EcolSciences, 2002). Both areas exhibited PAHs and metals in soils above TAGM 4046 guidance values. Black stained soils with a petroleum odor were encountered at the water table interface in both areas. Groundwater samples exhibited an oily sheen and petroleum odor during sampling, but VOCs and SVOCs were below Class GA standards. Due to the qualitative observations of residual petroleum (odors and sheen), delineation sampling was performed in the RI (Table 1) to determine if these observations were related to a localized source of petroleum (e.g., historic spill) or were related to a possible upgradient source (e.g., historic 10,000-gallon No.6 fuel oil UST discussed in Sections 4.1.10 and 4.2.1).

Six Geoprobe®/Macrocore® soil borings were performed within PAOC 21, at the locations shown on Drawing 3 and Figure 6A. Four borings (SI-21-B1 through SI 21 B4) were initiated approximately 15 feet from EcolSciences Boring 21-1. Refusal was encountered at depths of 2 to 8 ft bgs. Therefore, soil samples could not be collected from the targeted intervals within the saturated zone (below 8 feet). Instead, one soil sample was collected from each of the four soil borings at the lowest interval that could be sampled (lower six inches of core). Three of the samples were collected at or near the water table at depths of 6.5 to 8 ft bgs. Within boring SI-21-B3, in which refusal was encountered at 2 ft bgs, the sample was collected at a depth interval of 1.5 to 2 feet. Additional borings were advanced in an upgradient direction until at least one location where the saturated zone could be sampled was reached. Boring SI-21-B10, which encountered refusal at 12 ft bgs, was drilled entirely within an interval of concrete millings and demolition debris, and was not sampled. Boring SI-21-B11, which was drilled using an HSA rig to advance past the subsurface debris, was successfully advanced into the saturated zone to a depth of 27 ft bgs. This boring was so far upgradient of SI-21-B1 through B4 that it was used to supplement the physical delineation of residual oil associated with the former 10,000-gallon No. 6 fuel oil UST (described in Sections 4.1.10 and 4.2.1), and therefore was not sampled for laboratory analysis.

Within PAOC 39, eight Geoprobe®/Macrocore® soil borings (SI-39-B1 through B8) were performed at the locations shown on Drawing 3 and Figure 9A. Four borings (SI-39-B1 through B4) were initiated approximately 15 feet from EcolSciences Boring 39-1. Refusal was encountered in six of the borings at depth of 4.5 to 12 ft bgs. The other two borings were successfully advanced to the target depth of 16 ft bgs. Soil samples were collected within the saturated zone (where permitted by drilling conditions) or at the deepest available interval (in cases of refusal). In all cases, the sample intervals were biased toward the intervals exhibiting the highest field screening (PID) readings and (or) qualitative evidence of the presence of petroleum. Because all evidence of residual petroleum was observed at intervals located below the water table (i.e., no evidence of petroleum contamination in the unsaturated zone based on field screening), the unsaturated zone was not specifically targeted for soil sampling and analysis.

Soil boring SI-39-B4 (Figure 9B) was converted into a temporary monitoring well, after completion of the soil sampling, as proposed in the IWP. Groundwater samples were subsequently collected for analysis of STARS list VOCs and SVOCs. The results are described in Sections 6.1.5 and 6.2.7 of this report.

4.1.6 Historical Fill with Elevated PAH Concentrations (PAOC 43)

POAC 43 (Historic Fill) was originally identified by EcolSciences as areas of historic fill on the East and West Parcels that had not been previously sampled by EMCON. Based on this additional sampling of historic fill (EcolSciences 2002), PAOC 43 was redefined in the IWP to encompass a relatively small area of interest between the Chassis and Body Plant building slabs on the West Parcel where there was qualitative evidence of residual heavy petroleum contamination below the water table in one sample (EcolSciences Boring “Fill-D”). No significant source of contamination, as defined by the Draft BCP Guidance, was indicated, although there were qualitative indications of residual petroleum staining and odor within the saturated zone. Iterative Geoprobe®/Macrocore® sampling was performed during the RI within this PAOC 43 area, as described in Table 2 and shown on Drawing 3 and Figure 10A. Because the previous analytical results for samples collected from the surrounding areas met TAGM guidance for total carcinogenic PAHs, delineation sampling was initiated relatively close (within approximately 10 ft) to the single high concentration sample collected by EcolSciences, as described in Table 2. Twenty-three soil borings were completed within PAOC 43, typically ranging in depth from 16 to 28 ft bgs. Qualitative and semi-quantitative field-screening methods (e.g., oil-water shake test, hand-held PID) were used to assess the presence or absence of residual petroleum. Confirmatory soil samples were collected from 12 of the soil borings, at various depth intervals, in order to confirm the limits of residual petroleum in the subsurface fill materials.

Based on the extent of degraded residual petroleum and associated groundwater contamination, an attenuation zone within the PAOC 43 area was defined. ,The attenuation zone represents the approximate "area of residual petroleum", interpolated between test borings yielding positive and negative indications of petroleum based on field screening and supporting soil analysis (Figure 10A), plus the approximate downgradient area of groundwater contamination (Figure 10C). Field screening was relied upon to define the area of residual petroleum, and was supplemented by laboratory analysis of representative soil samples. Because the historic fill in this area of the Site also contains varying levels of PAHs from ash and cinders, not necessarily indicative of residual petroleum, field screening provided the most reliable indicators of residual petroleum. Natural attenuation for residual petroleum in PAOC 43 was proposed in the Conceptual RAWP, subject to verification of the extent of groundwater contamination. In April 2004, four permanent monitoring wells were installed to confirm the extent of the attenuation zone and serve as future monitoring points. These wells were screened across the water table interface (Appendix E). The results are described in Sections 6.1.6 and 6.2.4.

4.1.7 Former Gasoline UST – North End of Body Plant (PAOC 45)

As outlined in Table 2 and shown on Drawing 3 and Figure 11A, two Geoprobe®/Macrocore® borings were performed at PAOC 45, which encompasses the approximate location of a former gasoline UST that was identified on a series of historical Sanborn Fire Insurance Maps for the 1909 to 1915 period. These borings were performed to supplement previous investigations by EMCON (3 test pits and test boring TB-09 on Drawing 2) that failed to indicate gasoline contamination at this location (AMEC 2003). In this vicinity, EcolSciences had performed Borings 26-4 and SB-5 for investigation of PAOCs 26 and historic fill, respectively, which overlap PAOC 45. No evidence of petroleum contamination was noted by EcolSciences. For the RI, one temporary monitoring well was installed at boring location SI-45-B1, from which one groundwater sample was collected for analysis of STARS VOCs. Results are described in Sections 6.1.7 and 6.2.5.

4.1.8 Verification of Fill, Chassis Plant (PAOC 46)

PAOC 46 was identified based on information offered anonymously by a former employee at the GM North Tarrytown Assembly Plant. The information referred to alleged disposal of automotive batteries within a concrete assembly line pit (trench), at a specific location within the former Chassis Plant. This information was discussed and initially investigated by EMCON (EMCON 2003). To verify the presence or absence of lead-acid batteries within this sealed concrete chase in the Chassis Plant (PAOC 46), eight Geoprobe®/Macrocore® test borings were advanced into the subsurface soils at the locations shown on Drawing 3 and Figure 12. The test borings were advanced through the Chassis Plant slab and continued to the bottom of each filled chase in question. In addition to visual examination of all soil samples to identify any evidence of battery disposal, 12 soil samples collected from depths of 4 to 6.5 ft below the Chassis Plant slab (i.e., at or near the bottom of each chase) were analyzed for lead to confirm the presence or absence of lead-acid battery contamination. Results are discussed in Section 6.1.8 of this report.

4.1.9 Body Plant at Park Boundary near OW-24 (PAOC 47)

Monitoring well OW-24, which is one of two new monitoring wells installed during the first phase of the RI (September-November 2003) along the boundary between the Site and Kingsland Point Park (see Section 4.2.8), indicated the unexpected presence of trichloroethene (TCE) and chromium at levels above the Class GA standards. A new PAOC (PAOC 47) was assigned to this area and was the subject of subsurface investigations in the second phase of the RI (April – October 2004) summarized in Table 3. To characterize the distribution of TCE and chromium in soil adjacent to well OW-24 and the Kingsland Park Boundary, soil sampling was performed in the vicinity of PAOC 47 to define the horizontal and vertical distribution of fill materials containing TCE and chromium. A series of 27 iterative Geoprobe®/Macrocore® borings were installed and 25 soil samples were collected for VOCs and chromium analysis (Figures 13A and 13C). The dimensions of a filled pit, whose bottom was encountered at approximately 6 ft below the Body Plant slab, was delineated by visual identification of concrete encountered in the Macrocore® samples.

The investigation of PAOC 47 expanded during the RI to include delineation of groundwater containing elevated chromium and chlorinated VOCs (primarily TCE). Fifteen temporary groundwater monitoring wells were installed onsite and sampled for these parameters (Figures 13B and 13D). One well was dry (SI-47-B12) and was replaced with SI-B47-19. In addition, as described in Section 4.2.8, two offsite temporary wells were installed in Kingsland Point Park and sampled for chromium and VOCs (Figure 13D). Surface soil samples (0 to 6 inches) were collected in the park, at the location of each temporary well (Figure 13C) to provide a reference on background chromium levels in the park soils. Results are presented in Sections 6.1.9 and 6.2.6 of this report.

4.1.10 Former 10,000 Gallon Heating Oil UST – North Chassis Plant (PAOC – UST)

Iterative Geoprobe®/Macrocore® sampling was performed along a series of transect lines, as described in Table 2 and shown on Figures 14A through 14D, in order to further delineate the extent of residual oil associated with the former 10,000-gallon heating-oil UST. Previous investigations by EMCON revealed an abandoned UST (circa 1920s) and a body of grossly contaminated soil. The IRM performed by GM in 1998, removed the UST and over 700 cubic yards of grossly contaminated soil from this area, to the extent practicable without undermining the building foundations in that area. Any light non-aqueous phase petroleum product that may have been present before the IRM was not observed following the IRM. The RI investigated the extent of grossly contaminated soils that was not removed during the IRM, including the areas that were not previously accessible. Qualitative and semi-quantitative field screening methods (e.g., soil-water shake test, PID readings, visible petroleum sheen and odor) were used to assess the presence or absence of residual petroleum in and around this area.

Additionally, three geotechnical borings were performed at locations GT-1 though GT-3 (Figure 14A) from which six soil cores were collected using thin-walled (Shelby) tube samplers. The geotechnical samples were analyzed for physical soil characteristics listed in Table 2. The results will be used for conceptual development of possible remedial measures for this area.

Fifty-eight Geoprobe®/Macrocore® borings and one HSA boring (SI-UST-46) were performed for delineation purposes, which ranged in depth from 6.5 ft bgs (in cases of refusal) to 36 ft bgs. In those soil borings where evidence of residual oil was noted based on field observations, the boring was advanced below the affected horizon in order to delineate the vertical extent of petroleum. In soil borings where no evidence of petroleum was found based on field screening (or evidence was minimal), the soil borings were advanced into the underlying native soils/sediments (typically to a depth of 32 to 36 ft bgs), to provide geotechnical information on the thickness and composition of fill in this area.

Borings SI-UST-B1 through B48 were performed in 2003 and provided data used for delineating the vertical and horizontal extent of residual petroleum contamination in the vicinity of the former heating oil UST and proposing preliminary source removal boundaries, as discussed in Section 6.1.10 and shown on Figure 14A. Borings SI-UST-B49 through B58 were performed in 2004 to confirm the concentrations of STARs VOCs and SVOCs around the perimeter of the preliminary source removal boundaries, as discussed in Section 6.1.10 and shown on Figure 14C.

4.2 Groundwater Investigation

The groundwater investigation was performed to complete the characterization of groundwater quality initiated in previous investigations, delineate the extent of groundwater contamination related to specific contaminant source areas, and establish monitoring well networks to verify current and future conditions. For the RI, the groundwater investigation was confined to the West Parcel. As described in Section 2.3.2, groundwater quality in the East Parcel was adequately characterized in the previous investigations, and no location-specific remedial concerns were identified. However, groundwater will be included in the overall remedial strategy of the East Parcel because it does not meet Class GA groundwater standards.

As summarized in Tables 2 and 3, the groundwater investigation consisted of the following elements:

- investigating petroleum constituents in groundwater in the vicinity of the former 10,000-gallon heating oil UST, including PAOC 21 and PAOC 39 (located downgradient of the former UST), and establishing a monitoring well network for natural attenuation monitoring;
- investigating petroleum constituents in onsite groundwater at the north end of the West Parcel to confirm the extent of background petroleum contamination upgradient of the former 10,000-gallon UST;
- investigating metals in groundwater throughout the West Parcel to establish a current baseline;
- investigating petroleum constituents and metals in groundwater in the vicinity of historical Fill Area H (PAOC 7) and establishing a monitoring well network specific to this area;
- investigating lead concentrations in groundwater in the vicinity of PAOC 29;
- investigating the extent of petroleum contamination in groundwater in the vicinity of the former Maxwell Briscoe Facilities (PAOCs 34 and 37) and establishing a monitoring well network for natural attenuation monitoring;
- investigating the extent of petroleum contamination in groundwater in the vicinity of PAOC 43 (historical fill with elevated PAHs) and establishing a monitoring well network for natural attenuation monitoring; and
- investigating groundwater quality along the property boundary between the West Parcel and Kingsland Point Park in the vicinity of PAOC 47.

The field investigations pertaining to each of these elements are described below:

4.2.1 Area of 10,000-Gallon Heating Oil UST, PAOC 21, and PAOC 39

An extent-of-contamination investigation was performed downgradient of the former 10,000-gallon heating oil UST, including PAOCs 21 and 39. A series of 30 temporary monitoring wells (Drawing 3) were installed within an iterative grid pattern, using a series of Geoprobe® borings extending to the base of fill (typically12 to 16 ft bgs). The temporary wells were constructed using 1-inch I.D., Schedule 40 polyvinyl chloride (PVC) screens and risers in accordance with the IWP. Qualitative and semi-quantitative field screening methods (e.g., oil-water shake test, hand-held PID) were used to assess the presence or absence of residual petroleum in the soil. Groundwater sampling for petroleum constituents (STARS List VOCs and SVOCs) was performed to define their upgradient extent between the north end of the property and the former 10,000-gallon heating oil UST, as well as their downgradient extent between the UST and PAOCs 21 and 39 (refer to Table 2).

4.2.2 Onsite Groundwater at North End of Property

To characterize background petroleum contamination upgradient of the former 10,000-gallon heating oil UST, groundwater samples were collected from existing monitoring wells OW-10 and OW-22 (Drawing 3) for analysis of petroleum constituents (STARS list) as described in Table 2. Additionally, one temporary monitoring well (OW-26T) was installed mid-way between the UST area and existing monitoring well OW 10, to further evaluate the extent of background petroleum constituents in the saturated zone. This temporary well was constructed using 2-inch I.D., Schedule 40 PVC screens and risers in accordance with the IWP. The downgradient area was also investigated and delineated by temporary monitoring wells, as described in Section 4.2.1. The purged water was drummed and stored onsite pending the results of the groundwater analyses.

4.2.3 Metals in Groundwater

Previously existing monitoring wells OW-6, 7, 10, 11, 12, 20, and 22 were sampled and analyzed for TAL metals (Drawing 3and Table 2), and in order to establish a current baseline data set. Low-flow purging and sampling techniques were used to minimize the entrainment of solids into the samples, consistent with NYSDEC guidance (TAGM 4015). Additionally, the two new monitoring wells (OW-24 and 25), installed at the Kingsland Park boundary, were analyzed for TAL metals (as part of the analyses described in Section 4.2.8 below).

Temporary well OW-26T was inadvertently included in the sampling program for TAL metals, which was outside the scope of the IWP. Temporary well OW-26T was developed according to the same procedures used to develop (or redevelop) the permanent wells. However, the turbidity of 50 NTU or less was not achieved in this well. Therefore, both filtered and unfiltered samples were collected for analysis of metals.

Monitoring wells OW-6, 7, 10, 11, 12, 20, and 22 were redeveloped prior to sampling, with the objective of reducing turbidity to levels below 50 NTU. Redevelopment of the wells was accomplished using a submersible pump, in conjunction with periodic "surging" of the wells, as outlined in the SOP FP-D-2 (refer to Appendix A of the IWP). The turbidity of the wells was measured periodically using a portable turbidity meter, and well development was continued until no further reduction in turbidity was observed (i.e., the measured results were asymptotic). The purged water was drummed and stored onsite pending the results of the groundwater analyses.

4.2.4 Fill Area H – Historical Fill Area (PAOC 7)

Monitoring wells OW 45, 46, 47, 48, 49, 50, and 51 were sampled and analyzed for TAL metals (Drawing 3and Tables 2 and 3) to provide additional delineation of metals in groundwater. The monitoring wells were constructed using 2-inch I.D., Schedule 40 PVC screens and risers (complete well specifications are provided in Appendix E). Prior to sampling, the wells were developed according to the same procedures used for redevelopment of the existing wells (refer to Section 4.2.3), and the purged water was drummed and temporarily stored onsite pending the results of the groundwater analyses.

4.2.5 Former Maintenance Building Area (PAOC 29)

One temporary well, SI-29-B36, was installed within the center of the area exhibiting lead levels above 10,000 ppm in the fill to obtain one groundwater sample for lead analysis (Drawing 3 and Table 3) The monitoring well was constructed using 1-inch I.D., Schedule 40 PVC screen and riser (complete well specifications are provided in Appendix E). Low-flow purging and sampling was performed to obtain one sample with turbidity less than 50 NTU. The purged water from the groundwater sample was drummed and stored onsite pending the results of the groundwater analyses.

4.2.6 Former Maxwell Briscoe Facilities – South Chassis Plant (PAOC 34 and 37)

One temporary well (SI-37-B1) and four permanent monitoring wells were installed and sampled for STARS VOCs and SVOCS (Drawing 3 and Tables 2 and 3) to confirm the extent of petroleum-contaminated groundwater in this area. The temporary well was constructed using 1-inch I.D., Schedule 40 PVC screen and riser in accordance with the IWP. The permanent monitoring wells were constructed using 2-inch I.D., Schedule 40 PVC screens and risers (complete well specifications are provided in Appendix E). Prior to sampling, the wells were developed according to the same procedures used for redevelopment of the existing wells (refer to Section 4.2.3), and the purged water was drummed and temporarily stored onsite pending the results of the groundwater analyses. The permanent monitoring wells will also be used in the future to monitor natural attenuation.

4.2.7 Historical Fill with Elevated PAH Concentrations (PAOC 43)

Based on the distribution of residual petroleum contamination determined from Geoprobe® borings, five permanent monitoring wells (OW-40 through 44) were installed and sampled for STARS VOCs and SVOCS to confirm the extent of petroleum-contaminated groundwater in this area. The monitoring wells were constructed using 2-inch I.D., Schedule 40 PVC screens and risers (complete well specifications are provided in Appendix E). Prior to sampling, the wells were developed according to the same procedures used for redevelopment of the existing wells (refer to Section 4.2.3), and the purged water was drummed and temporarily stored onsite pending the results of the groundwater analyses. The permanent monitoring wells will also be used in the future to monitor natural attenuation.

4.2.8 Park Boundary near OW-24 (PAOC 47)

Two permanent monitoring wells (OW-24 and OW-25) were installed along the Kingsland Point Park boundary, as described in Table 2 and shown on Drawing 3, to obtain additional baseline groundwater quality data along the downgradient side of the Site. Based on the discovery of chromium and TCE in OW-24 at levels above the Class GA groundwater standards for drinking-water supplies, a new PAOC (PAOC 47) was identified during the RI. Fifteen temporary wells were also installed onsite, through Geoprobe® borings, in the vicinity of PAOC 47 to further characterize the distribution TCE and chromium in groundwater. In addition, two temporary wells (SB-47-B27 and SB-47-B28) were installed offsite in the park immediately downgradient of PAOC 47.

Groundwater samples were collected from OW-24 and OW-25 for the complete TCL/TAL analyses, and groundwater samples collected from the temporary wells were collected for TCL VOCs and chromium. The monitoring wells were constructed using 2-inch I.D., Schedule 40 PVC screens and risers (complete well specifications are provided in Appendix E). The temporary wells were constructed using 1-inch I.D., Schedule 40 PVC screens and risers in accordance with the IWP. OW-24 and OW-25 were developed according to the same procedures used for redevelopment of the existing wells (refer to Section 4.2.3).

The temporary onsite wells were installed and sampled in two phases to delineate the extent of groundwater contamination. Groundwater was analyzed for chromium and TCL VOCs/STARS VOCs.

Temporary offsite wells SB-47-B27 and SB-47-B28, in Kingsland Point Park, were purged dry to remove fine material and allowed to recover for 24 hours prior to collecting groundwater samples. Soil samples were also collected from the surface (0- to 6-inch interval) at SI-47-B27 and SI-47-B28 to determine the background levels of chromium in park soils at these locations. Groundwater was analyzed for chromium and TCL VOCs/STARS VOCs. Purged water from all permanent and temporary wells was drummed and temporarily stored onsite pending the results of the groundwater analyses.

4.3 Soil Gas Survey

4.3.1 Soil Gas Survey: East Parcel

As outlined in the IWP Addendum 1 (AMEC, 2003c), a soil gas survey was performed at the East Parcel and at the locations shown on Figures 15A and B. The survey consisted primarily of field-screening measurements of methane (measured as combustible gas) and hydrogen sulfide, which are typically generated during subsurface biodegradation of organic matter. A representative number of soil gas samples were also collected for laboratory analyses to characterize the individual constituents indicated by the results of the field screening. The survey results were used to develop a three-dimensional profile of methane gas levels. Additionally, four soil Geoprobe® borings were performed to further characterize subsurface soil conditions outside of the former village refuse area, at locations where relatively high methane readings were obtained.

The soil gas survey was conducted in accordance with AMEC SOP FP-C-3 (Appendix A of IWP Addendum 1), following the general guidance of the United States Environmental Protection Agency (USEPA) Soil Gas Sampling SOP 2042 (06/01/96.). Field measurements were obtained for combustible gas, hydrogen sulfide, and oxygen concentrations at 47 locations throughout the 27-acre parcel (Figure 15A). These include five locations along the eastern edge of the buried refuse, approximately 10 to 20 ft outside the asphalt edge. Additional sampling locations were added in the field in an iterative response to the field measurements. In general, field measurements were obtained at two or more of the following depth intervals (subject to local site conditions): approximately 1 ft bgs, approximately 3 ft bgs, immediately above the water table (where groundwater was deeper than 3 ft) and at a mid-point between the 3-ft interval and the water table (where groundwater was deeper than 5 ft). The exact sample depths were determined by the conditions at each location and were recorded in the field logs.

Gas samples were obtained by advancing a Geoprobe® to the appropriate depth. The probe was constructed of stainless steel with a slotted bottom section or tip that allowed for gas sampling at a specific depth. The probe was purged in accordance with AMEC SOP FP-C-3. A LANDTEC GA-90 multi-gas meter was used to draw the soil gas and measure combustible gas and oxygen levels from the desired depth before advancing the probe to the next interval. A LANDTEC hydrogen sulfide pod was added to the instrument to monitor for reduced sulfur gases. In areas that exhibited zero to 1% combustible gas, a portable Flame Ionization Detector (FID) (Photovac MicroFID) was used to screen for ppm levels of total methane and non-methane hydrocarbon vapors. All field readings and observations will be documented on survey log sheets as found in AMEC SOP FP-C-3.

Based on the results of the field survey and field observations, soil gas samples were collected for laboratory analysis at four locations (approximately 10% of the total number of sampling locations) as shown in Figure 16. These included two locations within the refuse area and two locations within the paved parking lot beyond the refuse area. A summary of the laboratory analyses is presented in Table 2. Laboratory samples were collected in evacuated Summa canisters (1-liter size), from locations yielding field readings of between 5% and 25% combustible gas. Per the IWP Addendum 1, this range was selected for sampling to minimize concerns for shipping combustible gas while still providing samples where non-methane hydrocarbons would be expected to be detectable if the source is municipal refuse. The gas samples were analyzed for fixed gases (CO, CO_2, and O_2), methane, and speciated non-methane light hydrocarbons (C2-C5 hydrocarbons and C6+ hydrocarbons) by ASTM D-1945 (GC/FID/TCD), and specific VOC compounds by EPA Method TO-15. Laboratory analysis for hydrogen sulfide and other reduced sulfur gases were not conducted because the field survey data did not indicate the presence of H_2S at elevated (1 ppm or higher) levels.

4.3.2 Soil Gas Survey: West Parcel

The soil gas survey on the West Parcel comprised a methane survey and a VOC survey. Because different sampling strategies and locations were used in each survey, they are described separately.

4.3.2.1 Naturally Occurring Methane Survey

On the West Parcel there is no evidence of buried refuse, based on historical records and representative borings throughout the West Parcel. However, the potential for minor methane generation from natural decomposition of former marsh vegetation, buried by fill during historical site development, was recognized and a sampling plan was designed to provide representative sampling throughout those portions of the West Parcel where marsh vegetation was likely to have existed (IWP Addendum 2). Field measurements of combustible gas and oxygen concentrations were obtained at 33 locations within the West Parcel (Drawing 3and Figure 17). These included five soil gas measuring points within the footprint of the former Pocantico Bay, with the rest along the margins of the former embayment, and within filled areas of the West Parcel underlain by marsh deposits. Iterative sampling was performed, based on the results of initial field measurements at the first 23 locations. In most cases, field measurements were obtained at one shallow depth interval (nominal depth of 2 ft bgs), although some locations required minor modifications to sampling depth to attain a good seal between the soil probe and the atmosphere.

The soil gas measurements were conducted in accordance with AMEC SOP FP-C-3 (IWP Addendum 1), following the general guidance of the USEPA Soil Gas Sampling SOP 2042 (02/16/02.) The majority of the soil gas measurements were performed in areas currently covered either by concrete building slabs or asphalt pavement. To the degree that these existing features may act as barriers to natural soil gas release to the atmosphere, they would be analogous to the conditions anticipated under future buildings at the Site. Fourteen of the sampling points shown on Figure 17 are located within the footprints of proposed new construction at the Site. All sampling locations are located within areas that are currently covered by building slabs or pavement.

The soil gas measurements were obtained through Teflon tubing inserted into test holes created with either using either a Geoprobe® rig equipped with a stainless-steel probe or a hammer drill (in concrete covered areas). The placement and sealing of the sample tubing was performed in the same manner as the East Parcel survey. Once the sampling probe had been advanced to the targeted depth, the tubing was purged in accordance with AMEC SOP FP-C-3 (IWP Addendum 1). A LANDTEC GA-90 multi-gas meter was used to draw the soil gas from the desired depth and measure the combustible gas (assumed to be methane) and oxygen concentrations. Under conditions where less than 1% combustible gas was detected, a portable FID (Photovac MicroFID or equivalent) was used to screen for ppm levels of total methane and non-methane-hydrocarbon vapors.

4.3.2.2 VOC Survey

A quantitative soil gas survey was performed at representative future building area locations within the West Parcel where VOCs have been detected in saturated zone soils (which detections were at least 4-5 feet below ground surface) or in groundwater. There were no areas investigated in the RI or previous investigations where VOCs were confirmed to be present in the unsaturated zone, unless such samples were obtained at the saturated/unsaturated interface (at the water table). A negligible exception is noted where trace part-per-billion levels of toluene or xylenes were reported in numerous surficial or shallow crawl space soil samples under the Body and Chassis Plant slabs from the previous investigations. These observations, many below the method reporting limit, can be considered artifact in the absence of any other evidence of contamination. The sampling strategy of VOCs in soil gas on the West Parcel was to obtain representative samples where VOCs were confirmed to be present within or near the footprint of future buildings, as conceptualized in the DEIS for Lighthouse Landing. As described in Table 2 and shown on Drawing 3 and Figure 18, 52 representative soil gas samples (including duplicates) were collected as follows:

- twenty-five sub-slab soil gas samples, plus two duplicates, collected from shallow soil borings installed through low-permeability surfaces (e.g., concrete slabs and asphalt pavement);
- twenty samples, consisting of 10 pairs of soil gas and crawl space air samples, plus two duplicates, collected from existing crawl spaces beneath the former Chassis and Body Plants; and
- two background air samples, plus one duplicate collected upwind and downwind of the Chassis and Body Plant foundations.

The soil gas survey was conducted in accordance with AMEC SOP FP-C-3 (from IWP Addendum 1), following the general guidance of the USEPA Soil Gas Sampling SOP 2042 (02/16/02). Integrated 1-hour samples were collected in 6-liter Summa canisters and analyzed for VOCs by Modified USEPA Method T0-15. This method consists of a full scan GC/MS analysis of the standard TO-15 compound list, with standard reporting limits, plus naphthalene (2 parts-per-billion-volume [ppbv] reporting limit). Summa canisters were 100% certified free of target compounds (Method TO-15 compound list plus naphthalene) before they were shipped to the Site for sampling. Each canister was fitted with 1-hour fixed flow controllers.

The soil gas measurements were obtained through Teflon tubing inserted into test holes created with either a Geoprobe® rig equipped with a stainless-steel probe or a hammer drill (in concrete covered areas and in areas where access was limited, such as crawl spaces). The targeted sampling depths were as follows:

- in asphalt-paved areas, samples were collected at a nominal depth of 1 ft bgs;

- beneath a competent (intact) concrete slab, the samples were collected immediately beneath the slab; and
- within uncovered soil or other permeable materials (crawl space areas), the samples were collected at a depth of 1 to 2 ft bgs.

The tubing was sealed to the slab or asphalt interface with modeling clay or an equivalent material. For crawl-space soil gas sampling, the annular space between the sample tubing and the soil was packed with sand and the upper 6 inches sealed with bentonite to attain a seal between the soil gas probe and the atmosphere. Once the probe was advanced to the specified depth, and an adequate seal was obtained, the hole was purged in accordance with AMEC SOP FP-C-3 (Addendum No. 1 to IWP). Once the purging was completed, the Summa canister was connected to the Teflon tubing and the soil gas sample was collected. Field duplicate samples, collected at a frequency of one in 10 samples, were obtained simultaneously from a common inlet connected to a Swagelock tee.

The crawl space air and background (outside) air samples were drawn directly from the ambient air. Crawl space sample locations were out of the direct influence of doorways or similar openings.

4.4 Survey Control

Horizontal and vertical survey control for nearly all onsite sample locations from the RI was provided by a licensed New York State land surveyor. The survey coordinates were registered in the New York East State Plane Coordinate System, using the North American Datum of 1983 (NAD 83) and the North American Vertical Datum of 1988 (NAVD 88). Horizontal accuracy on sample locations was within ±1 ft. Exceptions to this level of surveying were as follows:

- soil gas samples from crawl space areas and the test borings for alleged battery disposal in Chassis Plant pits, which are based on field measurements by the sampling team, relative to the structural column grid shown on Drawing 3; and
- offsite sampling locations in Kingsland Point Park, which are based on field measurements taken by the sampling team, relative to onsite surveyed locations.

Vertical control was provided for temporary and permanent groundwater monitoring wells installed onsite during the RI (a vertical benchmark was previously established for the Site). Vertical accuracy requirements were within ±0.01 feet. The horizontal coordinates and elevations of the surveyed sample points were provided to AMEC by the surveyor. The site base map for the RI was used to prepare Drawings 3 and 4, as well as all close-up figures displaying RI sample locations.

5. Quality Assurance/Quality Control

5.1 Field Quality Assurance/Quality Control Procedures

5.1.1 Quality Assurance/Quality Control Samples

The field quality control (QC) procedures were carried out in accordance with the IWP and IWP Addendums 1 and 2. Field QC samples consisted of trip blanks, sample duplicates, and equipment blanks (equipment rinsate blanks). Descriptions of the sample types and frequencies are provided below.

Trip blanks were used to assess any possible contamination that may have occurred during transport of the sample bottles to and from the field. The trip blanks consisted of analyte-free reagent-grade water filled in the specific sampling containers used for the project sampling program. Trip blanks were prepared at the laboratory, sealed, transported to the sampling site, and returned to the laboratory without being opened. Trip blanks were analyzed for VOCs only. Trip blanks were submitted at a rate of one per sampling day whenever VOC samples were to be shipped to the laboratory. Trip blanks were not shipped with soil samples.

Field duplicates were used to assess consistency of sampling, sample homogeneity, and laboratory analytical consistency. Sample duplicates were submitted as laboratory blind duplicates and were analyzed for all analytes of interest. Field duplicates were collected at a frequency of 10% (1 in 10) of the total number of samples collected per sample matrix. Duplicate soil samples, for analyses other than VOCs, were split from a specified sample after the specified sample had been homogenized in the field. Duplicate soil samples for VOC analyses were not homogenized to minimize the loss of volatile constituents to the atmosphere during sample handling. Duplicate groundwater samples were obtained by alternately filling sample containers from the same sampling device.

Matrix spike/matrix spike duplicate (MS/MSD) samples were used to assess the laboratory method's accuracy and precision. These samples were spiked with known quantities of target analytes at the laboratory. The samples were collected at a frequency of 5% (1 in 20). For water samples, triple sample volumes were collected.

Equipment (rinsate) blanks were collected only in cases where non-dedicated sampling devices (e.g., reusable soil trowels) were used for sample acquisition. Dedicated devices include disposable single-use sampling devices (such as Macrocore™ liners and polyethylene bailers) and devices that may remain in place (e.g., inside a monitoring well) for periodic sample acquisition. Equipment blanks were prepared by pouring analyte-free water over decontaminated sampling equipment as a check that the decontamination procedure has been adequately carried out and that there is no cross-contamination of samples occurring due to the equipment itself. Analysis of equipment blanks was performed for all analytes included in the corresponding field samples. One equipment blank was prepared and collected at a frequency of 5% (1 in 20) of the total number of samples collected with a non-dedicated sampling device. Equipment blanks were collected from hand trowels used at PAOC 9 and at PAOCs 14, 15, and 32. Other soil samples were collected using disposable sampling devices.

5.1.2 Calibration of Field Instruments

PIDs used for field screening of soils and air monitoring were calibrated prior to starting field activities using certified calibration gases, in accordance with the manufacturer's specifications, and calibrations were performed periodically throughout the field investigation program. The particulate monitoring instruments (PDMs) used for air monitoring (which were factory calibrated), were re-zeroed daily prior to starting field operations. The field instruments used for measuring temperature, conductivity, dissolved oxygen, pH, turbidity, etc. (used in connection with well development and groundwater sampling) were calibrated in accordance with the manufacturers' specifications, and checked daily. Results of field calibrations and calibration checks were maintained in the field logbook.

5.2 Laboratory Quality Assurance/Quality Control

A Data Usability Summary Report (DUSR) was prepared for each sample delivery group in accordance with the Department's June 1999 Guidance for Development of Data Usability Summary Reports. Each DUSR thoroughly evaluates project-acquired analytical data. The primary objective of the DUSR is to determine whether or not the data, as presented, meet the project-specific criteria for data quality and data use. The DUSRs confirm that the data-quality objectives outlined in the IWP and subsequent addenda were met, and provide the final validated laboratory data tables for all samples. All analytical data included in the RI Report have been validated and any adjustments based on the DUSRs are reflected in the data presented in RI tables and figures. Copies of the DUSRs produced in connection with this investigation are provided to the NYSDEC under separate cover.

6. Results

6.1 Soil Investigation

6.1.1 Areas of Elevated Lead Concentrations

PAOCs 1, 7, 9, and 29 were investigated for the presence and extent of elevated concentrations of lead in soil/fill. A threshold value of 10,000 ppm was proposed in the IWP and in the Conceptual RAWP, based on a knee-of-the-curve soils approach (described in Section 4.1.1) to define potential areas of grossly contaminated soils with respect to lead. Previous investigations revealed that at least one sample from each of these areas had exceeded this value. The goal was to:

- determine if elevated levels of lead (>10,000 ppm) could be verified through systematic sampling to discern a zone of contamination that could be considered grossly contaminated; and
- delineate the extent of the lead >10,000 ppm and define any specific areas to be considered for location-specific remediation.

The laboratory analytical results for lead in soils are summarized in Table 4. Results are presented as mg/kg in Table 4, more commonly referred to as ppm. The corresponding soil boring logs are provided in Appendix D. The results pertaining to each specific area of interest are discussed in the following sections.

6.1.1.1 Former Village Refuse Area (PAOC 1)

Domestic refuse, typically consisting of glass, coal ash, shells, ceramic material, metal debris, and decomposed organic material, was encountered in soil borings SI-1-B4 through SI-1-B11 (Figure 3 and Appendix D), at depth intervals ranging from 3 to 8 ft bgs. The refuse was typically overlain by dredged material fill, which typically consisted of fine sand with scattered oyster shells. Native marsh deposits, consisting of peat and (or) organic-rich clay and silt horizons, were encountered beneath the refuse layer.

The analytical results for total lead from 52 samples (Table 4 and Figure 3) ranged from non-detectable to a maximum of 3,490 ppm. The frequency distribution for the RI data from PAOC 1, provided in Appendix B-3, contrasts the distribution of pre-RI and RI data. Lead was detected at concentrations above the NYSDOH guidance value of 400 ppm (but well below 10,000 ppm) in 8 samples, all of which were collected at depths greater than 5 ft bgs. All of the lead results above the NYSDOH guidance value were associated with the refuse/ash material. The results obtained for duplicate samples SI-1-B7-A-1 and SI-1-B7-A-2 (Table 4) were 720 and 3,490 ppm respectively, which suggest a relatively high degree of sample heterogeneity within the refuse/ash layer. These results are consistent with those of previous EMCON and EcolSciences investigations, in which soil samples collected at adjacent locations typically yielded widely differing analytical results. The RI results indicate that lead concentrations within the refuse/ash layer are typically well below 10,000 ppm. Even the previous results did not suggest that there was a discernable body of fill with elevated lead concentrations in PAOC 1. The single EMCON Phase II sample from the ash/refuse layer that had yielded 43,500 ppm was part of a duplicate analysis from the same sample, where the duplicate result was 1,270 ppm. All other EMCON samples showed lead to be below 500 ppm in the refuse area. The 52 samples from the RI did not encounter any materials containing lead greater than 10,000 ppm, confirming that such elevated values are not typical of PAOC 1.

Because the RI results demonstrated that there is no zone of grossly contaminated soil in PAOC 1, the Former Village Refuse Area is not considered a source area for lead. Therefore, location-specific remediation is not recommended for lead within this area. PAOC 1 is recommended for remediation under a Site-wide approach for areas that do not meet TAGM 4046 guidance. In addition, the need for a general area-specific remedial plan for methane in this area, and throughout the East Parcel, is discussed in Section 6.3.1.

6.1.1.2 Fill Areas H, F and G – Historic Fill Area (PAOC 7)

Fill materials encountered within Fill Area H (the historic fill in PAOC 7) extend to a depth of 12 to 13 ft bgs (Figure 4C and Appendix D). Anthropogenic (human derived) materials, such as slag, glass, brick fragments, concrete, coal ash, and metal fragments, were observed throughout the fill materials sampled in Fill Area H. Additionally, a layer of slightly oil-stained silt/muck was encountered at a depth interval of approximately 8 to 12 ft bgs (Appendix D), which typically contained metal parts such as bolts, washers, and pieces of wire.

The analytical results for PAOC 7 soil samples are summarized in Table 4. Lead concentrations ranged from not-detected (in 23% of the samples), to a maximum of 167,000 ppm. Of the 271 soil samples (including 25 duplicates) that were analyzed within Fill Area H and vicinity (Fill Areas F, G and K), 21 samples (8 %) yielded lead results greater than 10,000 ppm. A majority of samples (approximately 58%) were below 400 ppm. The frequency distribution for the RI data from PAOC 7/Fill Areas H, F and G, provided in Appendix B-3, illustrates a similar curve to the Site-wide condition observed with the frequency distribution of the pre-RI data shown in Appendix B-1. In comparison, the 8% occurrence of values>10,000 ppm within PAOC 7/Fill Areas H, F and G is only slightly higher than the 3% occurrence of these levels observed Site-wide in the pre-RI data.

All of the samples in which lead was detected above 10,000 ppm were collected from intervals where anthropogenic fill materials were observed. As shown on Figure 4C, 12 of the 19 samples containing lead concentrations above 10,000 ppm were collected at depths greater than 4 ft below the crawl space ground surface (within the groundwater saturated zone). The original high-density sampling that was conducted within Fill Area H at the beginning of the RI in 2003 was later expanded to cover a larger area once it was realized that lead levels above 10,000 ppm were detected in more than one location. As the delineation continued on an iterative basis, elevated lead levels were also found in several samples from adjacent Fill Area F and in one sample from adjacent Fill Area G. Boring SI-7-B16 is displayed as being in Fill Area K (Figure 4C), but based on the physical classification of fill materials encountered, boring SI-7-B16 is representative of Fill Area H rather than Fill Area K.

The materials encountered in Fill Area K consist entirely of dredged material fill (fine sand with traces of oyster shells), which extended to a depth of approximately 16 ft bgs. This material was dredged from the Hudson River main channel and placed directly onsite during 1960 (EMCON, 1996). All eight soil samples collected from Fill Area K that consisted of dredged material yielded analytical results for lead that were below the 400 ppm NYSDOH guidance value for unrestricted use (maximum was 225 ppm lead). Fill Area K therefore provides a substantial separation zone between the elevated lead materials and the Hudson River shoreline.

Collectively, the analytical results from the PAOC 7 area indicate that lead concentrations >10,000 ppm are primarily confined to Fill Areas H and F, which may have slightly larger boundaries than shown on Figure 4C based on the fill encountered and the lead distribution just beyond those inferred boundaries. However, the distribution of lead greater than 10,000 ppm is heterogeneous, without any common zone of contamination or even a common confirmed source of lead within the fill. At the OW-45 location, the deep samples (11 to 12 ft bgs) exhibited more than 10,000 ppm lead along with evidence of sunken barges (wood, oily material, and metal debris) that were used as containment structures to construct the fill units. The maximum lead concentration of 167,000 ppm was associated with slag found at 1 to 2 ft bgs.

Overall, there is a significant volume of historical fill in Fill Areas H and F, and possibly Fill Area G, (in excess of 20,000 cubic yards) containing a wide range of lead concentrations at varying depths, including levels greater than 10,000 ppm. However, only 8% of the samples exceed 10,000 ppm, and 58% are below 400 ppm; indicating that this entire volume is not grossly contaminated with lead. Rather, this area represents a significant mass of historic fill with fairly well mixed concentrations of lead, but which still warrant special attention relative to the remainder of the Site.

As demonstrated by the groundwater investigation (Section 6.2.1), lead is not currently impacting groundwater in this area. Under current conditions, lead found in the historical fill in this area is not a source of groundwater contamination.

Based on these findings, an evaluation of location-specific remedial alternatives is recommended for PAOC 7Fill Areas H, F and G. The long-term potential for lead to remain inert, with respect to future groundwater quality, should be considered in evaluating remedial options. Remedial alternatives to prevent future public exposure to lead-contaminated fill in this area, including some excavation, should be considered.

Based on subsurface materials described in the RI boring logs (Appendix D), the approximate boundaries of fill areas in this part of the Site, originally approximated from historical maps and aerial photographs, are not accurate enough for defining the actual source area boundaries. Preliminary boundaries encompassing the area within PAOC 7/Fill Areas H,F and G to be evaluated for remediation will be presented in the remedial documents and will be based on a more detailed review of boring logs, historical maps, and the observed distribution of lead at levels greater than 10,000 ppm.

6.1.1.3 Basement underneath Body Plant (PAOC 9)

PAOC 9 encompasses an area of a wastewater sewer overflow observed within the former Body Plant crawlspace during facility operations in 1996 (Drawing 2). For the RI, the specific location of concern at PAOC 9 was defined by a single surficial soil sample from the Body Plant Basement in 1997 that exhibited lead at a concentration greater than 10,000 ppm in the general vicinity of the former sewer overflow. The EMCON Phase III investigation (EMCON 2001) reported one out of 16 samples from this area of the crawl space above 10,000 ppm (10,500 ppm at EMCON surface sample BP-33-2).

Of the 10 surface soil samples collected during the RI within the immediate vicinity of BP-33-2 (Figure 5) only two yielded lead results above the 400 ppm TAGM 4046 guidance value (but well below 10,000 ppm). The highest lead concentration detected (995 ppm) was in surface sample SI-9-S4-A-1. All 10 surficial samples collected during the RI from this location exhibited considerably lower levels of lead (< 1,000 ppm) than was indicated by the single 1997 sample, confirming that lead levels of 10,000 ppm, or greater, are not typical of PAOC 9.

Because the RI results demonstrated that there is no zone of grossly contaminated soil in PAOC 9, this region of the crawl space area beneath the former Body Plant slab is not considered a source area for lead. Therefore, location-specific remediation is not recommended for lead in this area. PAOC 9 is recommended for remediation under a Site-wide approach for areas that do not meet TAGM 4046 guidance.

6.1.1.4 Former Maintenance Building Area (PAOC 29)

The subsurface soils encountered in the former Maintenance Building Area (PAOC 29) consisted of a sequence of fill extending to a depth of up to 8 ft bgs (Figure 7A and Appendix D), which was underlain by native marsh deposits (peat, clay, and silty clay). The fill materials typically included anthropogenic components, such as coal ash, glass, nails, concrete fragments, brick fragments, crushed stone, and wood. In borings SI-29-B1 through SI-29-B4, the fill was principally coal ash. The fill encountered in borings SI-29-B5 through SI 29 B8 generally consisted of 50% or more medium to fine-grained sand, along with the anthropogenic components listed above. Offsite fill encountered in Kingsland Point Park, beneath the roadway and parking strip ranged in thickness from 4 feet along the GM Site fence line to 6 inches where the paved surface met the higher terrain in the park. This fill consisted of brown and black fine to coarse sand with varying amounts of glass, coal, and gravel. The underlying native material consisted of brown sand or black organic sediments, which also contained glass fragments.

The analytical results for lead in PAOC 29 area soils are summarized in Table 4 and Figure 7A. Lead was detected in all but one sample, ranging from 6.22 ppm to a maximum of 90,000 ppm. The frequency distribution for the RI data from PAOC 29, provided in Appendix B-3, illustrates a similar curve to the Site-wide condition observed with the frequency distribution of the pre-RI data shown in Appendix B-1, but with a somewhat higher frequency of values >10,000 ppm. Separate frequency curves for the onsite and offsite (Kingsland Point Park) data from PAOC 29 are also provided in Appendix B-3. Approximately 14% of the onsite samples (11% of the combined onsite/offsite data) exhibited values >10,000 ppm. This frequency is slightly higher than the 8% frequency observed in PAOC 7/Fill Areas H, F and G. Approximately 38% of the onsite values were below 400 ppm.

The samples yielding analytical results above the NYSDOH guidance value of 400 ppm were associated exclusively with the fill material. As shown in Table 4 and Figure 7A, lead was detected at concentrations >10,000 ppm within random depth intervals in 12 out of 35 soil borings. All borings yielding greater than 10,000 ppm were on the GM Site, at depths ranging from 1 to 9 ft bgs. Presently, the fill in this area is entirely covered by asphalt or concrete. Lead concentrations above 10,000 ppm do not extend offsite. Approximately 86% of the offsite soil/fill samples in Kingsland Point Park exhibited lead concentrations below the NYSDOH guidance value of 400 ppm. The samples containing lead above 400 ppm ranged from 420 to 815 ppm, and were distributed between 0.2 to 6 feet below the asphalt surface in the park road that runs along the GM fence line.

The lead levels above 10,000 ppm in the PAOC 29 area are clustered in one relatively contiguous area, but randomly distributed throughout the depth of fill. The fill encountered at this location is not visibly distinct from the general blended historical fill used throughout this area of the Site, and exhibits no visible or other chemical indication of an association with the former maintenance building in this area. A possible boundary for grossly contaminated soil at PAOC 29 can only be based on the observed distribution of lead at levels greater than 10,000 ppm, since no other distinguishing characteristics are evident. However, only 14% of the samples exceed 10,000 ppm, indicating that this entire volume within this boundary is not grossly contaminated with lead. Rather, this area represents a large mass of historic fill with fairly well mixed concentrations of lead not readily distinguishable from the surrounding pre-1914 fill, but concentrated enough to still warrant special attention, relative to the remainder of the Site.

As demonstrated by the groundwater investigation (Section 6.2.2), lead is not currently impacting groundwater in this area. Under current conditions, lead found in the historical fill in this area is not a significant source of groundwater contamination.

Based on these findings, an evaluation of location-specific remedial alternatives is recommended for PAOC 29. The long-term potential for lead to remain inert, with respect to future groundwater quality, should be evaluated in the remedial documents. Remedial alternatives to prevent future public exposure to lead-contaminated fill in this area, including some excavation, should be considered.

6.1.2 Confirmation of EMCON Sampling Results (PAOC 2, 4, 6, 7, and 17)

The locations of the soil borings performed in PAOCs 2, 4, 6, 7, and 17 are shown on Drawing 3 (SI-2-B1, SI-4-B1, SI-6-B1, SI-7-B1, and SI-17-B1). As shown by the soil boring logs in Appendix D, all of the soils sampled consisted of fill, which contained anthropogenic materials such as coal ash, glass, concrete fragments, and rock fragments. The analytical results pertaining to these soil borings are summarized in Tables 5 through 8.

A comparison of the soil analytical results produced during this investigation with those reported previously at PAOCs 2, 4, 6, 7, and 17 (EMCON Phase III Investigation) is presented in Table 9. From a qualitative standpoint, the analytical results generated during this RI appear to be comparable to those obtained during the previous EMCON investigations at PAOCs 2, 4, 6, 7, and 17 (i.e., most of the same compounds were detected). Quantitative comparisons based on the relative percent difference (RPD) between adjacent samples show variations on the order of 100% or more for some analytes (Table 9). These differences can be attributed the heterogeneity of the fill materials that were sampled. Therefore, results from all previous investigations by EMCON are considered reliable for site characterization purposes. Data from the previous investigations were considered in the development of the IWP and Conceptual RAWP.

With the exception of PAOC 7, which was recommended for location-specific alternatives analysis (as described in Section 6.1.1.2), the RI results did not indicate that these re-sampled areas should be considered for location-specific remediation. Therefore, PAOCs 2, 4, 6, 17 and all other PAOCs identified by EMCON, not otherwise recommended for location-specific remediation in this RI Report, are recommended for remediation under a Site-wide approach for areas that do not meet TAGM 4046 guidance.

6.1.3 Recycled Concrete Millings (PAOC 14, 15, and 32)

The analytical results for the concrete millings samples collected at PAOCs 14, 15, and 32 are summarized in Tables 5, 7, and 8. The sample locations are shown on Drawing 3. The results were similar to those reported in connection with the EcolSciences Due Diligence Investigation (EcolSciences, 2002) for PAOC 32 (Millings Pile). Levels of PAHs and several metals exceed TAGM 4046 guidance values for unrestricted use (Tables 5 and 8) and have similar ranges to those observed for historical fill (see similar results for PAOCs 2, 4, 6, 7, and 17). PCB Aroclors 1248 and 1260 were detected at maximum concentrations of 1.8 mg/kg and 2.6 mg/kg respectively (Table 7). The maximum total PCB concentration detected in these samples was 4.4 mg/kg. The source of trace PCBs in the millings has not been determined. The millings consist of unscreened recycled concrete aggregate from the slabs, decks, and walls of the demolished GM assembly plant and support buildings. Prior to demolition, a comprehensive assessment of hazardous and other regulated materials was conducted. PCB-containing equipment was removed and associated contaminated concrete (e.g., within electrical transformer areas and some hydraulic fluid pump systems) was cleaned or removed for offsite disposal prior to demolition. Therefore, the presence of trace PCBs throughout the millings was not anticipated. Ancillary materials associated with the demolished slabs (imbedded in the slabs or coating some surfaces) may have contributed. For example, fragments of structural steel reinforcement (rebar) materials (brick, wire, and glass) were observed in the millings. The surfaces of some concrete fragments were also observed to be covered with paint and (or) other coatings.

With the majority of milling samples yielding values at or close to the 1 ppm TAGM guidance value for unrestricted use, but well below the 10 ppm TAGM guidance value for subsurface soils (under clean cover), the millings are of suitable quality for use as subsurface structural fill. Due to the collective presence of several metals, PAHs, and PCBs at levels above TAGM 4046 guidance for unrestricted use, the millings are not suitable for general surface applications.

Based on these findings, the millings (PAOCs 14, 15 and 32) are not recommended for location-specific remediation. Rather, the millings should be considered as structural fill that may be placed below barrier cap surfaces suitable for the end uses at the Site. With that approach in mind, PAOCs 14, 15 and 32 are recommended for remediation under a Site-wide approach for areas that do not meet TAGM 4046 guidance.

6.1.4 Former Maxwell Briscoe Facilities – South Chassis Plant (PAOC 34 and 37)

The analytical results for soil and groundwater samples collected during this investigation are summarized in Tables 5, 6, and 11, and shown on Figures 8A and 8C, respectively. Soil boring logs are provided in Appendix D.

Fill materials were encountered at PAOC 34 to depths of up to 12 ft bgs (Appendix D). Anthropogenic (human derived) materials observed in the fill included concrete and brick fragments, coal ash, and wood (lumber). No evidence of petroleum was noted in the soil borings, based on field screening (e.g., stains, odors, sheens or PID readings). Several PAHs were detected at concentrations above the applicable TAGM 4046 guidance values in soil samples collected from the depth interval of 4 to 4.5 ft bgs (Table 5 and Figure 8A), but were not detected in samples collected from the 8 to 8.5 ft depth interval. Given that no evidence of petroleum was observed in the subsurface soils, these results may be related to the presence of coal ash in the fill material, rather than a petroleum source.

Within the vicinity of PAOC 37, a layer of fill was encountered, which typically extended to a depth of 7 to 8 ft bgs (Appendix D and Figure 8B). The fill layer consisted of a mixture of dredged material fill (typically fine sand with oyster shells), along with traces of coal ash and building demolition debris. Below the fill layer was a sequence of native soils consisting principally of reddish-brown, stratified, fine- to coarse-grained sand. The depth to groundwater ranged from 6 to 8 ft below grade (Figure 8B).

A lens of dark-gray, petroleum-stained soil was encountered within the saturated zone, at a typical depth interval of 9 to 12 ft bgs. The stained soil was observed only within the native soils. No oil staining was noted within the overlying soils in the unsaturated zone. The horizontal and vertical distribution of petroleum staining is shown in Figures 8A and 8B respectively.

A strong petroleum odor (suggestive of #2 heating oil or diesel fuel) was noted in the stained soil, which typically yielded initial PID readings at the sample surface of up to 600 ppm above background. No evidence of floating product was observed. Oil/water agitation screening performed in the field with this stained soil typically produced a thin film coating the sides of the sample jar, which was pale yellow in color. These observations are consistent with the presence of a relatively "light" petroleum source, such as #2 heating oil or diesel fuel. From these collective observations, an "area of residual petroleum" was identified (Figure 8A).

As described in Section 4.1.4, confirmatory soil samples were collected from seven soil borings located immediately beyond the observed "area of residual petroleum" (Figure 8A). Two soil samples were collected from each soil boring, one immediately above the water table, and one within the saturated zone. Additionally, one soil sample was collected from petroleum-stained soil observed within boring SI-37-B17, which was located adjacent to the retaining wall shown on Figure 8A. The analytical results for soil are summarized in Tables 5 and 6, and are described below.

A series of VOCs (principally xylenes and benzene derivatives) were detected at concentrations of 5.4 to 25 ppm in sample S-37-B17-A-A (Table 6), which was collected from petroleum-stained soil at a depth interval of 8.5 to 9 ft bgs. No VOCs were detected in the other samples, which were collected outside the perimeter of the petroleum-stained soil. SVOCs were detected in samples collected from three soil borings. As shown in Table 5 and on Figure 8A, traces of SVOCs were detected in soil samples collected from perimeter borings SI-37-B1, SI-37-B3, and SI-37-B8, at depth intervals ranging from 5 to 8 ft bgs. No evidence of petroleum was observed at these locations (the results of oil/water agitation tests and head-space analyses were all negative). Two of the samples were collected from fill material within the unsaturated zone, at a depth interval of 5 to 5.5 ft bgs. As shown in the corresponding boring logs (Appendix D), coal ash was observed within the fill material at both locations. Sample SI-37-B3-A-1 (Table 5) was collected within the saturated zone, at the lower contact between the fill layer and the underlying native soil. Given that no evidence of petroleum was observed within this interval, and the fact that no VOCs were detected, the presence of PAHs in sample SI-37-B3-A-1 may be related to anthropogenic materials (e.g., coal ash) present in the fill.

The results of groundwater sampling of temporary monitoring well SI-37-B1, located within the center of the residual petroleum area are summarized in Table 11 and shown on Figure 8C. The VOCs n-butylbenzene and n-propylbenzene were detected at concentrations slightly above the Class GA guidance values (Table 11). Other VOCs were detected at concentrations below the NYSDEC standards or guidance values including xylenes, naphthalene, and several benzene derivatives. Additionally, traces of several PAHs were detected. These results suggested that any residual petroleum remaining in the soil and groundwater beneath PAOC 37 has undergone extensive degradation and weathering during the past 80 to 90 years, and that the associated petroleum constituents in groundwater are relatively dilute. The Conceptual RAWP recommended natural attenuation as the location-specific remedy for this area, subject to defining the boundaries and establishing an appropriate monitoring well network.

In contrast to the initial groundwater results described above, there were no detectable VOCS or SVOCs in groundwater subsequently obtained from permanent monitoring well OW-39, installed next to temporary well location SI-37-B1 to monitor natural attenuation conditions. VOCs and SVOCS were also not detected in downgradient monitoring well OW-36, or in upgradient monitoring well OW-38. The second downgradient monitoring well (OW-37) exhibited only traces of naphthalene and several SVOCs (below method reporting limits). Naphthalene (at estimated values of 1.9 and 2 parts per billion [ppb] is below the Class GA guidance value of 10 ppb. Many of the trace estimated SVOCS were not even detected in the duplicate groundwater sample collected from OW-37. Based on the collective soil and groundwater data, the natural attenuation zone for residual petroleum at PAOC 37 has been confirmed (as shown in Figure 8C) and adequately encompassed by monitoring wells OW-36 through OW-39. Groundwater results are further discussed in Section 6.2.3.

Based on these findings, an evaluation of location-specific remedial alternatives is recommended for PAOC 37, with consideration of natural attenuation as a viable alternative. However, location-specific remedial action is not recommended for PAOC 34. PAOCs 34 and 37 are also recommended for remediation of non-petroleum constituents under a Site-wide approach for areas that do not meet TAGM 4046 guidance.

6.1.5 Potential Petroleum Contamination, North Body Plant Area (PAOC 21 and 39)

The locations of the subsurface soil borings performed in PAOCs 21 and 39 are shown on Drawing 3 and Figures 6A and 9A, respectively. The corresponding soil boring logs are provided in Appendix D.

A sequence of fill was encountered beneath PAOC 21 extending to a depth of up to 17 ft bgs. The fill typically contains anthropogenic materials such as glass, brick fragments, concrete, coal ash, and wood (lumber). The underlying native soils could be characterized at only one boring location (SI-21-B11), as refusal due to buried concrete was encountered elsewhere. The native soils at this location consisted of a sequence of interbedded fine sand and silt which, in turn, was underlain by a sequence of peat and organic-rich clay (marsh deposits).

Within the PAOC 21 area, there was no evidence of petroleum contamination in the unsaturated zone (above the water table). Evidence of minor petroleum contamination was noted at two locations within the saturated zone. Since this area is downgradient of the former 10,000-gallon No.6 fuel oil UST (discussed in Section 6.1.10), the saturated zone contamination in the PAOC 21 area appears to be associated with the spill that occurred at the former 10,000-gallon No. 6 UST more than 80 years ago. The proximity of PAOC 21 samples to the 10,000-gallon No. 6 UST is shown on Figure 14A. A petroleum odor was noted in saturated soils recovered from a depth of 8 feet below grade in boring SI-21-B2, from which a PID reading of 98 ppm was obtained (Appendix D). In soil boring SI-21-B11, a faint petroleum odor and sheen were noted in soil collected from a depth of 15 to 17 ft bgs, and the corresponding PID readings ranged from 10 to 15 ppm. The analytical results for soil samples collected from SI-21-B1 through B4 showed very little evidence of petroleum compounds (Tables 5 and 6), suggesting that the PAOC 21 area is not a source of petroleum contamination. Therefore, location-specific remediation is not recommended for petroleum in soil in this area, other than including this area in the petroleum attenuation zone for the former 10,000 gallon No.6 fuel oil UST. PAOCs 21 and 39 are recommended for remediation under a Site-wide approach for areas that do not meet TAGM 4046 guidance.

The soils underlying PAOC 39 consist of a sequence of fill approximately 12 ft thick, which is underlain by interbedded sand, silt, and organic-rich clay deposits (Appendix D). Oil staining, oily sheen, and relatively high PID readings (more than 1,000 ppm) were noted in soil cores obtained from borings SI-39-B1 through SI-39-B5, which are shown on Figure 9A, at depth intervals ranging from 7 to 10 ft bgs (within the saturated zone). Refusal was encountered in borings SI-39-B6 at depths of 6 to 8 ft bgs. No petroleum-stained soils were noted within the unsaturated zone. The soil sampling results (Table 5 and 6) confirmed the presence of PAHs and petroleum VOCs in the oil-stained saturated zone. The single groundwater sample collected from temporary monitoring well SI-39-B4 yielded qualitatively similar results, with several PAHs and petroleum VOC compounds detected at relatively trace concentrations, but above the Class GA standards or guidance values for drinking-water supplies (Table 11 and Figure 9B.) Owing to the general absence of a local source of petroleum contamination in PAOCs 21 and 39, location-specific remediation is not recommended for groundwater in this area. The observed petroleum constituents in the saturated zone should be remediated as part of the petroleum attenuation zone for the former 10,000 gallon No. 6 fuel oil UST. Groundwater is discussed further in Section 6.2.7. PAOCs 21 and 39 are also recommended for remediation under a Site-wide approach for areas that do not meet TAGM 4046 guidance.

6.1.6 Historical Fill with Elevated PAH Concentrations (PAOC 43)

The soils underlying PAOC 43 consist of a wedge of fill material ranging in thickness from approximately 6 to 23 ft (Figures 10A and Appendix D). A cross-section of this area is provided on Figure 10B. The fill consists predominantly of fine sand mixed with crushed stone, concrete, brick fragments, coal ash, and wood (lumber). Layers of wood (planed lumber) recovered from the soil cores suggest the presence of buried wooden structures (e.g., docks or bulkheads) within the fill. Beneath the lower contact of the fill, a sequence of organic-rich fine sands and silt was encountered (Figure 10B), which was interpreted as native soils/sediments. An interval of oil-stained soil was encountered at the typical depth interval of 10 to 12 ft bgs (i.e., below the water table). The source of this residual oil has not been confirmed, but is likely one or more historical petroleum spills within this former (pre-1960) waterfront area., before approximately 5 feet of dredged material fill was added to this area to establish the post-1960 ground surface elevation. The affected soil/fill was characterized by a strong petroleum odor and an oily sheen observed on soil samples collected within the saturated zone. However, PID readings were typically less than 200 ppm above background. At some locations, a black, viscous, oily coating was observed on the soil grains. However, no evidence of free-floating product was observed in monitoring wells installed in this area, as described in Section 6.2.4.

Although visible evidence of residual oil was typically encountered between 10 to 12 ft bgs, the analytical results for soil samples collected from oil-stained intervals revealed relatively low concentrations of petroleum constituents throughout much of this area. VOCs were analyzed in samples from the two borings that exhibited the highest PID readings (SI-43-B18 and B-20), but the trace levels detected by the laboratory were below TAGM guidance values (Table 6 and Figure 10A). SVOCs were relatively low overall, except for the 7.5- to 8-ft interval sample from SI-43-B6 and the 12- to 13-ft interval from SI-43-B19, which exhibited total SVOCs (4,682 ppm and 4,675 ppm, respectively) above the 500 ppm TAGM guidance value. However, borings within 20 ft of B-6 exhibited only trace levels of PAHs. SI-43-B19 did not exhibit evidence of residual petroleum contamination, suggesting that the historical ash/cinder fill may be the source of PAHs at this location. Based on qualitative evidence of degraded residual petroleum, identified through field screening of subsurface soil samples (sheens, odors, PID readings, or visible oil stain), as well as supporting soil analyses and groundwater sampling, an “area or residual petroleum” was identified (Figure 10A). Field screening methods are described further in Section 4.1.6. Natural attenuation was proposed for this area in the Conceptual RAWP, subject to confirmation of the extent of groundwater contamination. Groundwater quality results from monitoring wells installed in April 2004, including a monitoring well near the B-6 and B-19 locations, are discussed in Section 6.2.4. Figure 10C identifies the areas of residual petroleum and associated downgradient groundwater contamination.

Based on these findings, an evaluation of location-specific remedial alternatives is recommended for PAOC 43, with consideration of natural attenuation as a viable alternative. PAOC 43 should also be evaluated for remediation of non-petroleum constituents under a Site-wide approach for areas that do not meet TAGM 4046 guidance.

6.1.7 Former 10,000 Gallon Gasoline UST – North End of Body Plant (PAOC 45)

No evidence of petroleum was noted in either of the two soil borings performed at PAOC 45 (Figure 11A and Appendix D). The analytical results for STARS VOCs in soil at SI-45-B1 and B2 (Table 6) were below the applicable TAGM guidance values. These results are consistent with EMCON’s findings based on test pits and a test boring in this area. Also, as described in Section 6.2.5, groundwater at this location was not impacted with petroleum-derived VOCs (Figure 11B) above Class GA groundwater standards. Therefore, this area is not recommended for location-specific remediation. PAOC 45 is recommended for remediation under a Site-wide approach for areas that do not meet TAGM 4046 guidance.

6.1.8 Verification of Fill, Chassis Plant (PAOC 46)

No visible evidence of buried batteries or any other solid waste was noted in the soil borings performed in the filled pits at PAOC 46 (Figure 12 and Appendix D). The fill encountered was primarily sand. The reported concentrations of lead in the fill (Table 4) were below the NYSDOH guidance value of 400 ppm for unrestricted use. Therefore, location-specific remediation is not recommended for this area. Although the fill materials tested are not contaminated with lead, fill disrupted during Site development should be handled under a soils management plan. Therefore, PAOC 46 is recommended for remediation under a Site-wide approach for areas that do not meet TAGM 4046 guidance.

6.1.9 Park Boundary near OW-24 (PAOC 47)

The investigation near OW-24 was designed to locate and delineate the sources of chromium and TCE that were initially detected in groundwater at levels above Class GA groundwater standards for drinking-water supplies. This finding resulted in the addition of a new PAOC (PAOC 47) to the RI. Through iterative sampling along transects branching out from OW-24, a subsurface concrete slab was located immediately upgradient of OW-24, approximately 6 ft beneath the Body Plant floor slab. There is no crawl space or basement under this section of the slab. The subsurface slab encountered appears to be the base of a former pit.

Of the 24 soil samples collected at PAOC 47 (Table 7 and Figure 13C), 22 yielded chromium results above the 10 ppm TAGM 4046 guidance value for unrestricted use. However, levels well above 200 ppm are indicative of the source area, based on their association with the filled pit. The highest chromium concentration detected (3,750ppm) was in SI-47-B15 at 4.6 to 5 bgs. This depth coincides with the bottom of the filled pit (Figure 13C), where degraded yellow-stained concrete was encountered. The concrete bottom of the pit appears to have been saturated with chromium, likely from an historical wet process in the pit. The boundaries of the chromium source area have been defined as the outline of the filled pit, based on field observations and analytical results. Chromium in soil/fill outside the source area ranges from 8.7 to 81.9 ppm, which is within the background range of chromium throughout the Site, based on previous investigations by EMCON and EcolSciences. As discussed in Section 6.2.6, the extent of groundwater contamination has also been defined, including confirmation of chromium and TCE in offsite groundwater within Kingsland Point Park.

The source area for TCE appears to be located in the immediate vicinity of this filled pit, despite the absence of a confirmed zone of significant TCE contamination in the soils or fill. Trace concentrations of VOCs were detected in soil samples from PAOC 47, but no strong source area for TCE was located (Table 5 and Figure 13A). The maximum level of 0.045 ppm was located within the pit, at the bottom (6.5 to 7 ft). This maximum is below the TAGM guidance value of 0.7 ppm for TCE. Soil analysis for VOCs was not extensive due to the lack of positive field screening results with a PID. A larger area was covered by temporary wells (Figure 13B), which encountered relatively low-level groundwater contamination, coincident with the buried slab, but with no indication of a concentrated source area. TCE in groundwater samples from the temporary wells ranged from non-detect to 21 ppb, with the highest levels in the immediate vicinity of the filled pit. The extent of TCE in groundwater is coincident with the chromium-contaminated pit, and is limited to a relatively small radius around the pit. However, the potential source area may include a zone upgradient of the pit based on the distribution of TCE in groundwater. Alternative points of entry into the saturated zone from any TCE releases attributable to historical operations may have included the floor drains observed in this portion of the former Body Plant slab. Groundwater contamination, including the offsite sampling in Kingsland Point Park, is discussed in Section 6.2.6 of this report. The extent of TCE and other VOCs in soil vapors associated with PAOC 47 is discussed in Section 6.3.2.2.

Based on these findings, an evaluation of location-specific remedial alternatives is recommended for PAOC 47, to remediate the source-area soils associated with chromium and TCE in groundwater. Measures to remediate downgradient groundwater and soil vapor contamination should also be evaluated.

6.1.10 Former 10,000 Gallon Heating Oil UST – North Chassis Plant (PAOC UST)

A previous IRM completed in 1998 removed most of this abandoned No. 6 heating oil UST, as well as more than 700 cubic yards of oil-contaminated fill. A portion of the UST that was pinned in by piles that were driven to support the 1929 construction of the Chassis Plant remains in place, along with residual oil that resides around the perimeter and bottom of the IRM excavation. Test borings from the RI revealed that the subsurface materials within the vicinity of the former UST consist of a layer of fill material extending to a depth of up to 21 ft bgs (Figures 14A and 14B) (Appendix D). At least two different types of fill were observed: (1) an upper layer of dredged material fill (consisting principally of fine sand and traces of oyster shells) mixed with crushed stone, concrete, brick fragments, and traces of coal ash (extending to a depth of 5 to 15 ft bgs); and (2) an underlying (older) fill layer consisting predominantly of coarse-grained coal ash (cinders) along with wood, brick fragments, concrete, metal debris, and glass (Figure14B).

Iterative field screening of Geoprobe®/Macrocore® samples was used to qualitatively determine the vertical and horizontal extent of residual oil contamination in the vicinity of the former UST (Figure 14A). Oil-stained soils were observed to be present only within the saturated zone at depths ranging from 7 to 21 ft bgs. The thickness of the oil-stained intervals, rather than the depth of contamination, is illustrated in Figures 14A and 14B. The oil staining was observed principally within the older fill layer described above. Typical evidence of residual oil included elevated PID readings (up to 10,000 ppm above background), a strong petroleum odor, a visible sheen, and dark brown or black staining of the soil (Appendix D). Within some borings located relatively near the source area (former UST), a coating of dark, viscous oil was observed on the soil grains. However, at a majority of the locations where evidence of oil was observed, the physical indicators were limited to a sheen and elevated PID readings. No evidence of recoverable free-product phase was observed within the soil borings or currently existing monitoring wells located within the area of the former 10,000-gallon UST. Previous temporary observation/recovery wells, installed by EMCON within the UST excavation cavity, had not exhibited any free recoverable product following the UST removal (EMCON, 2001b).

Oil-stained soil was observed principally in association with the lower fill layer (coal ash). Most of the oil staining was observed to be on the former landward side of the inferred location of the 1926 shoreline bulkhead (Figure 14A) Residual oil contamination generally runs parallel to the buried bulkhead in the vicinity of the former UST.

The distribution of residual oil contamination shown on Figure 14A is based on field observations from borings SI-UST-B1 through B-47 (Appendix D), as well as previous borings from EMCON (EMCON, 1997 and 2001a). Isopachs (contours that connect points of equal thickness) were developed from these data to illustrate the distribution of residual oil in the subsurface. Because these isopachs represent thickness of the impacted interval based on field screening, they should not be confused with the depth of contamination. In general, the upper boundary of these isopachs is at or below the water table, which ranges from approximately 4 to 10 ft below the existing surfaces in this area. This information was used to prepare the proposed limits of source remediation in this area (Figure 14C), as described in the Conceptual RAWP. Since the proposed limits of source remediation could leave some residual contamination in the saturated zone, soil samples were collected from 10 Geoprobe®/Macrocore® borings located around the perimeter of the proposed removal area to quantify petroleum constituent concentrations. Soils exhibiting the greatest degree of apparent petroleum contamination, based on field screening, were selected and analyzed for STARS list VOCs and SVOCs. Sample depths ranged from 9 to 14 ft bgs, based on selection of the most visibly contaminated interval. Samples were submitted to the laboratory from nine of the 10 borings and included two duplicates (SI-UST-B55 was not analyzed based on the absence of residual contamination, as indicated by field screening).

The analytical results presented in Tables 5 and 6, and on Figure 14C indicate that seven out of nine boring locations exhibited VOCs and/or SVOCs above TAGM guidance values, but represented relatively low levels of petroleum contamination at the edges of the proposed source remediation area. Since the conceptual RAWP assumed that deep low-level residual petroleum contamination will remain outside the high-level source remediation area, these data confirm that the proposed source area boundaries are generally adequate. Some adjustments to the proposed boundary may be proposed when assessing the remedial approach. The balance of residual petroleum contamination resides in the saturated zone and will continue to be remediated through time by natural attenuation. Based on the qualitative observation of residual oil and the quantitative soil and groundwater data from test borings and temporary wells, a natural attenuation zone was established (Figure 14D). The groundwater quality associated with the attenuation zone perimeter will be discussed further in Section 6.2.7.

Based on these findings, an evaluation of location-specific remedial alternatives is recommended for the PAOC UST area, with consideration of a combination of source remediation and natural attenuation as a viable alternative. The attenuation zone is also recommended for remediation of non-petroleum constituents under a Site-wide approach for areas that do not meet TAGM 4046 guidance.

6.2 Groundwater Investigation

Groundwater flows through the shallow unconfined fill units from the East Parcel through the West Parcel before discharging to the Hudson River. Figure 19 shows the generalized flow throughout the Site, based on the EMCON investigations. Localized flow from the northern end of the East Parcel to Pocantico Creek is also suggested by the contours. A more detailed representation of groundwater flow through the West Parcel is provided on Figure 20, based on water elevations from the expanded network of monitoring wells installed as of April 2004. The laboratory results for all groundwater samples obtained from either permanent or temporary monitoring wells are summarized in Tables 10, 11, and 12. The NYSDEC standards and guidance values displayed on these tables are groundwater quality standards (6NYCRR Part 703.5) and guidance values for Class GA groundwater (drinking-water supplies), provided in the NYSDEC’s Technical and Operational Guidance Series (TOGS) 1.1.1, June 1998 as amended. They are not provided as proposed cleanup criteria for this site, because groundwater at the Site is not currently used, and it is reasonable to assume that it will not be used as a potable water source in the future. The same values are also referenced in TAGM 4046 as groundwater standards and criteria, where they are used by the NYSDEC as the basis for generic soil cleanup objectives to protect groundwater quality. The results pertaining to each area of interest are discussed below:

6.2.1 PAOC 7/Fill Area H

Following the development of the Conceptual RAWP, seven monitoring wells were installed within and around PAOC 7/Fill Area H and vicinity (Figure 4D), in accordance with IWP Addendum 2, to determine if lead and petroleum constituents in the fill materials are impacting groundwater in this area. Three of the seven monitoring wells were installed within Fill Area H, including two locations where the fill samples exhibited lead levels greater than 10,000 ppm and low levels of petroleum hydrocarbons (OW-45 and OW-47), and a third well was installed in the western (downgradient) outer edge of Fill Area H (OW-48). One well was installed in Fill Area F (also at a location where lead exceeded 10,000 ppm in the fill) to monitor water quality immediately upgradient of Fill Area H (OW-49). Three downgradient wells were installed approximately 30 feet beyond the confirmed edges of Fill Area H (OW-46, 50 and 51).

Lead concentrations in unfiltered samples from an initial round of groundwater samples (April 2004) ranged from non-detect to 116 ppb (Table 10). Three samples (OW-45, OW-47, and OW-49) yielded lead concentrations greater than the Class GA groundwater standard of 25 ppb (Table 10). No lead was detected in the filtered samples, confirming that lead was in the particulate phase. There appeared to be a relationship between the turbidity (a measurement of the relative sample clarity) and lead concentrations. For the samples from OW-45, 47, and 49 where lead exceeded the 25 ppb standard, turbidities ranged from 25 to 340 NTU (Appendix G). These data suggested that lead may not be leaching from the fill, but may be associated with fine particulate matter suspended in the samples. Despite the presence of lead in the solid fill at levels greater than 10,000 ppm, there was relatively little indication of impact to groundwater.

To confirm the possibility that groundwater has not been impacted with lead (i.e., Class GA standards are being met), the wells that yielded lead above the standards in unfiltered samples were redeveloped using low-flow procedures (described in the IWP), which minimize entrainment of suspended solids into the well. Redevelopment records are provided in Appendix F. The wells were re-sampled twice (July 2004) using the low-flow procedures. Consistent with the April samples, lead was not detected in the filtered samples collected from this area in July. However, NYSDEC guidance (TAGM 4015) on groundwater samples for metals indicates that unfiltered samples are preferred, and are acceptable for analysis if the turbidity does not exceed 50 NTU. Low-flow procedures yielded progressively lower turbidities during re-sampling, and levels below 50 NTU were eventually achieved (Appendix G). In the July 2004 re-samples from OW-45 for example, lead was detected at 38.5 ppb and 14.3 ppb in the unfiltered samples at turbidities of 193 and 3.9 NTU respectively, confirming that OW-45 complies with the Class GA standard of 25 ug/l. Figure 4D displays the lowest lead values that were achieved in unfiltered low-turbidity samples. The Class GA standard for lead was achieved in all monitoring wells within and downgradient of PAOC 7/Fill Areas H, F and G. These results demonstrate that groundwater in this area has not been impacted by lead.

Under current conditions, lead found in the historical fill in PAOC 7/Fill Areas H, F and G is not a source of groundwater contamination. The long-term potential for lead to remain inert, with respect to future groundwater quality, should be evaluated.

Both OW-47 and OW-48 exhibited traces of petroleum VOCs and SVOCs (Table 11 and Figure 4D) at similar levels. No petroleum VOCs or SVOCs were detected in the other monitoring wells downgradient of PAOC 7 (OW-46, 50, and 51), suggesting that petroleum contamination has only affected a very localized area. The limited distribution of petroleum constituents, after almost 50 years since the fill was placed in this area, suggests that contaminants are attenuated by natural processes and/or subsurface barriers such as buried barges and bulkheads.

The low levels of lead and petroleum constituents within this area can be adequately monitored with the existing monitoring well network (Figures 4B and 4D) to verify the effectiveness of attenuation.

As recommended in Section 6.1.2, an evaluation of location-specific remedial alternatives is recommended for PAOC 7/Fill Areas H, F and G. No matter what remedial alternative is selected for soil in this area, remediation of groundwater is recommended under a Site-wide approach for areas that do not meet Class GA groundwater standards.

6.2.2 PAOC 29 Area

One temporary monitoring well (SI-29-B36) was installed at PAOC 29 within a cluster of borings exhibiting greater than 10,000 ppm lead (Figure 7B). Groundwater samples were collected from this temporary well, and from permanent monitoring well OW-11 located in the nearest downgradient vicinity of the elevated lead area at PAOC 29, using low-flow procedures to verify that turbidity levels in the samples were below 50 NTU. Unfiltered samples were obtained from both wells because the turbidity standard of 50 NTU was met. One additional filtered sample was obtained from the temporary well for comparison. Analysis of unfiltered samples from SI-29-B36 and OW-11 yielded 75.2 and 5.1 ppb lead, respectively, compared to a Class GA standard of 25 ppb for drinking-water supplies. No lead was detected in the filtered sample from SI-29-B36, suggesting that lead is associated with the particulate phase in the B-36 location. Considering the frequency of lead concentrations greater than 10,000 ppm in the PAOC 29 fill, there is little indication from the groundwater results that the observed concentrations of lead in groundwater are due to leaching. As was demonstrated in PAOC 7/Fill Areas H, F and G wells, even low turbidities at or just below 50 NTU can lead to false positive indications of groundwater contamination from lead. When sampling temporary wells like SI-29-B36, it was generally not possible to obtain samples with consistently low turbidity in the range of 10 NTU or less. Therefore, the unfiltered sample from SI-29-B-36, with a corresponding turbidity of 36 NTU, is likely to overestimate the true lead concentration in groundwater.

It is noted that OW-11 may not ideally intersect all of the potentially impacted groundwater from this area. Comparison of groundwater contours between Figures 19 and 20 suggest localized variability in groundwater flow directions near PAOC 29. Both OW-10 and OW-11 could periodically intercept groundwater flow from the affected area of PAOC 29 as a result of these apparent fluctuations. In either case, total lead concentrations in OW-10 and OW-11 have not been detected above the Class GA standard.

Based on the absence of dissolved lead in the filtered sample and compliance with drinking-water guidelines in two monitoring wells that are periodically downgradient, it is apparent that lead is not impacting groundwater in this area. Under current conditions, lead found in the historical fill in PAOC 29 is not a significant source of groundwater contamination. As recommended in Section 6.1.4, an evaluation of location-specific remedial alternatives is recommended for PAOC 29. No matter what remedial alternative is selected for soil at PAOC 29, remediation of groundwater is recommended under a Site-wide approach for areas that do not meet Class GA groundwater standards.

6.2.3 Natural Attenuation Area for PAOC 37

Four permanent monitoring wells were installed to confirm the extent of groundwater contamination to be included in the proposed natural attenuation zone at PAOC 37, and to be used in the future to monitor the effectiveness of natural attenuation. The attenuation zone encompasses the area of residual petroleum, identified through field screening of subsurface soil samples (sheens, odors, PID readings, or visible oil stain) and supporting laboratory analysis of soil (described in Section 6.1.4), as well as the area of downgradient groundwater contamination (Figure 8C). The monitoring well network included one upgradient well, one well within the source area, and two wells at the downgradient edge of the residual petroleum area (Figure 8C). Petroleum-derived VOCs and SVOCs were detected at relatively trace levels in the center of the residual petroleum area in temporary monitoring well SI-37-B1, but were not detected in the permanent monitoring well installed adjacent to SI-37-B1 (OW-39). Downgradient well OW-36 did not encounter VOCs or SVOCs. VOCS in downgradient well OW-37 were within Class GA standards for drinking-water supplies and SVOCs were at trace levels (estimated levels below method reporting limits). In addition, as described in Section 6.3.2, some petroleum-derived VOCs were also detected in soil vapors within the attenuation zone. The need for any remedial measures for soil vapors will be evaluated in the remedial documents.

Based on these findings, the boundaries of the natural attenuation zone at PAOC 37 have been confirmed and the monitoring well network is adequate for use in monitoring and verifying the effectiveness of attenuation for remediating this area.

As discussed in Section 6.1.4, an evaluation of location-specific remedial alternatives is recommended for PAOC 37, with consideration of natural attenuation as a viable alternative. PAOC 37 is also recommended for remediation of non-petroleum constituents under a Site-wide approach for areas that do not meet Class GA groundwater standards.

6.2.4 Natural Attenuation Area for PAOC 43

Five permanent monitoring wells were installed to confirm the extent of groundwater contamination to be included in the proposed natural attenuation zone at PAOC 43, and to be used in the future to monitor the effectiveness of natural attenuation. The attenuation zone encompasses the area of residual petroleum, identified through field screening of subsurface soil samples (sheens, odors, PID readings, or visible oil stain) and supporting laboratory analysis of soil (described in Section 6.1.6), as well as the area of downgradient groundwater contamination (Figure 10C). This monitoring well network included one upgradient well, two wells at the most contaminated locations, and two wells at the downgradient edge of the residual petroleum area (Figure 10C). In addition, one previously installed well (OW-8) was sampled as another downgradient monitoring point. Within the zone of residual petroleum contamination, OW-41 and OW-43 exhibited SVOCs at levels above Class GA standards and guidance values (Table 11). Downgradient OW-42 exhibited lower levels of SVOCs relative to OW-41; OW-42 also exhibited naphthalene and other petroleum-derived VOCS. These VOCs were not detected in OW-49, approximately 170 feet downgradient of OW-42 (Figure 4B). The second downgradient well (OW-43) and OW-8 exhibited no VOCs or SVOCs above Class GA standards or guidance. In addition, as described in Section 6.3.2, some petroleum-derived VOCs were also detected in soil vapors within the attenuation zone. The need for any remedial measures for soil vapors will be evaluated in remedial documents.

Based on these findings, the boundaries of the natural attenuation zone at PAOC 43 have been confirmed. The monitoring well network, in conjunction with monitoring wells further downgradient (OW-45 through 49), is adequate for use in monitoring and verifying the effectiveness of attenuation for remediating this area. Other than verification by groundwater monitoring and any additional measures that may be recommended in remedial documents to mitigate the potential impact of soil vapors on future land use in this area, no further location-specific remedial actions are recommended for groundwater at this location.

As discussed in Section 6.1.6, an evaluation of location-specific remedial alternatives is recommended for PAOC 43, with consideration of natural attenuation as a viable alternative. PAOC 43 is also recommended for remediation of non-petroleum constituents under a Site-wide approach for areas that do not meet Class GA groundwater standards.

6.2.5 Former 10,000 Gallon Gasoline UST – North End of Body Plant (PAOC 45)

One temporary monitoring well (SI-45-B1) was installed in the vicinity of a former gasoline UST noted on Sanborn Fire Insurance Maps (Drawing 3 and Figure 11B) and sampled for STARS VOCs. No VOCs exceeded

Class GA groundwater standards or guidance values listed in TOGS 1.1.1. In conjunction with the test boring results from this area (Section 6.1.7), there was no indication of a gasoline spill at PAOC 45. Therefore this area is not recommended for location-specific remediation. PAOC 45 is recommended for remediation of non-petroleum constituents under a Site-wide approach for areas that do not meet Class GA groundwater standards.

6.2.6 Park Boundary near OW-24 (PAOC 47)

Permanent monitoring wells OW-24 and OW-25 were installed along the Kingsland Point Park boundary and sampled in the initial 2003 phase of the RI (Drawing 3). Groundwater contamination was not anticipated to be significant in this area, based on the previous investigations. These monitoring wells were sampled and analyzed for the full TCL and TAL. TAL metals are shown in Table 10, VOC and SVOC results in Table 11, and pesticide/PCBS results in Table 12. There was no evidence of groundwater contamination in OW-25 when they were sampled for the complete TCL/TAL in October 2003. Although iron, manganese, and sodium exceed the Class GA standards for groundwater as a drinking-water supply, these constituents are not indicative of site contamination. Rather, this condition is consistent with general conditions elsewhere onsite. These constituents are likely related to naturally occurring sources (iron/manganese oxides in the soil and sodium associated with the Hudson River Estuary). When OW-25 was sampled for STARS VOCs in May 2004 (Table 11), trace levels of secondary petroleum VOCs (that are not TCL analytes), were detected. These VOCs were isopropylbenzene (7.9 ppb) and n-propylbenzene (5.2 ppb). The observed concentrations are slightly above the Class GA guidance value of 5 ppb for drinking-water supplies. Since OW-25 is located along the downgradient edge of the 10,000-gallon UST attenuation zone, the detected VOCs are most likely associated with the attenuation zone.

In contrast to OW-25, VOC and metal contamination unique to this part of the Site was encountered in OW-24 when it was initially sampled in October 2003. TCE and chromium were detected at levels of 75 ppb and 554 ppb respectively, which are above the Class GA standards of 5 ppb for TCE and 50 ppb for chromium. The OW-24 area was named PAOC 47 based on these findings.

As shown on Drawing 3and Figures 13B and 13D, 15 temporary wells were installed onsite between October and April 2004 in the PAOC 47 area, and two temporary wells were installed offsite in Kingsland Point Park in October 2004 to delineate the extent of groundwater contamination in the PAOC 47 area. Groundwater samples were collected from the temporary wells and analyzed for VOCs and chromium. TCE was detected above the applicable Class GA standard of 5 ppb in 10 of the 15 onsite sampling points, and one of the two offsite sampling points. The extent of groundwater contamination encompasses a relatively small area, but is more extensive than was indicated by soil samples from the PAOC 47 test borings described in Section 6.1.9. OW-24 exhibited the maximum concentrations of TCE (33 to 75 ppb). In addition, cis-1,2 dichloroethene (a biological degradation by-product of TCE) was also detected in OW-24 at 2.6 to 9.1 ppb, compared to the Class GA standard of 5 ppb (Table 11 and Figure 13B).

Chromium was detected above the Class GA standard for drinking-water supplies (50 ppb) in 26 out of 42 filtered and unfiltered groundwater samples, at concentrations ranging from 60 to 42,100 ppb (Table 10 and Figure 13D). Where detected, chromium was present on both filtered and unfiltered samples (many at nearly equivalent levels), indicating that chromium is generally present in the dissolved phase. The maximum chromium concentration (42,100 ppb), was detected in a filtered sample from SI-47-B7 at the edge of the filled pit believed to be the source of chromium (as described in Section 6.1.9). Upgradient of the filled pit, chromium is either not detected or meets the 50 ppb standard. Offsite, chromium exceeded 50 ppb in one of the two temporary wells in the park, at a maximum level of 150 ppb (Figure 13D).

Based on these findings, it is recommended that location-specific remedial alternatives be evaluated for chromium and TCE in groundwater, integrated with remedial alternatives for soil and soil vapors at PAOC 47. The extent of soil contamination was discussed in Section 6.1.9. The TCE detected in groundwater at this location is also considered the source of TCE in soil vapors, as discussed in Section 6.3.2.2.

6.2.7 Area of 10,000-Gallon Heating Oil UST, PAOC 21, and PAOC 39

SVOCs (principally PAHs) were detected in all of the wells located downgradient of the former 10,000-gallon UST (Table 11 and Figure 14D). Generally, the presence of SVOCs in groundwater was associated with the occurrence of residual oil staining or odors (as observed in the soil borings). PAOC 21 and 39 are encompassed within the 10,000-gallon UST attenuation area shown in Figure 14D. Within the attenuation area, the constituent concentrations appear to show very little petroleum contamination. The boundaries were inferred from field observations of residual oil contamination in the saturated zone, as evidenced by test borings and temporary wells installed in the early phase of the RI. The attenuation area is surrounded by monitoring wells exhibiting either trace or no detectable petroleum VOCs and SVOCs. Based on these results, the existing monitoring well network is adequate for monitoring natural petroleum attenuation downgradient of the UST.

Naphthalene, as well as traces of benzene and related petroleum VOCs, was detected at concentrations above the applicable NYSDEC guidance in OW-47 and OW-48, which is located within PAOC 7. Similar low-level petroleum contamination was noted in temporary monitoring well SI-GWI-B11W within PAOC 7 (Table 11 and Drawing 3). Compared to the general absence of VOCs throughout the former 10,000-gallon UST attenuation area, the VOCs detected in PAOC 7 may be related to localized low-level petroleum contamination. As noted in Section 6.1.1.2, localized petroleum staining was noted at the base of the PAOC 7 fill unit (Fill Area H).

As discussed in Section 6.1.10, an evaluation of location-specific remedial alternatives is recommended for the 10,000-gallon No.6 fuel oil UST source area, with consideration of natural attenuation of petroleum contaminants in groundwater as a viable alternative outside the source area. PAOCs 21 and 39, which are not recommended for location-specific alternatives analysis due to absence of localized sources in those areas, lie within the downgradient extent of groundwater contamination associated with this UST. This entire area is also recommended for remediation of non-petroleum constituents under a Site-wide approach for areas that do not meet Class GA groundwater standards.

6.2.8 Onsite Groundwater at North End of Property

The area north (upgradient) of the former No. 6 oil UST was investigated for petroleum contamination by sampling permanent monitoring wells OW-10, OW-3, and OW-22, as well as temporary well OW-26T (Drawing 3). The results for VOCs (Table 11) show the presence of petroleum VOCs above the applicable NYSDEC guidance at OW-10, and significantly decreasing at OW-26T, midway between OW-10 (upgradient end of West Parcel) to the UST. Previous investigation by EMCON established that OW-10 was impacted by an offsite gasoline spill. A trace level of benzene (1.5 ppb) was detected in OW-22, which may be related to the UST or may be attributed to the background petroleum contamination detected in OW-10. Petroleum VOCs detected in OW-10 are of relatively recent gasoline origin, presumably from an offsite spill. These findings are consistent with previous sampling at OW-10 by EMCON in 1997.

Overall, background petroleum VOC contamination exists upgradient of the UST area. Little, if any, background gasoline contamination has impacted the UST area, suggesting that natural attenuation processes have effectively minimized the extent of contaminant migration at the North end of the West Parcel. Residual petroleum contamination detected in soil samples from the saturated zone within 200 ft upgradient of the former UST appears to be related to localized oil contamination in the vicinity of the UST (Figure 14A and 14D), rather than to the background gasoline-derived contamination at the north end of the West Parcel, based on field observations and analytical results. As discussed in Section 6.1.10, an evaluation of location-specific remedial alternatives is recommended for the 10,000-gallon No.6 fuel oil UST source area,

Based on these findings, no additional areas are recommended for location-specific remediation. Throughout the West Parcel, remediation of groundwater is recommended under a Site-wide approach for areas that do not meet Class GA groundwater standards.

6.2.9 Metals in Groundwater – West Parcel

In addition to the location-specific groundwater investigations discussed in the preceding sections, one round of groundwater samples was collected from existing and new monitoring wells on the West Parcel in the initial 2003 phase of the RI (Drawing 3). Development/redevelopment of wells OW-6, OW-7, OW-10, OW-11, OW-12, OW-20, and OW-22 (Appendix F) was performed successfully (i.e., turbidity levels of less than 50 NTU were achieved in these previously installed wells). The measured turbidities within the two newly installed permanent wells (OW-24 and OW-25) were also reduced below 50 NTU. However, the turbidity in temporary well OW-26T was observed to stabilize above 50 NTU, despite prolonged well development efforts (Appendix G).

Unfiltered samples were collected from OW-6, OW-7, OW-10, OW-11, OW-12, OW-20, OW-22, OW-24, and OW-25. Both filtered and unfiltered samples were collected from temporary well OW-26T, due the relatively high turbidity (>50 NTU) of the samples.

The analytical results for metals in groundwater are shown in Table 10. Results are consistent with previous investigations and provide a baseline for any future monitoring. The analytical results for barium in unfiltered samples were above the applicable Class GA standard of 1,000 ppb for drinking-water supplies in the samples collected from wells OW-10 and OW-11. Additionally, lead was detected in unfiltered samples collected from wells OW-20 and OW-26T at concentrations (81.7 and 88.1 ppb respectively) above the Class GA standard of 25 ppb (Table 10). As evidenced by the lower concentration of 22.1 ppb lead in the filtered samples from OW-26T (complies with the Class GA standard of 25 ppb), lead appears to be strongly associated with the particulate phase. Iron, manganese, and sodium were also detected locally above the applicable standards and guidance values, but likely represent a natural background condition for the Site.

Based on these findings, no additional areas are recommended for location-specific remediation. Throughout the West Parcel, remediation of groundwater is recommended under a Site-wide approach for areas that do not meet Class GA groundwater standards.

6.3 Soil Gas Survey

6.3.1 Soil Gas Survey – East Parcel

Table 11 presents the results of field measurements taken with the landfill gas monitors on the East Parcel. The soil gas sampling and (or) measurement points are shown in Figure 15A, along with contours (concentration isopleths) of the methane results. The shape of the area exhibiting the highest methane results (70% to 100% methane) corresponds with the shape of the former landfill.

As illustrated in Figure 15A, approximately half of the area of the highest methane concentrations is located above the landfill area, with the remainder shifted slightly to the west. An overlay of the methane contours with the groundwater-flow contours (Figure 15B) suggests that the methane plume originated within the former refuse area and is migrating along the groundwater flow path, until the gas is naturally released to the atmosphere.

As noted, the water table for most areas of the Site was relatively high, precluding gas sampling below 2 or 3 ft. At locations where the boring could be extended to greater depths, concentrations remained relatively constant with depth. Near-surface concentrations noted at several locations (e.g., SG22, SG32, and SG34) were much lower than the concentrations at depth, suggesting that methane could be escaping through cracks in the asphalt. At other locations, such as SG7 and SG8, concentrations were constant over a 3- or 4-ft depth profile.

There is an additional small area off the asphalt at the southwest corner of the East Lot (SG-42 location) exhibiting elevated methane. This area is near the junction of the local municipal sewer lines. It is possible that the municipal Village Department of Public Works (Village) sanitary sewer line corridor is a preferential pathway for methane originating at the landfill (this leg of the local sewer line passes through the landfill), although methane was not detected above this line much closer to the landfill. It was learned, through personal communications with the Village, that a failed section of the Village sewer line in the East Parcel was abandoned to make the current connection to the county system and it may terminate at or very near to the SG-42 location exhibiting methane gas. The approximate location of that abandoned section (from a GM site plan) is shown in the background on Figure 15A. Iterative sampling in response to an initial high gas reading off the edge of the asphalt confirmed that this isolated area of methane was confined to the immediate vicinity of the junction between the Village and Westchester County sewer systems (Figure 15 A), and does not extend beyond the East Parcel.

Areas east of the landfill, outside of the asphalt area, had very low or non-detect (zero percent) levels of methane. Areas along the northern and southern perimeters of the East Parcel had non-detect levels of methane.

Hydrogen sulfide was not detected at significant levels at any location. It was determined, on the initial day of sampling, that the LANDTEC unit used for monitoring did not have the expected sensitivity for reduced sulfur gases at or below 0 to 1 ppm. As a result, a Jerome 631-X H2S meter with sensitivity down to low ppb was obtained for the next day. Readings of 1 to 2 ppm, as initially measured with the LANDTEC, were not confirmed by field duplicate sampling on subsequent days by the Jerome meter, and may have been attributable to instrument drift.

Oxygen was not detected at most of the sampling locations that had detectable methane, confirming that conditions were anaerobic at these locations. Oxygen was at near-ambient concentrations at the locations along the eastern side of the Site, outside of the paved area, where methane was not detected.

Total hydrocarbons (including methane) in the ppm range were monitored at those locations where methane concentrations were less than 1%. Results ranged from non-detect to 0.9%.

Laboratory analyses for volatile organic hydrocarbons in the soil gas samples collected at four locations where methane was present are summarized in Table 14 and Figure 16. These results are presented in ug/m^3, converted from parts-per-billion by volume (ppbv) measured in Summa samples. The variety of compounds detected is typical for landfill gas, including Freons, common chlorinated solvents, and aliphatic and aromatic hydrocarbons, but the levels were much lower than typically seen in landfill gas emissions. In general, the levels of VOCs in samples collected from within and outside the former refuse area were similar.

Laboratory analyses for fixed gases and non-methane hydrocarbons were also conducted. Ethane, detected at less than 20 ppm, was the only non-methane hydrocarbon detected in the samples.

One set of field duplicates was submitted for reduced sulfur analysis. These were taken from Location SG18, where the Jerome meter had indicated a concentration of 1.5 ppm total sulfur, although the LANDTEC did not detect sulfur gases. No reduced sulfur gases were detected in the laboratory analysis. This may indicate a false positive for the Jerome meter field measurement, or could reflect losses of any sulfur compounds to the walls of the canister. Although the recommended glass-lined canister was used, active sites within the canister can and will absorb reactive gases during the time between sampling and analysis. Based on these findings, there is no evidence of significant hydrogen sulfide production in East Parcel soils.

Because the source of methane is natural decomposition of organic matter, which will continue for an unknown period of time, any buildings constructed over areas exhibiting percent levels of methane in soil gas must be designed to prevent intrusion of methane into indoor air space. Although buildings are not currently proposed on the East Parcel (Figure 2), the Village may ultimately propose a Department of Public Works structure. Therefore, the need for general methane mitigation measures for future building construction should be incorporated into the remedial documents.

6.3.2 Soil Gas Survey – West Parcel

Based on the findings in the East Parcel, the possibility of some methane gas from buried marsh vegetation on the West Parcel was recognized. As a result, a soil gas survey for methane was conducted on the West Parcel in areas that may have been populated by marsh vegetation before fill was placed for site development (as discussed in Section 4.3.2.1). A separate survey for VOC vapors in soil was conducted in areas where residual petroleum contamination was delineated, and included PAOC 47 where low levels of TCE were detected in groundwater (as discussed in Section 4.3.2.2). The survey results are summarized below.

6.3.2.1 Naturally Occurring Methane

In contrast to the presence of methane in soil gas throughout the paved areas of the East Parcel (Section 6.3.1), methane was not prevalent throughout the West Parcel (Table 15). Methane (measured as percent combustible gas) was limited to the northern corner of the West Parcel (Figure 17) in an area where evidence of marsh vegetation (roots, organic mud) was noted in test borings. Methane ranged from 0.1% (MS-26) to 18% (MS-1) in this area. At the maximum methane location (MS-1) a second measurement (MS-1A), obtained approximately 10 feet from MS-1, exhibited 8% methane. Samples MS-2, 25, and 27 exhibited 2%, 6%, and 8.1% methane, respectively. Beyond these locations, trace levels of methane in the northern corner of the West Parcel were below 1% (10,000ppm), ranging from zero to 752.2 ppm as measured with an FID. The FID measured ppm levels of hydrocarbons (methane and non-methane), which ranged from zero to 25 ppm elsewhere throughout the remainder of the surveyed area. Because methane is produced from the natural decomposition of organic matter, which will continue for an unknown period of time, any buildings constructed over areas exhibiting percent levels of methane in soil gas must be designed to prevent intrusion of methane into indoor air space. General methane mitigation measures for future building construction should be incorporated into a site-wide approach for areas exhibiting the potential for methane gas intrusion.

6.3.2.2 VOC Vapors

The quantitative soil vapor survey focused on the proposed natural attenuation areas for historical petroleum spills, as well as other locations where VOCs were detected in soil and/or groundwater (PAOC 47). Sampling locations were within future building footprints, or the nearest intact slab or asphalt surface. Dual soil vapor (SV) and ambient crawl space (CS) air samples were obtained in targeted areas where crawl spaces are present under the existing slabs. Samples from the CS locations (Figure 18) are differentiated from the corresponding SV samples with “A” (ambient air) and “G” (soil gas) codes, respectively, in the sample identifications listed in Table 16. This characterization of the nature and the extent of VOC vapors excludes acetone, 2-butanone, chloroform, carbon disulfide, and Freons, which are possibly laboratory artifact, but also have no relationship to confirmed soil and groundwater contamination at the Site. Carbon disulfide, for example, is used by the laboratory (Air Toxics, Inc.) as an extraction solvent for NIOSH Methods 1501 and 1550 for the analysis of various petroleum hydrocarbons in air. Such artifacts may be inadvertently introduced to samples during handling and analysis, even under the best conditions, despite the use of certified clean Summa canisters for sampling and verification of uncontaminated analytical equipment by method blanks. Samples of soil, water and air that are diluted for one or more constituents of interest, sometime will exhibit acetone or methylene chloride at unusually high levels as well. The observed occasional appearance of acetone in all environmental media at this Site appears to be attributable to laboratory artifact.

VOCs were detected in soil gas (vapor) samples throughout the areas sampled on the West Parcel (Table 16 and Figure 18). VOCs are measured in parts-per-billion by volume (ppbv), and converted to ug/m^3 for evaluating the vapor intrusion to indoor air pathway. Petroleum-derived vapors were detected within and near the petroleum attenuation areas. Chlorinated VOCs were detected primarily in the former Body Plant Area, within and near PAOC 47, where TCE is found in groundwater (SV-4, 5, 6, 10, 13, 14, 17, 18, 19, 20, and 26). The extent of chlorinated VOCs is broader than the footprint of groundwater contamination. The CS air samples did not exhibit VOCs associated with SV samples, with one possible exception. A trace level of toluene (4.2) was detected at location CS-08 (Sample SV-8A-1), but was not detected in a duplicate air sample (SV-8A-2) from that location nor in the corresponding soil gas sample (SV-8G-1), suggesting that the original result is a false positive. Based on the paired CS and soil gas samples, VOCs that would otherwise accumulate under intact slabs and asphalt are rapidly dissipated to the atmosphere within the crawl spaces.

The areas exhibiting either petroleum-derived or chlorinated VOC vapors in soil gas should be evaluated in the AAR, with regard to the respective planned uses of each area. As discussed in the Exposure Assessment (Section 7), that evaluation should address whether any of these areas represent a potential exposure risk to occupants of future buildings, develop alternatives to remediate these areas, and evaluate the effectiveness of pre- and post-construction measures to prevent the intrusion of VOCs into the indoor air space of future buildings.

7. Qualitative Human Health Exposure Assessment

7.1 Introduction

This section presents a qualitative human health exposure assessment that describes the potential for human health exposure to site-related constituents of potential concern (COPCs) at the Site. This assessment uses information regarding current and foreseeable land uses, and available data for the Site to evaluate potential exposure to human receptors. The human health evaluation characterizes the environmental setting of the Site, and identifies COPCs and potentially complete exposure pathways. The results of the qualitative human health exposure assessment will be used, in part, to help evaluate potential remedial options for the Site.

7.2 Environmental Setting

The site is located along the eastern shore of the Hudson River, in the Village of Sleepy Hollow, New York (Figure 1A). The site currently consists of three, non-contiguous portions totaling approximately 96.2 acres. The former main assembly plant area (West Parcel) contains 66.2 acres, the eastern parking lot (East Parcel) contains 28.3 acres, and the salaried employee parking lot (South Parcel) contains 1.7 acres (Figure 1B). The former main assembly plant area and the eastern parking lot are separated by an active railroad corridor owned by Metro-North/Conrail. The former salaried employee parking lot is located across Beekman Avenue, directly south of the main assembly plant property. This lot is bordered by Beekman Avenue, Hudson Street, River Street, and property owned by the Village of Sleepy Hollow.

Prior to GM purchasing the property in 1914, the Site was partially developed with urban fill consisting largely of coal cinders, and various soil and aggregate mixtures that extend the waterfront into a portion of the former Pocantico Bay. During the 1920s to 1930s, a small (<10 acres) municipal refuse and ash landfill was owned and operated by the former Village of North Tarrytown (Sleepy Hollow). Industrial operations prior to the purchase included a brickyard and the manufacture of percussion rock drills and two brands of gasoline and steam-powered automobiles. GM demolished most of the early industrial buildings during the 1920s, filled in the remainder of Pocantico Bay with dredge spoils, and constructed an automotive assembly complex that continued to expand and operate until operations ceased in 1996.

At the time of the closure, the assembly facility comprised two large manufacturing buildings, providing more than 2.5 million square feet of floor space, as well as associated utility buildings and material storage structures. Between 1996 and 2000, GM undertook several environmental investigations, due diligence assessments, and an ICM Project at the Site in preparation for facility closure. The assembly plant and support buildings were decommissioned and all structures have been demolished, except for two large floor slabs and a section of a pedestrian bridge over the rail lines.

Current land uses within the immediate site vicinity include a mix of industrial, commercial, residential, and parkland. Most of the industrial property in the surrounding area is located along the Hudson River waterfront, south of the Site. The commercial center for the Village of Sleepy Hollow is less than 0.5 miles east of the Site. Lands immediately southeast and east of the Site are primarily residential. Public parklands surround the northern borders of the Site. The West Parcel is bounded to the north by Kingsland Point Park of Westchester County. Lands located east of the East Parcel consist of single-family residential and commercial properties, and DeVries Park of Sleepy Hollow. Lands south of the Site property include riverfront commercial and multifamily and general residential properties. The Hudson River and a portion of Kingsland Point Park mark the western boundary. The Tarrytown Lighthouse, which is listed on the National Register of Historic Places, is located immediately west of the Site (in the Hudson River) and is accessible to the public through Kingsland Point Park. Active freight and passenger rail services run through the Site within a common corridor.

Groundwater beneath the Site generally flows west/southwest toward the Hudson River with some local variations (Figures 19 and 20). The water table is typically between 6 to 7 ft bgs in the West and East Parcels, and can be encountered at less than 3 feet below grade toward the northern side of the East Parcel near the Pocantico River. Groundwater is unconfined and is encountered in the fill and native deposits. Groundwater in the Site vicinity is not used as a potable water supply. The Village of Sleepy Hollow and surrounding communities are serviced by public water systems that draw from surface-water supplies upgradient of the Site. The Catskill Aqueduct serves as the main source of water for the Village of Sleepy Hollow. Water is stored in the village's reservoir in the Rockefeller State Park Preserve. It is unlikely that groundwater beneath the Site would ever be used as a potable water supply because the area is serviced by the local municipal system and the natural water bearing units below the fill are expected to have relatively low yields. Although the fill may represent a zone of significant groundwater yield, such artificially created deposits are typically undesirable as potable supplies.

As mentioned above, the Site now consists of a vacant lot with that is primarily covered with the former building floor slabs and paved parking areas and roadways. On the western boundary of the West Parcel, near the Hudson River shoreline, there is a steep pile of concrete millings recycled from building demolition operations. These millings were also spread across portions of the West Parcel in various locations around existing slabs for use as ramp material during demolition operations. Additionally, the Village of Sleepy Hollow Department of Public Works parks vehicles within the West Parcel near the former gatehouse and stages piles of raw materials (e.g., gravel, sand, cobble, and compost) within the East Parcel. Access to the entire site is restricted by chain-link fence and locks at existing gates.

In 2002, GM and Roseland Sleepy Hollow, LLC signed a VCA with the NYSDEC to investigate and remediate the Site in order to return it to productive use. GM and Roseland have proposed to redevelop the Site for mixed residential and commercial development, with significant portions of the Site to be dedicated to open public space and municipal public works operations. A soil management plan will also be implemented for this redeveloped site, which will preclude any unauthorized disturbance of soil (e.g., digging, construction) without implementation of the plan.

As such, this qualitative human health exposure assessment evaluates potential exposure of human receptors to site-related constituents under both current and future land use conditions. Media of concern include soil and groundwater, in addition to stockpiles of recycled concrete millings. Soil vapor data are also included in the evaluation. Sediments of the adjacent Hudson River are the subject of a separate report and are not addressed in this qualitative evaluation.

7.3 Constituents of Potential Concern

Between 1996 and 2000, GM undertook several environmental investigations at the Site to prepare for facility closure, including Phase I and Phase II Environmental Site Assessments, a Phase III Extent of Contamination Study, and a Sediment Quality Investigation in the Hudson River. In addition, an ICM Project was implemented primarily to clean up residual petroleum and hydraulic fluids found in crawl spaces beneath the floor slabs of the former Chassis and Body Assembly Plants, and to remove two underground fuel storage tanks before these buildings were demolished.

Roseland conducted additional sampling of soil and groundwater in 2002. The findings of this recent investigation, and the prior investigations conducted by GM, reflected levels of metals, PAHs, and petroleum compounds that are generally typical of historically filled sites along the Hudson River, especially those dedicated to industrial uses. These findings were used to prepare the IWP, which specified additional remedial investigations, which were completed during 2003-2004.

Based on investigations conducted to date at the Site, areas of potential concern can be grouped into the following broad categories for exposure assessment:

- soils or historical fill containing metals, PAHs, and VOCs at levels above TAGM 4046 guidelines for unrestricted use;
- recycled concrete millings stockpiled or spread on the surface of the West Parcel;
- groundwater contaminated with VOCs, SVOCs, and metals above groundwater standards or guidance values for drinking-water use; and
- VOCs and methane in soil gas.

Analytical data used in the evaluation include soil, groundwater, and concrete millings data collected as part of the Due Diligence Investigation performed in 2002 and the RI conducted in 2003-2004. Samples were generally analyzed for VOCs, SVOCs, and metals, and select samples for PCBs. Soil gas data from the RI for methane and VOCs were also evaluated. Analytical results for the RI, which are presented in Section 6 of this report, are discussed below by potential exposure category.

7.3.1 Soils

Approximately 90% of the Site is developed on fill, which generally comprises fine to coarse sands with lesser amounts of gravel, silt, and clay. Historical fill includes various coal cinders, dredged Hudson River sediments, and smaller segments of construction and demolition debris. Constituents detected in this fill include various inorganics (including lead) and PAHs that are typical of historically filled sites along the Hudson River. Lead and PAHs are found throughout the Site with concentrations frequently exceeding the TAGM 4046 guidance values for unrestricted use. Chromium has also been reported in soil and groundwater in a discrete area of the Site (PAOC 47) at levels above the unrestricted use TAGM values.

7.3.1.1 Metals

Although several metals are present in soil/fill across the Site, lead is the primary inorganic COPC in historical fill. It is frequently present at concentrations greater than the NYSDOH guidance value of 400 ppm for unrestricted use in the pre-1960 historical fill areas. Atypical lead concentrations indicative of a possible concentrated source area are defined for this report as concentrations exceeding 10,000 ppm.

Concentrations of lead in soils (fill) from PAOC 7/Fill Areas H, F and G area ranged from non-detect to 167,000 ppm. Fill materials were encountered within PAOC 7 at depths between 12 to 16 ft bgs. Concentrations of lead in this area ranged from 15.5 ppm to 9,990 ppm in soils less than 1 ft below the crawl space ground surface. Lead concentrations exceeding 10,000 ppm were detected sporadically at depths of 1 to 12 ft bgs. The maximum value of 167,000 ppm was detected in the 1 to 2 ft interval.

The soils encountered near the former Maintenance Building Area (PAOC 29) also consist of anthropogenic fill that extends to a depth of 8 ft bgs. The highest lead levels measured in near-surface samples (less than 2 ft bgs) were infrequently greater than the NYSDOH guidance value of 400 ppm for unrestricted use (but reached a maximum of 25,000 ppm). Concentrations of lead reported in soil were also generally above the NYSDOH guidance value of 400 ppm at depths greater than 2 ft bgs, up to a maximum of 90,000 ppm (within the 3 to 8 ft depth range).

Chromium concentrations reported in soils (fill) from the PAOC 47 source area, ranged from 212 ppm to 3,750 ppm (Figure 13C) at depths between 3 to 5 ft below the existing concrete slab. The two offsite 0-to 6-inch soil samples collected from an area within Kingsland Point Park (adjacent to PAOC 47) to document background levels in shallow soils above the water table at two temporary well locations exhibited chromium concentrations of 32 to 43.5 ppm. Although the chromium concentrations in these two park samples are greater than the TAGM default value of 10 ppm, the observed concentrations are similar to regional background concentrations. In a literature study conducted for soils of New York State, chromium in “uncontaminated soils” was reported to range from 1.5 ppm to 40 ppm (McGovern, 1988). Shacklette and Boerngen also reported an average background chromium concentration of 54 ppm (Shacklette and Boerngen, 1984). As such, chromium is not considered a COPC for offsite soils.

7.3.1.2 SVOCs

SVOCs at the Site essentially comprise PAHs. Site fill contains PAHs from combustion products such as ash and slag, and localized historical petroleum spills. Individual PAH soil concentrations are above TAGM guidance values for unrestricted use within PAOCs 2, 4, 6, 7, 17, 21, 34, 37, 39, and 43, and in the UST area. From previous investigations, pre-1960 fill generally contains PAHs above TAGM guidance values for individual compounds, The highest concentrations of SVOCs occur at PAOC 47 (maximum of 4,675 ppm total SVOCs), where evidence of residual oil was found within the fill at 7 to 13 ft bgs. Total carcinogenic PAHs (a subset or the total SVOCS) ranged from non-detect to 1,853 ppm at this same depth interval in PAOC 47.

7.3.1.3 VOCs

Within PAOCs 7, 21, 37, and 39 (areas of historical petroleum spills and/or downgradient of such spills), VOCs (primarily xylene and benzene derivatives) were detected in petroleum-stained soils above TAGM guidance values for unrestricted use at concentrations of 0.34 ppm to 25 ppm, at depths ranging from 8 to 9.5 ft bgs (below the water table).

7.3.2 Recycled Concrete Millings

Concrete millings in PAOCs 14, 15, and 32 were sampled (top foot of surface material) and analyzed for PAHs, metals, and PCBs. Individual PAHs were detected above TAGM values at concentrations ranging from 3.5 ppm to 31 ppm. Total carcinogenic PAHs concentrations ranged from 97.5 ppm to 149 ppm, compared to the TAGM guidance value of 10 ppm. Metals including arsenic, barium, cadmium, chromium, copper, iron, lead, mercury, nickel, and zinc exceeded TAGM values for unrestricted use. Lead was detected at a maximum concentration of 1,900 ppm in millings at PAOC 15, while remaining samples were less than the 400 ppm TAGM value. PCB Aroclors 1248 and 1260 were detected in six of the seven samples collected during the RI at maximum concentrations of 1.8 ppm and 2.6 ppm respectively. Total PCB concentrations ranged from non-detect to 4.4 ppm in the spread millings. Total PCB concentrations measured in samples previously collected from the millings pile at PAOC 31 ranged from 0.39 ppm to 1.69 ppm (EcolSciences, 2002). Overall, the concrete millings onsite generally contain PCBs near or slightly above the TAGM guidance value of 1 ppm for surface soil (unrestricted use), but all samples are consistently below the TAGM guidance value of 10 ppm for subsurface soil (i.e., beneath clean cover soil).

7.3.3 Groundwater

Site groundwater is influenced by underlying historic fill and individual PAOCs, which define the COPCs. Metals, SVOCs, and VOCs have been detected in site groundwater and are described below. These constituents have been compared to NYSDEC Class GA groundwater standards (for drinking-water supplies) in Tables 10 and 10 of this report. However, comparison to these standards is considered conservative and not relevant to the groundwater exposure pathway considered in this human health assessment because groundwater at the Site is not currently used, and it is reasonable to assume that it will not be used as a potable water source in the future. The only potential for human exposure to contaminants in site groundwater would be via dermal contact with groundwater during construction (See Section 7.4). For this evaluation, data from unfiltered groundwater samples (which may include suspended solids) are used to evaluate this pathway.

7.3.3.1 Metals

Groundwater within the north to northwest portion of the Site contains several metals that exceed Class GA groundwater standards (for drinking-water supplies). Six monitoring wells (OW-10, OW-11, OW-20, OW-24, OW-25, and OW-26T) were sampled in this area during the RI. Analytical results showed Class GA standards were exceeded for barium, chromium, iron, lead, manganese, and sodium. Barium and chromium were detected at maximum concentrations of 6,560 and 554 micrograms per liter (µg/L) respectively. Lead was detected in monitoring wells OW-20 and OW-26T at concentrations of 81.7 and 88.1 µg/L.

Groundwater within the south to southwest portion of the West Parcel, under portions of the former Body Plant and Chassis Plant areas were sampled from 11 monitoring wells (OW-6, 7, 8, 40, 42, 45, 46, 47, 49, 50, and 51). Class GA standards were exceeded for barium, iron, lead, manganese, and sodium. Barium and lead were detected at maximum concentrations of 5,040 and 116 µg/L.

Groundwater samples collected in the vicinity of the UST attenuation area showed that the Class GA standard was exceeded for iron, manganese, and sodium. Onsite groundwater in the PAOC 47 exhibited chromium as high as 42,100 µg/L. Offsite groundwater monitoring at wells in the park (SI-47-B27 and SI-47-B28), near PAOC 47, contained chromium above the Class GA standard, at a maximum concentration of 466 µg/L.

7.3.3.2 SVOCs

For SVOCs, PAHs are the primary COPC for groundwater. Samples collected within the former 10,000-gallon UST attenuation area at PAOCs 7, 21, 37, 39, 43, and 47, have concentrations of individual PAHs exceeding Class GA standards. The maximum detected PAH concentration was for phenanthrene at a concentration of 140 µg/L.

7.3.3.3 VOCs

Groundwater within the northern end of the West Parcel showed VOC concentrations above Class GA standards in OW-10, OW-22, OW-25, OW-26T, and temporary well SI-GWI-B11W. Benzene and other petroleum-derived VOCs are present in groundwater in this area. Trace levels of petroleum-derived VOCs are also localized in groundwater at PAOCs 7 and 37. In the PAOC 47 area, 16 monitoring wells (including boundary well OW-24), and two temporary wells located on the Kingsland Point Park Property, were sampled to delineate the extent of localized TCE contamination. TCE ranged from non-detect to 75 µg/L in onsite wells and non-detect to 16 µg/L in the park. In addition, 1,1-dichloroethane was slightly above the Class GA standard in one onsite well, and cis-1,2-dichloroethene was slightly above the standard in one offsite well in the park.

7.3.4 Soil Gas

Methane has been confirmed in site soil gas in some areas of the Site over organic deposits (Figures 15A, 15B, and 17). Methane is derived from the natural anaerobic biodegradation of organic matter. Within the paved portion of the East Parcel, methane concentrations in soil gas beneath the asphalt ranged from70% to 100% within the extent of the former landfill. Migration of methane from the former Village landfill toward the west appears to be following the groundwater flow path, until the gas is naturally released to the atmosphere. Methane was not detected beyond the edges of the asphalt pavement within the East Parcel (Figure 15A). Lower levels of methane (up to 18%) were found beneath the asphalt in the northern corner of the West Parcel (Figure 17) where organic marsh soils underlie the fill.

VOCs were analyzed for samples collected within several PAOCs found under the former Body and Chassis Plants of the West Parcel (Figure 18). Specifically, portions of PAOCs 7, 21, 37, 39, 43, 47, and the UST attenuation area were sampled based on presence of VOCs within the soil and groundwater. Representative sampling was performed where future buildings were anticipated, based on the DEIS for Lighthouse Landing. Soil vapor data were collected from areas below the slab and from uncovered surface soil areas (including samples located near current crawl spaces beneath the existing slab floor). Air samples were also measured in the crawl spaces. Constituents detected in the crawl space air samples were acetone, chloroform, carbon disulfide, and toluene. These same constituents were detected in the crawl space soil vapor samples. In total, 27 volatile constituents were detected in the soil vapor. These constituents included Freon 11 and Freon 12, chlorinated solvents (i.e., TCE, 1,1-dichloroethene, tetrachloroethene), and aliphatic (i.e., xylenes, heptane) and aromatic hydrocarbons (i.e., toluene, naphthalene, benzene). The aliphatic and aromatic VOCs were generally reported in soil vapor data collected from PAOC 37 and PAOC 43 (within the proposed natural petroleum attenuation monitoring areas). Similarly, these petroleum-derived compounds were detected within the petroleum attenuation area associated with the former10,000-gallon No.6 fuel oil UST.

Chlorinated solvents, predominantly, TCE, were detected only within and around the area of PAOC 47. The TCE in soil gas corresponds to the TCE found within the groundwater and soil samples collected in the PAOC 47 area, exhibiting a larger footprint than would be indicated by the soil and groundwater data alone. VOCs from the soil gas phase were not detected in the crawl space atmosphere beneath the former Chassis and Body Plant slabs. The results of the soil vapor and crawl space air sampling, for all detected constituents, are presented on Figure 18.

7.4 Potential Exposure Points, Receptors, and Route of Exposure

An initial step in evaluating potential human exposure is identifying complete exposure pathways. In accordance with New York State Department of Health (NYSDOH) guidance for conducting a Qualitative Human Health Exposure Assessment (NYSDEC, 2002a and 2002b)**,** for an exposure pathway to be complete, the following five elements must exist:

1) a source of COPC;
2) release and transport mechanisms of COPC;
3) a point of human exposure;
4) routes of exposure where constituents from these media could be taken up by the human body; and
5) a receptor population.

An exposure pathway is complete if all five elements exist.

As previously described, COPCs have been identified in soils and historical fill, recycled concrete millings, soil vapor, and groundwater. Potential human exposure to these media could occur via ingestion, dermal contact, and/or inhalation of particulates or volatile organics released to the air. Because the Site is currently vacant (but will be redeveloped in the future), the most likely current receptors are general workers (e.g., individuals involved in maintenance activities, environmental samplers, land developers, and DPW personal [who currently park their vehicles onsite]). Although the Site is fenced, there is potential for exposure of trespassers to constituents in some media.

The proposed future land uses for this site are mixed residential and commercial development, open public space, and municipal public works operations. Development and future property management will need a soil management plan to preclude unauthorized soil disturbance activities below the impervious cap or soil or other cover that will be constructed over residual contamination. As such, the most likely future receptors are workers involved in excavation and construction activities (associated with redevelopment and infrastructure maintenance). Future residents, visitors, and commercial workers who may live, visit and/or work in the area, will need to be isolated from contaminated media that may remain onsite following any preconstruction remediation. Measures to remediate these potential future exposure pathways should be evaluated and presented in appropriate remedial documents.

Potentially complete human exposure pathways for the Site are identified below.

7.4.1 Potential Direct Contact with Soils and Millings

There is little potential for direct contact exposure (i.e., incidental ingestion, dermal contact) of general workers (e.g., consultants, land developers) and trespassers to constituents in soils and historical fill because soils across the Site are generally covered by asphalt or concrete slabs. Historical fill may be contacted during work in accessible crawl spaces beneath portions of the former Body and Chassis Plant slabs. As such, this exposure pathway to soils and historical fill is not complete throughout most of the Site (i.e., there is no point of human exposure), except in the crawl spaces. General workers and trespassers may also be exposed to COPCs at the Site through direct contact with recycled concrete aggregate (millings) located in stockpiles and in areas where they are spread on the surface. However, these persons are not consistently on the Site, and general workers are aware of the millings and the potential for exposure. These millings were found to contain metals, PAHs, and occasionally PCBs above TAGM guidance values for unrestricted use. Therefore, under current land use at the Site, the exposure pathway is complete for general workers and trespassers potentially exposed to millings or crawl space soils (via direct contact).

Under the proposed future land use, there is a potentially complete exposure pathway for construction workers exposed to constituents in soil and concrete millings while engaged in intrusive activities (e.g., removal of concrete slabs, utility work, building construction, use of concrete millings for fill material). There would be, however, little to no potential for exposure of future residents, visitors, and commercial workers to constituents in these media if impervious surfaces or other cover functioning as a barrier cap (as described in the Conceptual

RAWP) are utilized to effectively isolate the existing fill materials from the public. Final soil cover, roadways, parking areas, and building slabs, should be integrated into a barrier cap system to prevent direct contact with subsurface contamination following any pre-construction remediation that may be required. In addition, a soil management plan should be developed and implemented to prohibit unauthorized soil disturbance below the impervious cap or soil (or other) cover and require safe handling of soils that need to be excavated for future construction and repairs. Measures to eliminate or mitigate these potential future exposure pathways, will be evaluated and presented in appropriate remedial documents. With appropriate remedial measures in place, this potential future exposure pathway is not complete (there will be no point of human exposure).

7.4.2 Potential Inhalation of Vapors and/or Particulates

Under current land use, general workers and potential trespassers at the Site are not likely to be exposed to constituents via inhalation of vapors and/or particulates (e.g., dust). This is because the Site is primarily covered with concrete slabs and asphalt, which limits the potential for exposure to constituents in underlying soils, including potential vapors associated with these soils and other underlying media (e.g., groundwater). Because there are currently no buildings onsite, there is no concern for the potential migration of vapors to indoor air. The only potential for exposure to chemical constituents via inhalation of particulates is limited to areas of recycled concrete millings. However, given the course-grained nature of this material (generally coarse-grained sand, gravel, and up to 6-inch pieces of concrete), exposure of current receptors (general workers and trespassers) is not likely. In addition, perimeter air monitoring conducted in the 2003 RI field sampling did not detect nuisance dust from the millings pile near the Site boundary or elsewhere (AMEC, 2004a). As such, the inhalation exposure pathway is incomplete under current land use at the Site (i.e., there is no point of human exposure).

For proposed future land use, there is, however, a potentially complete exposure pathway for exposure (via inhalation of particulates and/or volatiles) of construction workers engaged in intrusive activities to constituents in millings and in soils beneath the slab floors and pavement/concrete. Volatile constituents have been reported in soil gas, subsurface soil, and groundwater data, and in some instances, these volatiles are present in areas proposed for residential housing (PAOC 43 and 47). Although the migration of vapors into buildings is dependent upon several conditions (e.g., soil type, depth of and type of contamination, building size, building materials, ventilation), there is a potential for migration of vapors into buildings proposed to be constructed in these areas. As such, there is a potentially complete exposure pathway for future residents who may be exposed to potential volatile constituents in indoor air. This pathway should be further evaluated and, as necessary, suitable remedial plans developed to prevent the intrusion of VOCs into the indoor air space of future buildings.

Methane gas has also been detected at the Site, but its presence is generally confined to the former landfill (which is generally covered by asphalt), with the exception of lower levels in the northern corner of the West Parcel. Based on current data, methane levels in the general vicinity of proposed residential housing are not detected or relatively low, but would represent a potentially complete pathway if any buildings are constructed on the East Parcel and northern corner of the West Parcel. In the absence of specific building plans for the affected areas, remedial measures to mitigate the impact of methane on any buildings that may be desired in these areas in the future should be generally specified in remedial documents.

7.4.3 Direct Contact with Groundwater

Groundwater occurs at various depths across the Site (generally 6 to 7 ft), and generally flows west/southwest toward the Hudson River. Groundwater is not currently used as a potable source, as the entire site and surrounding area is served by a public water system that GM used for both a potable and process water supply. It is reasonable to assume that there will be no anticipated uses of site groundwater as a water supply in the future. As such, the exposure pathway is incomplete for potential exposure to constituents in groundwater via consumption.

Because groundwater at the Site is not potable, the only potential for exposure is via direct contact with groundwater that may be encountered during future excavation and construction activities associated with remediation and land redevelopment. Elevated concentrations of metals, SVOCs, and VOCs have been detected within various PAOC areas in site groundwater. While this exposure pathway is complete, potential exposure (via direct contact and potential inhalation of volatiles) of construction workers to constituents in groundwater can be mitigated by use of properly trained personnel and personal protective equipment (PPE).

7.5 Pathway Summary

Under the current land use, a potentially complete exposure pathway exists for general workers and trespassers that could potentially be exposed (via direct contact) to constituents in the recycled concrete millings and fill that may be encountered in crawl spaces. The Site Health and Safety Plan, and the Community Air Monitoring Plan (included in the IWP), were implemented to mitigate potential exposure during the RI, as were similar plans during the previous investigations.

For future land use, a potentially complete exposure pathway exists for construction workers that may be exposed to constituents in soil or fill (below the asphalt and concrete slabs), concrete millings, and groundwater. These construction workers could potentially be exposed during intrusive activities to constituents via incidental ingestion, dermal contact, and inhalation of particulates and/or VOCs. These potential exposures can be mitigated by use of properly trained personnel, implementation of engineered exposure controls, and the use of PPE. A Soils Management Plan prepared in conjunction with the RWP should include site-specific requirements for mitigation of exposure during construction.

There is also a potentially complete exposure pathway for future residents to be exposed to volatile organic constituents via vapor intrusion into future residential complexes. Further evaluations should be undertaken to determine the potential for volatile constituents to migrate into indoor air spaces, and the magnitude of any potential exposures. For specific areas where a potential adverse risk to human health via the indoor vapor intrusion pathway would be indicated, remedial measures should be developed and incorporated into appropriate remedial documents.

8. Fish and Wildlife Exposure Assessment

8.1 Introduction

This section of the RI presents a qualitative fish and wildlife exposure assessment that was conducted for the Former GM North Tarrytown Assembly Plant Site (Site) located at 199 Beekman Avenue, Village of Sleepy Hollow, New York. The focus of this qualitative assessment is restricted to the Former GM North Tarrytown Assembly Plant Site. Sediments of the adjacent Hudson River are the subject of another report and are not evaluated in this document. The objectives of this qualitative assessment were to identify the fish and wildlife resources that exist on and in the vicinity of the Site and to evaluate the potential for exposure of these resources to Site-related constituents in environmental media.

This qualitative assessment for fish and wildlife resources was conducted in accordance with NYSDEC (NYSDEC, 2004) guidance for the Brownfield Cleanup Program (BCP). Per the BCP requirements, this qualitative assessment is generally equivalent to Steps I and IIA of NYSDEC's Fish and Wildlife Resource Impact Analysis outlined in DER-10 (NYSDEC, 2002a). Step I characterizes the terrestrial and aquatic ecology of the Site and surrounding areas and develops a list of potential ecological receptors. The specific components of Step I include: IA) Site description and maps, IB) description of fish and wildlife resources, IC) description of fish and wildlife resource value, and ID) identification of applicable fish and wildlife regulatory criteria. Step IIA involves a pathway analysis, which utilizes the receptor information generated in Step I to evaluate potential exposure pathways based on Site ecology and the location of Site-related constituents. If necessary, Step IIB involves a criteria-specific analysis, which compares Site-specific data to ecological criteria.

An ecological assessment was conducted for the Site in April 2004, and was subsequently revised in January 2005 (EcolSciences, 2005). This ecological assessment (entitled *Assessment of Ecological Resources for Lighthouse Landing Redevelopment Project*, *Village of Sleepy Hollow*, *Westchester County*, *New York*) is presented as Appendix H. Information presented in the ecological assessment (EcolSciences, 2005) was the basis for this qualitative assessment.

8.2 Site Description

The Site description and topography are described in Section 2.1. All three parcels were developed for commercial and industrial use. Currently, all three parcels are capped with asphalt, concrete, or recycled concrete aggregate, except for vegetated slopes on the south and east edges of the East Parcel and two drainage swales along the east and west edges of the paved expanse of the East Parcel. The Hudson River shoreline along the southwest side of the West Parcel is constructed of rip-rap with a narrow (3-4 foot) strip of mowed vegetation between the riprap and asphalt surface of the West Parcel. Ecological resources are primarily associated with offsite lands and waterways, as described in Section 7.3

8.3 Ecological Characterization

Information from the ecological assessment (EcolSciences, 2005) was used to identify the general physical and ecological features of the Site and surrounding areas. The ecological assessment (EcolSciences, 2005) included a map of vegetative communities within the Site and a 200-foot buffer zone surrounding the Site. Aerial photographs were reviewed to supplement the information presented in the ecological assessment

(EcolSciences, 2005), specifically to identify vegetative communities surrounding the Site within a 0.5-mile radius (i.e., outside the 200-foot buffer zone).

A covertype map for the Site and surrounding areas within a 0.5-mile radius of the Site is presented as Figure 21. The covertype map (Figure 21) classifies areas into ecological communities based on vegetative assemblages (e.g., residential/industrial/commercial, oak-tulip tree forest, urban vacant lot). As part of the ecological characterization, natural resources (i.e., rivers, lakes, wetlands) located within a 2-mile radius of the Site were also identified. This information assisted in the evaluation of wildlife habitat value and human resource value for the Site and surrounding areas.

8.3.1 Vegetative Covertypes

The majority of the Site is characterized by impervious surfaces (e.g., asphalt, concrete). There are several offsite areas (i.e., areas within a 0.5-mile radius of the Site) that contain natural (undeveloped) habitats. Vegetative communities identified in the ecological assessment (EcolSciences, 2005) for the Site and surrounding 200-foot buffer zone were classified according to the NYSDEC (NYSDEC, 2002b) document entitled *Ecological Communities of New York State, Second Edition*. Aerial photographs were reviewed to identify vegetative communities within a 0.5-mile radius of the Site (i.e., outside the 200-foot buffer zone). Eleven major covertypes were identified within a 0.5-mile radius of the Site, including:

1) Mowed lawn;
2) Mowed lawn with trees;
3) Brackish tidal marsh;
4) Railroad;
5) Red maple-hardwood swamp;
6) Estuarine riprap/artificial shore;
7) Oak-tulip tree forest;
8) Ditch/artificial intermittent stream;
9) Urban vacant lot;
10) Tidal river; and
11) Residential/industrial/commercial.

A map depicting the spatial distribution of these covertypes is presented on Figure 21. Individual covertypes are briefly described below.

Mowed Lawn Covertype – The mowed lawn covertype consists of residential, recreational, or commercial land in which the groundcover is dominated by clipped grasses and there is less than 30% cover of trees (NYSDEC, 2002b). The recreational parklands in the vicinity of the Site (i.e., Devries Park, portions of Kingsland Point Park) were classified as mowed lawn because these areas are routinely maintained by mowing, and are characterized by less than 30% cover of trees (EcolSciences, 2005).

Mowed Lawn with Trees Covertype – The mowed lawn with trees covertype consists of residential, recreational, or commercial land in which the groundcover is dominated by clipped grasses and there is at least 30% cover of trees (NYSDEC, 2002b). The majority of Kingsland Point Park was classified as mowed lawn with trees because a significant portion of the park is characterized by mature trees (EcolSciences, 2005).

Brackish Tidal Marsh Covertype – The brackish tidal marsh is described as a marsh community that occurs where water salinity ranges from 0.5 to 18.0 ppt, and water is less than 6 feet deep at high tide (NYSDEC, 2002b). This community consists of a mixture of salt marsh and freshwater tidal marsh species (NYSDEC, 2002b). Dominant herbaceous species include common reed (*Phragmites australis*) and Japanese knotweed (*Polygonum cuspidatum*) (EcolSciences, 2005). Mature trees consist of black willow (*Salix nigra*), cottonwood (*Populus deltoides*), alder (*Alnus* spp.), red maple (*Acer rubrum*), American elm (*Ulmus americana*), ash (*Fraxinus* spp.), and American sycamore (*Platanus occidentalis*) (EcolSciences, 2005). The brackish tidal marsh is located along a portion of the Pocantico River shoreline within Devries Park (EcolSciences, 2005).

Railroad Covertype – The railroad covertype is described as a permanent road having a line of steel rails fixed to wood ties and laid on a gravel roadbed that provides a track for cars or equipment drawn by locomotives (NYSDEC, 2002b). The railroad tracks run in a north-south direction between the West and East Parcels. Sparse herbaceous vegetation is present along both sides of the railroad tracks (EcolSciences, 2005).

Red Maple-Hardwood Swamp Covertype – The red maple-hardwood swamp generally occurs in poorly drained depressions, and consists of a broadly defined vegetative community (NYSDEC, 2002b). Dominant trees generally consist of red maple, ashes, elms (*Ulmus* spp.), yellow birch (*Betula alleghaniensis*), and swamp white oak (*Quercus bicolor*) (NYSDEC, 2002b). The shrub and herbaceous layers are often quite diverse (NYSDEC, 2002b). The red maple-hardwood swamp is located along the southern shoreline of the Pocantico River (EcolSciences, 2005).

Estuarine Riprap/Artificial Shore Covertype – The estuarine riprap/artificial shore covertype is generally described as a constructed shoreline consisting of broken rocks, wooden bulkheads, and concrete that reduces erosion of the shoreline (NYSDEC, 2002b). Vegetative cover is generally low (NYSDEC, 2002b). Vegetation within this covertype is generally limited to woody and herbaceous plant species typical of disturbed areas (e.g., tree-of-heaven [*Ailanthus altissima*], Queen Anne's Lace [*Daucus carota*], evening primrose [*Oenothera biennis*]) (EcolSciences, 2005). This covertype is present along the shoreline of the Hudson River, extending south from Kingsland Point Park to the terminus of the West Parcel (EcolSciences, 2005).

Oak-Tulip Tree Forest Covertype – The oak-tulip tree forest covertype consists of a mesophytic hardwood forest that occurs on moist, well-drained sites in southeastern New York (NYSDEC, 2002b). Dominant trees generally consist of red oak (*Quercus rubra*), tulip tree (*Liriodendron tulipifera*), beech (*Fagus grandifolia*), black birch (*Betula lenta*), red maple, scarlet oak (*Quercus coccinea*), black oak (*Quercus velutina*), and white oak (*Quercus alba*) (NYSDEC, 2002b). The oak-tulip tree forest covertype occurs along the eastern and southern edges of the East Parcel, and a portion of Kingsland Point Park (EcolSciences, 2005). It also occurs along upland slopes within Devries Park and the Philipsburg Manor Historic Site (EcolSciences, 2005).

Ditch/Artificial Intermittent Stream Covertype – The ditch/artificial intermittent stream covertype is described as the aquatic community of an artificial waterway constructed for drainage or irrigation of adjacent lands (NYSDEC, 2002b). Water levels generally fluctuate in response to variations in precipitation and/or groundwater levels (NYSDEC, 2002b). Vegetation within these drainage ditches is primarily herbaceous and includes common reed, cattail (*Typha* spp.), purple loosestrife (*Lythrum salicaria*), soft rush (*Juncus effusus*), goldenrod (*Solidago* spp.), evening primrose, and mugwort (*Artemisia vulgaris*) (EcolSciences, 2005). Tree species are also present and include black willow, cottonwood, black locust (*Robinia pseudoacacia*), and tree-of-heaven. The ditch/artificial intermittent stream covertype occurs in two areas along the eastern boundary of the railroad tracks, within the East Parcel (EcolSciences, 2005).

Urban Vacant Lot Covertype – The urban vacant lot covertype consists of an open site in a developed, urban area that has been cleared for either construction or following the demolition of a building (NYSDEC, 2002b). Vegetation within this covertype is generally sparse (NYSDEC, 2002b). The majority of the Site (i.e., West, East, and South Parcels) is classified as an urban vacant lot covertype (EcolSciences, 2005). Vegetation associated with the urban vacant lot covertype is generally found in pavement cracks (EcolSciences, 2005).

Tidal River Covertype – The tidal river covertype is described as the aquatic community of continuously flooded substrates that supports no emergent vegetation (NYSDEC, 2002b). Tidal rivers generally consist of two zones: (1) the deepwater zone that includes areas where substrates are usually over 6 feet deep at high tide; and (2) the shallow zone that includes submerged areas less than 6 feet deep at low tide that lack rooted aquatic vegetation (NYSDEC, 2002b). The Hudson and Pocantico Rivers were both classified as tidal rivers (EcolSciences, 2005).

Residential/Industrial/Commercial Covertype – The residential/industrial/commercial covertype is present south and east of the Site. Most of the industrial properties are located along the Hudson River waterfront, south of the Site. The commercial center for the Village of Sleepy Hollow is located approximately 0.5 miles east of the Site. The residential/industrial/commercial covertype is generally characterized by residential houses, industrial and commercial buildings, paved roads and parking lots, and limited amounts of cultivated vegetation (e.g., lawns, ornamental trees and shrubs).

8.3.2 Surface Waters

The main surface water bodies in the vicinity of the Site include the Hudson River, which borders the Site to the west, and the Pocantico River, which borders the Site to the north. The NYSDEC best usage classification for these stretches of the Hudson and Pocantico Rivers is Class SB. According to New York Regulations Title 6 §701.11, the best usages of Class SB streams are primary and secondary contact recreation and fishing. Class SB waters are suitable for fish propagation and survival.

8.3.3 Wetlands

According to the NYSDEC Freshwater Wetlands Map for the White Plains quadrangle (NYSDEC Freshwater Wetlands Map, Westchester County, Map 10 of 14), there are no state-regulated freshwater wetlands within a 2-mile radius of the Site (EcolSciences, 2005). The New York State Freshwater Wetlands Map is presented as Figure 2 in the ecological assessment (EcolSciences, 2005) for the Site (see Appendix H). Tidal wetlands maps are not currently available for the Site, and are in the process of being developed for the area of the Hudson River north the Tappan Zee Bridge to the Troy Lock (EcolSciences, 2005).

National Wetlands Inventory (NWI) maps are generated by the U.S. Fish and Wildlife to identify potential freshwater wetland areas that may fall under federal jurisdiction. Electronic versions of NWIs are available online (http://www.nwi.fws.gov). According to the NWI Map for the White Plains quadrangle, no federally-regulated freshwater wetlands are present within a 2- mile radius of the Site. However, small man-made drainage ditches on the East Parcel have been identified by EcolSciences as wetlands falling under federal jurisdiction. These ditches drain stormwater to the Pocantico River via a pipe and are believed to be tidally influenced.

8.4 Fish and Wildlife Resources

The following subsections briefly describe the natural resources found in each covertype, and identifies fish and wildlife species that may utilize such resources. A list of wildlife species observed onsite or expected to occur onsite or in the immediate vicinity of the Site is presented in the ecological assessment (EcolSciences, 2005) (refer to Attachment C of Appendix H).

<u>Mowed Lawn and Mowed Lawn with Trees Covertypes</u> – The parklands surrounding the Site (i.e., Devries Park, Kingsland Point Park) are classified as mowed lawn and mowed lawn with trees covertypes (Figure 21). These covertypes are characterized by recreational areas (e.g., baseball fields, picnic areas) with maintained (mowed) grasses and some mature trees. Wildlife species that may utilize these covertypes are most likely limited to species typically found in urban landscapes (e.g., gray squirrel [*Sciurus carolinensis*], mice [*Peromyscus* spp.], American robin [*Turdus migratorius*]).

<u>Brackish Tidal Marsh Covertype</u> – The brackish tidal marsh is present along a section of the Pocantico River within Devries Park (Figure 21). This covertype is characterized primarily by herbaceous vegetation, with trees and shrubs present along the perimeter of the marsh (EcolSciences, 2005). This covertype may be used by a variety of terrestrial, aquatic, and semi-aquatic birds and wildlife for foraging, nesting, and/or cover.

<u>Railroad Covertype</u> – The railroad runs in a north-south direction between the West and East Parcels, and consists of a railroad with a gravel substrate. Vegetation within the railroad is very limited and generally consists of sparse patches of herbaceous plants (EcolSciences, 2005). Due to the lack of natural habitat, use of the railroad by local wildlife is expected to be low and use of this area by wildlife is most likely limited to transient individuals.

<u>Red Maple-Hardwood Swamp Covertype</u> – The red maple-hardwood swamp covertype is present along the Pocantico River, north of the brackish tidal marsh (Figure 21). This covertype extends along the tidally-influenced section of the Pocantico River to the dam at Philipsburg Manor (Figure 21). These wetland areas are generally not inundated by diurnal tides (EcolSciences, 2005). Due to the presence of mature trees, this covertype is most likely used by passerine birds and arboreal mammals for nesting, foraging, and/or cover. Terrestrial wildlife such as various species of small mammals, amphibians, and reptiles may also use this covertype.

<u>Estuarine Riprap/Artificial Shore Covertype</u> – The estuarine riprap/artificial shore covertype is located along the shoreline of the Hudson River, adjacent to the West Parcel (Figure 21). This covertype is characterized by an armored slope of stone riprap. Because the substrate consists of large stone riprap and the vegetation is generally limited, use of this covertype by terrestrial wildlife is most likely limited.

<u>Oak-Tulip Tree Forest Covertype</u> – The oak-tulip tree forest covertype is present in several areas including along the eastern boundary of the East Parcel, a portion of Kingsland Point Park, and along upland slopes in Devries Park and Philipsburg Manor Historic Site (Figure 21). This covertype is characterized by mature trees, shrubs, and herbaceous vegetation; although only a small number of canopy trees remain within this vegetative community (EcolSciences, 2005). Terrestrial wildlife such as various species of small mammals, passerine birds, and reptiles may use this covertype for foraging, nesting, and/or cover.

<u>Ditch/Artificial Intermittent Stream Covertype</u> – The ditch/artificial intermittent stream covertype is present as two drainage ditches along the eastern boundary of the railroad, within the East Parcel (Figure 21). The ecological assessment for the Site (EcolSciences, 2005) identified these drainage ditches as wetland areas associated with a series of man-made ditches connected by pipes. Due to their intermittent nature, these drainage ditches most likely do not provide significant ecological habitat to terrestrial, aquatic, or semi-aquatic wildlife.

<u>Urban Vacant Lot Covertype</u> – The Site is classified as an urban vacant lot, and generally does not contain natural habitat (Figure 21). Because the majority of the Site consists of mostly impervious surfaces (e.g., asphalt, concrete), the Site itself does not offer wildlife habitat that would be conducive to foraging, nesting, and/or shelter. Therefore, wildlife usage of the Site is expected to be minimal due to its lack of natural resources. In general, the wildlife species that may use the Site are likely common species typical of urbanized and disturbed areas (e.g., Norway rat [*Rattus norvegicus*], pigeon [*Columba livia*]).

Tidal River Covertype – The Hudson River is located immediately west of the Site, and the Pocantico River is located along the northern border of the Site (Figure 21). Characteristic fishes of the tidal river covertype include year-round residents as well as seasonal migrants or anadromous species (NYSDEC, 2002b). Fish species that are likely to inhabit tidal sections of the Hudson and Pocantico Rivers may include rainbow smelt (*Osmerus mordax*), sturgeon (*Acipenser* spp.), striped bass (*Morone saxatilis*), banded killifish (*Fundulus diaphanous*), and white perch (*Morone americana*) (NYSDEC, 2002b).

Residential/Industrial/Commercial Covertype – The residential/industrial/commercial covertype is present south and east of the Site (Figure 21). This covertype is generally characterized by buildings, paved roadways, and patches of mowed lawns. Wildlife species that utilize these covertypes generally consist of species that are capable of utilizing habitats that are created by urban landscapes. Typical wildlife species that may use residential/industrial/commercial areas include, but are not limited to, gray squirrel, mice, pigeon, and house sparrow (*Passer domesticus*).

8.4.1 Threatened/Endangered Species and Significant Habitat

According to the NYSDEC Natural Heritage Program (NHP), the shortnose sturgeon (*Acipenser brevirostrum*) (a state-endangered fish species) is recorded as occurring within the lower Hudson River from the Battery in New York City at its junction with Upper New York Bay, upstream to the Federal Dam in Troy (EcolSciences, 2005). The NHP also has historical records (*circa* 1890s) for three rare plant species that may be present onsite or in the immediate vicinity of the Site: rattlebox (*Crotolaria sagittalis*) (state-endangered), shrubby St. John's wort (*Hypericum prolificum*) (state-threatened), and Virginia false gromwell (*Onosmodium virginianum*) (state-endangered) (EcolSciences, 2005). However, these species were not observed during field studies for the ecological assessment, nor are they expected to occur onsite due the lack of natural habitat and presence of impervious surfaces (EcolSciences, 2005). The Kentucky warbler (*Oporormis formosus*) (a rare bird species) was also identified by the NHP as being onsite or within the immediate vicinity of the Site, although this species most likely would not be found in the area due to the lack of suitable habitat (i.e., dense underbrush of woodlands) (EcolSciences, 2005).

No Significant Coastal Fish and Wildlife Habitats are present onsite or within the immediate vicinity of the Site (EcolSciences, 2005).

8.4.2 Observations of Stress

No visible evidence of stressed vegetation or negative impacts on wildlife was noted for the Site or surrounding areas in the ecological assessment (EcolSciences, 2005).

8.5 Fish and Wildlife Resources Values

Step IC consists of an assessment of 1) the general ability of the area within 0.5-mile of the Site to support fish and wildlife resources, and 2) the value of fish and wildlife resources to humans. The following subsections provide a qualitative evaluation of the value of the identified covertypes to wildlife and the value of these wildlife resources to humans.

8.5.1 Value of Habitat to Associated Fauna

The qualitative determination of habitat value is based on field observations, research, and professional judgment. Habitat values are assigned using the following classification system:

- **No Value –** Paved areas, building, and parking lots;
- **Low Value –** Areas with habitat quality that marginally supports a minimal number and diversity of low quality species;
- **Moderate Value –** Areas that support a variety of quality species with little or no stress related to anthropogenic disturbance; and
- **High Value –** Critical habitat for rare species and/or extensive undeveloped habitat supporting a great diversity and abundance of wildlife without functional restraints imposed by anthropogenic disturbance.

The Site is described as an urban vacant lot covertype. The majority of the Site consists of impervious surfaces (e.g., asphalt, concrete), and has minimal vegetation. Due to the general lack of suitable habitat onsite, the Site itself is concluded to provide no value to wildlife. Similarly, the surrounding areas that are classified as estuarine riprap/artificial shore, railroad, and residential/industrial/commercial covertypes do not provide adequate food, shelter, and/or nesting areas for most bird and wildlife species due to a general lack of native vegetation. Therefore, these covertypes in the surrounding areas of the Site are concluded to provide low value to wildlife.

Devries Park and Kingsland Point Park are classified as mowed lawn and mowed lawn with trees covertypes. These covertypes generally consist of maintained (mowed) grassy areas with interspersed mature trees. Devries Park contains several baseball fields, and Kingsland Point Park is characterized by picnic areas. These recreational parks are most likely used on a regular (seasonal) basis by people, which likely limits the use of these areas by wildlife other than those species accustomed to inhabiting urban landscapes (e.g., small mammals, passerine birds). Therefore, the mowed lawn and mowed lawn with trees covertypes are concluded to provide low value to wildlife.

The red maple-hardwood swamp covertype is present as a relatively large, continuous covertype north of the Site, and is associated with the Pocantico River. The brackish tidal marsh covertype is present in a relatively large area along the southern shoreline of the Pocantico River. These covertypes contain mature trees that provide arboreal habitat to terrestrial wildlife (e.g., birds, small mammals). These wetland habitats offer food, cover, and nesting habitat for a variety of wildlife species, but use of these covertypes by large mammals is most likely limited due to surrounding residential, industrial, and commercial land uses. On a regional level, these covertypes provide good quality habitat that is generally free from anthropogenic disturbances. As such, the red maple-hardwood swamp and brackish tidal marsh covertypes are concluded to offer moderate value to wildlife.

The oak-tulip tree forest covertype is present in several areas of the Site: along the eastern boundary of the East Parcel, in portions of Kingsland Point Park, and along the upland slopes in Devries Park and Philipsburg Manor Historic Site. This forested covertype is characterized by mature trees and in some areas, dense shrub and groundcover layers. The mature trees may provide habitat to passerine birds and arboreal mammals. Likewise, the dense underbrush may provide habitat to small mammals and reptiles. Therefore, the oak-tulip tree covertype is concluded to provide moderate value to wildlife.

The ditch/artificial intermittent stream covertype consists of two drainage ditches along the eastern side of the railroad. These drainage ditches are considered to be of low ecological value due to their small size (approximately 0.23 acres) and configuration (i.e., linear, narrow, and discontinuous), the dominance of exotic plant species, and impacts from stormwater discharges (EcolSciences, 2005).

The Hudson River borders the Site to the west. The Hudson River is inhabited by a variety of fish species, and also serves as an important travel corridor for migratory birds (EcolSciences, 2005). Although the section of the Hudson River adjacent to the Site does not have a natural shoreline (i.e., free from anthropogenic modifications and/or disturbances), this tidal river is still considered to be an important aquatic resource to aquatic, semi-aquatic, and terrestrial wildlife.

The Pocantico River borders the Site to the north. The Pocantico River has natural vegetation present along much of its banks, and is bordered by wetlands and forests. The river itself in the vicinity of the Site appears to be relatively undisturbed and offers adequate food, cover, and/or nesting habitat for a variety of terrestrial and aquatic organisms. Therefore, the Pocantico River offers moderate value to fish and wildlife.

8.5.2 Value of Resources to Humans

The Site itself does not offer any natural resources that would encourage recreational use of the Site. Current human use of fish and wildlife resources within the vicinity of the Site are associated with the Hudson and Pocantico Rivers and recreational parks (i.e., Devries Park and Kingsland Point Park). Activities associated with the rivers may include fishing, recreational boating, and wildlife observation. People may also use the natural habitats onsite (e.g., oak-tulip tree forest, red maple-hardwood swamp) for recreational activities such as hiking, fishing, and/or wildlife observations. These uses of the rivers, recreational parks, and natural habitats are likely to remain consistent in the future, and are not likely to be affected by activities or conditions at the Site.

8.6 Pathway Analysis

The pathway analysis is generally equivalent to Step IIA outlined in DER-10. The goal is to identify complete or potentially complete ecological exposure pathways to Site-related constituents. A criteria-specific analysis (Step IIB), which consists of comparing Site data to numerical criteria, would be conducted only if potentially complete exposure pathways are identified. According to NYSDEC guidance (NYSDEC, 1994), if Step IIA concludes that there are no potentially complete exposure pathways, ecological impacts are considered to be minimal and no further evaluation is warranted.

The objective of the pathway analysis is to evaluate potential pathways by which fish and wildlife receptors may be exposed to Site constituents. A complete exposure pathway exists if there is a source, a potential point of exposure, and a viable route of exposure and receptors at the exposure point. If any one of these elements is missing, then the pathway is not considered to be complete and exposure cannot occur, irrespective of chemical concentrations in environmental media. Potential media of interest associated with the Site include soils and groundwater. Potential exposure pathways associated with these media are discussed below.

Surface Soils

The Site primarily consists of impervious surfaces (e.g., asphalt, concrete) and has minimal vegetation. The existing plant community is restricted to scattered plants and small strips of vegetation composed of weedy or non-native species (EcolSciences, 2005). Due to the general lack of suitable habitat, throughout the Site, the Site currently offers very little value to wildlife. The ecological assessment for the Site (EcolSciences, 2005) also concluded that the ecological value of the Site and its associated wildlife habitat is “extremely low” (EcolSciences, 2005). Therefore, exposure to surface soils (0 – 0.5 feet bgs) is not a complete pathway.

Subsurface Soils

As previously stated, the Site is primarily characterized by impervious surfaces (e.g., asphalt, concrete). The Site itself provides very little value to wildlife due to its general lack of natural resources. Wildlife is generally not exposed to subsurface soils (i.e., soils deeper than 0.5 feet bgs) during normal activities such as foraging and nesting. Furthermore, impervious surfaces at the Site preclude use of the Site by burrowing wildlife. Based on these factors, exposure to subsurface soils is not a complete exposure pathway.

Groundwater

Groundwater beneath the Site generally flows in a west/southwest direction towards the Hudson River. The water table is typically between 6 to 7 feet bgs in the West and East Parcels, and can be encountered at less than 3 feet below grade toward the northern side of the East Parcel near the Pocantico River. There are no identified groundwater seeps at the Site, and exposure of wildlife to groundwater would only occur if an animal were to burrow down to the water table, which is unlikely given the presence of impervious surfaces throughout most of the Site. Based on these factors, exposure of wildlife to impacted groundwater is not a complete pathway.

Given the information presented above, it is concluded that there are no potentially complete exposure pathways for ecological receptors at the Site.

There are various ecological habitats present in the vicinity of the Site (i.e., offsite). Offsite groundwater contamination in Kingsland Point Park has been confirmed for chromium and VOCs. However, groundwater is approximately 10 feet below ground surface in that area of the Park, which is a depth that is unlikely to be encountered by burrowing animals in the Park. Groundwater discharge to the Hudson River and Pocantico River systems are not considered potentially complete pathways for groundwater constituents, based on the relatively minimal levels of Site-related constituents in groundwater at the Hudson River waterfront and at the northern end of the East Parcel near the Pocantico River. GM is investigating the Hudson River sediments near the Site to determine if historic wastewater and stormwater discharges (long-since discontinued) may have impacted offsite sediments, which is the scope of separate RI. A qualitative Fish and Wildlife Exposure Assessment associated with Hudson River sediments will be included in that RI.

8.7 Summary and Conclusions

The Site is a former industrial facility predominately covered by impervious surfaces, which provide no value to wildlife. The media of interest at the Site include soils and groundwater. Based on the extent of impervious cover throughout the Site and the low ecological value associated with this environment, no complete ecological exposure pathways exist at the Site. Therefore, no further evaluation of potential fish and wildlife impacts, associated with the Site, is recommended, other than a fish and wildlife exposure assessment for offsite Hudson River sediments. An assessment of this potential offsite area of concern will be provided in a separate RI Report for the Hudson River.

9. Conclusions and Recommendations

The RI was conducted to characterize the extent of potential contaminant source areas identified in previous investigations conducted between 1996 and 2000, and to fulfill the land-based data requirements of the BCAs for the Site. Those objectives have been met through several phased investigations conducted from September 2003 through October 2004. Based on the findings of the RI, the onsite characterization is complete and adequate for use in preparing remedial documents, including the RWP for the East and West Parcels. Offsite conditions in the Hudson River sediments are being evaluated in a separate RI.

The Conceptual RAWP, developed after the first phase of the RI, considered a combination of location-specific remedial measures for contaminant source areas coupled with site-wide engineering and institutional controls. Potential location-specific remediation areas, which were further evaluated in the second phase of the RI, will be defined and remedial actions that are consistent with the terms of the BCAs and compatible with the proposed site redevelopment will be included in remedial documents. In addition to location-specific remedial actions, the Conceptual RAWP proposed site-wide engineering controls in the form of a barrier cap over existing fill materials to prevent exposure to residual soil contamination, and institutional controls to verify that these measures remain effective. This general conceptual approach has been validated, based on the findings of all phases of the RI and previous investigations.

The conclusions derived from the RI, as they pertain to the intended Site use, are generally as follows:

- Through the collective performance of the previous site investigations and the RI, representative sampling has been performed throughout the East and West Parcels, encompassing 47 PAOCs and a known petroleum spill location, as well as all onsite areas containing historic fill and two offsite areas of Kingsland Point Park bordering the Site. These investigations have revealed that current site-wide conditions generally do not meet the Track 1 requirements (TAGM 4046 and Class GA Groundwater Standards and Guidance) as specified in NYSDEC's Draft BCP Guidance. Remediation of soil and groundwater is recommended under a Site-wide approach for all areas that do not meet Track 1 requirements. Based on the intended use of the Site, Track 4 (use-based) remediation is recommended. Site-wide remedial actions could include, but may not necessarily be limited to, a functional barrier cap with a demarcation layer integrated into future structural and landscape features, a soils management plan, and an environmental easement. Certain areas (discussed below) should also be considered for additional location-specific remedial alternative evaluation.

- During the development of the IWP, ranges of metals detected in Site soils (primarily historic fill) by the previous investigations were examined to determine if any areas should be considered "sources" of contamination for lead, based on the presence and extent of grossly contaminated soil. The distribution of lead detected throughout the Site in the previous investigations was subjected to a knee-of-the-curve evaluation to determine what levels of lead were considerably above the typical condition for historic fill on the Site. A value of 10,000 ppm was identified as the Site-specific threshold for atypically high concentrations of lead relative to the general distribution of lead throughout the Site. This value was used in the RI to identify and delineate areas of grossly contaminated soil, with respect to lead (discussed below). The NYSDOH guidance value of 400 ppm for lead in soils is the recommended cleanup objective for unrestricted use (Track 1). Site-wide Track 4 (use-based) remediation (described above) is recommended for soils that contain lead above 400 ppm. Location-specific remediation should be considered for grossly contaminated soil.

- The RI results demonstrated that there is no zone of grossly contaminated soil in PAOC 1 (Former Village Refuse Area) and PAOC 9 (Sewer Overflow in Body Plant Crawl Space). Delineation sampling confirmed the general presence of lead, but at levels considerably lower than the Site-specific threshold value. Therefore, location-specific remediation of lead in PAOCs 1 and 9 is not recommended. Remediation of these areas should be included under a Site-wide approach.

- Representative test borings into filled pits under the Chassis Plant slab at PAOC 46 (Alleged Battery Disposal Pits) revealed no evidence of battery disposal. Lead concentrations within the fill were well below the NYSDOH guidance value of 400 ppm for unrestricted use at the Site. Therefore, location-specific remediation of lead in PAOC 46 is not recommended. Remediation of this area, to the extent that any subsurface materials encountered underneath the filled pits may not meet Track 1 requirements, should be included under a Site-wide approach.

- Because only 14% of the lead concentrations in POAC 29 are above the Site-specific threshold of 10,000 ppm, the entire volume bounded by this threshold is not considered to be grossly contaminated. The RI confirmed that offsite lead concentrations near PAOC 29 are an order-of-magnitude lower than the Site-specific threshold value and generally below the NYSDOH guidance value of 400 ppm. Groundwater sampling confirmed that lead at PAOC 29 has resulted in little to no impact on groundwater quality, relative to Class GA Standards for protection of drinking-water supplies. An evaluation of location-specific remedial alternatives is recommended for PAOC 29. The alternatives should include partial removal of grossly contaminated soil and other remedial measures to prevent public exposure to lead.

- Because only 8% of the lead concentrations in POAC 7/Fill Areas H, F and G are above the Site-specific threshold of 10,000 ppm, the entire volume bounded by this threshold is not grossly contaminated. Lead is a component of the various historic fill materials in this area, which are located beneath the elevated slab and crawl space of the former Body Plant. Fill Areas H, F and G are laterally bounded by buried bulkheads or barges from the pre-1960 waterfront. Data from monitoring wells installed within the source area confirm that lead has not impacted groundwater quality, relative to Class GA standards for protection of drinking-water supplies. An evaluation of location-specific remedial alternatives is recommended for PAOC 7/Fill Areas H, F and G. The alternatives should include partial removal of grossly contaminated soil and other remedial measures to prevent public exposure to lead.

- The source and extent of chromium in soil and groundwater at PAOC 47 have been adequately delineated. The source of chromium is the contaminated concrete bottom of a filled pit located under the remaining slab at the north end of the former Body Plant. Groundwater contaminated with chromium extends offsite into Kingsland Point, 8 to 10 ft below ground surface in the park. There are no means for park visitors to come in contact with the affected groundwater, which is not used for any park facilities. An evaluation of location-specific remedial alternatives is recommended for the chromium source and downgradient areas.

- The origin of TCE at PAOC 47 has not been definitively located, but the areal extent of TCE generally appears to coincide with the chromium source area. TCE is primarily found in the groundwater saturated zone, where the extent of TCE contamination has been adequately delineated. Groundwater contaminated with TCE extends offsite into Kingsland Point, 8 to 10 ft below ground surface in the park. There are no means for park visitors to come in contact with the affected groundwater, which is not used for any park facilities. There are no park buildings in or near the affected area that could be impacted by TCE via soil vapor intrusion. An evaluation of location-specific remedial alternatives is recommended for the combined TCE and chromium source area, and associated downgradient areas.

- The extent of grossly contaminated soil and downgradient extent of groundwater contamination associated with the former 10,000-gallon No. 6 fuel oil UST have been adequately delineated. An evaluation of location-specific remedial alternatives is recommended for this source area. Alternatives should include removal of grossly contaminated soil and consideration of natural attenuation of petroleum contaminants in groundwater as a viable alternative outside the source area. This area is also recommended for remediation of non-petroleum constituents under a Site-wide approach for areas that do not meet Class GA groundwater standards.

- Groundwater analyses support the consideration of natural attenuation as the primary location-specific remedy for PAOC 37 (Former Maxwell Briscoe Facilities) and PAOC 43 (Fill with Elevated PAHs), as originally proposed in the Conceptual RAWP. An evaluation of location-specific remedial alternatives is recommended for PAOCs 37 and 43, with consideration of natural attenuation as a viable alternative. PAOCs 37 and 43 are also recommended for remediation of non-petroleum constituents under a Site-wide approach for areas that do not meet Class GA groundwater standards.

- PAOCs 21 and 39 (North Body Plant Area) are not localized sources of petroleum. Rather, they lie within the delineated natural attenuation area downgradient of the former 10,000-gallon No.6 fuel oil UST. Therefore, location-specific remediation is not recommended for petroleum in soil or groundwater in these areas. PAOCs 21 and 39 are recommended for remediation under a Site-wide approach for areas that do not meet TAGM 4046 guidance.

- VOCs are present in soil gases on the West Parcel in the vicinity of residual petroleum and TCE contamination. It should be determined whether any of these areas represent a potential exposure risk to occupants of future buildings, and where necessary, develop alternatives to remediate these areas. In addition, the effectiveness of measures to prevent the intrusion of VOCs into the indoor air space of future buildings should be evaluated.

- Methane has been detected beneath pavement and concrete surfaces at the northern end of the West Parcel due to the decomposition of natural organic marsh deposits, and under paved surfaces throughout the East Parcel due to the combined decomposition of natural organic deposits and buried municipal refuse. The remedial documents should include general measures to safely prevent or mitigate the intrusion of methane into any buildings that may be constructed in the future over areas exhibiting percent levels of methane.

- Analytical results from areas re-sampled during the RI are generally consistent with previous findings. With the exception of PAOC 7, which was recommended for location-specific alternatives analysis, the RI results did not indicate that these re-sampled areas should be considered for location-specific remediation. Therefore, PAOCs 2, 4, 6, 17 and all other PAOCs identified by EMCON, not otherwise recommended for location-specific remediation in this RI Report, are recommended for remediation under a Site-wide approach for areas that do not meet TAGM 4046 guidance.

- Recycled concrete aggregate (millings) in existing stockpiles (PAOC 31), and those already in place in parts of the West Parcel (PAOCs 14, 15, and 32), are not suitable for use as final cover because they do not meet TAGM 4046 guidance values for unrestricted use. However, they are proposed for use as structural fill under a final barrier cap or buildings, consistent with the Site-wide approach. Therefore, location-specific remediation is not recommended for the recycled materials in these areas. During Site development, these materials should be managed in accordance with the soils management plan to be developed for the Site-wide approach.

In conclusion, the land-based Site characterization phase of the project has been completed. The RWP and other remedial documents will be prepared from the information provided by the RI, as well as the previous investigations conducted for GM and Roseland.

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TABLES

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TABLE 1
POTENTIAL AREAS OF CONCERN AND INVESTIGATION SUMMARY

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REMEDIAL INVESTIGATION REPORT
FORMER NORTH TARRYTOWN ASSEMBLY PLANT SITE

Potential Area of Concern (PAOC)	Data Source	Analyses	Constituents of Concern (1)	Concentration Range (ppm unless noted) (2)	Screening Value (ppm unless noted) (3)	DUSR (4)	Existing Controls (5)	IRM (6)	Remediation Recommended (7)
1. Former Village Refuse Area - East Parcel	EMCON 1997-2001 (Including Fill Area B)	TCL/TAL	Arsenic	ND - 19.4	7.5 or SB	Limited Category A	Asphalt Cover	None	Yes, Engineering and Institutional Controls
			Chromium	12.5 - 697	10 or SB				
			Copper	11.5 - 217	25 or SB				
			Lead	4.85 - 43,500	400				
			Mercury	ND - 2.12	0.1				
			Nickel	15.8 - 41.6	13 or SB				
			Zinc	43.4 - 1000	20 or SB				
	EcolSciences 2002	TCL/TAL	Arsenic	ND - 18.6	7.5 or SB	Full Category B			
			Beryllium	ND - 0.70	0.16 or SB				
			Copper	6.9 - 7560	25 or SB				
			Lead	2.7 - 1,030	400				
			Mercury	ND - 0.51	0.1				
			Nickel	10.9 - 45.2	13 or SB				
			Zinc	26.5 - 1870	20 or SB				
	BBL 2005	Lead	Lead	ND - 3,490	400	Full Category B			
2. Former Drum Pile Area	EMCON 1997-2001	TCL/TAL	C-PAHs	ND - 49.5	10	Limited Category A	Asphalt Cover	None	Yes, Engineering and Institutional Controls
		Arsenic	Arsenic	ND - 8.56	7.5 or SB				
		Lead	Copper	16.7 - 26.9	25 or SB				
			Lead	6.95 - 1100	400				
			Nickel	10.3 - 21.8	13 or SB				
			Zinc	44.2 - 187	20 or SB				
3. Former Garage Area	EMCON 1997-2001	TCL/TAL	Copper	14.5 - 27.4	25 or SB	Limited Category A	Asphalt Cover	None	Yes, Engineering and Institutional Controls
		TCL VOCs	Nickel	12.2 - 14.8	13 or SB				
			Zinc	29.8 - 61	20 or SB				
4. Former Incinerator Area	EMCON 1997-2001	TCL/TAL	C-PAHs	ND - 11.9	10	Limited Category A	Asphalt Cover	None	Yes, Engineering and Institutional Controls
		Arsenic	Arsenic	ND - 22.3	7.5 or SB				
		Lead	Barium	377 - 3560	300 or SB				
			Cadmium	ND - 14.4	1 or SB				
			Chromium	17.4 - 297	10 or SB				
			Copper	37.7 - 244	25 or SB				
			Lead	34.3 - 3640	400				
			Mercury	ND - 0.228	0.1				
			Nickel	17.1 - 49.8	13 or SB				
			Zinc	349 - 1130	20 or SB				
5. Paint Storage Room - Body Plant	EcolSciences 2002	TAL	Copper	50	25 or SB	Full Category B	Slab on Grade	None	Yes, Engineering and Institutional Controls
			Nickel	49.2	13 or SB				
			Zinc	508	20 or SB				

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REMEDIAL INVESTIGATION REPORT
FORMER NORTH TARRYTOWN ASSEMBLY PLANT SITE

	Potential Area of Concern (PAOC)	Data Source	Analyses	Constituents of Concern [1]	Concentration Range (ppm unless noted) [2]	Screening Value (ppm unless noted) [3]	DUSR [4]	Existing Controls [5]	IRM [6]	Remediation Recommended [7]
6.	Internal Rail Spurs - Body Plant	EMCON 1997-2001	TCL/TAL	C-PAHs	4.95 - 51.6	10	Limited Category A	3-Foot Recycled Aggregate Cover	None	Yes, Engineering and Institutional Controls
				Arsenic	ND - 10.2	7.5 or SB				
				Barium	47.27 - 480	300 or SB				
				Beryllium	ND - 0.566	0.16 or SB				
				Copper	22.9 - 380	25 or SB				
				Mercury	ND - 0.835	0.1				
				Nickel	7.96 - 48.7	13 or SB				
				Zinc	26.8 - 249	20 or SB				
7.	Basement Below Welding Area - Body Plant /Fill Areas H, F, & G	EMCON 1997-2001	TCL/TAL STARS SVOCs Arsenic Lead	C-PAHs: Pre-IRM	ND - 98.7	10	Limited Category A	Slab Over Limited Access Crawl Space	Completed for hydraulic fluids. Metal ranges are pre-IRM in soil	Yes, Location-Specific Evaluation
				C-PAHs: Post-IRM	ND - 104	10				
				Arsenic	ND - 84.6	7.5 or SB				
				Barium	65.5 - 5,550	300 or SB				
				Cadmium	ND - 35.1	1 or SB				
				Chromium	17.1 - 398	10 or SB				
				Copper	97.9 - 10,200	25 or SB				
				Lead	5.66 - 11,300	400				
				Mercury	ND - 1.47	0.1				
				Nickel	14.9 - 146	13 or SB				
				Zinc	159 - 10,000	20 or SB				
		EcolSciences 2002	TCL/TAL	C-PAHs	0.09 - 13.5	10	Full Category B			
				Arsenic	1.6 - 97.1	7.5 or SB				
				Barium	36.8 - 12,800	300 or SB				
				Cadmium	0.088 - 9.4	1 or SB				
				Chromium	12 - 96.2	10 or SB				
				Copper	12.2 - 321	25 or SB				
				Lead	11.6 - 30,900	400				
				Mercury	ND - 0.33	0.1				
				Nickel	14.9 - 65	13 or SB				
				Selenium	0.92 - 2.7	2 or SB				
				Zinc	47.1 - 708	20 or SB				
		BBL 2005	TCL SVOCs TAL Lead	C-PAHs	ND - 63.4	10				
				Arsenic	15.1	7.5 or SB				
				Barium	1,300	300 or SB				
				Cadmium	13.7	1 or SB				
				Chromium	64.8	10 or SB				
				Copper	995	25 or SB				
				Lead	ND - 167,000	400				
				Mercury	3.3	0.1				
				Nickel	36.8	13 or SB				
				Zinc	719	20 or SB				

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TABLE 1
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REMEDIAL INVESTIGATION REPORT
FORMER NORTH TARRYTOWN ASSEMBLY PLANT SITE

	Potential Area of Concern (PAOC)	Data Source	Analyses	Constituents of Concern (1)	Concentration Range (ppm unless noted) (2)	Screening Value (ppm unless noted) (3)	DUSR (4)	Existing Controls (5)	IRM (6)	Remediation Recommended (7)
8.	ELPO Area Wastewater Leak - Body Plant	EMCON 1997-2001	TCL/TAL TAL TCL SVOCs Arsenic Lead	Barium Chromium Copper Pre-IRM Lead Post-IRM Lead Nickel Zinc	9.39 - 414 9.68 - 978 9.99 - 137 ND - 807 ND 13.2 - 1,870 34.8 - 21,400	300 or SB 10 or SB 25 or SB 400 400 13 or SB 20 or SB	Limited Category A	Slab Over Limited Access Crawl Space	Completed for lead residue. Metal ranges are pre-IRM in soil, except lead.	Yes, Engineering and Institutional Controls
9.	Column E2X Wastewater Overflow - Body Plant	EMCON 1997-2000	TCL/TAL TAL Metals TCL VOCs TCL SVOCs Arsenic Lead	C-PAHs Arsenic Barium Cadmium Chromium Copper Lead Mercury Nickel Zinc	ND - 23.4 1.54 - 29.6 176 - 10,000 ND - 4.42 15.8 - 552 30.7 - 640 5.51 - 10,500 ND - 0.308 15.1 - 259 139 - 4990	10 7.5 or SB 300 or SB 1 or SB 10 or SB 25 or SB 400 0.1 13 or SB 20 or SB	Limited Category A	Slab Over Limited Access Crawl Space	None	Yes, Engineering and Institutional Controls
		BBL 2005	Lead	Lead	87.8 - 995	400	Full Category B			
10.	Remote Fill Port Location - Body Plant	EMCON 1997-2001	TAL	Copper Nickel Zinc	8.32 - 41.7 12.3 - 24 30.5 - 98.9	25 or SB 13 or SB 20 or SB	Limited Category A	Asphalt Cover	None	Yes, Engineering and Institutional Controls
11.	Basement Conveyor System - Body Plant	EMCON 1997-2001	TCL/TAL STARS SVOCs	Nickel Zinc	14.9 - 15.2 36.9 - 68.4	13 or SB 20 or SB	Limited Category A	Slab Over Limited Access Crawl Space	Completed for hydraulic fluids. Metal ranges are pre-IRM in soil	Yes, Engineering and Institutional Controls
12.	North Basement - Chassis Plant	EMCON 1997-2001	TCL/TAL TCL SVOCs Arsenic Lead Asbestos STARS SVOCs	C-PAHs: Pre-IRM C-PAHs: Post-IRM Arsenic Barium Cadmium Chromium Copper Lead: Pre-IRM Lead: Post-IRM Mercury Nickel Zinc	ND - 120 ND - 104 ND - 28.6 45.8 - 683 ND - 17.2 14.9 - 189 14.2 - 337 6.35 - 11,300 8.5 - 1,400 ND - 3.06 12.3 - 71 32.1 - 1,240	10 10 7.5 or SB 300 or SB 1 or SB 10 or SB 25 or SB 400 400 0.1 13 or SB 20 or SB	Limited Category A	6-Foot Fill and Recycled Aggregate Cover	Completed for hydraulic fluids and oil. Metal ranges are pre-IRM in soil, except as noted for lead.	Yes, Engineering and Institutional Controls

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FORMER NORTH TARRYTOWN ASSEMBLY PLANT SITE

Potential Area of Concern (PAOC)	Data Source	Analyses	Constituents of Concern (1)	Concentration Range (ppm unless noted) (2)	Screening Value (ppm unless noted) (3)	DUSR (4)	Existing Controls (5)	IRM (6)	Remediation Recommended (7)
13. M12 Hydraulic Elevator - Chassis Plant	EMCON 1997-2001	TCL/TAL TCL SVOCs STARS SVOCs	C-PAHs: Pre-IRM C-PAHs: Post-IRM Nickel Zinc	ND - 80.1 ND - 71.8 13.4 - 16.9 45 - 163	10 10 13 or SB 20 or SB	Limited Category A	Slab Over Limited Access Crawl Space	Completed for hydraulic fluids. Metals are pre-IRM.	Yes, Engineering and Institutional Controls
14. East Rail Spur - Chassis Plant	EcolSciences 2002	TCL VOCa TCL SVOCs PCBs TAL	Copper Nickel Zinc	50 49.2 508	25 or SB 13 or SB 20 or SB	Full Category B	Recycled Aggregate Cover	None	Yes, Engineering and Institutional Controls
15. Central Rail Spur - Chassis Plant	EMCON 1997-2001	TCL/TAL TCL	C-PAHs Copper Nickel Zinc	2.65 - 18.47 17.9 - 105 9.6 - 17.3 36 - 289	10 25 or SB 13 or SB 20 or SB	Limited Category A	3-Foot Recycled Aggregate Cover	None	Yes, Engineering and Institutional Controls
16. Paint Tote and Central Sludge - Chassis Plant	EMCON 1997-2001	TCL/TAL TCL VOCs TAL	Cadmium Copper Nickel Zinc	ND - 4.32 8.56 - 33.1 9.32 - 17.9 27.6 - 81.6	1 or SB 25 or SB 13 or SB 20 or SB	Limited Category A	Slab Over Limited Access Crawl Space	None	Yes, Engineering and Institutional Controls
17. Basement Conveyor System - Chassis Plant	EMCON 1997-2001	TCL/TAL STARS SVOCs	C-PAHs: Pre-IRM C-PAHs: Post-IRM Copper Nickel Zinc	ND ND - 22.03 20.2 - 77.2 13.4 - 15.8 31 - 107	10 10 25 or SB 13 or SB 20 or SB	Limited Category A	Slab Over Limited Access Crawl Space	Completed for hydraulic fluids. Metals are pre-IRM.	Yes, Engineering and Institutional Controls
18. Column Q5 Wastewater Leak - Chassis Plant	EMCON 1997-2001	TCL/TAL	Copper Nickel Zinc	71 - 77.2 17.8 - 18 184 - 218	25 or SB 13 or SB 20 or SB	Limited Category A	Slab Over Limited Access Crawl Space	None	Yes, Engineering and Institutional Controls
19. Column M23 Hydraulic Leak - Chassis Plant	EMCON 1997-2001	TCL/TAL PCBs STARS SVOCs	Pre-IRM PCBs Post-IRM PCBs Zinc	0.83 - 9.9 ND 29.9 - 296	1 / 10 (8) 1 / 10 (8) 20 or SB	Limited Category A	Slab Over Limited Access Crawl Space	Completed remediation of PCBs to residential criterion.	Yes, Engineering and Institutional Controls
20. Column S20 Hydraulic Leak - Chassis Plant	EMCON 1997-2001	TAL TCL VOCs TCL SVOCs PCBs STARS SVOCs	C-PAHs Cadmium Chromium Copper Nickel Zinc	12.48 0.684 - 5.6 17 - 51.2 32.4 - 150 11.4 - 17.6 123 - 287	10 1 or SB 10 or SB 25 or SB 13 or SB 20 or SB	Limited Category A	Slab Over Limited Access Crawl Space	Completed for hydraulic fluids. Metal ranges are pre-IRM.	Yes, Engineering and Institutional Controls

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FORMER NORTH TARRYTOWN ASSEMBLY PLANT SITE

Potential Area of Concern (PAOC)	Data Source	Analyses	Constituents of Concern (1)	Concentration Range (ppm unless noted) (2)	Screening Value (ppm unless noted) (3)	DUSR (4)	Existing Controls (5)	IRM (6)	Remediation Recommended (7)
21. Historic Power Plant, Dipping, Laundry and Transformers (Body Plant)	EcolSciences 2002	TCL VOCs	C-PAHs	25.1	10	Full Category B	Recycled Aggregate Cover	None	Yes, Engineering and Institutional Controls
		TCL SVOCs	Beryllium	0.54	0.16 or SB				
		TAL Metals	Nickel	14	13 or SB				
			Zinc	137	20 or SB				
			Groundwater						
			Phenol	13 ug/l	1				
			Benz(a)anthracene	1.1 ug/l	0.002				
			Benzo(a)pyrene	1.2 ug/l	ND				
			Benzo(b)fluoranthene	2.2 ug/l	0.002				
	BBL 2005	STARS VOCs	*Soil*						
		STARS SVOCs	Napthalene	0.061 - 19	13				
			n-Butylbenzene	0.002 - 25	10				
			Groundwater						
			Benz(a)anthracene	3.4 - 6.1J ug/l	0.002				
			Benzo(a)pyrene	2.4 - 4.4J ug/l	ND				
			Benzo(b)fluoranthene	2.4 - 4.4J ug/l	0.002				
			Benzo(g,h,I)perylene	2.1 - 3.4J ug/l	0.002				
			Benzo(k)fluoranthene	2.5 - 4.6J ug/l	0.002				
			Chrysene	3.7 - 6.5J ug/l	0.002				
			Indeno(1,2,3-CD)pyrene	2.0 - 3.1J ug/l	0.002				
			Phenanthrene	5.7J - 12 ug/l	0.4				
22 Historic Gasoline UST (Chassis Plant)	EcolSciences 2002	TCL VOCs	VOCs	100% Compliance	TAGM 4046	Full Category B	Slab on Grade	None	Yes, Engineering and Institutional Controls
23 Historic Gasoline UST (Body Plant)	EcolSciences 2002	TCL VOCs	VOCs	100% Compliance	TAGM 4046	Full Category B	Recycled Aggregate Cover and Partial Slab	None	Yes, Engineering and Institutional Controls
24. Historic Service and Repair	EcolSciences 2002	TCL/TAL	Arsenic	15.5	7.5 or SB	Full Category B	Slab on Grade	None	Yes, Engineering and Institutional Controls
			Beryllium	0.66	0.16 or SB				
			Copper	122	25 or SB				
			Nickel	15.4	13 or SB				
			Zinc	22.1	20 or SB				
25. Historic Machine Shop	EcolSciences 2002	TCL VOCs	Beryllium	ND - 0.44	0.16 or SB	Full Category B	Recycled Aggregate Cover and Partial Slab	None	Yes, Engineering and Institutional Controls
		TCL SVOCs	Nickel	14.5 - 26	13 or SB				
		PCBs	Zinc	23.1 - 339	20 or SB				
		TAL							

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FORMER NORTH TARRYTOWN ASSEMBLY PLANT SITE

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26.	Historic Chassis Assembly and Spray	EcolSciences 2002	TCL/TAL TCL VOCs TAL	Beryllium Copper Lead Mercury Nickel Zinc	ND - 0.73 7.9 - 68.8 4.2 - 1540 ND - 0.12 9.7 - 22.5 12.5 - 419	0.16 or SB 25 or SB 400 0.1 13 or SB 20 or SB	Full Category B	Slab on Grade	None	Yes, Engineering and Institutional Controls
27	Historic Solvent Recovery Building (1930 Body Plant)	EcolSciences 2002	TCL VOCs	VOCs	100 % Compliance	TAGM 4046	Full Category B	Slab on Grade	None	Yes, Engineering and Institutional Controls
28.	No. 6 Oil ASTs Removed 1965	EcolSciences 2002	TCL SVOCs TAL	C-PAHs	1.139 - 25.38	10	Full Category B	Slab on Grade	None	Yes, Location-Specific Evaluation
29.	1945 Maintenance Building Demolished in 1971 (Including SB-2)	EcolSciences 2002	TCL VOCs TCL SVOCs PCBs TAL	Arsenic Barium Cadmium Chromium Copper Lead Mercury Nickel Zinc	5.1 - 26.2 195 - 8,270 0.76 - 19 21.7 - 104 72.4 - 413 1940 - 50,100 0.15 - 0.60 23.8 - 141 507 - 13,400	7.5 or SB 300 or SB 1 or SB 10 or SB 25 or SB 400 0.1 13 or SB 20 or SB	Full Category B	Slab on Grade	None	Yes, Location-Specific Evaluation
		BBL 2005	Lead	Lead	ND - 90,000	400				
30.	Waste Water Treatment Plant Area	EcolSciences 2002	TCL VOCs TAL	Nickel Zinc	12 - 14.9 37 - 55.9	13 or SB 20 or SB	Full Category B	Slab on Grade	None	Yes, Engineering and Institutional Controls

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31.	Millings Pile (Recycled Concrete Aggregate from Facility Demolition)	EcolSciences 2002	TCL/TAL	Phenanthrene	13 - 140	50	Full Category B	Runoff Controls	None	Yes, Engineering and Institutional Controls
				Di-n-butylphthalate	ND - 9.6	8.1				
				Fluoranthene	23 - 150	50				
				Pyrene	23 - 160	50				
				C-PAHs	63.9 - 373.1	10				
				PCB's	0.39 - 1.69	1				
				Barium	96.2 - 1220	300 or SB				
				Cadmium	ND - 7.6	1 or SB				
				Chromium	15.3 - 67.7	10 or SB				
				Copper	22.7 - 82.4	25 or SB				
				Lead	99.2 - 543	400				
				Mercury	ND - 0.43	0.1				
				Nickel	10.2 - 28.7	13 or SB				
				Zinc	148 - 1460	20 or SB				
32.	Bulk Storage Tanks	EcolSciences 2002	TCL/TAL	C-PAHs	ND - 38.99	10	Full Category B	Recycled Aggregate Cover	None	Yes, Engineering and Institutional Controls
				Copper	9.5 - 61.6	25 or SB				
				Mercury	ND - 0.91	0.1				
				Nickel	15.1 - 25.7	13 or SB				
				Zinc	38.6 - 409	20 or SB				
33.	Historic South Lot Out Building (West Parcel)	EcolSciences 2002	TCL/TAL	Beryllium	0.51	0.16 or SB	Full Category B	Asphalt	None	Yes, Engineering and Institutional Controls
				Nickel	21.7	13 or SB				
				Zinc	65.9	20 or SB				
34.	Historic Sprinfield Gas Machines - Underground	EcolSciences 2002	TCL VOCs TCL SVOCs TAL	C-PAHs	ND - 789	10	Full Category B	Asphalt and Slab on Grade	None	Yes, Engineering and Institutional Controls
				Anthracene	ND - 58	50				
				Fluoranthene	ND - 260	50				
				Benzo(g,h,I)perylene	ND - 85	50				
				Pyrene	ND - 310	50				
				Phenanthrene	ND - 250	50				
				Copper	10.5 - 79.5	25 or SB				
				Mercury	ND - 0.24	0.1				
				Nickel	11.3 - 15.8	13 or SB				
				Zinc	15.7 - 715	20 or SB				
		BBL 2005	TCL SVOCs	C-PAHs	ND - 167	10	Full Category B			
				Fluoranthene	ND - 72	50				
				Phenanthrene	ND - 53	50				
				Pyrene	ND - 86	50				
35.	Historic Chemical Lab / Furnace Retorts	EcolSciences 2002	TCL/TAL	Copper	27.6 - 34.5	25 or SB	Full Category B	Slab on Grade	None	Yes, Engineering and Institutional Controls
				Nickel	15.1 - 30.8	13 or SB				
				Zinc	52.8 - 103	20 or SB				

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36.	Historic Tar Kettle and Storage	EcolSciences 2002	TCL SVOCs TAL	C-PAHs Copper Nickel Zinc	ND - 66.1 20.8 - 25.2 17 - 21.5 45.3 - 56.5	10 25 or SB 13 or SB 20 or SB	Full Category B	Slab on Grade	None	Yes, Engineering and Institutional Controls
37.	Historic Machine Shop / Sheet Metal Working	EcolSciences 2002	TCL VOCs TCL SVOCs PCBs TAL	Copper Nickel Zinc C-PAHs Anthracene Fluoranthene Phenanthrene Pyrene	11.1 - 25.1 9.2 - 16.4 12.3 - 52.1 ND- 714 ND - 58 ND - 260 ND - 250 ND - 310	25 or SB 13 or SB 20 or SB 10 50 50 50 50	Full Category B	Asphalt and Slab on Grade	None	Yes, Location-Specific Evaluation
		BBL 2005	TCL SVOCs	C-PAHs 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene	ND - 54.3 11 8.6	10 10 3.3				
38	Historic Varnishing Room	EcolSciences 2002	TCL VOCs	VOCs	100% Compliance	TAGM 4046	Full Category B	Asphalt	None	Yes, Engineering and Institutional Controls
39.	Historic Painting and Assembly	EcolSciences 2002	TCL/TAL	CPAHs Barium Beryllium Copper Lead Mercury Nickel Zinc	ND - 48 841 - 1180 ND - 0.43 19.9 - 41.8 179 - 5180 0.06 - 0.18 14.5 - 22.0 360 - 760	10 300 or SB 0.16 or SB 25 or SB 400 0.1 13 or SB 20 or SB	Full Category B	Slab Over Limited Access Crawl Space	None	Yes, Engineering and Institutional Controls
40.	Operations that Existed During WWII	EcolSciences 2002	TCL/TAL	C-PAHs Chromium Copper Nickel Mercury Selenium Zinc	ND - 41.2 6.3 - 17.6 5.3 - 57.3 ND - 19.9 ND - 0.12 ND - 3.5 17.7 - 194	10 10 or SB 25 or SB 13 or SB 0.1 2 or SB 20 or SB	Full Category B	Slab on Grade or Slab over Limited Access Crawl Space	None	Yes, Engineering and Institutional Controls
41.	Railroad Track Area (Sidings within Property)	EcolSciences 2002	TCL/TAL TCL SVOCs PCBs TAL	Chromium Copper Mercury Nickel Zinc	10.4 20.9 14.8 - 128 0.20 - 3.7 10.9 - 17.7 41.7 - 75.7	10 or SB 25 or SB 0.1 13 or SB 20 or SB	Full Category B	Railroad Bedding over Soils	None	Yes, Engineering and Institutional Controls

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42.	East and West Tank Area	EcolSciences 2002	TCL VOCs TCL SVOCs	CPAHs	66.6	10	Full Category B	Recycled Concrete Aggregate Fill	None	Yes, Engineering and Institutional Controls
43.	Historic Fill Areas - Additional Sampling of Fill Areas - Pre-1914 Fill (SB-1, 3, 4 and 5) and Areas B, C, E, I, and J, including BH Series samples along waterfront. (See PAOC 7 for Fill Areas H, F &G, and see PAOC 29 for location SB-2).	EcolSciences 2002	TCL/TAL	C-PAHs Phenanthrene Fluoranthene Pyrene Arsenic Barium Cadmium Chromium Copper Lead Mercury Nickel Zinc	0.1- 456 ND -150 ND - 170 ND - 150 1.5 - 38.9 26.9 - 3,920 0.077 - 9 10.1 - 59.9 9.9 - 509 32.1 - 7,580 ND - 0.89 14.2 - 42.1 26.5 - 1,090	10 50 50 50 7.5 or SB 300 or SB 1 or SB 10 or SB 25 or SB 400 0.1 13 or SB 20 or SB	Full Category B	Asphalt, Slab on Grade or Slab over Limited Access Crawl Space	None	Yes, Location-Specific Evaluation
		BBL 2005 (Fill Areas A, C and D between Chassis and Body Plant)	TCL SVOCs	C-PAHs Total SVOCs Fluoranthene Fluorene Napthalene Phenanthrene Pyrene	ND - 1853 ND - 4682 ND - 750 ND - 160 ND - 100 ND - 710 ND - 660	10 500 50 50 13 50 50	Full Category B			
44	Building Slabs (West Parcel)	EcolSciences 2002	PCBs	PCBs	ND - 0.57 (100% Compliance)	1 ppm at surface	Full Category B	Concrete Slabs were Cleaned prior to Building Demolition	Concrete Slabs were Cleaned prior to Building Demolition	Yes, slabs should be recycled or re-used in foundations
45	Historic 10,000 Gal. Gasoline UST	BBL 2005	STARS VOCs	*Soil* STARS VOCs *Groundwater* STARS VOCs	 100%Compliance 100% Compliance	 TAGM 4046 Class GA Standards	Full Category B	Slab on Grade	None	Yes, Engineering and Institutional Controls
46	Location of Alleged Automobile Battery Disposal (Chasis Plant)	BBL 2005	Lead	Lead	ND - 143 (100% Compliance)	400	Full Category B	Slab Over Limited Access Crawl Space	None	Yes, Engineering and Institutional Controls

See Notes on Page 15.

TABLE 1
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REMEDIAL INVESTIGATION REPORT
FORMER NORTH TARRYTOWN ASSEMBLY PLANT SITE

	Potential Area of Concern (PAOC)	Data Source	Analyses	Constituents of Concern (1)	Concentration Range (ppm unless noted) (2)	Screening Value (ppm unless noted) (3)	DUSR (4)	Existing Controls (5)	IRM (6)	Remediation Recommended (7)
47	Park Boundary Near OW-24 (Body Plant)	BBL 2005	TCL/TAL TCL VOCs Chromium	*Soil* Chromium Trichloroethene *Groundwater* Chromium Trichloroethene 1,1-Dichloroethane cis-1,2-Dichloroethene	 8.7 - 3,750 ND - 0.045 ND - 42,100 ug/l ND - 75 ug/l ND - 6.8 ug/l ND - 9.1	 10 or SB 0.7 50 ug/l 5 ug/l 5 ug/l 5 ug/l	Full Category B	Slab on Grade	None	Yes, Location-Specific Evaluation
#	10,000-Gallon No. 6 Fuel Oil UST	BBL 2005	STARS VOCs STARS SVOCs	*Soil* Total VOCs Total CPAHs - Total SVOCs *Groundwater* Isopropyl benzene Napthalene n-Butyl benzene n-Propylbenzene sec-Butylbenzene	 ND - 31.18 ND - 59.10 ND - 180 ND - 10 ug/l ND - 140 ug/l ND - 19 ug/l ND - 31 ug/l ND - 8.8 ug/l	 10 10 500 5 ug/l 10 ug/l 5 ug/l 5 ug/l 5 ug/l	Full Category B		UST and Soil Partially Removed 1998	Yes, Location-Specific Evaluation
#	Bulkhead Area Sampling Requested by NYSDEC (West Parcel Waterfront)	EcolSciences 2002	TCL/TAL	Mercury Nickel Zinc	ND - 0.17 12.4 - 15.2 41.2 - 57.2	0.1 13 or SB 20 or SB	Full Category B	Asphalt or Slab on Grade	None	Yes, Engineering and Institutional Controls
#	Background Fill - East Parcel (Area L and Rail Spur)	EMCON 1997-2001	TCL/TAL TCL VOCs TCL SVOCs RCRA Metals	Arsenic Lead Mercury Nickel Zinc	ND - 8.07 5.02 - 1090 ND - 7.3 14.6 - 20.9 40.2 - 134	7.5 or SB 400 0.1 13 or SB 20 or SB	Limited Category A	Asphalt Cover, Concrete Slabs, Rail Siding	None	Yes, Engineering and Institutional Controls
#	Background Fill - West Parcel (Areas A, C, D, E, F, G, H, I, J, K and Pre-1914 Fill)	EMCON 1997-2001	TCL/TAL	C-PAHs Semi-VOCs Arsenic Barium Cadmium Chromium Copper Lead Mercury Nickel Zinc	ND - 471 ND - 893.2 ND - 39 9.85 - 7700 ND - 25.4 7.75 - 350 6.34 - 340 2.24 - 8,660 ND - 0.485 8.14 - 75.9 17.6 - 2740	10 500 or SB 7.5 or SB 300 or SB 1 or SB 10 or SB 25 or SB 400 0.1 13 or SB 20 or SB	Limited Category A	Asphalt Cover, Concrete Decks, Concrete Building Slabs, Limited Access Crawl Spaces	None	Yes, Engineering and Institutional Controls

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FORMER NORTH TARRYTOWN ASSEMBLY PLANT SITE

#	Potential Area of Concern (PAOC)	Data Source	Analyses	Constituents of Concern (1)	Concentration Range (ppm unless noted) (2)	Screening Value (ppm unless noted) (3)	DUSR (4)	Existing Controls (5)	IRM (6)	Remediation Recommended (7)
#	Groundwater - East Parcel	EMCON 1997-2001	TCL VOCs	*Total Metals (9)*			Limited Category A	Asphalt Cover, Concrete Slabs, Rail Siding	None	Yes, Engineering and Institutional Controls
			TCL SVOCs	Chromium	ND - 0.086	0.050				
			TAL	Lead	ND - 0.070	0.025				
				Dissolved Metals (10)	COCs Meet Criteria					
		EcolSciences 2002	TCL VOCs	*Total Metals (9)*			Full Category B			
			TCL SVOCs	Arsenic	ND - 0.035.6	0.025				
			TAL	Cadmium	ND - 0.0055	0.005				
				Dissolved Metals (10)						
				Arsenic	ND - 0.0339	0.025				
#	Groundwater - West Parcel	EMCON 1997-2001	TCL/TAL	*VOCs (ug/l)*			Limited Category A	Asphalt Cover, Concrete Decks, Concrete Building Slabs, Limited Access Crawl Spaces	Source of petroleum at monitoring well OW-13 partially removed.	Yes, Location-specific for certain PAOCs plus Engineering and Institutional Controls
				Benzene	ND - 92 ug/l	1 ug/l				
				Ethylbenzene	ND - 17 ug/l	5 ug/l				
				m&p-Xylene	ND - 11 ug/l	5 ug/l				
				Toluene	ND - 6.8 ug/l	5 ug/l				
				Semi-VOCs						
				Naphthalene	ND - 11 ug/l	10 ug/l				
				Total Metals (9)						
				Antimony	ND - 0.184	0.003				
				Arsenic	ND - 0.112	0.025				
				Barium	0.13 - 5.15	1				
				Cadmium	ND-0.022	0.005				
				Lead	ND-0.70	0.025				
				Selenium	ND - 0.0602	0.010				
				Dissolved Metals (10)						
				Antimony	ND - 0.0125	0.003				
				Barium	0.02 - 2.87	1				
				Selenium	ND - 0.0105	0.010				

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#	Potential Area of Concern (PAOC)	Data Source	Analyses	Constituents of Concern [1]	Concentration Range (ppm unless noted) [2]	Screening Value (ppm unless noted) [3]	DUSR [4]	Existing Controls [5]	IRM [6]	Remediation Recommended [7]
#	Groundwater - West Parcel (Continued)	EcolSciences 2002	TCL VOCs TCL SVOCs TAL	Benzene	ND - 6.2 ug/l	1 ug/l	Full Category B	Asphalt, Concrete Cover Over Most of Site	None	Yes, Location-specific for certain PAOCs plus Engineering and Institutional Controls
				1,1-Dichloroethene	ND - 6.8 ug/l	5 ug/l				
				1,1-Dichloroethane	ND - 10 ug/l	5 ug/l				
				Chloroethane	ND - 16 ug/l	5 ug/l				
				Xylenes (total)	ND - 20 ug/l	5 ug/l				
				Phenol	ND - 13 ug/l	5 ug/l				
				Benzo(a)anthracene	ND - 2.3 ug/l	0.002 ug/l				
				Benzo(b)fluoranthene	ND - 4.2 ug/l	0.002 ug/l				
				Benzo(a)pyrene	ND - 2.6 ug/l	ND				
				Ideno(1,2,3-cd)pyrene	ND - 1.8 ug/l	0.002 ug/l				
				Total Metals [9]						
				Antimony	ND - 94.3 ug/l	3 ug/l				
				Arsenic	ND - 138 ug/l	25 ug/l				
				Barium	ND - 15700 ug/l	1000 ug/l				
				Cadmium	ND - 154 ug/l	5 ug/l				
				Chromium	ND - 1390 ug/l	50 ug/l				
				Copper	ND - 4160 ug/l	200 ug/l				
				Lead	ND - 106000 ug/l	25 ug/l				
				Mercury	ND - 22.6 ug/l	0.7 ug/l				
				Nickel	ND - 762 ug/l	100 ug/l				
				Selenium	ND - 13.3 ug/l	10 ug/l				
				Dissolved Metals [10]						
				Antimony	ND - 24.8 ug/l	3 ug/l				
				Arsenic	ND - 33.9 ug/l	25 ug/l				
				Barium	ND - 7060 ug/l	1000 ug/l				
				Lead	ND - 446 ug/l	25 ug/l				

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FORMER NORTH TARRYTOWN ASSEMBLY PLANT SITE

#	Potential Area of Concern (PAOC)	Data Source	Analyses	Constituents of Concern [1]	Concentration Range (ppm unless noted) [2]	Screening Value (ppm unless noted) [3]	DUSR [4]	Existing Controls [5]	IRM [6]	Remediation Recommended [7]
#	Groundwater - West Parcel (Continued - Excluding PAOC 47)	BBL 2005	TAL STARS VOCs STARS SVOCs	*Total Metals* [9]			Full Category B	Asphalt, Concrete Cover Over Most of Site	None	Yes, Location-specific for certain PAOCs plus Engineering and Institutional Controls
				Barium	ND - 6,560 ug/l	1,000 ug/l				
				Lead	ND - 27.2 ug/l	25 ug/l				
				Dissolved Metals [10]						
				Barium	194 - 4,860 ug/l	1,000 ug/l				
				STARS VOCs						
				Benzene	ND - 9.8 ug/l	1 ug/l				
				Isopropylbenzene	ND - 20 ug/l	5 ug/l				
				Naphthalene	ND - 140 ug/l	10 ug/l				
				n-Propylbenzene	ND - 35 ug/l	5 ug/l				
				sec-Butylbenzene	ND - 8.8 ug/l	5 ug/l				
				STARS SVOCs						
				Acenaphthene	ND - 37 ug/l	20 ug/l				
				Benzo(a)anthracene	ND - 50 ug/l	0.002 ug/l				
				Benzo(a)pyrene	ND - 48 ug/l	ND				
				Benzo(b)fluoranthene	ND - 32 ug/l	0.002 ug/l				
				Benzo(k)flouranthene	ND - 39 ug/l	0.002 ug/l				
				Chrysene	ND - 52 ug/l	0.002 ug/l				
				Flouranthene	ND - 110 ug/l	50 ug/l				
				Ideno(1,2,3-cd)pyrene	ND - 30 ug/l	0.002 ug/l				
				Naphthalene	ND - 99 ug/l	10 ug/l				
				Phenanthrene	ND - 140 ug/l	50 ug/l				
				Pyrene	ND - 81 ug/l	50 ug/l				

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TABLE 1
POTENTIAL AREAS OF CONCERN AND INVESTIGATION SUMMARY

REMEDIAL INVESTIGATION REPORT
FORMER NORTH TARRYTOWN ASSEMBLY PLANT SITE

#	Potential Area of Concern (PAOC)	Data Source	Analyses	Constituents of Concern (1)	Concentration Range (ppm unless noted) (2)	Screening Value (ppm unless noted) (3)	DUSR (4)	Existing Controls (5)	IRM (6)	Remediation Recommended (7)
#	Soil Gas- East Parcel	BBL 2005	Methane	Methane	ND - 100%	NA (11)	Full Category B	Asphalt Cover	None	Yes, Engineering and Institutional Controls
			H_2S	H_2S	ND - 1.5 ppm (12)	NA (13)				
			TO-15 VOCs	Freon 12	ND - 4.4 ug/m3	NA (14)				
			CO, CO_2,O_2	Freon 113	ND - 21 ug/m3	NA (14)				
			Hydrocarbons	Benzene	ND - 17 ug/m3	NA (14)				
			TO-15 VOCs	Trichloroethene	ND - 25 ug/m3	NA (14)				
				Toluene	ND - 49 ug/m3	NA (14)				
				Tetrachloroethene	ND - 96 ug/m3	NA (14)				
				Ethylbenzene	ND - 4.4 ug/m3	NA (14)				
				m,p-Xylene	ND - 16 ug/m3	NA (14)				
				o-Xylene	ND - 6.8 ug/m3	NA (14)				
				1,3-Butadiene	ND - 19 ug/m3	NA (14)				
				Hexane	ND - 79 ug/m3	NA (14)				
				Cyclohexane	ND - 53 ug/m3	NA (14)				
				Heptane	ND - 33 ug/m3	NA (14)				
				Acetone	ND - 87 ug/m3	NA (14)				
				2-Propanol	ND - 41 ug/m3	NA (14)				
				2-Butanone (MEK)	ND - 12 ug/m3	NA (14)				
				Ethanol	ND - 32 ug/m3	NA (14)				
				Methyl-t-butyl ether	ND - 14ug/m3	NA (14)				

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REMEDIAL INVESTIGATION REPORT
FORMER NORTH TARRYTOWN ASSEMBLY PLANT SITE

#	Potential Area of Concern (PAOC)	Data Source	Analyses	Constituents of Concern (1)	Concentration Range (ppm unless noted) (2)	Screening Value (ppm unless noted) (3)	DUSR (4)	Existing Controls (5)	IRM (6)	Remediation Recommended (7)
#	Soil Gas- West Parcel	BBL 2005	Methane	Methane	ND - 18 %	NA (11)	Full Category B	Asphalt Cover, Concrete Decks, Concrete Building Slabs, Limited Access Crawl Spaces	None	Yes, Location-specific for certain PAOCs plus Engineering and Institutional Controls
			TO-15 VOCs	1,1,1-Trichloroethane	ND - 410 ug/m3	NA (14)				
			Napthalene	1,1-Dichloroethene	ND - 44 ug/m3	NA (14)				
				1,2,4-Trimethylbenzene	ND - 83 ug/m3	NA (14)				
				1,3,5-Trimethylbenzene	ND - 46 ug/m3	NA (14)				
				1,3-Dichlorobenzene	ND - 34 ug/m3	NA (14)				
				1,4-Dioxane	ND - 160 ug/m3	NA (14)				
				2-Butanone (MEK)	ND - 73 ug/m3	NA (14)				
				2-Propanol	ND - 420 ug/m3	NA (14)				
				4-Ethyltoluene	ND - 97 ug/m3	NA (14)				
				Acetone	ND - 2500 ug/m3	NA (14)				
				Benzene	ND - 15 ug/m3	NA (14)				
				Carbon Disulfide	ND - 20 ug/m3	NA (14)				
				Chloroform	ND - 110 ug/m3	NA (14)				
				Cyclohexane	ND - 16 ug/m3	NA (14)				
				Ethanol	ND - 69 ug/m3	NA (14)				
				Ethyl Benzene	ND - 57 ug/m3	NA (14)				
				Freon 11	ND - 200 ug/m3	NA (14)				
				Freon 12	ND - 35 ug/m3	NA (14)				
				Heptane	ND - 22 ug/m3	NA (14)				
				Hexane	ND - 21 ug/m3	NA (14)				
				m,p-Xylene	ND - 200 ug/m3	NA (14)				
				Naphthalene	ND - 24 ug/m3	NA (14)				
				o-Xylene	ND - 73 ug/m3	NA (14)				
				Propylbenzene	ND - 5.3 ug/m3	NA (14)				
				Tetrachloroethene	ND - 55 ug/m3	NA (14)				
				Toluene	ND - 140 ug/m3	NA (14)				
				Trichloroethene	ND - 2900 ug/m3	NA (14)				

Notes:

(1) Constituents confirmed by Site sampling, with at least one concentration reported above screening value. List excludes abundant inorganic constituents (e.g., aluminum, calcium, iron, magnesium, manganese, potassium, sodium), inherent in most Site fill and soils. PAOCs with 100% of analyzed COCs below screening values are listed.
(2) Range reflects all results from references listed.
(3) Screening values for soil from TAGM 4046, as amended. Lead value of 400 ppm in soil, per USEPA, as specified by NYSDOH. Groundwater values per Class GA Standards and Guidance
(4) Data usability summary report (DUSR) based on Category A analytical report (limited) or Category B (full), or no DUSR performed (none).
(5) Existing controls include cover materials or restricted access to fill or soils.
(6) IRMs were removal actions for USTs, petroleum impacted soils, and surficial residuals in limited access crawl spaces.
(7) PAOCs to be included in the Alternative Analysis Report (AAR), including those to be addressed with Site-wide engineering and institutional controls.
(8) Total PCB values for surface / subsurface residential
(9) Analyses for Total Metals (unfiltered samples) may be biased high due to sample turbidity (suspended solids).
(10) Analyses for Dissolved Metals are from samples filtered in the field to remove suspended solids.

TABLE 2
REMEDIAL INVESTIGATION AND ANALYSIS SUMMARY – 2003

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REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

Area of Interest	Objectives	Work Performed	Field / Laboratory Analytical Parameters	Laboratory Methods
PAOC 1 - Former Village Refuse Area	Delineate horizontal and vertical distribution of lead in Southern End of Former Village Refuse Area.	Performed 11 Geoprobe® borings to base of fill, at original boring locations SB-43-9 and 1J, and at locations within 5 feet of each. Up to 5 samples per boring were collected from targeted intervals.	Analyzed all samples for lead, within 5-day turnaround for results	USEPA SW-846 Method 6010B
PAOCs 2,4,6,7&17	Confirm results of Phase II, Phase III and ICM data at representative locations.	Installed one Geoprobe® boring at each listed PAOC to 4 feet below the water table and selected worst case sample for analysis based on field screening.	Analyzed all samples for full TCL/TAL (VOCs, SVOCs, Pesticides, PCBs and metals).	USEPA SW-846 Methods 8260B, 8270C, 8081A, 8082, 6010B, and 7471A
PAOC 7 - Basement Below Welding Area, Body Plant	Delineate vertical distribution of lead in PAOC 7 and Fill Area H.	Performed 15 Geoprobe® borings to a depth of 12 feet, at and within 5 feet of the locations exhibiting 3 highest levels of lead in prior investigations (7A, Fill H, BP-10). Four samples per boring were collected from targeted intervals.	Analyzed all samples for lead, within 5-day turnaround for results	USEPA SW-846 Method 6010B
PAOC 9 - Vicinity of Column H3x, Body Plant	Delineate horizontal distribution of lead at previous sample location BP-33.	Sampled surface soils from 0-6 and 6-12 inch intervals at 5 locations within a 20-foot square, centered at BP-33. Include BP-33 as a confirmatory sampling location.	Analyzed all samples for lead, within 5-day turnaround for results	USEPA SW-846 Method 6010B
PAOC 14 - Millings	Characterize Millings material that has been spread across parts of the site.	Collected two samples from the 0"-12" interval at two locations within the PAOC.	Analyzed samples for PAHs, PCBs, and TAL Metals.	USEPA SW-846 Methods 8270C, 8082, 6010B and 7471A
PAOC 15 - Millings	Characterize Millings material that has been spread across parts of the site.	Collected two samples from the 0"-12" interval at two locations within the PAOC.	Analyzed samples for PAHs, PCBs, and TAL Metals.	USEPA SW-846 Methods 8270C, 8082, 6010B and 7471A
POACs 21 & 39 - Former Power Plant, Laundry & Transformers (PAOC 21), and Former Painting & Assembly (PAOC 39).	Further investigate the petroleum odor and soil staining previously observed in previous soil borings PAOC-21-1 and PAOC-39-1.	Completed vertical and horizontal delineation of residual petroleum using a series of Geoprobe® borings extending to the base of fill (typically15-20 feet bgs).	Field-screened soils for VOC using a PID; examined for staining, odors, etc.; used qualitative oil/water shake test to detect traces of residual petroleum. Collected samples from unsaturated zone if petroleum contamination was evident. Set temporary groundwater well in worst case boring. Analyzed soil and groundwater samples for VOCs and SVOCs (STAR list parameters).	USEPA SW-846 Methods 8021B and 8270C

TABLE 2
REMEDIAL INVESTIGATION AND ANALYSIS SUMMARY – 2003

REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

Area of Interest	Objectives	Work Performed	Field / Laboratory Analytical Parameters	Laboratory Methods
PAOC 29 - Former (1945) Maintenance Building	Delineate vertical and horizontal distribution of lead in vicinity of former building footprint.	Performed 8 Geoprobe® borings to base of fill, at and within 5 feet of SB-29-2 and SB2. Collected up to four samples per boring from targeted intervals.	Analyzed all samples for lead, within 5-day turnaround for results	USEPA SW-846 Method 6010B
PAOC 32 - Millings	Characterize Millings material that has been spread across parts of the site.	Collected two samples from the 0"-12" interval, at original locations SB-32-1 and SB-32-2.	Analyzed sample for PAHs, PCBs, and TAL Metals.	USEPA SW-846 Methods 6010B, 7471A, 8082, and 8270C
PAOC 34 - Former Springfield Gas Machines	Delineate vertical and horizontal distribution of elevated C-PAHs identified previously at sample location PAOC-34-4.	Performed Geoprobe® borings at sample location PAOC-34-4 and at 3 surrounding locations within 10 feet of original sample. Sampled at original sample depth and below to complete vertical delineation.	Analyzed representative samples for PAHs. Used field observations to determine exact sampling depths.	USEPA SW-846 Method 8270C
POAC 37 - Former Machine Shop & Sheet Metal Working	Delineate the horizontal and vertical extent of the 6-inch thick horizon of petroleum stained soil observed at a depth of 8-10 feet bgs in soil boring PAOC 37-1.	Completed vertical and horizontal delineation of residual petroleum using a series of 18 Geoprobe® borings extending into native soils (typically12-16 feet bgs) (iterative sampling). Converted two borings to temporary monitoring wells.	Field-screened soils for VOCs using a PID; examined for staining, odors, etc.; used qualitative oil/water shake test to detect traces of residual petroleum. Analyzed soil samples from selected borings defining the edge of petroleum contamination for STAR list VOCs and SVOCs, based on field screening results. Analyzed groundwater from temporary wells for STAR list VOCs and SVOCs.	USEPA SW-846 Methods 8021B and 8270C
PAOC 43 - Fill Areas	Delineate vertical and horizontal distribution of PAHs surrounding sample location FILL-D.	Completed vertical and horizontal delineation of residual petroleum via iterative sampling, using a series of 23 Geoprobe® borings extending into native soils (typically12-24 feet bgs)	Analyzed representative samples for PAHs, using field observations to determine exact sampling depths.	USEPA SW-846 Method 8270C
PAOC 45 - Former Gasoline Underground Storage Tank	Identify if soils and/or groundwater in area of former gasoline UST have been impacted.	Installed two soil borings to base of fill material. Converted one of the soil borings into a temporary well point for groundwater sampling.	Field-screened soils for VOCs using a PID; examined for staining, odors, etc.; used qualitative oil/water shake test to detect traces of residual petroleum. Analyzed soil for VOCs (STARS List), and groundwater sample from temporary well point for VOCs (STARS List)	USEPA SW-846 Methods 8021B

TABLE 2
REMEDIAL INVESTIGATION AND ANALYSIS SUMMARY – 2003

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REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

Area of Interest	Objectives	Work Performed	Field / Laboratory Analytical Parameters	Laboratory Methods
PAOC 46 - Location of Alleged Automobile Battery Disposal	Identify if fill material used to fill concrete chase has been impacted with lead or if lead batteries are present in this fill material.	Installed four soil borings through concrete slab to base of concrete chase to sample fill material.	Analyzed fill material at bottom of chase for lead.	USEPA SW-846 Method 6010B
Former 10,000-gallon Heating-oil UST	Delineate extent of petroleum in subsurface soils at the site of the former 10,000-gallon, No.6 heating-oil UST.	Delineated the subsurface distribution free and residual petroleum using a series of 44 Geoprobe® borings extending to the base of fill (typically16-36 feet bgs) and into the underlying native sediments.	Field-screened soils for VOC using a PID; examined for staining, odors, etc.; used qualitative oil/water shake test to detect traces of residual petroleum. Collected representative soil samples from saturated zone fill and native sediments at 3 locations for geotechnical tests[1] for use in remedial design.	NA
On-Site Groundwater Near Former Heating-Oil UST and POACs 21 & 39	Characterize ground-water quality down-gradient of former 10,000-gallon heating-oil UST and in the vicinity of POAC 21 and POAC 39.	Installed 12 temporary wells, along a regularly-spaced grid, downgradient of the former UST, through the area of PAOCs 21 and 39 using a series of Geoprobe® borings extending to the base of fill (typically16-24 feet bgs).	Field-screened soils for VOC using a PID; examined for staining, odors, etc.; used qualitative oil/water shake test to detect traces of residual petroleum. Set temporary groundwater wells where saturated zone contamination was evident. Analyzed soil and groundwater samples for VOCs and SVOCs (STAR list parameters).	USEPA SW-846 Methods 8021B and 8270C
On-Site Groundwater at North End of Property	Further characterized ground-water flow direction and extent of on-site gasoline constituent migration downgradient of OW-10.	Installed one (1) temporary monitoring well (26T) approximately midway between wells OW-10 and OW-3, screened within the same hydrostratigraphic interval.	Analyzed groundwater samples from wells OW-10, OW-22, and OW-26T for VOCs (STARS list parameters).	USEPA SW-846 Methods 8021B
Metals in Groundwater	Further characterize metal concentrations in groundwater using low-flow purging and sampling techniques.	Redeveloped existing monitoring wells OW-6, OW-7, OW-10, OW-11, OW-12, OW-20, and OW-22 to minimize turbidity. Collected groundwater samples for analysis of TAL metals using low-flow technique.	Collected samples from existing wells OW-6, OW-7, OW-10, OW-11, OW-12, OW-20, OW-22, and OW-26T for analysis of TAL Metals.	USEPA SW-846 Methods 8021B, 6010B, and 7470A
Park Boundary	Characterized ground-water flow conditions and groundwater quality adjacent to the northwestern site boundary (Kingsland point Park).	Installed two groundwater monitoring wells, screened above the seasonal high water table, and extending to a depth of approximately 15 feet into the saturated zone.	Analyzed groundwater samples from wells OW-24 and OW-25 for full TCL/TAL	USEPA SW-846 Methods 8260B, 8270C, 8081A, 8082, 6010B, and 7470A

TABLE 2
REMEDIAL INVESTIGATION AND ANALYSIS SUMMARY – 2003

REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

Area of Interest	Objectives	Work Performed	Field / Laboratory Analytical Parameters	Laboratory Methods
East Parcel Soil-Gas Survey	Determine if methane and other landfill gases are present at significant levels at the East Lot, characterize their spatial distribution, and determine whether landfill gases are currently being generated.	Performed field soil-gas measurements for combustible gas, hydrogen sulfide, and oxygen concentrations at 47 locations. Collected 4 soil-gas samples in evacuated SUMMA canisters from locations exhibiting between 5 and 25% combustible gas laboratory analysis of soil gases.	Analyzed samples for fixed gases, methane, non-methane hydrocarbons, VOCs, and reduced sulfur compounds.	ASTM D1945, USEPA TO-15, ASTM D5504

[1] - Geotechnical parameters:

Modulus of Elasticity, E_s	Coefficient of Secondary Consolidation, C_α	Void Ratio, e
Shear Modulus, G’	Unit Weight, γ	Liquid Limit, w_l
Poisson’s Ratio, m	Water Content, w	Plastic Limit, w_p
Friction Angle, f	Specific Gravity, G_s	

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TABLE 3
REMEDIAL INVESTIGATION AND ANALYSIS SUMMARY – 2004

REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

Area of Interest	Objectives	Proposed Work	Field / Laboratory Analytical Parameters	Laboratory Methods
PAOC 7/Fill Areas H & F -Basement Below Welding Area, Body Plant within Historic Fill Areas H &F and Vicinity	Further delineate horizontal and vertical distribution of lead greater than 10,000 ppm within Fill Area H and adjacent fill areas, and confirm boundaries of lead contamination. Determine extent of lead contamination in groundwater.	Performed 28 additional Geoprobe® borings to confirm contact with native sediment (14-16 feet) and collect samples from each 2-foot vertical interval. Performed 5 hand auger borings to evaluate shallow contamination at one crawl space location. Installed 3 monitoring wells within Fill Area H, including 2 within previously identified high lead concentration areas, and third well in the northern end of Fill Area H. Installed 1 upgradient well in Fill Area F (at a high lead concentration location) and 3 downgradient wells. Wells at PAOC 43 were used as upgradient wells for Fill Area F.	Analyzed all soil samples for lead, within 5-day turnaround for results. Analyzed all groundwater samples for TAL metals and TCL VOCs and SVOCs, expanded for STARS parameters. Sampling and analysis for lead was iterative until boundaries were confirmed. Representative soil samples were Analyzed for VOCs and SVOCs to characterize petroleum source limits.	USEPA SW-846 Methods 6010B, 8260B and 8270C
PAOC 29 - Former (1945) Maintenance Building	Delineate vertical and horizontal distribution of lead greater than 10,000 ppm.	Performed 15 Geoprobe® borings to base of fill (6-8 feet), surrounding borings SB-29-B 5, 6 & 8. Collected 3-4 samples per boring from 2-foot intervals, but analyzed on an iterative basis until 10,000 PPM boundaries were established. Installed 1 temporary well within high lead concentration area and analyzed groundwater for lead. Extended investigation off site into Kingsland Point Park, performed 12 borings, and analyzed samples from each 2-foot vertical interval for lead.	Analyzed all samples for lead, within 5-day turnaround for results. Sampling and analysis for lead was iterative until boundaries of 10,000 ppm lead were confirmed	USEPA SW-846 Method 6010B
POAC 37 - Machine Shop & Sheet Metal Working	Install observation wells for natural attenuation monitoring.	Installed 4 monitoring wells, after screening each proposed location for evidence of petroleum with a Geoprobe® boring. Well screens extend from 3 feet above water table to targeted depth.	Field-screened soils in saturated zone for VOCs using a PID. Analyzed groundwater from monitoring wells for STARS VOCs and SVOCs.	USEPA SW-846 Method 8260b (low detection) and 8270C

TABLE 3
REMEDIAL INVESTIGATION AND ANALYSIS SUMMARY – 2004

REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

Area of Interest	Objectives	Proposed Work	Field / Laboratory Analytical Parameters	Laboratory Methods
PAOC 43 - Historic Fill with Elevated PAHs	Install observation wells for natural attenuation monitoring.	Installed 5 monitoring wells, after screening each proposed location for evidence of petroleum with a Geoprobe® boring. Well screens extend from 3 feet above water table to targeted depth.	Field-screened soils in saturated zone for VOCs using a PID. Analyzed groundwater from monitoring wells for STARS VOCs and SVOCs.	USEPA SW-846 Method 8260b (low detection) and 8270C
PAOC 46 - Location of Alleged Automobile Battery Disposal	Expand investigation of fill in concrete chase to confirm the absence of batteries or residual lead.	Installed 6 additional soil borings at former trench turn locations, through concrete slab to base of concrete chase, and sampled fill material at the bottom.	Analyzed fill material at bottom of chase for lead.	USEPA SW-846 Method 6010B
Former 10,000-gallon Heating-oil UST	Confirm source removal area and natural attenuation zone boundaries, and install observation wells for natural attenuation monitoring.	Performed 11 Geoprobe® borings around perimeter of proposed excavation to supplement qualitative test boring results from the SI with quantitative data. For the attenuation area, installed 8 monitoring wells, after screening each proposed location for evidence of petroleum with a Geoprobe® boring. Wells screens extend from 3 feet above water table to targeted depth.	Obtained saturated soil sample from most visibly contaminated 2-foot depth interval in borings along source area boundaries. For the attenuation observation wells, field-screened soils in saturated zone for VOCs using a PID. Sampled groundwater and analyzed for STARS VOCs and SVOCs. Included 7 existing wells in baseline sampling.	USEPA SW-846 Method 8260b (low detection) and 8270C
PAOC 47 - Park Boundary at OW-24	Locate sources of chlorinated VOCs and chromium in soil and groundwater near OW-24, and delineate extent of groundwater contamination.	Performed an iterative subsurface investigation and obtain soil and groundwater samples from a Geoprobe boring and temporary wells, based on field screening for VOCs. Performed 26 Geoprobe® borings on site and 2 offsite in Kingsland Point Park and obtained soil and groundwater samples for chromium and VOC analyses. Fifteen on-site and 2 off-site borings were converted to temporary monitoring wells for groundwater sampling.	Field-screened soils in from surface to base of fill for VOCs using a PID. Obtained 2 soil samples from each on-site boring (saturated and unsaturated zones) for chromium analysis (5-day turnaround). Analyzed representative soils for TCL VOCs as needed based on PID readings. Analyzed surficial soil from Park for chromium. Analyzed groundwater for TCL VOCs and chromium.	USEPA SW-846 Method 8260b (low detection), 8270C and 6010B

TABLE 3
REMEDIAL INVESTIGATION AND ANALYSIS SUMMARY – 2004

REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

Area of Interest	Objectives	Proposed Work	Field / Laboratory Analytical Parameters	Laboratory Methods
Soil Gas Survey - West Parcel	Determine if volatile organic vapors from petroleum and other VOC contaminated areas would require remediation to mitigate intrusion of vapors to future buildings.	Performed quantitative soil gas survey by collecting 52 representative soils gas samples at 33 locations below hard surfaces (concrete slabs and asphalt roadways) and in both soils and ambient air within existing crawl spaces. Sampling encompassed areas where VOCs are present in groundwater under or near proposed building footprints. Two background ambient air samples were included.	Integrated 1-hour Samples were collected in 100% - certified 6-liter Summa canisters and analyzed for VOCs by Modified USEPA Method T0-15 (standard full scan plus napthalene).	Modified USEPA Method TO-15
Methane Survey - West Parcel	Precautionary survey to confirm presence or absence of methane from natural organic sources.	Performed methane gas survey at 33 representative potential buried marsh locations within 100-foot grid pattern throughout West Parcel where building construction and open space is contemplated.	Real time field measurements obtained with combustible gas meter, drawing from tubes advance through borings 1-foot below slab or asphalt surface. Sampling was designed to delineate zero percent gas boundary.	NA

TABLE 4
LEAD ANALYSIS OF SOIL

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REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

IWP Sample Area Description										
PAOC 1										
Field Sample ID	**Unrestricted Use**	**SI-1-B1-A-1**	**SI-1-B1-B-1**	**SI-1-B1-C-1**	**SI-1-B1-D-1**	**SI-1-B1-E-1**	**SI-1-B2-A-1**	**SI-1-B2-A-2**	**SI-1-B2-B-1**	
Depth Interval (ft)	**Screening Value[1]**	3.0 - 3.5	6.0 - 6.5	8.5 - 9.0	11.5 - 12.0	13.5 - 14.0	3.5 - 4.0	3.5 - 4.0	6.5 - 7.0	
Lead (mg/Kg)	**400 or SB**	115 J	44.9 J	80.2 J	93.3 J	12 J	27.9 J	61 J	151 J	
Field Sample ID	**Unrestricted Use**	**SI-1-B2-C-1**	**SI-1-B2-D-1**	**SI-1-B2-E-1**	**SI-1-B3-A-1**	**SI-1-B3-B-1**	**SI-1-B3-C-1**	**SI-1-B3-D-1**	**SI-1-B3-E-1**	
Depth Interval (ft)	**Screening Value[1]**	8.0 - 8.5	11.0 - 11.5	14.0 - 14.5	3.5 - 4.0	7.5 - 8.0	11.5 - 12.0	13.5 - 14.0	15.0 - 15.5	
Lead (mg/Kg)	**400 or SB**	43.4	ND	ND	53.5 J	22.5 J	36.5 J	50.7 J	ND	
Field Sample ID	**Unrestricted Use**	**SI-1-B4-A-1**	**SI-1-B4-A-2**	**SI-1-B4-B-1**	**SI-1-B4-C-1**	**SI-1-B4-D-1**	**SI-1-B4-E-1**	**SI-1-B5-A-1**	**SI-1-B5-A-2**	
Depth Interval (ft)	**Screening Value[1]**	3.5 - 4.0	3.5 - 4.0	7.5 - 8.0	11.0 - 11.5	13.5 - 14.0	15.0 - 15.5	4.8 - 6.0	4.8 - 6.0	
Lead (mg/Kg)	**400 or SB**	96.2	243	48.8 J	16.5 J	60.9 J	ND	56.2 J	78.5 J	
Field Sample ID	**Unrestricted Use**	**SI-1-B6-A-1**	**SI-1-B6-B-1**	**SI-1-B6-C-1**	**SI-1-B6-D-1**	**SI-1-B7-A-1**	**SI-1-B7-A-2**	**SI-1-B7-B-1**	**SI-1-B8-A-1**	
Depth Interval (ft)	**Screening Value[1]**	2.4 - 2.9	6.0 - 6.4	7.0 - 7.4	7.7 - 8.0	6.0 - 6.4	6.0 - 6.4	7.0 - 7.4	2.0 - 2.4	
Lead (mg/Kg)	**400 or SB**	11.8 J	321	210	898 J	720 J	3490	2000	ND	
Field Sample ID	**Unrestricted Use**	**SI-1-B8-B-1**	**SI-1-B8-C-1**	**SI-1-B8-D-1**	**SI-1-B8-E-1**	**SI-1-B9-A-1**	**SI-1-B9-B-1**	**SI-1-B9-C-1**	**SI-1-B9-D-1**	
Depth Interval (ft)	**Screening Value[1]**	3.6 - 4.0	5.0 - 5.4	7.0 - 7.4	8.0 - 8.4	2.0 - 2.4	4.6 - 5.0	5.6 - 6.0	6.6 - 7.0	
Lead (mg/Kg)	**400 or SB**	14.2 J	79.7	441	ND	11.6 J	68.4 J	3300	1100	
Field Sample ID	**Unrestricted Use**	**SI-1-B9-E-1**	**SI-1-B10-A-1**	**SI-1-B10-B-1**	**SI-1-B10-C-1**	**SI-1-B10-D-1**	**SI-1-B10-E-1**	**SI-1-B11-A-1**	**SI-1-B11-B-1**	
Depth Interval (ft)	**Screening Value[1]**	7.6 - 8.0	2.0 - 2.4	5.2 - 5.6	6.0 - 6.4	8.0 - 8.4	9.0 - 9.4	2.0 - 2.4	4.6 - 5.0	
Lead (mg/Kg)	**400 or SB**	ND	ND	ND	59.8	339 J	ND	17 J	78.6	
Field Sample ID	**Unrestricted Use**	**SI-1-B11-B-2**	**SI-1-B11-C-1**	**SI-1-B11-D-1**	**SI-1-B11-E-1**					
Depth Interval (ft)	**Screening Value[1]**	4.6 - 5.0	6.6 - 7.0	7.6 - 8.0	8.4 - 8.8					
Lead (mg/Kg)	**400 or SB**	70.5	2590	261	ND					
PAOC 7										
Field Sample ID	**Unrestricted Use**	**SI-7-B2-A-1**	**SI-7-B2-A-2**	**SI-7-B2-B-1**	**SI-7-B2-C-1**	**SI-7-B2-D-1**	**SI-7-B3-A-1**	**SI-7-B3-B-1**	**SI-7-B3-C-1**	**SI-7-B3-D-1**
Depth Interval (ft)	**Screening Value[1]**	2.6 - 3.0	2.6 - 3.0	5.6 - 6.0	7.6 - 8.0	11.6 - 12.0	2.6 - 3.0	5.6 - 6.0	8.6 - 9.0	11.6 - 12.0
Lead (mg/Kg)	**400 or SB**	18.8 J	21.1 J	795 J	155 J	**16000 J**	ND	ND	**31700 J**	**26300 J**
Field Sample ID	**Unrestricted Use**	**SI-7-B4-A-1**	**SI-7-B4-B-1**	**SI-7-B4-C-1**	**SI-7-B4-D-1**	**SI-7-B5-A-1**	**SI-7-B5-B-1**	**SI-7-B5-C-1**	**SI-7-B5-D-1**	**SI-7-B6-A-1**
Depth Interval (ft)	**Screening Value[1]**	2.6 - 3.0	5.6 - 6.0	8.6 - 9.0	11.6 - 12.0	2.6 - 3.0	5.6 - 6.0	8.6 - 9.0	11.6 - 12.0	2.5 - 3.0
Lead (mg/Kg)	**400 or SB**	**11100 J**	435 J	4300 J	7490 J	ND	ND	783 J	**43000 J**	96.2
Field Sample ID	**Unrestricted Use**	**SI-7-B6-A-2**	**SI-7-B6-B-1**	**SI-7-B6-C-1**	**SI-7-B6-D-1**	**SI-7-B6-G-1**	**SI-7-B6-H-1**	**SI-7-B7-A-1**	**SI-7-B7-A-2**	**SI-7-B7-B-1**
Depth Interval (ft)	**Screening Value[1]**	2.5 - 3.0	5.5 - 6.5	8.0 - 8.5	11.5 - 12.0	17.0 - 17.5	19.0 - 19.5	2.5 - 3.0	2.5 - 3.0	5.5 - 6.0
Lead (mg/Kg)	**400 or SB**	87.6	2200	1020	36	63	1040	248 J	49.3 J	6750
Field Sample ID	**Unrestricted Use**	**SI-7-B7-C-1**	**SI-7-B7-D-1**	**SI-7-B8-A-1**	**SI-7-B8-B-1**	**SI-7-B8-C-1**	**SI-7-B8-D-1**	**SI-7-B9-A-1**	**SI-7-B9-B-1**	**SI-7-B9-C-1**
Depth Interval (ft)	**Screening Value[1]**	7.5 - 8.0	8.5 - 9.0	2.5 - 3.0	5.5 - 6.0	9.0 - 9.5	11.5 - 12.0	2.5 - 3.0	5.5 - 6.0	8.0 - 8.5
Lead (mg/Kg)	**400 or SB**	**16400**	1120 J	6620	778	**38400 J**	55.1	**12400 J**	6460 J	6250 J
Field Sample ID	**Unrestricted Use**	**SI-7-B9-D-1**	**SI-7-B10-A-1**	**SI-7-B10-A-2**	**SI-7-B10-B-1**	**SI-7-B10-C-1**	**SI-7-B10-D-1**	**SI-7-B10-E-1**	**SI-7-B11-A-1**	**SI-7-B11-B-1**
Depth Interval (ft)	**Screening Value[1]**	11.5 - 12.0	2.8 - 3.2	2.8 - 3.2	5.6 - 6.0	8.6 - 9.0	11.6 - 12.0	12.6 - 13.0	2.6 - 3.0	5.6 - 6.0
Lead (mg/Kg)	**400 or SB**	1610 J	522 J	707 J	6550 J	956 J	1720 J	15.8 J	**32300 J**	2750

See Notes on Page 5.

TABLE 4

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LEAD ANALYSIS OF SOIL

REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

IWP Sample Area Description										
Field Sample ID	**Unrestricted Use**	**SI-7-B11-C-1**	**SI-7-B12-A-1**	**SI-7-B12-B-1**	**SI-7-B12-C-1**	**SI-7-B12-D-1**	**SI-7-B13-A-1**	**SI-7-B13-B-1**	**SI-7-B13-C-1**	**SI-7-B13-D-1**
Depth Interval (ft)	**Screening Value[1]**	0.0 - 0.4	2.5 - 3.0	5.5 - 6.0	7.5 - 8.0	9.0 - 9.5	2.5 - 3.0	5.5 - 6.0	8.0 - 8.5	11.5 - 12.1
Lead (mg/Kg)	**400 or SB**	2060 J	314	3970	**13500**	1100	**10500**	6420	5940 J	984
Field Sample ID	**Unrestricted Use**	**SI-7-B14-A-1**	**SI-7-B14-A-2**	**SI-7-B14-B-1**	**SI-7-B14-C-1**	**SI-7-B14-D-1**	**SI-7-B15-A-1**	**SI-7-B15-B-1**	**SI-7-B15-C-1**	**SI-7-B15-D-1**
Depth Interval (ft)	**Screening Value[1]**	2.6 - 3.0	2.6 - 3.0	5.6 - 6.0	8.6 - 9.0	11.6 - 12.0	2.6 - 3.0	5.6 - 6.0	8.6 - 9.0	11.6 - 12.0
Lead (mg/Kg)	**400 or SB**	22.5 J	ND	ND	ND	ND	ND	ND	ND	ND
Field Sample ID	**Unrestricted Use**	**SI-7-B16-A-1**	**SI-7-B16-A-2**	**SI-7-B16-B-1**	**SI-7-B16-C-1**	**SI-7-B16-D-1**	**SI-7-B16-F-1**	**SI-7-B16-G-1**	**SI-7-B16-H-1**	**SI-7-B17-A-1**
Depth Interval (ft)	**Screening Value[1]**	0.0 - 0.5	0.0 - 0.5	2.1 - 2.5	3.5 - 4.0	4.5 - 5.5	8.5 - 9.5	10.5 - 11.5	12.5 - 13.5	0.0 - 1.0
Lead (mg/Kg)	**400 or SB**	555	360	ND	**18,000**	2120	**53,900**	589	350	34.3
Field Sample ID	**Unrestricted Use**	**SI-7-B17-B-1**	**SI-7-B17-B-2**	**SI-7-B17-C-1**	**SI-7-B17-D-1**	**SI-7-B17-E-1**	**SI-7-B17-F-1**	**SI-7-B17-G-1**	**SI-7-B17-H-1**	**SI-7-B18-A-1**
Depth Interval (ft)	**Screening Value[1]**	2.0 - 3.0	2.0 - 3.0	4.0 - 5.0	6.0 - 7.0	8.0 - 9.0	10.0 - 11.0	12.0 - 13.0	14.0 - 15.0	2.0 - 3.0
Lead (mg/Kg)	**400 or SB**	ND	ND	ND	ND	ND	ND	44.7	ND	6,400
Field Sample ID	**Unrestricted Use**	**SI-7-B18-A-2**	**SI-7-B18-B-1**	**SI-7-B18-C-1**	**SI-7-B18-D-1**	**SI-7-B18-E-1**	**SI-7-B18-F-1**	**SI-7-B18-G-1**	**SI-7-B18-H-1**	**SI-7-B19-A-1**
Depth Interval (ft)	**Screening Value[1]**	2.0 - 3.0	4.0 - 4.5	4.5 - 5.5	6.5 - 7.5	8.5 - 9.5	10.5 - 11.5	12.5 - 13.5	14.5 - 15.5	0.0 - 1.0
Lead (mg/Kg)	**400 or SB**	274	ND	132	ND	ND	ND	ND	ND	ND
Field Sample ID	**Unrestricted Use**	**SI-7-B19-B-1**	**SI-7-B19-B-2**	**SI-7-B19-C-1**	**SI-7-B19-D-1**	**SI-7-B19-E-1**	**SI-7-B19-F-1**	**SI-7-B19-G-1**	**SI-7-B19-H-1**	**SI-7-B20-A-1**
Depth Interval (ft)	**Screening Value[1]**	2.0 - 3.0	2.0 - 3.0	4.0 - 5.0	6.0 - 7.0	8.0 - 9.0	10.0 - 11.0	12.0 - 13.0	14.0 - 14.5	0.0 - 1.0
Lead (mg/Kg)	**400 or SB**	ND	ND	25.1	ND	ND	27.3	ND	ND	ND
Field Sample ID	**Unrestricted Use**	**SI-7-B20-A-2**	**SI-7-B20-B-1**	**SI-7-B20-C-1**	**SI-7-B20-D-1**	**SI-7-B20-E-1**	**SI-7-B20-F-1**	**SI-7-B20-G-1**	**SI-7-B20-H-1**	**SI-7-B21-A-1**
Depth Interval (ft)	**Screening Value[1]**	0.0 - 1.0	2.0 - 3.0	4.0 - 5.0	6.0 - 7.0	8.0 - 9.0	10.0 - 11.0	12.0 - 13.0	14.0 - 15.0	0.0 - 1.0
Lead (mg/Kg)	**400 or SB**	23.2 J	ND	21.5 J	17.2 J	ND	18 J	ND	ND	55.2 J
Field Sample ID	**Unrestricted Use**	**SI-7-B21-B-1**	**SI-7-B21-C-1**	**SI-7-B21-D-1**	**SI-7-B21-E-1**	**SI-7-B21-E-2**	**SI-7-B21-F-1**	**SI-7-B21-G-1**	**SI-7-B21-H-1**	**SI-7-B22-A-1**
Depth Interval (ft)	**Screening Value[1]**	2.0 - 3.0	4.0 - 5.0	6.0 - 7.0	8.0 - 9.0	8.0 - 9.0	10.0 - 11.0	12.0 - 13.0	14.0 - 15.0	0.0 - 1.0
Lead (mg/Kg)	**400 or SB**	1,240 J	8,070 J	391 J	229 J	1,070 J	3,640 J	257 J	18.7 J	25.8 J
Field Sample ID	**Unrestricted Use**	**SI-7-B22-B-1**	**SI-7-B22-C-1**	**SI-7-B22-G-1**	**SI-7-B22-G-2**	**SI-7-B22-H-1**	**SI-7-B23-A-1**	**SI-7-B23-B-1**	**SI-7-B23-C-1**	**SI-7-B23-D-1**
Depth Interval (ft)	**Screening Value[1]**	2.0 - 3.0	4.0 - 5.0	12.0 - 13.0	12.0 - 13.0	14.0 - 15.0	0.0 - 1.0	2.0 - 3.0	4.0 - 5.0	6.0 - 7.0
Lead (mg/Kg)	**400 or SB**	1,270 J	4,460	ND	ND	ND	2,840 J	13.3 J	222 J	1,430 J
Field Sample ID	**Unrestricted Use**	**SI-7-B23-E-1**	**SI-7-B23-E-2**	**SI-7-B23-F-1**	**SI-7-B23-G-1**	**SI-7-B23-H-1**	**SI-7-B23-I-1**	**SI-7-B24-A-1**	**SI-7-B24-B-1**	**SI-7-B24-C-1**
Depth Interval (ft)	**Screening Value[1]**	8.0 - 9.0	8.0 - 9.0	10.0 - 11.0	12.0 - 13.0	14.0 - 15.0	16.0 - 17.0	0.0 - 1.0	2.0 - 3.0	4.0 - 5.0
Lead (mg/Kg)	**400 or SB**	4,100 J	2,480 J	1,030 J	294 J	23.2 J	ND	264 J	112 J	ND
Field Sample ID	**Unrestricted Use**	**SI-7-B24-D-1**	**SI-7-B24-D-2**	**SI-7-B24-E-1**	**SI-7-B24-F-1**	**SI-7-B24-G-1**	**SI-7-B24-H-1**	**SI-7-B24-I-1**	**SI-7-B25-A-1**	**SI-7-B25-B-1**
Depth Interval (ft)	**Screening Value[1]**	6.0 - 7.0	6.0 - 7.0	8.0 - 9.0	10.0 - 11.0	12.0 - 13.0	14.0 - 15.0	16.0 - 17.0	0.0 - 1.0	2.0 - 3.0
Lead (mg/Kg)	**400 or SB**	ND	ND	3,140 J	4,230 J	ND	ND	ND	976 J	512 J
Field Sample ID	**Unrestricted Use**	**SI-7-B25-C-1**	**SI-7-B25-D-1**	**SI-7-B25-E-1**	**SI-7-B25-F-1**	**SI-7-B25-G-1**	**SI-7-B25-G-2**	**SI-7-B25-H-1**	**SI-7-B26-A-1**	**SI-7-B26-B-1**
Depth Interval (ft)	**Screening Value[1]**	4.0 - 5.0	6.0 - 7.0	10. 0 - 11.0	16.0 - 17.0	18.0 - 19.0	18.0 - 19.0	19.5 -20.0	0.0 - 1.0	2.0 - 3.0
Lead (mg/Kg)	**400 or SB**	463 J	1,000 J	2,780 J	71.4 J	ND	ND	ND	2,430 J	1,980 J
Field Sample ID	**Unrestricted Use**	**SI-7-B26-D-1**	**SI-7-B26-F-1**	**SI-7-B26-F-2**	**SI-7-B27-A-1**	**SI-7-B27-B-1**	**SI-7-B27-C-1**	**SI-7-B27-D-1**	**SI-7-B27-E-1**	**SI-7-B27-F-1**
Depth Interval (ft)	**Screening Value[1]**	6.5 - 7.5	10.5 - 11.5	10.5 - 11.5	0.0 - 1.0	2.0 - 3.0	4.0 - 5.0	6.0 - 7.0	8.0 - 9.0	10.0 - 11.0
Lead (mg/Kg)	**400 or SB**	2,390 J	318 J	169 J	15.5 J	3,630 J	2,090 J	2,110 J	3,040 J	1,780 J

See Notes on Page 5.

TABLE 4
LEAD ANALYSIS OF SOIL

DRAFT

REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

IWP Sample Area Description										
Field Sample ID	**Unrestricted Use**	**SI-7-B27-G-1**	**SI-7-B27-G-2**	**SI-7-B27-H-1**	**SI-7-B27-I-1**	**SI-7-B29-A-1**	**SI-7-B29-B-1**	**SI-7-B29-C-1**	**SI-7-B29-D-1**	**SI-7-B29-E-1**
Depth Interval (ft)	**Screening Value[1]**	12.0 - 13.0	12.0 - 13.0	14.0 - 15.0	18.0 - 19.0	0.0 - 1.0	2.0 - 3.0	4.0 - 5.0	6.0 - 7.0	12.0 - 13.0
Lead (mg/Kg)	**400 or SB**	8,420 J	4,840 J	2,510 J	94.1 J	9,990 J	6,020 J	3,470 J	2,790 J	21.1 J
Field Sample ID	**Unrestricted Use**	**SI-7-B29-F-1**	**SI-7-B29-G-1**	**SI-7-B29A-A1**	**SI-7-B29A-A2**	**SI-7-B29A-A3**	**SI-7-B29B-A1**	**SI-7-B29C-A1**	**SI-7-B29D-AA1**	**SI-7-B29E-A1**
Depth Interval (ft)	**Screening Value[1]**	14.0 - 15.0	16.0 -17.0	0.0 - 1.0	0.0 - 1.0	0.0 - 1.0	0 - 1.0	0 - 1.0	0 - 1.0	1.0 - 2.0
Lead (mg/Kg)	**400 or SB**	ND	58.2 J	8,280 J	8,250 J	ND	2,150 J	2,460 J	2,220 J	4,730 J
Field Sample ID	**Unrestricted Use**	**SI-7-B29D-A1**	**SI-7-B29E-AA1**	**SI-7-B30-A-1**	**SI-7-B30-B-1**	**SI-7-B30-C-1**	**SI-7-B30-D-1**	**SI-7-B30-F-1**	**SI-7-B30-G-1**	**SI-7-B30-H-1**
Depth Interval (ft)	**Screening Value[1]**	1.0 - 2.0	0 - 1.0	0.0 -1.0	2.0 - 3.0	4.0 - 5.0	6.0 - 7.0	10.0 - 11.0	12.0 - 13.0	14.0 - 15.0
Lead (mg/Kg)	**400 or SB**	**167,000 J**	7,470 J	2,020 J	935 J	3,000 J	**18,300 J**	**49,700 J**	34.9 J	ND
Field Sample ID	**Unrestricted Use**	**SI-7-B31-A-1**	**SI-7-B31-A-2**	**SI-7-B31-B-1**	**SI-7-B31-C-1**	**SI-7-B31-D-1**	**SI-7-B31-E-1**	**SI-7-B31-F-1**	**SI-7-B31-G-1**	**SI-7-B31-H-1**
Depth Interval (ft)	**Screening Value[1]**	0.0 - 1.0	0.0 - 1.0	2.0 - 3.0	4.0 - 5.0	6.5 - 7.5	8.5 - 9.5	10.5- 11.5	12.5 - 13.5	14.5 - 15.5
Lead (mg/Kg)	**400 or SB**	150 J	116 J	10.9 J	ND	ND	ND	ND	ND	ND
Field Sample ID	**Unrestricted Use**	**SI-7-B31-I-1**	**SI-7-B32-A-1**	**SI-7-B32-B-1**	**SI-7-B32-B-2**	**SI-7-B32-C-1**	**SI-7-B32-D-1**	**SI-7-B32-E-1**	**SI-7-B32-F-1**	**SI-7-B32-G-1**
Depth Interval (ft)	**Screening Value[1]**	16.5 - 17.5	0.0 - 1.0	2.0 - 3.0	2.0 - 3.0	4.0 - 5.0	6.0 - 7.0	8.0 - 9.0	10.0 - 11.0	12.0 - 13.0
Lead (mg/Kg)	**400 or SB**	1710 J	534	ND	ND	5,670	**21,800**	3,830	7,360	2,260 J
Field Sample ID	**Unrestricted Use**	**SI-7-B32-H-1**	**SI-7-B33-A-1**	**SI-7-B33-B-1**	**SI-7-B33-C-1**	**SI-7-B33-D-1**	**SI-7-B33-E-1**	**SI-7-B33-F-1**	**SI-7-B33-G-1**	**SI-7-B33-H-1**
Depth Interval (ft)	**Screening Value[1]**	14.0 - 15.0	0.0 - 1.0	2.0 - 3.0	4.0 - 5.0	6.0 - 7.0	8.0 - 9.0	10.0 - 11.0	12.0 - 13.0	15.0 - 16.0
Lead (mg/Kg)	**400 or SB**	464	55.4	**11,000**	6,460	5,330	761	550	2,320	1,090
Field Sample ID	**Unrestricted Use**	**SI-7-B34-A-1**	**SI-7-B34-A-2**	**SI-7-B34-B-1**	**SI-7-B34-C-1**	**SI-7-B34-D-1**	**SI-7-B34-E-1**	**SI-7-B34-F-1**	**SI-7-B34-G-1**	**SI-7-B34-H-1**
Depth Interval (ft)	**Screening Value[1]**	0.5 - 1.0	0.5 - 1	2.0 - 3.0	4.0 - 5.0	6.0 - 7.0	8.0 - 9.0	10.0 -11.0	12.0 - 13.0	14.0 - 15.0
Lead (mg/Kg)	**400 or SB**	41.4	36.4	38.6	11	91.6	35.9	12.4	**21,700**	**16,700**
Field Sample ID	**Unrestricted Use**	**S1-7-B35-A-1**	**S1-7-B35-A-3**	**S1-7-B35-B-1**	**S1-7-B35-C-1**	**S1-7-B35-D-1**	**S1-7-B35-E-1**	**S1-7-B35-F-1**	**S1-7-B35-G-1**	**S1-7-B35-H-1**
Depth Interval (ft)	**Screening Value[1]**	1.0 - 2.0	1.0 - 2.0	3.0 - 4.0	5.0 - 6.0	7.0 - 8.0	9.0 - 10.0	11.0 - 12.0	13.0 - 14.0	22.0 - 23.0
Lead (mg/Kg)	**400 or SB**	4.9	7.8	4.7	17.6	9.5	6.0	5.9	4.3	4.8
Field Sample ID	**Unrestricted Use**	**SI-7-B36-A-1**	**S1-7-B36-A-2**	**SI-7-B36-B-1**	**S1-7-B36-C-1**	**SI-7-B36-D-1**	**S1-7-B36-E-1**	**SI-7-B36-F-1**	**S1-7-B36-G-1**	**S1-7-B36-I-1**
Depth Interval (ft)	**Screening Value[1]**	1.0 - 2.0	1.0 - 2.0	3.0 - 4.0	5.0 - 6.0	7.0 - 8.0	9.0 - 10.0	11.0 - 12.0	13.0 - 14.0	17.0 - 18.0
Lead (mg/Kg)	**400 or SB**	57.1	34	27.4	4.4	44.7	10.4	35.1	1,280	297
Field Sample ID	**Unrestricted Use**	**S1-7-B36-K-1**	**SI-7-B37-A-1**	**SI-7-B37-B-2**	**S1-7-B37-C-1**	**SI-7-B37-D-1**	**S1-7-B37-E-1**	**SI-7-B37-F-1**	**SI-7-B37-G-1**	**S1-7-B37-H-1**
Depth Interval (ft)	**Screening Value[1]**	24.0 - 25.0	2.5 - 3.0	4.0 - 5.0	6.0 - 7.0	8.0 - 9.0	10.0 - 11.0	12.0 - 13.0	13.0 - 14.0	18.0 - 19.0
Lead (mg/Kg)	**400 or SB**	15.7	47.1	53	253	39.3	33.4	104	72	119
Field Sample ID	**Unrestricted Use**	**SI-7-B37-I-1**	**SI-7-B-38-A-1**	**SI-7-B-38-A-2**	**SI-7-B-38-B-1**	**SI-7-B-38-C-1**	**SI-7-B-38-D-1**	**SI-7-B-38-E-1**	**SI-7-B-38-E-2**	**SI-7-B38-F-1**
Depth Interval (ft)	**Screening Value[1]**	24.0 - 25.0	0.0 - 1.0	0.0 - 1.0	2.0 - 3.0	4.0 - 5.0	6.0 - 7.0	8.0 - 9.0	8.0 - 9.0	10.0 - 11.0
Lead (mg/Kg)	**400 or SB**	46.6	13.9 J	11.4 J	103 J	16.7 J	18.9 J	6.2 J	21.8 J	ND
Field Sample ID	**Unrestricted Use**	**SI-7-B-38-G-1**	**SI-7-B-38-H-1**	**SI-7-B-39-A-1**	**SI-7-B39-B-1**	**SI-7-B-39-C-1**	**SI-7-B-39-D-1**	**SI-7-B-39-E-1**	**SI-7-B39-F-1**	**SI-7-B-39-G-1**
Depth Interval (ft)	**Screening Value[1]**	15.0 - 16.0	18.0 - 19.0	0.0 - 1.0	2.0 - 3.0	4.0 - 5.0	6.0 - 7.0	8.0 - 9.0	10.0 - 11.0	12.0 - 13.0
Lead (mg/Kg)	**400 or SB**	156	19.9 J	420 J	2910 J	518 J	682 J	**13,700 J**	1550 J	643
Field Sample ID	**Unrestricted Use**	**SI-7B-39-H-1**								
Depth Interval (ft)	**Screening Value[1]**	14.0 - 15.0								
Lead (mg/Kg)	**400 or SB**	13.4								

See Notes on Page 5.

TABLE 4
LEAD ANALYSIS OF SOIL

REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

IWP Sample Area Description										
PAOC 9										
Field Sample ID	**Unrestricted Use**	**SI-9-S1-A-1**	**SI-9-S1-A-2**	**SI-9-S1-B-1**	**SI-9-S2-A-1**	**SI-9-S2-B-1**	**SI-9-S3-A-1**	**SI-9-S3-A-2**	**SI-9-S3-B-1**	
Depth Interval (ft)	**Screening Value[1]**	0.0 - 0.5	0.0 - 0.5	0.5 - 1.0	0.0 - 0.5	0.5 - 1.0	0.0 - 0.5	0.0 - 0.5	0.5 - 1.0	
Lead (mg/Kg)	**400 or SB**	154 J	285 J	87.8 J	291 J	260 J	191 J	121 J	125 J	
Field Sample ID	**Unrestricted Use**	**SI-9-S4-A-1**	**SI-9-S4-B-1**	**SI-9-S5-A-1**	**SI-9-S5-B-1**					
Depth Interval (ft)	**Screening Value[1]**	0.0 - 0.5	0.5 - 1.0	0.0 - 0.5	0.5 - 1.0					
Lead (mg/Kg)	**400 or SB**	995 J	526 J	175 J	180 J					
PAOC 29										
Field Sample ID	**Unrestricted Use**	**SI-29-B1-A-1**	**SI-29-B1-A-2**	**SI-29-B1-B-1**	**SI-29-B1-C-1**	**SI-29-B1-D-1**	**SI-29-B2-A-1**	**SI-29-B2-B-1**	**SI-29-B2-C-1**	**SI-29-B2-D-1**
Depth Interval (ft)	**Screening Value[1]**	0.0 - 0.4	0.0 - 0.4	3.6 - 4.0	5.6 - 6.0	7.6 - 8.0	1.6 - 2.0	3.6 - 4.0	5.6 - 6.0	8 - 8.4
Lead (mg/Kg)	**400 or SB**	92 J	337 J	726 J	4760 J	357 J	466 J	872 J	207 J	451 J
Field Sample ID	**Unrestricted Use**	**SI-29-B3-A-1**	**SI-29-B3-A-2**	**SI-29-B3-B-1**	**SI-29-B3-C-1**	**SI-29-B3-D-1**	**SI-29-B4-A-1**	**SI-29-B4-B-1**	**SI-29-B4-C-1**	**SI-29-B4-D-1**
Depth Interval (ft)	**Screening Value[1]**	1.6 - 2.0	1.6 - 2.0	3.6 - 4.0	5.6 - 6.0	7.6 - 8.0	0.0 - 0.4	1.6 - 2.0	4.0 - 4.8	6 - 6.4
Lead (mg/Kg)	**400 or SB**	26.9 J	26.7 J	4720 J	1500 J	212 J	58 J	119	4490 J	173 J
Field Sample ID	**Unrestricted Use**	**SI-29-B5-A-1**	**SI-29-B5-B-1**	**SI-29-B5-C-1**	**SI-29-B5-D-1**	**SI-29-B6-A-1**	**SI-29-B6-A-2**	**SI-29-B6-B-1**	**SI-29-B6-C-1**	**SI-29-B6-D-1**
Depth Interval (ft)	**Screening Value[1]**	2.5 - 3.0	3.5 - 4.0	5.5 - 6.0	7.5 - 8.0	2.5 - 3.0	2.5 - 3.0	3.5 - 4.0	5.0 - 5.5	6 - 6.5
Lead (mg/Kg)	**400 or SB**	6260	**23800**	3750	**11400**	293	167	533	**26000**	9040
Field Sample ID	**Unrestricted Use**	**SI-29-B7-A-1**	**SI-29-B7-B-1**	**SI-29-B7-C-1**	**SI-29-B7-D-1**	**SI-29-B8-A-1**	**SI-29-B8-B-1**	**SI-29-B8-C-1**	**SI-29-B8-D-1**	
Depth Interval (ft)	**Screening Value[1]**	2.0 - 2.5	3.5 - 4.0	5.0 - 5.5	6.0 - 6.5	2.0 - 2.5	3.5 - 4.0	5.0 - 5.5	6.0 - 6.5	
Lead (mg/Kg)	**400 or SB**	21.9	867	7290	451	2400	410	7910	**21100**	
Field Sample ID	**Unrestricted Use**	**SI-29-B9-A-1**	**SI-29-B9-B-1**	**SI-29-B9-B-2**	**SI-29-B9-C-1**	**SI-29-B9-D-1**	**SI-29-B9-E-1**	**SI-29-B10-A-1**	**SI-29-B10-B-1**	**SI-29-B10-C-1**
Depth Interval (ft)	**Screening Value[1]**	1.0 - 2.0	3.0 -4.0	3.0 - 4.0	5.0 - 6.0	7.0 - 8.0	9.0 - 10.0	1.0 - 2.0	3.0 - 4.0	5.0 - 6.0
Lead (mg/Kg)	**400 or SB**	8,830 J	70.6 J	711 J	3,600 J	174 J	389 J	3,780 J	8,760 J	**25,300 J**
Field Sample ID	**Unrestricted Use**	**SI-29-B10-C-2**	**SI-29-B10-D-1**	**SI-29-B10-E-1**	**SI-29-B11-A-1**	**SI-29-B11-B-1**	**SI-29-B11-C-1**	**SI-29-B11-D-1**	**SI-29-B11-E-1**	**SI-29-B12-A-1**
Depth Interval (ft)	**Screening Value[1]**	5.0 - 6.0	7.0 - 8.0	9.0 - 10.0	1.0 - 2.0	3.0 -4.0	3.0 - 4.0	5.0 - 6.0	7.0 - 8.0	1.0 - 2.0
Lead (mg/Kg)	**400 or SB**	4,040 J	52.9 J	179 J	1,890 J	15.3 J	1,170 J	**50,500 J**	2,700 J	**25,100**
Field Sample ID	**Unrestricted Use**	**SI-29-B12-B-1**	**SI-29-B12-C-1**	**SI-29-B12-D-1**	**SI-29-B12-E-1**	**SI-29-B13-A-1**	**SI-29-B13-B-1**	**SI-29-B13-C-1**	**SI-29-B13-D-1**	**SI-29-B13-E-1**
Depth Interval (ft)	**Screening Value[1]**	3.0 - 4.0	5.0 - 6.0	7.0 - 8.0	9.0 - 10.0	2.0 - 3.0	4.0 - 5.0	6.0 - 7.0	8.0 - 9.0	10.0 - 11.0
Lead (mg/Kg)	**400 or SB**	162	1,620	1,460	1,810 J	16.2	**13,900**	3,390	149 J	5760 J
Field Sample ID	**Unrestricted Use**	**SI-29-B13-F-1**	**SI-29-B13-G-1**	**SI-29-B13-H-1**	**SI-29-B14-A-1**	**SI-29-B14-B-1**	**SI-29-B14-C-1**	**SI-29-B14-D-1**	**SI-29-B14-E-1**	**SI-29-B15-A-1**
Depth Interval (ft)	**Screening Value[1]**	12.0 - 13.0	14.0 - 15.0	16.0 - 17.0	2.0 - 3.0	4.0 - 5.0	6.0 - 7.0	8.0 - 9.0	10.0 - 11.0	1.0 - 2.0
Lead (mg/Kg)	**400 or SB**	53.4 J	191 J	17.1 J	113 J	125 J	367 J	**15,100 J**	76.8 J	9310 J
Field Sample ID	**Unrestricted Use**	**SI-29-B15-B-1**	**SI-29-B15-B-2**	**SI-29-B15-C-1**	**SI-29-B15-D-1**	**SI-29-B16-A-1**	**SI-29-B16-B-1**	**SI-29-B16-C-1**	**SI-29-B16-D-1**	**SI-29-B16-E-1**
Depth Interval (ft)	**Screening Value[1]**	3.0 - 4.0	3.0 - 4.0	5.0 - 6.0	7.0 - 8.0	1.0 - 2.0	3.0 - 4.0	5.0 - 6.0	7.0 - 8.0	9.0 - 10.0
Lead (mg/Kg)	**400 or SB**	**39,200** J	7,780 J	**14,100 J**	1,000 J	1,070 J	80.3 J	176 J	3,420 J	143 J
Field Sample ID	**Unrestricted Use**	**SI-29-B17-A-1**	**SI-29-B17-B-1**	**SI-29-B17-C-1**	**SI-29-B17-D-1**	**SI-29-B18-A-1**	**SI-29-B18-B-1**	**SI-29-B18-C-1**	**SI-29-B18-C-2**	**SI-29-B18-D-1**
Depth Interval (ft)	**Screening Value[1]**	2.0 - 3.0	4.0 - 5.0	6.0 - 7.0	7.0 - 8.0	1.0 - 2.0	3.0 - 4.0	5.0 - 6.0	5.0 - 6.0	7.0 - 8.0
Lead (mg/Kg)	**400 or SB**	87.3	**90,000**	**14,600**	8,890	429 J	155 J	8,120 J	451 J	1600 J

See Notes on Page 5.

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LEAD ANALYSIS OF SOIL

REMEDIAL INVESTIGATION REPORT
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IWP Sample Area Description										
Field Sample ID	**Unrestricted Use**	**SI-29-B21-A-1**	**SI-29-B21-B-1**	**SI-29-B21-C-1**	**SI-29-B21-D-1**	**SI-29-B-22-A-1**	**SI-29-B-22-B-1**	**SI-29-B-22-C-1**	**SI-29-B-22-D-1**	**SI-29-B-22-E-1**
Depth Interval (ft)	**Screening Value[1]**	1.0 - 2.0	3.0 - 4.0	5.0 - 6.0	7.0 -8.0	1.0 - 2.0	3.0 - 4.0	5.0 - 6.0	10.0 - 11.0	13.0 - 14.0
Lead (mg/Kg)	**400 or SB**	6,950	**28,500**	1,570	140	83.8 J	62.4 J	7,180 J	9,740 J	605 J
Field Sample ID	**Unrestricted Use**	**SI-29-B24A**	**SI-29-B24B**	**SI-29-B24C**	**SI-29-B24D**	**SI-29-B25A**	**SI-29-B25C**	**SI-29-B25D**	**SI-29-B26A**	**SI-29-B26C**
Depth Interval (ft)	**Screening Value[1]**	0.2 - 1.5	1.5 - 2.5	4.0 - 4.9	6.0 - 8.0	0.2 - 2.0	4.0 - 6.0	6.0 - 8.0	0.2 - 2	4.5 - 6.0
Lead (mg/Kg)	**400 or SB**	369	11.9	168	10.6	266	120	6.22	749	479
Field Sample ID	**Unrestricted Use**	**SI-29-B26D**	**SI-29-B27A**	**SI-29-B27C**	**SI-29-B28A**	**SI-29-B28B**	**SI-29-B29A**	**SI-29-B29B**	**SI-29-B30A**	**SI-29-B30C**
Depth Interval (ft)	**Screening Value[1]**	6.0 - 8.0	0.2 - 2.0	5.0 - 5.9	0.2 - 1.1	1.3 - 2.7	0.2 - 1.0	1.2 - 2.1	0.2 - 2.2	4.0 - 6.0
Lead (mg/Kg)	**400 or SB**	ND	170	17.4	41.8	ND	46.4	ND	420	19.7
Field Sample ID	**Unrestricted Use**	**SI-29-B31A**	**SI-29-B31C**	**SI-29-B32A**	**SI-29-B32C**	**SI-29-B33A**	**SI-29-B33C**	**SI-29-B34A**	**SI-29-B34C**	
Depth Interval (ft)	**Screening Value[1]**	0.2 - 1.6	4.0 - 6.0	0.2 - 2	4.0 - 5.4	0.2 - 2.0	4.0 - 5.0	0.2 - 1.0	4.0 - 5.0	
Lead (mg/Kg)	**400 or SB**	185	236	213	7.51	815	8.65	135	10.7	
Field Sample ID	**Unrestricted Use**	**SI-29-B35A**	**SI-29-B35B**							
Depth Interval (ft)	**Screening Value[1]**	0.2 - 0.7	0.7 - 2.2							
Lead (mg/Kg)	**400 or SB**	24.4	ND							
PAOC 46										
Field Sample ID	**Unrestricted Use**	**SI-46-B1-A-1**	**SI-46-B1-A-2**	**SI-46-B2-A-1**	**SI-46-B3-A-1**	**SI-46-B4-A-1**	**SI-46-B5-A-1**	**SI-46-B6-A-1**	**SI-46-B8-A-1**	**SI-46-B9-A-1**
Depth Interval (ft)	**Screening Value[1]**	5.6 - 6.0	5.6 - 6.0	5.6 - 6.0	6.0 - 6.5	6.0 - 6.5	5.0 - 6.0	0.0 - 1.0	4.0 - 6.0	4.0 - 5.0
Lead (mg/Kg)	**400 or SB**	ND	ND	ND	143 J	81.5 J	41.8	7.3	15.7	23.1
Field Sample ID	**Unrestricted Use**	**SI-46-B9-A-2**	**SI-46-B10-A-1**	**SI-46-B11-A-1**						
Depth Interval (ft)	**Screening Value[1]**	4.0 - 5.0	4.0 - 5.5	4.0 - 5.0						
Lead (mg/Kg)	**400 or SB**	26.8	18.2	7						

Notes:

1 - TAGM 4046 Screening Values.

SB = Site Background.

ND = Not detected.

Constituents with Levels above TAGM 4046 Guidance (not necessarily greater than site background).

Levels above 10,000 mg/kg Screening Value (bold).

TABLE 5

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SEMI-VOLATILE ORGANIC COMPOUND ANALYSIS OF SOIL

REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

IWP Sample Area Description	**Unrestricted Use**	**PAOC 2, 4,6, 7, 17**										**Millings**		
Field Sample ID	**Screening Value TAGM 4046**	**SI-2-B1-A-1**	**SI-4-B1-A-1**	**SI-6-B1-A-1**	**SI-6-B1-A-2**	**SI-7-B1-A-1**	**SI-7-B27-D-1**	**SI-7-B29-E-1**	**SI-7-B30-D-1**	**SI-7-B31-D-1**	**SI-17-B1-A-1**	**SI-14-S1-A-1**	**SI-14-S1-A-2**	**SI-14-S2-A-1**
Depth Interval (ft)	**(mg/kg)**	**4.0 - 5.0**	**6.0 - 6.5**	**9.0 - 10.0**	**9.0 - 10.0**	**8.5 - 9.0**	**6.0 - 7.0**	**12.0 - 13.0**	**14.0 - 15.0**	**14.0 - 15.0**	**8.5 - 9.0**	**0.0 - 1.0**	**0.0 - 1.0**	**0.0 - 1.0**
SVOCs (mg/Kg) TCL, STARS, PAHs														
1,2,4-TRICHLOROBENZENE	3.4	ND	ND	ND	ND	ND					ND			
1,2-DICHLOROBENZENE	7.9	ND	ND	ND	ND	ND					ND			
1,3-DICHLOROBENZENE	1.6	ND	ND	ND	ND	ND					ND			
1,4-DICHLOROBENZENE	8.5	ND	ND	ND	ND	ND					ND			
2,4,5-TRICHLOROPHENOL	0.1	ND	ND	ND	ND	ND					ND			
2,4,6-TRICHLOROPHENOL	NA	ND	ND	ND	ND	ND					ND			
2,4-DICHLOROPHENOL	0.4	ND	ND	ND	ND	ND					ND			
2,4-DIMETHYLPHENOL	NA	ND	ND	ND	ND	0.21 J					ND			
2,4-DINITROPHENOL	0.2 or MDL	ND	ND	ND	ND	ND					ND			
2,4-DINITROTOLUENE	NA	ND	ND	ND	ND	ND					ND			
2,6-DINITROTOLUENE	1	ND	ND	ND	ND	ND					ND			
2-CHLORONAPHTHALENE	NA	ND	ND	ND	ND	ND					ND			
2-CHLOROPHENOL	0.8	ND	ND	ND	ND	ND					ND			
2-METHYLNAPHTHALENE	36.4	0.43 J	7.2	0.19 J	0.2 J	0.74					ND			
2-METHYLPHENOL	0.1 or MDL	ND	ND	ND	ND	ND					ND			
2-NITROANILINE	0.43 or MDL	ND	ND	ND	ND	ND					ND			
2-NITROPHENOL	0.33 or MDL	ND	ND	ND	ND	ND					ND			
3,3'-DICHLOROBENZIDINE	NA	ND	ND	ND	ND	ND					ND			
3+4-METHYLPHENOL	0.9	ND	ND	ND	ND	ND					ND			
3-NITROANILINE	0.5 or MDL	ND	ND	ND	ND	ND					ND			
4,6-DINITRO-2-METHYLPHENOL	NA	ND	ND	ND	ND	ND					ND			
4-BROMOPHENYL PHENYL ETHER	NA	ND	ND	ND	ND	ND					ND			
4-CHLORO-3-METHYLPHENOL	0.24 or MDL	ND	ND	ND	ND	ND					ND			
4-CHLOROANILINE	0.22 or MDL	ND	ND	ND	ND	ND					ND			
4-CHLOROPHENYL PHENYL ETHER	NA	ND	ND	ND	ND	ND					ND			
4-NITROANILINE	NA	ND	ND	ND	ND	ND					ND			
4-NITROPHENOL	0.1 or MDL	ND	ND	ND	ND	ND					ND			
ACENAPHTHENE	50	ND	0.92 J	ND	ND	1.6	3.7 J	ND	1.6 J	ND	0.17 J	2.1 J	2.6 J	2.8 J
ACENAPHTHYLENE	50	0.2 J	ND	ND	ND	ND		ND		ND	0.11 J	ND	ND	2.9 J
ANTHRACENE	50	0.15 J	0.67 J	0.069 J	0.11 J	1.1	4.8	ND	1.3 J	ND	0.16 J	5.5 J	6.8 J	11
BENZO(A)ANTHRACENE	0.224 or MDL	1.2	1.3 J	0.26 J	0.35 J	0.76	12	ND	2.5 J	ND	0.49	20	21	30
BENZO(A)PYRENE	0.061 or MDL	0.84	1.6 J	0.29 J	0.37 J	0.62	11	ND	2.1 J	ND	0.49	19	19	26
BENZO(B)FLUORANTHENE	0.22 or MDL	1.1	1.7	0.27 J	0.3 J	0.6	9.6	ND	2.1 J	ND	0.4 J	15	16	21
BENZO(G,H,I)PERYLENE	50	0.7	1 J	0.2 J	0.26 J	0.37 J	7.3	ND	1.7 J	ND	0.31 J	12	12	15
BENZO(K)FLUORANTHENE	0.22 or MDL	1	1.3 J	0.21 J	0.33 J	0.59	8.9	ND	1.6 J	ND	0.41 J	15	16	21
BENZYL ALCOHOL	50	ND	ND	ND	ND	ND					ND			
BIS(1-CHLOROISOPROPYL) ETHER	NA	ND	ND	ND	ND	ND					ND			

See Notes on Page 14.

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SEMI-VOLATILE ORGANIC COMPOUND ANALYSIS OF SOIL

REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

IWP Sample Area Description	Unrestricted Use	PAOC 2, 4,6, 7, 17										Millings		
Field Sample ID	Screening Value TAGM 4046	SI-2-B1-A-1	SI-4-B1-A-1	SI-6-B1-A-1	SI-6-B1-A-2	SI-7-B1-A-1	SI-7-B27-D-1	SI-7-B29-E-1	SI-7-B30-D-1	SI-7-B31-D-1	SI-17-B1-A-1	SI-14-S1-A-1	SI-14-S1-A-2	SI-14-S2-A-1
Depth Interval (ft)	(mg/kg)	4.0 - 5.0	6.0 - 6.5	9.0 - 10.0	9.0 - 10.0	8.5 - 9.0	6.0 - 7.0	12.0 - 13.0	14.0 - 15.0	14.0 - 15.0	8.5 - 9.0	0.0 - 1.0	0.0 - 1.0	0.0 - 1.0
SVOCs (mg/Kg) TCL, STARS, PAHs														
BIS(2-CHLOROETHOXY)METHANE	NA	ND	ND	ND	ND	ND					ND			
BIS(2-CHLOROETHYL) ETHER	NA	ND	ND	ND	ND	ND					ND			
BIS(2-ETHYLHEXYL) PHTHALATE	50	ND	ND	ND	ND	1.3					ND			
BUTYL BENZYL PHTHALATE	50	ND	ND	ND	ND	ND					ND			
CARBAZOLE	NA	0.16 J	ND	ND	ND	0.33 J					ND			
CHRYSENE	0.4	1.6	2	0.38 J	0.47 J	0.78	13	ND	3.2 J	ND	0.57	19	20	31
DIBENZO(A,H)ANTHRACENE	0.0143 or MDL	0.21 J	ND	ND	ND	ND	2.5 J	ND	ND	ND	ND	4.3 J	3.8 J	5.5 J
DIBENZOFURAN	6.2	0.21 J	ND	0.064 J	ND	1.3					ND			
DIETHYL PHTHALATE	7.1	ND	ND	ND	ND	ND					ND			
DIMETHYL PHTHALATE	2	ND	ND	ND	ND	ND					ND			
DI-N-BUTYL PHTHALATE	8.1	0.054 J	9.4	0.067 J	0.1 J	0.17 J					ND			
DI-N-OCTYL PHTHALATE	50	ND	ND	ND	ND	ND					ND			
FLUORANTHENE	50	2.3	2.8	0.39 J	0.54 J	3.1	26	ND	7.2		0.66	40	40	74
FLUORENE	50	ND	1 J	ND	ND	1.8	3.9 J	0.54 J	2 J		0.068 J	1.8 J	2.6 J	5.2 J
HEXACHLOROBENZENE	0.41	ND	ND	ND	ND	ND					ND			
HEXACHLOROBUTADIENE	NA	ND	ND	ND	ND	ND					ND			
HEXACHLOROCYCLOPENTADIENE	NA	ND	ND	ND	ND	ND					ND			
HEXACHLOROETHANE	NA	ND	ND	ND	ND	ND					ND			
INDENO(1,2,3-CD)PYRENE	3.2	0.63	0.83 J	0.17 J	0.21 J	0.28 J	6.4	ND	1.2 J	ND	0.28 J	11	11 J	14
ISOPHORONE	4.4	ND	ND	ND	ND	ND					ND			
NAPHTHALENE	13	0.33 J	4.7	0.13 J	0.16 J	0.88	1.9 J	ND	1.1 J	ND	ND	ND	ND	2 J
NITROBENZENE	0.2 or MDL	ND	ND	ND	ND	ND					ND			
N-NITROSODIMETHYLAMINE	NA	ND	ND	ND	ND	ND					ND			
N-NITROSODI-N-PROPYLAMINE	NA	ND	ND	ND	ND	ND					ND			
N-NITROSODIPHENYLAMINE	NA	ND	ND	ND	ND	ND					ND			
PENTACHLOROPHENOL (PCP)	1 or MDL	ND	ND	ND	ND	ND					ND			
PHENANTHRENE	50	0.79	2.8	0.4 J	0.53 J	6.2	19	ND	7.5	ND	0.57	20	25	50
PHENOL	0.03 or MDL	ND	ND	ND	ND	ND					ND			
PYRENE	50	2.3	2.9	0.47	0.67 J	2	23	0.053 J	6.5	ND	0.93	28	32	49
Total C-PAHs	10	6.58	8.73	1.58	2.03	3.63	63.4	ND	12.7	ND	2.64	103.3	106.8	148.5
Total Semi-Volatile	500	14.204	42.12	3.56	4.6	24.73	153	0.593	41.6	ND	5.618	212.7	227.8	360.4

See Notes on Page 14.

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TABLE 5
SEMI-VOLATILE ORGANIC COMPOUND ANALYSIS OF SOIL

REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

IWP Sample Area Description	Unrestricted Use	Millings				PAOC 34								
Field Sample ID	Screening Value TAGM 4046	SI-15-S1-A-1	SI-15-S2-A-1	SI-32-S1-A-1	SI-32-S2-A-1	SI-34-B1-A-1	SI-34-B1-A-2	SI-34-B1-B-1	SI-34-B2-A-1	SI-34-B2-B-1	SI-34-B3-A-1	SI-34-B3-B-1	SI-34-B4-A-1	SI-34-B4-B-1
Depth Interval (ft)	(mg/kg)	0.0 - 1.0	0.0 - 1.0	0.0 - 1.0	0.0 - 1.0	4.5 - 5.0	4.5 - 5.0	8.0 - 8.5	4.5 - 5.0	8.0 - 8.5	4.5 - 5.0	8.0 - 8.5	4.5 - 5.0	8.0 - 8.5
SVOCs (mg/Kg) TCL, STARS, PAHs														
1,2,4-TRICHLOROBENZENE	3.4													
1,2-DICHLOROBENZENE	7.9													
1,3-DICHLOROBENZENE	1.6													
1,4-DICHLOROBENZENE	8.5													
2,4,5-TRICHLOROPHENOL	0.1													
2,4,6-TRICHLOROPHENOL	NA													
2,4-DICHLOROPHENOL	0.4													
2,4-DIMETHYLPHENOL	NA													
2,4-DINITROPHENOL	0.2 or MDL													
2,4-DINITROTOLUENE	NA													
2,6-DINITROTOLUENE	1													
2-CHLORONAPHTHALENE	NA													
2-CHLOROPHENOL	0.8													
2-METHYLNAPHTHALENE	36.4													
2-METHYLPHENOL	0.1 or MDL													
2-NITROANILINE	0.43 or MDL													
2-NITROPHENOL	0.33 or MDL													
3,3'-DICHLOROBENZIDINE	NA													
3+4-METHYLPHENOL	0.9													
3-NITROANILINE	0.5 or MDL													
4,6-DINITRO-2-METHYLPHENOL	NA													
4-BROMOPHENYL PHENYL ETHER	NA													
4-CHLORO-3-METHYLPHENOL	0.24 or MDL													
4-CHLOROANILINE	0.22 or MDL													
4-CHLOROPHENYL PHENYL ETHER	NA													
4-NITROANILINE	NA													
4-NITROPHENOL	0.1 or MDL													
ACENAPHTHENE	50	2.9 J	ND	2.3 J	2.4 J	ND	ND	ND	3.7	ND	2.1 J	ND	0.041 J	ND
ACENAPHTHYLENE	50	ND	ND	ND	ND	ND	ND	ND	2.2	ND	1.8 J	ND	0.036 J	ND
ANTHRACENE	50	8.7 J	5.1 J	7.8 J	6.6 J	ND	ND	ND	14	ND	9.3 J	ND	0.11 J	ND
BENZO(A)ANTHRACENE	0.224 or MDL	23	18 J	27	23	ND	ND	ND	34	ND	21	ND	0.39	ND
BENZO(A)PYRENE	0.061 or MDL	24	18 J	25	20	ND	ND	ND	34	ND	19	ND	0.4	ND
BENZO(B)FLUORANTHENE	0.22 or MDL	18 J	15 J	21	17	ND	ND	ND	23	ND	14	ND	0.36	ND
BENZO(G,H,I)PERYLENE	50	18 J	12 J	14 J	13	ND	ND	ND	19	ND	10	ND	0.24 J	ND
BENZO(K)FLUORANTHENE	0.22 or MDL	19	14 J	20	17	ND	ND	ND	22	ND	15	ND	0.33 J	ND
BENZYL ALCOHOL	50													
BIS(1-CHLOROISOPROPYL) ETHER	NA													

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SEMI-VOLATILE ORGANIC COMPOUND ANALYSIS OF SOIL

REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

IWP Sample Area Description	Unrestricted Use	Millings				PAOC 34								
Field Sample ID	Screening Value TAGM 4046	SI-15-S1-A-1	SI-15-S2-A-1	SI-32-S1-A-1	SI-32-S2-A-1	SI-34-B1-A-1	SI-34-B1-A-2	SI-34-B1-B-1	SI-34-B2-A-1	SI-34-B2-B-1	SI-34-B3-A-1	SI-34-B3-B-1	SI-34-B4-A-1	SI-34-B4-B-1
Depth Interval (ft)	(mg/kg)	0.0 - 1.0	0.0 - 1.0	0.0 - 1.0	0.0 - 1.0	4.5 - 5.0	4.5 - 5.0	8.0 - 8.5	4.5 - 5.0	8.0 - 8.5	4.5 - 5.0	8.0 - 8.5	4.5 - 5.0	8.0 - 8.5
SVOCs (mg/Kg) TCL, STARS, PAHs														
BIS(2-CHLOROETHOXY)METHANE	NA													
BIS(2-CHLOROETHYL) ETHER	NA													
BIS(2-ETHYLHEXYL) PHTHALATE	50													
BUTYL BENZYL PHTHALATE	50													
CARBAZOLE	NA													
CHRYSENE	0.4	22	18 J	25	23	ND	ND	ND	34	ND	20	ND	0.42	ND
DIBENZO(A,H)ANTHRACENE	0.0143 or MDL	5.6 J	3.5 J	4.8 J	4.5 J	ND	ND	ND	5.2	ND	3.5 J	ND	0.082 J	ND
DIBENZOFURAN	6.2													
DIETHYL PHTHALATE	7.1													
DIMETHYL PHTHALATE	2													
DI-N-BUTYL PHTHALATE	8.1													
DI-N-OCTYL PHTHALATE	50													
FLUORANTHENE	50	45	32 J	52	40	ND	ND	ND	72	ND	56	ND	0.84	ND
FLUORENE	50	2.5 J	ND	2.3 J	2.3 J	ND	ND	ND	3.9	ND	3.8 J	ND	0.04 J	ND
HEXACHLOROBENZENE	0.41													
HEXACHLOROBUTADIENE	NA													
HEXACHLOROCYCLOPENTADIENE	NA													
HEXACHLOROETHANE	NA													
INDENO(1,2,3-CD)PYRENE	3.2	15 J	11 J	13 J	12	ND	ND	ND	15	ND	9.2 J	ND	0.21 J	ND
ISOPHORONE	4.4													
NAPHTHALENE	13	ND	ND	ND	ND	ND	ND	ND	0.92 J	ND	ND	ND	ND	ND
NITROBENZENE	0.2 or MDL													
N-NITROSODIMETHYLAMINE	NA													
N-NITROSODI-N-PROPYLAMINE	NA													
N-NITROSODIPHENYLAMINE	NA													
PENTACHLOROPHENOL (PCP)	1 or MDL													
PHENANTHRENE	50	30	18 J	24	23	ND	ND	ND	53	ND	41	ND	0.42	ND
PHENOL	0.03 or MDL													
PYRENE	50	33	24 J	38	37	ND	ND	ND	86	ND	39	ND	0.57	ND
Total C-PAHs	10	126.6	97.5	135.8	116.5	ND	ND	ND	167.2	ND	101.7	ND	2.192	ND
Total Semi-Volatile	500	266.7	188.6	276.2	240.8	ND	ND	ND	421.92	ND	264.7	ND	4.489	ND

See Notes on Page 14.

TABLE 5
SEMI-VOLATILE ORGANIC COMPOUND ANALYSIS OF SOIL

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REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

IWP Sample Area Description	**Unrestricted Use**	**PAOC 37**												
Field Sample ID	**Screening Value TAGM 4046**	**SI-37-B3-A-1**	**SI-37-B3-B-1**	**SI-37-B4-A-1**	**SI-37-B4-A-2**	**SI-37-B4-B-1**	**SI-37-B7-A-1**	**SI-37-B7-B-1**	**SI-37-B8-A-1**	**SI-37-B8-B-1**	**SI-37-B12-A-1**	**SI-37-B12-B-1**	**SI-37-B13-A-1**	**SI-37-B13-B-1**
Depth Interval (ft)	**(mg/kg)**	**8.0 - 8.5**	**6.0 - 6.5**	**7.5 - 8.0**	**7.5 - 8.0**	**5.0 - 5.5**	**6.0 - 6.5**	**9.0 - 9.5**	**5.0 - 5.4**	**11.0 - 11.4**	**6.6 - 7.0**	**7.6 - 8.0**	**5.5 - 6.0**	**7.5 - 8.0**
SVOCs (mg/Kg) TCL, STARS, PAHs														
1,2,4-TRICHLOROBENZENE	3.4													
1,2-DICHLOROBENZENE	7.9													
1,3-DICHLOROBENZENE	1.6													
1,4-DICHLOROBENZENE	8.5													
2,4,5-TRICHLOROPHENOL	0.1													
2,4,6-TRICHLOROPHENOL	NA													
2,4-DICHLOROPHENOL	0.4													
2,4-DIMETHYLPHENOL	NA													
2,4-DINITROPHENOL	0.2 or MDL													
2,4-DINITROTOLUENE	NA													
2,6-DINITROTOLUENE	1													
2-CHLORONAPHTHALENE	NA													
2-CHLOROPHENOL	0.8													
2-METHYLNAPHTHALENE	36.4													
2-METHYLPHENOL	0.1 or MDL													
2-NITROANILINE	0.43 or MDL													
2-NITROPHENOL	0.33 or MDL													
3,3'-DICHLOROBENZIDINE	NA													
3+4-METHYLPHENOL	0.9													
3-NITROANILINE	0.5 or MDL													
4,6-DINITRO-2-METHYLPHENOL	NA													
4-BROMOPHENYL PHENYL ETHER	NA													
4-CHLORO-3-METHYLPHENOL	0.24 or MDL													
4-CHLOROANILINE	0.22 or MDL													
4-CHLOROPHENYL PHENYL ETHER	NA													
4-NITROANILINE	NA													
4-NITROPHENOL	0.1 or MDL													
ACENAPHTHENE	50	0.44 J	ND	ND	ND	0.34 J	ND	ND	0.22 J	ND	ND	ND	ND	ND
ACENAPHTHYLENE	50													
ANTHRACENE	50	2.6	ND	ND	ND	3.1	ND	ND	0.72 J	ND	ND	ND	ND	ND
BENZO(A)ANTHRACENE	0.224 or MDL	5.5	ND	ND	ND	11	ND	ND	2	ND	ND	ND	ND	ND
BENZO(A)PYRENE	0.061 or MDL	3.3	ND	ND	ND	8.8	ND	ND	1.5	ND	ND	ND	ND	ND
BENZO(B)FLUORANTHENE	0.22 or MDL	2.2	ND	ND	ND	7.8	ND	ND	1	ND	ND	ND	ND	ND
BENZO(G,H,I)PERYLENE	50	2.3	ND	ND	ND	6.6	ND	ND	1.1	ND	ND	ND	ND	ND
BENZO(K)FLUORANTHENE	0.22 or MDL	2.3	ND	ND	ND	7.4	ND	ND	1	ND	ND	ND	ND	ND
BENZYL ALCOHOL	50													
BIS(1-CHLOROISOPROPYL) ETHER	NA													

See Notes on Page 14.

TABLE 5
SEMI-VOLATILE ORGANIC COMPOUND ANALYSIS OF SOIL

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REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

IWP Sample Area Description	**Unrestricted Use**	**PAOC 37**												
Field Sample ID	**Screening Value TAGM 4046**	**SI-37-B3-A-1**	**SI-37-B3-B-1**	**SI-37-B4-A-1**	**SI-37-B4-A-2**	**SI-37-B4-B-1**	**SI-37-B7-A-1**	**SI-37-B7-B-1**	**SI-37-B8-A-1**	**SI-37-B8-B-1**	**SI-37-B12-A-1**	**SI-37-B12-B-1**	**SI-37-B13-A-1**	**SI-37-B13-B-1**
Depth Interval (ft)	**(mg/kg)**	**8.0 - 8.5**	**6.0 - 6.5**	**7.5 - 8.0**	**7.5 - 8.0**	**5.0 - 5.5**	**6.0 - 6.5**	**9.0 - 9.5**	**5.0 - 5.4**	**11.0 - 11.4**	**6.6 - 7.0**	**7.6 - 8.0**	**5.5 - 6.0**	**7.5 - 8.0**
SVOCs (mg/Kg) TCL, STARS, PAHs														
BIS(2-CHLOROETHOXY)METHANE	NA													
BIS(2-CHLOROETHYL) ETHER	NA													
BIS(2-ETHYLHEXYL) PHTHALATE	50													
BUTYL BENZYL PHTHALATE	50													
CARBAZOLE	NA													
CHRYSENE	0.4	6	ND	ND	ND	11	ND	ND	2.2	ND	ND	ND	ND	ND
DIBENZO(A,H)ANTHRACENE	0.0143 or MDL	0.6 J	ND	ND	ND	2.2 J	ND	ND	0.28 J	ND	ND	ND	ND	ND
DIBENZOFURAN	6.2													
DIETHYL PHTHALATE	7.1													
DIMETHYL PHTHALATE	2													
DI-N-BUTYL PHTHALATE	8.1													
DI-N-OCTYL PHTHALATE	50													
FLUORANTHENE	50	11	ND	ND	ND	21	ND	ND	4	ND	ND	ND	ND	ND
FLUORENE	50	1.3 J	ND	ND	ND	0.81 J	ND	ND	0.29 J	ND	ND	ND	ND	ND
HEXACHLOROBENZENE	0.41													
HEXACHLOROBUTADIENE	NA													
HEXACHLOROCYCLOPENTADIENE	NA													
HEXACHLOROETHANE	NA													
INDENO(1,2,3-CD)PYRENE	3.2	1.8 J	ND	ND	ND	6.1	ND	ND	0.84	ND	ND	ND	ND	ND
ISOPHORONE	4.4													
NAPHTHALENE	13	ND	ND	ND	ND	0.57 J	ND	ND	ND	ND	ND	ND	ND	ND
NITROBENZENE	0.2 or MDL													
N-NITROSODIMETHYLAMINE	NA													
N-NITROSODI-N-PROPYLAMINE	NA													
N-NITROSODIPHENYLAMINE	NA													
PENTACHLOROPHENOL (PCP)	1 or MDL													
PHENANTHRENE	50	18	ND	ND	ND	11	ND	ND	4	ND	ND	ND	ND	ND
PHENOL	0.03 or MDL													
PYRENE	50	13	ND	ND	ND	16	ND	ND	5.3	ND	ND	ND	ND	ND
Total C-PAHs	10	21.7	ND	ND	ND	54.3	ND	ND	8.82	ND	ND	ND	ND	ND
Total Semi-Volatile	500	70.34	ND	ND	ND	113.72	ND	ND	24.45	ND	ND	ND	ND	ND

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TABLE 5
SEMI-VOLATILE ORGANIC COMPOUND ANALYSIS OF SOIL

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REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

IWP Sample Area Description	Unrestricted Use	PAOC 37		PAOC 39									PAOC 43	
Field Sample ID	Screening Value TAGM 4046	SI-37-B17-A-A	SI-37-B18-A-1	SI-39-B1-A-1	SI-39-B2-A-1	SI-39-B3-A-1	SI-39-B4-A-1	SI-39-B5-A-1	SI-39-B5-A-2	SI-39-B6-A-1	SI-39-B7-A-1	SI-39-B8-A-1	SI-43-B1-A-1	SI-43-B1-B-1
Depth Interval (ft)	(mg/kg)	8.5 - 9.0	9.0 - 10.0	4.0 - 4.5	7.0 - 8.0	8.0 - 8.5	10.0 - 11.0	8.0 - 8.5	8.0 - 8.5	4.0 - 4.5	4.5 - 5.0	5.0 - 5.5	7.0 - 8.0	16.0 - 17.0
SVOCs (mg/Kg) TCL, STARS, PAHs														
1,2,4-TRICHLOROBENZENE	3.4													
1,2-DICHLOROBENZENE	7.9													
1,3-DICHLOROBENZENE	1.6													
1,4-DICHLOROBENZENE	8.5													
2,4,5-TRICHLOROPHENOL	0.1													
2,4,6-TRICHLOROPHENOL	NA													
2,4-DICHLOROPHENOL	0.4													
2,4-DIMETHYLPHENOL	NA													
2,4-DINITROPHENOL	0.2 or MDL													
2,4-DINITROTOLUENE	NA													
2,6-DINITROTOLUENE	1													
2-CHLORONAPHTHALENE	NA													
2-CHLOROPHENOL	0.8													
2-METHYLNAPHTHALENE	36.4													
2-METHYLPHENOL	0.1 or MDL													
2-NITROANILINE	0.43 or MDL													
2-NITROPHENOL	0.33 or MDL													
3,3'-DICHLOROBENZIDINE	NA													
3+4-METHYLPHENOL	0.9													
3-NITROANILINE	0.5 or MDL													
4,6-DINITRO-2-METHYLPHENOL	NA													
4-BROMOPHENYL PHENYL ETHER	NA													
4-CHLORO-3-METHYLPHENOL	0.24 or MDL													
4-CHLOROANILINE	0.22 or MDL													
4-CHLOROPHENYL PHENYL ETHER	NA													
4-NITROANILINE	NA													
4-NITROPHENOL	0.1 or MDL													
ACENAPHTHENE	50	0.14 J	ND	0.26 J	ND	0.096 J	0.21 J	1.4 J	1.2 J	ND	15 J	13 J	ND	ND
ACENAPHTHYLENE	50												ND	ND
ANTHRACENE	50	0.28 J	ND	1.1 J	ND	0.097 J	0.39 J	2.8 J	1.5 J	0.25 J	39	34	7.1 J	ND
BENZO(A)ANTHRACENE	0.224 or MDL	0.52	ND	3	ND	0.41	0.71 J	5.8	2.5 J	0.73 J	74	68	ND	0.04 J
BENZO(A)PYRENE	0.061 or MDL	0.35 J	ND	3.2	ND	0.34 J	0.61 J	6.1	1.7 J	0.83 J	66	66	ND	ND
BENZO(B)FLUORANTHENE	0.22 or MDL	0.29 J	ND	2.4	ND	0.25 J	0.42 J	4.7	1.3 J	0.71 J	49	54	ND	ND
BENZO(G,H,I)PERYLENE	50	0.23 J	ND	2.1	ND	0.19 J	0.28 J	3.5 J	0.7 J	0.5 J	41	29	ND	ND
BENZO(K)FLUORANTHENE	0.22 or MDL	0.28 J	ND	2.3	ND	0.21 J	0.43 J	4.7	1 J	0.66 J	52	50	ND	ND
BENZYL ALCOHOL	50													
BIS(1-CHLOROISOPROPYL) ETHER	NA													

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TABLE 5
SEMI-VOLATILE ORGANIC COMPOUND ANALYSIS OF SOIL

REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

IWP Sample Area Description	Unrestricted Use	PAOC 37		PAOC 39									PAOC 43	
Field Sample ID	Screening Value TAGM 4046	SI-37-B17-A-A	SI-37-B18-A-1	SI-39-B1-A-1	SI-39-B2-A-1	SI-39-B3-A-1	SI-39-B4-A-1	SI-39-B5-A-1	SI-39-B5-A-2	SI-39-B6-A-1	SI-39-B7-A-1	SI-39-B8-A-1	SI-43-B1-A-1	SI-43-B1-B-1
Depth Interval (ft)	(mg/kg)	8.5 - 9.0	9.0 - 10.0	4.0 - 4.5	7.0 - 8.0	8.0 - 8.5	10.0 - 11.0	8.0 - 8.5	8.0 - 8.5	4.0 - 4.5	4.5 - 5.0	5.0 - 5.5	7.0 - 8.0	16.0 - 17.0
SVOCs (mg/Kg) TCL, STARS, PAHs														
BIS(2-CHLOROETHOXY)METHANE	NA													
BIS(2-CHLOROETHYL) ETHER	NA													
BIS(2-ETHYLHEXYL) PHTHALATE	50													
BUTYL BENZYL PHTHALATE	50													
CARBAZOLE	NA													
CHRYSENE	0.4	0.63	ND	3.3	ND	0.47	0.74 J	6.8	2.7 J	0.82 J	71	67	ND	0.049 J
DIBENZO(A,H)ANTHRACENE	0.0143 or MDL	0.093 J	ND	0.64 J	ND	0.066 J	ND	1.3 J	ND	ND	14 J	11 J	ND	ND
DIBENZOFURAN	6.2													
DIETHYL PHTHALATE	7.1													
DIMETHYL PHTHALATE	2													
DI-N-BUTYL PHTHALATE	8.1													
DI-N-OCTYL PHTHALATE	50													
FLUORANTHENE	50	1.5	ND	5	1.6 J	0.51	1.4 J	12	6.4	1.3 J	160	160	14 J	0.082 J
FLUORENE	50	0.15 J	ND	0.34 J	ND	ND	ND	1.8 J	1.3 J	ND	16 J	13 J	11 J	ND
HEXACHLOROBENZENE	0.41													
HEXACHLOROBUTADIENE	NA													
HEXACHLOROCYCLOPENTADIENE	NA													
HEXACHLOROETHANE	NA													
INDENO(1,2,3-CD)PYRENE	3.2	0.21 J	ND	1.7 J	ND	0.15 J	0.23 J	3 J	0.65 J	0.43 J	37	27	ND	ND
ISOPHORONE	4.4													
NAPHTHALENE	13	ND	ND	0.38 J	ND	0.21 J	ND	ND	ND	ND	3 J	3 J	ND	ND
NITROBENZENE	0.2 or MDL													
N-NITROSODIMETHYLAMINE	NA													
N-NITROSODI-N-PROPYLAMINE	NA													
N-NITROSODIPHENYLAMINE	NA													
PENTACHLOROPHENOL (PCP)	1 or MDL													
PHENANTHRENE	50	0.43	ND	2.4	ND	0.064 J	0.97 J	9.3	5.4	0.55 J	140	110	31 J	0.044 J
PHENOL	0.03 or MDL													
PYRENE	50	0.91	ND	5.1	3.8 J	0.56	1.3 J	7.6	4.4	1.2 J	120	100	18 J	0.061 J
Total C-PAHs	10	2.373	ND	16.54	ND	1.896	3.14	32.4	9.85	4.18	363	343	ND	0.089
Total Semi-Volatile	500	6.013	ND	33.22	5.4	3.623	7.69	70.8	30.75	7.98	897	805	81.1	0.276

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SEMI-VOLATILE ORGANIC COMPOUND ANALYSIS OF SOIL

REMEDIAL INVESTIGATION REPORT

FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

IWP Sample Area Description	Unrestricted Use	PAOC 43												
Field Sample ID	Screening Value TAGM 4046	SI-43-B1-B-2	SI-43-B2-A-1	SI-43-B2-B-1	SI-43-B3-A-1	SI-43-B3-B-1	SI-43-B4-A-1	SI-43-B4-B-1	SI-43-B5-A-1	SI-43-B5-B-1	SI-43-B6-A-1	SI-43-B6-B-1	SI-43-B14-A-1	SI-43-B14-B-1
Depth Interval (ft)	(mg/kg)	16.0 - 17.0	7.0 - 7.5	14.5 - 15.0	7.0 - 7.5	13.0 - 13.5	7.0 - 7.5	13.0 - 13.5	6.5 - 7.0	12.5 - 13.0	7.5 - 8.0	15.5 - 16.0	7.0 - 7.5	13.0 - 13.5
SVOCs (mg/Kg) TCL, STARS, PAHs														
1,2,4-TRICHLOROBENZENE	3.4													
1,2-DICHLOROBENZENE	7.9													
1,3-DICHLOROBENZENE	1.6													
1,4-DICHLOROBENZENE	8.5													
2,4,5-TRICHLOROPHENOL	0.1													
2,4,6-TRICHLOROPHENOL	NA													
2,4-DICHLOROPHENOL	0.4													
2,4-DIMETHYLPHENOL	NA													
2,4-DINITROPHENOL	0.2 or MDL													
2,4-DINITROTOLUENE	NA													
2,6-DINITROTOLUENE	1													
2-CHLORONAPHTHALENE	NA													
2-CHLOROPHENOL	0.8													
2-METHYLNAPHTHALENE	36.4													
2-METHYLPHENOL	0.1 or MDL													
2-NITROANILINE	0.43 or MDL													
2-NITROPHENOL	0.33 or MDL													
3,3'-DICHLOROBENZIDINE	NA													
3+4-METHYLPHENOL	0.9													
3-NITROANILINE	0.5 or MDL													
4,6-DINITRO-2-METHYLPHENOL	NA													
4-BROMOPHENYL PHENYL ETHER	NA													
4-CHLORO-3-METHYLPHENOL	0.24 or MDL													
4-CHLOROANILINE	0.22 or MDL													
4-CHLOROPHENYL PHENYL ETHER	NA													
4-NITROANILINE	NA													
4-NITROPHENOL	0.1 or MDL													
ACENAPHTHENE	50	ND	ND	ND	ND	0.053 J	ND	0.071 J	2	17 J	120	0.13 J	ND	ND
ACENAPHTHYLENE	50	ND	0.3 J	ND	ND	0.049 J	ND	0.082 J	0.57 J	ND	23 J	0.24 J	0.35 J	ND
ANTHRACENE	50	ND	0.45 J	ND	1 J	0.07 J	ND	0.1 J	2.8	14 J	230	0.24 J	0.33 J	ND
BENZO(A)ANTHRACENE	0.224 or MDL	ND	1.5	ND	4.2 J	0.2 J	0.93 J	0.32 J	5.1	21 J	360	0.87	1.5	0.043 J
BENZO(A)PYRENE	0.061 or MDL	ND	1.1	ND	4.2 J	0.2 J	1 J	0.31 J	5	17 J	340	0.85	1.6	ND
BENZO(B)FLUORANTHENE	0.22 or MDL	ND	1.4	ND	3.1 J	0.15 J	0.83 J	0.26 J	4	17 J	250	0.78	1.5	ND
BENZO(G,H,I)PERYLENE	50	ND	0.81 J	ND	2.4 J	0.098 J	0.65 J	0.16 J	2.5	ND	230	0.61	1	0.043 J
BENZO(K)FLUORANTHENE	0.22 or MDL	ND	1.4	ND	3.4 J	0.16 J	0.75 J	0.25 J	3.8	ND	260	0.65	1.4	ND
BENZYL ALCOHOL	50													
BIS(1-CHLOROISOPROPYL) ETHER	NA													

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TABLE 5
SEMI-VOLATILE ORGANIC COMPOUND ANALYSIS OF SOIL

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REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

IWP Sample Area Description	Unrestricted Use	PAOC 43												
Field Sample ID	Screening Value TAGM 4046	SI-43-B1-B-2	SI-43-B2-A-1	SI-43-B2-B-1	SI-43-B3-A-1	SI-43-B3-B-1	SI-43-B4-A-1	SI-43-B4-B-1	SI-43-B5-A-1	SI-43-B5-B-1	SI-43-B6-A-1	SI-43-B6-B-1	SI-43-B14-A-1	SI-43-B14-B-1
Depth Interval (ft)	(mg/kg)	16.0 - 17.0	7.0 - 7.5	14.5 - 15.0	7.0 - 7.5	13.0 - 13.5	7.0 - 7.5	13.0 - 13.5	6.5 - 7.0	12.5 - 13.0	7.5 - 8.0	15.5 - 16.0	7.0 - 7.5	13.0 - 13.5
SVOCs (mg/Kg) TCL, STARS, PAHs														
BIS(2-CHLOROETHOXY)METHANE	NA													
BIS(2-CHLOROETHYL) ETHER	NA													
BIS(2-ETHYLHEXYL) PHTHALATE	50													
BUTYL BENZYL PHTHALATE	50													
CARBAZOLE	NA													
CHRYSENE	0.4	ND	1.9	ND	4.9 J	0.22 J	1.2 J	0.38 J	5.7	24 J	360	1	1.6	0.05 J
DIBENZO(A,H)ANTHRACENE	0.0143 or MDL	ND	0.3 J	ND	ND	ND	ND	0.059 J	1.1 J	ND	83	0.21 J	0.45	ND
DIBENZOFURAN	6.2													
DIETHYL PHTHALATE	7.1													
DIMETHYL PHTHALATE	2													
DI-N-BUTYL PHTHALATE	8.1													
DI-N-OCTYL PHTHALATE	50													
FLUORANTHENE	50	0.061 J	3.5	ND	7.4 J	0.4 J	1.7 J	0.81	11	48 J	750	1.8	1.8	0.083 J
FLUORENE	50	ND	0.15 J	ND	ND	ND	ND	ND	2.7	18 J	160	0.078 J	ND	ND
HEXACHLOROBENZENE	0.41													
HEXACHLOROBUTADIENE	NA													
HEXACHLOROCYCLOPENTADIENE	NA													
HEXACHLOROETHANE	NA													
INDENO(1,2,3-CD)PYRENE	3.2	ND	0.76 J	ND	2.2 J	0.09 J	0.54 J	0.15 J	2.3	ND	200	0.54	0.98	ND
ISOPHORONE	4.4													
NAPHTHALENE	13	ND	0.15 J	ND	ND	ND	ND	ND	0.43 J	19 J	56 J	0.073 J	0.29 J	ND
NITROBENZENE	0.2 or MDL													
N-NITROSODIMETHYLAMINE	NA													
N-NITROSODI-N-PROPYLAMINE	NA													
N-NITROSODIPHENYLAMINE	NA													
PENTACHLOROPHENOL (PCP)	1 or MDL													
PHENANTHRENE	50	ND	2	ND	3.4 J	0.19 J	1.4 J	0.23 J	12	68 J	710	0.84	0.42	0.045 J
PHENOL	0.03 or MDL													
PYRENE	50	0.044 J	2.2	ND	6.4 J	0.36 J	1.5 J	0.63	7.8	41 J	550	1.4	1.8	0.076 J
Total C-PAHs	10	ND	8.36	ND	22	1.02	5.25	1.729	27	79	1853	4.9	9.03	0.093
Total Semi-Volatile	500	0.105	17.92	ND	42.6	2.24	10.5	3.812	68.8	304	4682	10.311	15.02	0.34

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TABLE 5
SEMI-VOLATILE ORGANIC COMPOUND ANALYSIS OF SOIL

REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

IWP Sample Area Description	**Unrestricted Use**	**PAOC 43**							**PAOC 21**				
Field Sample ID	**Screening Value TAGM 4046**	**SI-43-B18-A-1**	**SI-43-B18-B-1**	**SI-43-B19-A-1**	**SI-43-B19-A-2**	**SI-43-B20-A-1**	**SI-43-B22-A-1**	**SI-43-B23-A-1**	**SI-21-B1-A-1**	**SI-21-B1-A-2**	**SI-21-B2-A-1**	**SI-21-B3-A-1**	**SI-21-B4-A-1**
Depth Interval (ft)	**(mg/kg)**	**13.4 - 14.0**	**16.0 - 17.0**	**12.0 - 13.0**	**12.0 - 13.0**	**12.0 - 13.0**	**12.0 - 13.0**	**13.0 - 14.0**	**6.5 - 7.0**	**6.5 - 7.0**	**8.0 - 8.5**	**1.5 - 2.0**	**6.5 - 7.0**
SVOCs (mg/Kg) TCL, STARS, PAHs													
1,2,4-TRICHLOROBENZENE	3.4	ND	ND			ND							
1,2-DICHLOROBENZENE	7.9	ND	ND			ND							
1,3-DICHLOROBENZENE	1.6	ND	ND			ND							
1,4-DICHLOROBENZENE	8.5	ND	ND			ND							
2,4,5-TRICHLOROPHENOL	0.1	ND	ND			ND							
2,4,6-TRICHLOROPHENOL	NA	ND	ND			ND							
2,4-DICHLOROPHENOL	0.4	ND	ND			ND							
2,4-DIMETHYLPHENOL	NA	ND	ND			ND							
2,4-DINITROPHENOL	0.2 or MDL	ND	ND			ND							
2,4-DINITROTOLUENE	NA	ND	ND			ND							
2,6-DINITROTOLUENE	1	ND	ND			ND							
2-CHLORONAPHTHALENE	NA	ND	ND			ND							
2-CHLOROPHENOL	0.8	ND	ND			ND							
2-METHYLNAPHTHALENE	36.4	0.56 J	1.5 J			2.1 J							
2-METHYLPHENOL	0.1 or MDL	ND	ND			ND							
2-NITROANILINE	0.43 or MDL	ND	ND			ND							
2-NITROPHENOL	0.33 or MDL	ND	ND			ND							
3,3'-DICHLOROBENZIDINE	NA	ND	ND			ND							
3+4-METHYLPHENOL	0.9	ND	ND			ND							
3-NITROANILINE	0.5 or MDL	ND	ND			ND							
4,6-DINITRO-2-METHYLPHENOL	NA	ND	ND			ND							
4-BROMOPHENYL PHENYL ETHER	NA	ND	ND			ND							
4-CHLORO-3-METHYLPHENOL	0.24 or MDL	ND	ND			ND							
4-CHLOROANILINE	0.22 or MDL	ND	ND			ND							
4-CHLOROPHENYL PHENYL ETHER	NA	ND	ND			ND							
4-NITROANILINE	NA	ND	ND			ND							
4-NITROPHENOL	0.1 or MDL	ND	ND			ND							
ACENAPHTHENE	50	0.71 J	5.5	27	140	1.1 J	9.5	0.095 J	1.9 J	2.1 J	1.2 J	5.1 J	3.5 J
ACENAPHTHYLENE	50	0.4 J	ND	6.1 J	22 J	ND	1.1 J	0.24 J					
ANTHRACENE	50	1.4 J	6.9	39	220	0.96 J	9.1	0.17 J	4.9	6.1 J	2.5 J	9.2 J	6.9
BENZO(A)ANTHRACENE	0.224 or MDL	3.7	9.5	88	390	2.8 J	12	0.99	12	12	6.9	16 J	13
BENZO(A)PYRENE	0.061 or MDL	3.3	8.4	73	350	2.8 J	10	1.1	9	9.1 J	6.4	13 J	9.6
BENZO(B)FLUORANTHENE	0.22 or MDL	2.6	6.3	54	250	3.4 J	8.2	1	8.2	7.8 J	5.4	11 J	8
BENZO(G,H,I)PERYLENE	50	2.1 J	4.9	39	170	3.1 J	5.6	0.71	6.1	6.2 J	3.9	8.4 J	6.7
BENZO(K)FLUORANTHENE	0.22 or MDL	2.4 J	6.3	60	250	2.7 J	7.9	0.84	7	7.4 J	5.5	10 J	7.5
BENZYL ALCOHOL	50	ND	ND			ND							
BIS(1-CHLOROISOPROPYL) ETHER	NA												

See Notes on Page 14.

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SEMI-VOLATILE ORGANIC COMPOUND ANALYSIS OF SOIL

REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

IWP Sample Area Description	Unrestricted Use	PAOC 43							PAOC 21				
Field Sample ID	Screening Value TAGM 4046	SI-43-B18-A-1	SI-43-B18-B-1	SI-43-B19-A-1	SI-43-B19-A-2	SI-43-B20-A-1	SI-43-B22-A-1	SI-43-B23-A-1	SI-21-B1-A-1	SI-21-B1-A-2	SI-21-B2-A-1	SI-21-B3-A-1	SI-21-B4-A-1
Depth Interval (ft)	(mg/kg)	13.4 - 14.0	16.0 - 17.0	12.0 - 13.0	12.0 - 13.0	12.0 - 13.0	12.0 - 13.0	13.0 - 14.0	6.5 - 7.0	6.5 - 7.0	8.0 - 8.5	1.5 - 2.0	6.5 - 7.0
SVOCs (mg/Kg) TCL, STARS, PAHs													
BIS(2-CHLOROETHOXY)METHANE	NA	ND	ND			ND							
BIS(2-CHLOROETHYL) ETHER	NA	ND	ND			ND							
BIS(2-ETHYLHEXYL) PHTHALATE	50	ND	ND			ND							
BUTYL BENZYL PHTHALATE	50	ND	ND			ND							
CARBAZOLE	NA	0.38 J	3			ND							
CHRYSENE	0.4	4.1	9.4	87	370	4.4 J	13	1.2	12	11	7.2	16 J	13
DIBENZO(A,H)ANTHRACENE	0.0143 or MDL	0.76 J	1.7 J	17 J	73	0.95 J	2.3 J	0.25 J	2.2 J	2.1 J	1.4 J	2.9 J	2.1 J
DIBENZOFURAN	6.2	0.28 J	2.1 J			ND							
DIETHYL PHTHALATE	7.1	ND	ND			ND							
DIMETHYL PHTHALATE	2	ND	ND			ND							
DI-N-BUTYL PHTHALATE	8.1	3.9	0.57 J			ND							
DI-N-OCTYL PHTHALATE	50	ND	ND			ND							
FLUORANTHENE	50	7.5	23	170	730	9.9	32	1.6	27	30	15	40	35
FLUORENE	50	0.87 J	4.1	19 J	110	2.3 J	11	ND	2 J	1.9 J	0.97 J	4.8 J	2.7 J
HEXACHLOROBENZENE	0.41	ND	ND			ND							
HEXACHLOROBUTADIENE	NA	ND	ND			ND							
HEXACHLOROCYCLOPENTADIENE	NA	ND	ND			ND							
HEXACHLOROETHANE	NA	ND	ND			ND							
INDENO(1,2,3-CD)PYRENE	3.2	1.9 J	4.6	37	170	2.4 J	5.3	0.68	5.3	5.8 J	3.7 J	8.1 J	5.9
ISOPHORONE	4.4	ND	ND			ND							
NAPHTHALENE	13	0.43 J	2.4	12 J	100	ND	6.2	0.052 J	1.2 J	ND	7.3	ND	3.7 J
NITROBENZENE	0.2 or MDL	ND	ND			ND							
N-NITROSODIMETHYLAMINE	NA	ND	ND			ND							
N-NITROSODI-N-PROPYLAMINE	NA	ND	ND			ND							
N-NITROSODIPHENYLAMINE	NA	ND	ND			ND							
PENTACHLOROPHENOL (PCP)	1 or MDL	ND	ND			ND							
PHENANTHRENE	50	6.2	23	110	670	7.5	38	0.31 J	18	21	11	31	39
PHENOL	0.03 or MDL	ND	ND			ND							
PYRENE	50	6.2	16	130	660	6.4	24	1.5	23	22	11	27	23
Total C-PAHs	10	18.76	46.2	416	1853	19.45	58.7	6.06	55.7	55.2	36.5	77	59.1
Total Semi-Volatile	500	49.69	139.17	968.1	4675	52.81	195.2	10.737	139.8	144.5	89.37	202.5	179.6

See Notes on Page 14.

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TABLE 5
SEMI-VOLATILE ORGANIC COMPOUND ANALYSIS OF SOIL

REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

IWP Sample Area Description	Unrestricted Use	PAOC - UST												
Field Sample ID	Screening Value TAGM 4046	S1-UST-B47-A-1	S1-UST-B47-A-2	S1-UST-B48-A-1	S1-UST-B49-A-1	S1-UST-B50-A-1	S1-UST-B51-A-1	S1-UST-B52-A-1	S1-UST-B52-A-2	S1-UST-B53-A-1	S1-UST-B54-A-1	S1-UST-B56-A-1	S1-UST-B57-A-1	S1-UST-B58-A-1
Depth Interval (ft)	(mg/kg)	9.0 - 11.0	9.0 - 11.0	10.0 - 12.0	9.0 - 11.0	9.0 - 11.0	12.0 - 14.0	9.0 - 11.0	9.0 - 11.0	9.0 - 11.0	9.0 - 10.0	10.0 -11.0	10.0 -11.0	10.0 - 12.0
SVOCs (mg/Kg) TCL, STARS, PAHs														
1,2,4-TRICHLOROBENZENE	3.4													
1,2-DICHLOROBENZENE	7.9													
1,3-DICHLOROBENZENE	1.6													
1,4-DICHLOROBENZENE	8.5													
2,4,5-TRICHLOROPHENOL	0.1													
2,4,6-TRICHLOROPHENOL	NA													
2,4-DICHLOROPHENOL	0.4													
2,4-DIMETHYLPHENOL	NA													
2,4-DINITROPHENOL	0.2 or MDL													
2,4-DINITROTOLUENE	NA													
2,6-DINITROTOLUENE	1													
2-CHLORONAPHTHALENE	NA													
2-CHLOROPHENOL	0.8													
2-METHYLNAPHTHALENE	36.4													
2-METHYLPHENOL	0.1 or MDL													
2-NITROANILINE	0.43 or MDL													
2-NITROPHENOL	0.33 or MDL													
3,3'-DICHLOROBENZIDINE	NA													
3+4-METHYLPHENOL	0.9													
3-NITROANILINE	0.5 or MDL													
4,6-DINITRO-2-METHYLPHENOL	NA													
4-BROMOPHENYL PHENYL ETHER	NA													
4-CHLORO-3-METHYLPHENOL	0.24 or MDL													
4-CHLOROANILINE	0.22 or MDL													
4-CHLOROPHENYL PHENYL ETHER	NA													
4-NITROANILINE	NA													
4-NITROPHENOL	0.1 or MDL													
ACENAPHTHENE	50	1.9 J	2.4	4.4 J	1.9 J	1.6 J	ND	1.7 J	0.87 J	0.19 J	13	ND	3.1 J	1.4 J
ACENAPHTHYLENE	50													
ANTHRACENE	50	1.2 J	2.1	ND	ND	0.57 J	ND	0.84 J	ND	0.11 J	4.8	ND	2.8 J	0.79 J
BENZO(A)ANTHRACENE	0.224 or MDL	0.88 J	1.8 J	ND	ND	ND	ND	0.3 J	ND	ND	3	ND	3.7 J	1.3 J
BENZO(A)PYRENE	0.061 or MDL	0.59 J	1.1 J	ND	ND	ND	ND	ND	ND	ND	2.8	ND	3.6 J	1.2 J
BENZO(B)FLUORANTHENE	0.22 or MDL	0.47 J	1.1 J	ND	ND	ND	ND	ND	ND	ND	1.6 J	ND	3 J	0.87 J
BENZO(G,H,I)PERYLENE	50	0.32 J	0.71 J	ND	ND	ND	ND	ND	ND	ND	1.6 J	ND	2.8 J	0.9 J
BENZO(K)FLUORANTHENE	0.22 or MDL	0.46 J	0.96 J	ND	ND	ND	ND	ND	ND	ND	1.6 J	ND	2.7 J	0.84 J
BENZYL ALCOHOL	50													
BIS(1-CHLOROISOPROPYL) ETHER	NA													

See Notes on Page 14.

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SEMI-VOLATILE ORGANIC COMPOUND ANALYSIS OF SOIL

REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

IWP Sample Area Description	**Unrestricted Use**	**PAOC - UST**												
Field Sample ID	**Screening Value TAGM 4046**	**S1-UST-B47-A-1**	**S1-UST-B47-A-2**	**S1-UST-B48-A-1**	**S1-UST-B49-A-1**	**S1-UST-B50-A-1**	**S1-UST-B51-A-1**	**S1-UST-B52-A-1**	**S1-UST-B52-A-2**	**S1-UST-B53-A-1**	**S1-UST-B54-A-1**	**S1-UST-B56-A-1**	**S1-UST-B57-A-1**	**S1-UST-B58-A-1**
Depth Interval (ft)	**(mg/kg)**	**9.0 - 11.0**	**9.0 - 11.0**	**10.0 - 12.0**	**9.0 - 11.0**	**9.0 - 11.0**	**12.0 - 14.0**	**9.0 - 11.0**	**9.0 - 11.0**	**9.0 - 11.0**	**9.0 - 10.0**	**10.0 -11.0**	**10.0 -11.0**	**10.0 - 12.0**
SVOCs (mg/Kg) TCL, STARS, PAHs														
BIS(2-CHLOROETHOXY)METHANE	NA													
BIS(2-CHLOROETHYL) ETHER	NA													
BIS(2-ETHYLHEXYL) PHTHALATE	50													
BUTYL BENZYL PHTHALATE	50													
CARBAZOLE	NA													
CHRYSENE	0.4	1.1 J	2.3	ND	ND	0.33 J	ND	0.55 J	0.22 J	0.056 J	2.9	0.044 J	4.1 J	1.4 J
DIBENZO(A,H)ANTHRACENE	0.0143 or MDL	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.38 J	ND	1 J	ND
DIBENZOFURAN	6.2													
DIETHYL PHTHALATE	7.1													
DIMETHYL PHTHALATE	2													
DI-N-BUTYL PHTHALATE	8.1													
DI-N-OCTYL PHTHALATE	50													
FLUORANTHENE	50	2	4.5	ND	1.2 J	0.48 J	ND	0.79 J	0.39 J	0.098 J	6.5	0.066 J	7.2	2.3 J
FLUORENE	50	1.9 J	3	3.2 J	2.2 J	1.5 J	ND	1.2 J	0.55 J	0.17 J	7.3	ND	3.7 J	0.76 J
HEXACHLOROBENZENE	0.41													
HEXACHLOROBUTADIENE	NA													
HEXACHLOROCYCLOPENTADIENE	NA													
HEXACHLOROETHANE	NA													
INDENO(1,2,3-CD)PYRENE	3.2	0.3 J	0.66 J	ND	ND	ND	ND	ND	ND	ND	1.3 J	ND	2.5 J	0.72 J
ISOPHORONE	4.4													
NAPHTHALENE	13	ND	1.1 J	ND	ND	ND	ND	1.7 J	ND	ND	31	ND	ND	0.5 J
NITROBENZENE	0.2 or MDL													
N-NITROSODIMETHYLAMINE	NA													
N-NITROSODI-N-PROPYLAMINE	NA													
N-NITROSODIPHENYLAMINE	NA													
PENTACHLOROPHENOL (PCP)	1 or MDL													
PHENANTHRENE	50	4.7	8.8	1.9 J	6 J	1.8 J	ND	0.73 J	ND	0.42 J	17	ND	9.3	1 J
PHENOL	0.03 or MDL													
PYRENE	50	2.5	5.2	1.7 J	2.2 J	0.74 J	ND	1.2 J	0.45 J	0.18 J	11	ND	6.7	2.8 J
Total C-PAHs	10	3.8	7.92	ND	ND	0.33	ND	0.85	ND	0.056	13.58	0.044	20.6	6.33
Total Semi-Volatile	500	18.42	35.73	11.2	13.5	7.02	ND	9.01	2.48	1.224	105.78	0.11	56.2	16.78

Notes:

Constituents with Levels above TAGM 4046 Guidance.

NA = Not available or not established.

MDL = Method Detection Limit.

ND = Not Detected.

J = Estimated value.

TABLE 6
VOLATILE COMPOUND ANALYSIS OF SOIL

REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

IWP Sample Area Description	Unrestricted Use	PAOC 2, 4, 6, 7, 17									PAOC 45		PAOC 37		
Field Sample ID	Screening Value TAGM 4046	SI-2-B1-A-1	SI-4-B1-A-1	SI-6-B1-A-1	SI-6-B1-A-2	SI-7-B1-A-1	SI-7-B17-D-1	SI-7-B18-D-1	SI-29-B14-BC-1	SI-17-B1-A-1	SI-45-B1-A-1	SI-45-B2-A-1	SI-37-B3-A-1	SI-37-B3-B-1	SI-37-B4-A-1
Depth Interval (ft)	(mg/kg)	4.0 - 5.0	6.0 - 6.5	9.0 - 10.0	9.0 - 10.0	8.5 - 9.0	14.0 - 15.0	14.0 - 15.0	2.0 - 3.0	8.5 - 9.0	8.0 - 8.5	10 - 10.4	8.0 - 8.5	6.0 - 6.5	7.5 - 8.0
VOCs (mg/Kg) TCL and STARs															
1,1,1-TRICHLOROETHANE (TCA)	0.8	ND	ND	ND	ND	ND				ND					
1,1,2,2-TETRACHLOROETHANE	0.6	ND	ND	ND	ND	ND				ND					
1,1,2-TRICHLOROETHANE	NA	ND	ND	ND	ND	ND				ND					
1,1-DICHLOROETHANE (1,1-DCA)	0.2	ND	ND	ND	0.0026 J	ND				ND					
1,1-DICHLOROETHENE (1,1-DCE)	0.4	ND	ND	ND	ND	ND				ND					
1,2-DICHLOROETHANE	0.1	ND	ND	ND	ND	ND				ND					
1,2-DICHLOROPROPANE	NA	ND	ND	ND	ND	ND				ND					
1,2,4-TRIMETHYLBENZENE	10						ND	ND	ND		ND	ND	ND	ND	ND
1,3,5-TRIMETHYLBENZENE	3.3						ND	ND	ND		0.001 J	ND	ND	ND	ND
2-BUTANONE (MEK)	0.3	ND	ND	0.013 J	0.032 J	ND				0.0032 J					
2-HEXANONE	NA	ND	ND	ND	ND	ND				ND					
4-METHYL-2-PENTANONE (MIBK)	1	ND	ND	ND	ND	ND				ND					
4-ISOPROPYLTOLUENE	NA						ND	ND	ND		ND	ND	ND	ND	ND
ACETONE	0.2	0.012 J	ND	0.08 J	0.2 J	0.21				0.012 J					
BENZENE	0.06 or MDL	ND	1.4	0.0022 J	0.019 J	0.017 J	ND	ND	ND	ND	ND	ND	ND	ND	ND
BROMODICHLOROMETHANE	NA	ND	ND	ND	ND	ND				ND					
BROMOFORM	NA	ND	ND	ND	ND	ND				ND					
BROMOMETHANE	NA	ND	ND	ND	ND	ND				ND					
CARBON DISULFIDE	2.7	0.0036 J	ND	0.0017 J	0.0094 J	0.021 J				0.0022 J					
CARBON TETRACHLORIDE	0.6	ND	ND	ND	ND	ND				ND					
CHLOROBENZENE	1.7	ND	ND	ND	ND	ND				ND					
CHLOROETHANE	1.9	ND	ND	ND	ND	ND				ND					
CHLOROFORM	0.3	ND	ND	ND	ND	ND				ND					
CHLOROMETHANE	NA	ND	ND	ND	ND	ND				ND					
CIS-1,2-DICHLOROETHENE	NA	ND	ND	ND	ND	ND				ND					
CIS-1,3-DICHLOROPROPENE	NA	ND	ND	ND	ND	ND				ND					
DIBROMOCHLOROMETHANE	NA	ND	ND	ND	ND	ND				ND					
DICHLOROMETHANE (METHYLENE CHLORIDE)	0.1	ND	ND	ND	0.0017 J	ND				ND					
ETHYLBENZENE	6	ND	0.86	ND	0.0066 J	0.012 J	ND	ND	ND	ND	ND	ND	ND	ND	ND
ISOPROPYLBENZENE	2.3						ND	ND	ND		ND	ND	ND	ND	ND
METHYL TERT-BUTYL ETHER	0.12						ND	ND	ND		ND	ND	ND	ND	ND
NAPHTHALENE	13						ND	ND	ND		ND	ND	ND	ND	ND
N-BUTYLBENZENE	10						ND	ND	1.2		ND	ND	ND	ND	ND
N-PROPYLBENZENE	3.7						ND	ND	ND		0.002 J	ND	ND	ND	ND
M,P-XYLENES	1.2 (total xylenes)	ND	3.1	0.0016 J	0.0082 J	0.025 J	ND	ND	0.25 J	ND	ND	ND	ND	ND	ND
O-XYLENE	1.2 (total xylenes)	ND	0.54 J	ND	0.002 J	0.021 J	ND	ND	ND	ND	ND	ND	ND	ND	ND
SEC-BUTYLBENZENE	10						ND	ND	2.6		ND	ND	ND	ND	ND
STYRENE	NA	ND	ND	ND	ND	ND			ND	ND					
TERT-BUTYLBENZENE	10						ND	ND	0.51 J		ND	ND	ND	ND	ND
TETRACHLOROETHENE (PCE)	1.4	ND	ND	ND	ND	ND				ND					
TOLUENE	1.5	ND	0.37 J	ND	0.0068 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TRANS-1,2-DICHLOROETHENE	1.3	ND	ND	ND	ND	ND				ND					
TRANS-1,3-DICHLOROPROPENE	NA	ND	ND	ND	ND	ND				ND					
TRICHLOROETHENE (TCE)	0.7	ND	ND	ND	ND	ND				ND					
VINYL CHLORIDE	0.2	ND	ND	ND	ND	ND				ND					

See Notes on Page 6

TABLE 6
VOLATILE COMPOUND ANALYSIS OF SOIL

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REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

IWP Sample Area Description	Unrestricted Use	PAOC 37												PAOC 39	
Field Sample ID	Screening Value TAGM 4046	SI-37-B4-A-2	SI-37-B4-B-1	SI-37-B7-A-1	SI-37-B7-B-1	SI-37-B8-A-1	SI-37-B8-B-1	SI-37-B12-A-1	SI-37-B12-B-1	SI-37-B13-A-1	SI-37-B13-B-1	SI-37-B17-A-A	SI-37-B18-A-1	SI-39-B1-A-1	SI-39-B2-A-1
Depth Interval (ft)	(mg/kg)	7.5 - 8.0	5.0 - 5.5	6.0 - 6.5	9.0 - 9.5	5.0 - 5.4	11.0 - 11.4	6.6 - 7.0	7.6 - 8.0	5.5 - 6.0	7.5 - 8.0	8.5 - 9.0	9.0 - 10.0	4.0 - 4.5	7.0 - 8.0
VOCs (mg/Kg) TCL and STARs															
1,1,1-TRICHLOROETHANE (TCA)	0.8														
1,1,2,2-TETRACHLOROETHANE	0.6														
1,1,2-TRICHLOROETHANE	NA														
1,1-DICHLOROETHANE (1,1-DCA)	0.2														
1,1-DICHLOROETHENE (1,1-DCE)	0.4														
1,2-DICHLOROETHANE	0.1														
1,2-DICHLOROPROPANE	NA														
1,2,4-TRIMETHYLBENZENE	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	11	ND	0.0036	0.54
1,3,5-TRIMETHYLBENZENE	3.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	8.6	ND	0.0081	1.8
2-BUTANONE (MEK)	0.3														
2-HEXANONE	NA														
4-METHYL-2-PENTANONE (MIBK)	1														
4-ISOPROPYLTOLUENE	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ACETONE	0.2														
BENZENE	0.06 or MDL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BROMODICHLOROMETHANE	NA														
BROMOFORM	NA														
BROMOMETHANE	NA														
CARBON DISULFIDE	2.7														
CARBON TETRACHLORIDE	0.6														
CHLOROBENZENE	1.7														
CHLOROETHANE	1.9														
CHLOROFORM	0.3														
CHLOROMETHANE	NA														
CIS-1,2-DICHLOROETHENE	NA														
CIS-1,3-DICHLOROPROPENE	NA														
DIBROMOCHLOROMETHANE	NA														
DICHLOROMETHANE (METHYLENE CHLORIDE)	0.1														
ETHYLBENZENE	6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ISOPROPYLBENZENE	2.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.4	ND	ND	0.63
METHYL TERT-BUTYL ETHER	0.12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NAPHTHALENE	13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0019	ND
N-BUTYLBENZENE	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	24	ND	0.0014	ND
N-PROPYLBENZENE	3.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	25	ND	0.0065	1.7
M,P-XYLENES	1.2 (total xylenes)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
O-XYLENE	1.2 (total xylenes)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	9.2	ND	0.0034	0.54
SEC-BUTYLBENZENE	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	11	ND	0.004	0.96
STYRENE	NA														
TERT-BUTYLBENZENE	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TETRACHLOROETHENE (PCE)	1.4														
TOLUENE	1.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0024	ND
TRANS-1,2-DICHLOROETHENE	1.3														
TRANS-1,3-DICHLOROPROPENE	NA														
TRICHLOROETHENE (TCE)	0.7														
VINYL CHLORIDE	0.2														

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TABLE 6
VOLATILE COMPOUND ANALYSIS OF SOIL

REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

IWP Sample Area Description	Unrestricted Use	PAOC 39							PAOC 43		PAOC 21				
Field Sample ID	Screening Value TAGM 4046	SI-39-B3-A-1	SI-39-B4-A-1	SI-39-B5-A-1	SI-39-B5-A-2	SI-39-B6-A-1	SI-39-B7-A-1	SI-39-B8-A-1	SI-43-B18-B-1	SI-43-B20-A-1	SI-21-B1-A-1	SI-21-B1-A-2	SI-21-B2-A-1	SI-21-B3-A-1	SI-21-B4-A-1
Depth Interval (ft)	(mg/kg)	8.0 - 8.5	10 - 11	8.0 - 8.5	8.0 - 8.5	4.0 - 4.5	4.5 - 5.0	5.0 - 5.5	16.0 - 17.0	12.0 - 13.0	6.5 - 7.0	6.5 - 7.0	8.0 - 8.5	1.5 - 2.0	6.5 - 7
VOCs (mg/Kg) TCL and STARs															
1,1,1-TRICHLOROETHANE (TCA)	0.8								ND	ND					
1,1,2,2-TETRACHLOROETHANE	0.6								ND	ND					
1,1,2-TRICHLOROETHANE	NA								ND	ND					
1,1-DICHLOROETHANE (1,1-DCA)	0.2								ND	ND					
1,1-DICHLOROETHENE (1,1-DCE)	0.4								ND	ND					
1,2-DICHLOROETHANE	0.1								ND	ND					
1,2-DICHLOROPROPANE	NA								ND	ND					
1,2,4-TRIMETHYLBENZENE	10	6.3	2.9	4.3 J	8.3 J	ND	0.0016 J	ND	ND	ND	ND	ND	0.22	0.0054 J	0.0057
1,3,5-TRIMETHYLBENZENE	3.3	11	1.7	1.9 J	3.9 J	ND	ND	ND	ND	ND	ND	ND	0.064	0.0031 J	ND
2-BUTANONE (MEK)	0.3								0.047 J	ND					
2-HEXANONE	NA								ND	ND					
4-METHYL-2-PENTANONE (MIBK)	1								ND	ND					
4-ISOPROPYLTOLUENE	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.059	ND	ND
ACETONE	0.2								0.19 J	ND					
BENZENE	0.06 or MDL	0.34	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BROMODICHLOROMETHANE	NA								ND	ND					
BROMOFORM	NA								ND	ND					
BROMOMETHANE	NA								ND	ND					
CARBON DISULFIDE	2.7								ND	ND					
CARBON TETRACHLORIDE	0.6								ND	ND					
CHLOROBENZENE	1.7								ND	ND					
CHLOROETHANE	1.9								ND	ND					
CHLOROFORM	0.3								ND	ND					
CHLOROMETHANE	NA								ND	ND					
CIS-1,2-DICHLOROETHENE	NA								ND	ND					
CIS-1,3-DICHLOROPROPENE	NA								ND	ND					
DIBROMOCHLOROMETHANE	NA								ND	ND					
DICHLOROMETHANE (METHYLENE CHLORIDE)	0.1								ND	ND					
ETHYLBENZENE	6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0033 J	ND
ISOPROPYLBENZENE	2.3	5.7	1.1	3 J	5.4 J	ND	ND	ND	ND	0.34 J	ND	ND	0.009	ND	ND
METHYL TERT-BUTYL ETHER	0.12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NAPHTHALENE	13	1.7	ND	ND	ND	ND	0.033 J	0.0024	ND	1	0.067	0.061	19	0.02 J	0.62
N-BUTYLBENZENE	10	ND	6.8	5.9 J	14 J	ND	ND	ND	ND	1.7	0.0016	0.0031	25	0.0046 J	0.11
N-PROPYLBENZENE	3.7	12	5.8	8.1 J	16 J	ND	ND	ND	ND	0.42 J	ND	ND	0.033	ND	ND
M,P-XYLENES	1.2 (total xylenes)	1.9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.014	0.014 J	ND
O-XYLENE	1.2 (total xylenes)	4.5	2.1	3.8 J	7.6 J	ND	ND	ND	ND	ND	ND	ND	0.013	0.016 J	ND
SEC-BUTYLBENZENE	10	10	3.6	4 J	8.4 J	ND	ND	ND	0.019 J	0.98	ND	ND	0.097	ND	ND
STYRENE	NA								ND	ND					
TERT-BUTYLBENZENE	10	ND	ND	ND	ND	ND	ND	ND	0.041 J	0.22 J	ND	ND	ND	ND	ND
TETRACHLOROETHENE (PCE)	1.4								ND	ND					
TOLUENE	1.5	0.86	0.35	1 J	2 J	ND	ND	ND	ND	ND	ND	ND	ND	0.0015 J	ND
TRANS-1,2-DICHLOROETHENE	1.3								ND	ND					
TRANS-1,3-DICHLOROPROPENE	NA								ND	ND					
TRICHLOROETHENE (TCE)	0.7								ND	ND					
VINYL CHLORIDE	0.2								ND	ND					

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TABLE 6
VOLATILE COMPOUND ANALYSIS OF SOIL

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IWP Sample Area Description	Unrestricted Use	PAOC 7						PAOC 47						
Field Sample ID	Screening Value TAGM 4046	SI-7-B7-D-1	SI-7-B8-C-1	SI-7-B27-D-1	SI-7-B29-E-1	SI-7-B30-D-1	SI-7-B31-D-1	SI-47-B1-B-1	SI-47-B2-A-1	SI-47-B3-B-1	SI-47-B3-B-2	SI-47-B5-A-1	SI-47-B12-A-1	SI-47-B15-A-1
Depth Interval (ft)	(mg/kg)	8.5 - 9.0	9.0 - 9.5	6.0 - 7.0	12.0 - 13.0	6.0 -7.0	6.5 - 7.5	6.0 -7.0	6.5 -7.0	9.0 - 9.5	9.0 - 9.5	4.0 -4.6	4.5 - 5.0	4.6 - 5.0
VOCs (mg/Kg) TCL and STARs														
1,1,1-TRICHLOROETHANE (TCA)	0.8	ND	ND					ND	ND	ND	ND	ND	ND	ND
1,1,2,2-TETRACHLOROETHANE	0.6	ND	ND					ND	ND	ND	ND	ND	ND	ND
1,1,2-TRICHLOROETHANE	NA	ND	ND					ND	ND	ND	ND	ND	ND	ND
1,1-DICHLOROETHANE (1,1-DCA)	0.2	ND	ND					ND	ND	ND	ND	ND	ND	ND
1,1-DICHLOROETHENE (1,1-DCE)	0.4	ND	ND					ND	ND	ND	ND	ND	ND	ND
1,2-DICHLOROETHANE	0.1	ND	ND					ND	ND	ND	ND	ND	ND	ND
1,2-DICHLOROPROPANE	NA	ND	ND					ND	ND	ND	ND	ND	ND	ND
1,2,4-TRIMETHYLBENZENE	10	ND	18	0.47 J	0.0023 J	0.36 J	ND	ND	ND	ND	ND	ND	ND	ND
1,3,5-TRIMETHYLBENZENE	3.3	ND	8.4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-BUTANONE (MEK)	0.3	ND	0.5 J					ND	0.004 J	ND	ND	ND	ND	0.0046 J
2-HEXANONE	NA	ND	ND					ND	ND	ND	ND	ND	ND	ND
4-METHYL-2-PENTANONE (MIBK)	1	ND	ND					ND	ND	ND	ND	ND	ND	ND
4-ISOPROPYLTOLUENE	NA	ND	ND					ND	ND	ND	ND	ND	ND	ND
ACETONE	0.2	ND	ND					ND	0.018 J	ND	ND	0.0058 J	ND	0.029 J
BENZENE	0.06 or MDL	ND	0.56 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BROMODICHLOROMETHANE	NA	ND	ND					ND	ND	ND	ND	ND	ND	ND
BROMOFORM	NA	ND	ND					ND	ND	ND	ND	ND	ND	ND
BROMOMETHANE	NA	ND	ND					ND	ND	ND	ND	ND	ND	ND
CARBON DISULFIDE	2.7	ND	ND					ND	0.0021 J	ND	ND	ND	ND	0.0035 J
CARBON TETRACHLORIDE	0.6	ND	ND					ND	ND	ND	ND	ND	ND	ND
CHLOROBENZENE	1.7	ND	ND					ND	ND	ND	ND	ND	ND	ND
CHLOROETHANE	1.9	ND	ND					ND	ND	ND	ND	ND	ND	ND
CHLOROFORM	0.3	ND	ND					ND	ND	ND	ND	ND	ND	ND
CHLOROMETHANE	NA	ND	ND					ND	ND	ND	ND	ND	ND	ND
CIS-1,2-DICHLOROETHENE	NA	ND	ND					ND	ND	ND	ND	ND	ND	ND
CIS-1,3-DICHLOROPROPENE	NA	ND	ND					ND	ND	ND	ND	ND	ND	ND
DIBROMOCHLOROMETHANE	NA	ND	ND					ND	ND	ND	ND	ND	ND	ND
DICHLOROMETHANE (METHYLENE CHLORIDE)	0.1	ND	ND					ND	ND	ND	ND	ND	ND	ND
ETHYLBENZENE	6	ND	2.8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ISOPROPYLBENZENE	2.3	56 J	4.9	ND	0.022	1.1 J	ND	ND	ND	ND	ND	ND	ND	ND
METHYL TERT-BUTYL ETHER	0.12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NAPHTHALENE	13	2.1 J	8.1	20	0.028	1.2	ND	0.0031 J	0.0012 J	ND	ND	ND	ND	ND
N-BUTYLBENZENE	10	100 J	2	ND	0.028	1.3	ND	ND	ND	ND	ND	ND	ND	ND
N-PROPYLBENZENE	3.7	110 J	1.7	ND	0.038	0.67 J	ND	ND	ND	ND	ND	ND	ND	ND
M,P-XYLENES	1.2 (total xylenes)	ND	9.8	0.19 J	0.0019 J	0.36 J	ND	ND	ND	ND	ND	ND	ND	ND
O-XYLENE	1.2 (total xylenes)	ND	5.4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SEC-BUTYLBENZENE	10	85 J	1.8	ND	0.022	1.7	ND	ND	ND	ND	ND	ND	ND	ND
STYRENE	NA	ND	2.1					ND	ND	ND	ND	ND	ND	ND
TERT-BUTYLBENZENE	10	6 J	0.24 J	ND	ND	0.26 J	ND	ND	ND	ND	ND	ND	ND	ND
TETRACHLOROETHENE (PCE)	1.4	ND	ND					ND	ND	ND	ND	ND	ND	ND
TOLUENE	1.5	ND	1.3	ND	0.0001 J	ND	ND	0.0033 J	ND	ND	ND	ND	ND	ND
TRANS-1,2-DICHLOROETHENE	1.3	ND	ND					ND	ND	ND	ND	ND	ND	ND
TRANS-1,3-DICHLOROPROPENE	NA	ND	ND					ND	ND	ND	ND	ND	ND	ND
TRICHLOROETHENE (TCE)	0.7	ND	ND					ND	0.045	ND	ND	0.0013 J	ND	0.027 J
VINYL CHLORIDE	0.2	ND	ND					ND	ND	ND	ND	ND	ND	ND

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TABLE 6
VOLATILE COMPOUND ANALYSIS OF SOIL

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IWP Sample Area Description	Unrestricted Use	PAOC - UST												
Field Sample ID	Screening Value TAGM 4046	S1-UST-B47-A-1	S1-UST-B47-A-2	S1-UST-B48-A-1	S1-UST-B49-A-1	S1-UST-B50-A-1	SI-UST-B51-A-1	S1-UST-B52-A-1	S1-UST-B52-A-2	SI-UST-B53-A-1	SI-UST-B54-A-1	SI-UST-B56-A-1	SI-UST-B57-A-1	SI-UST-B58-A-1
Depth Interval (ft)	(mg/kg)	9.0 - 11.0	9.0 - 11.0	10.0 - 12.0	9.0 - 11.0	9.0 - 11.0	12.0 - 14.0	9.0 - 11.0	9.0 - 11.0	9.0 - 11.0	9.0 - 10.0	10.0 - 11.0	9.0 - 9.5	10.0 - 12.0
VOCs (mg/Kg) TCL and STARs														
1,1,1-TRICHLOROETHANE (TCA)	0.8													
1,1,2,2-TETRACHLOROETHANE	0.6													
1,1,2-TRICHLOROETHANE	NA													
1,1-DICHLOROETHANE (1,1-DCA)	0.2													
1,1-DICHLOROETHENE (1,1-DCE)	0.4													
1,2-DICHLOROETHANE	0.1													
1,2-DICHLOROPROPANE	NA													
1,2,4-TRIMETHYLBENZENE	10	0.18 J	0.85 J	0.81 J	0.49 J	0.62 J	ND	0.39 J	0.53 J	ND	ND	ND	0.5 J	0.0031 J
1,3,5-TRIMETHYLBENZENE	3.3	ND	ND	ND	ND	0.21 J	ND	ND	ND	ND	ND	ND	ND	ND
2-BUTANONE (MEK)	0.3													
2-HEXANONE	NA													
4-METHYL-2-PENTANONE (MIBK)	1													
4-ISOPROPYLTOLUENE	NA	0.2 J	0.37 J	ND	0.28 J	0.18 J	ND	ND	ND	0.16 J	ND	ND	ND	ND
ACETONE	0.2													
BENZENE	0.06 or MDL	0.53 J	3.4	0.42 J	1.1	ND	ND	ND	ND	ND	ND	ND	0.2 J	ND
BROMODICHLOROMETHANE	NA													
BROMOFORM	NA													
BROMOMETHANE	NA													
CARBON DISULFIDE	2.7													
CARBON TETRACHLORIDE	0.6													
CHLOROBENZENE	1.7													
CHLOROETHANE	1.9													
CHLOROFORM	0.3													
CHLOROMETHANE	NA													
CIS-1,2-DICHLOROETHENE	NA													
CIS-1,3-DICHLOROPROPENE	NA													
DIBROMOCHLOROMETHANE	NA													
DICHLOROMETHANE (METHYLENE CHLORIDE)	0.1													
ETHYLBENZENE	6	ND	0.36 J	0.87 J	0.59 J	0.37 J	ND	0.25 J	ND	ND	ND	ND	ND	ND
ISOPROPYLBENZENE	2.3	3.8	8.6	ND	7.1	1.8	ND	0.34 J	0.91 J	2.6	0.011 J	ND	3.8	0.012 J
METHYL TERT-BUTYL ETHER	0.12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NAPHTHALENE	13	ND	1.1 J	ND	ND	ND	ND	1.7 J	ND	ND	31	ND	ND	0.5 J
N-BUTYLBENZENE	10	2.5	4.5	2.7	0.32	1.5	ND	ND	0.67 J	2.1	ND	ND	2.8	ND
N-PROPYLBENZENE	3.7	4.9	11	2.3	9.2	2.1	ND	0.59 J	0.78 J	3.2	ND	ND	4.2	0.0041 J
M,P-XYLENES	1.2 (total xylenes)	0.77	3.1	2.1	1.4	0.49 J	ND	0.71 J	0.64 J	0.26 J	ND	ND	0.73 J	0.0041 J
O-XYLENE	1.2 (total xylenes)	ND	0.37 J	ND	0.18 J	ND	ND	ND	ND	ND	ND	ND	0.18 J	ND
SEC-BUTYLBENZENE	10	1.5	3.2	3.9	2.5	2.1	ND	1.6	5.4	1.5	0.11	0.06	2.5	0.013
STYRENE	NA													
TERT-BUTYLBENZENE	10	ND	0.42 J	ND	0.35 J	0.31 J	ND	0.22 J	0.64 J	0.18 J	0.06	0.018 J	0.32 J	0.0062 J
TETRACHLOROETHENE (PCE)	1.4													
TOLUENE	1.5	ND	0.47 J	1.2 J	0.44 J	ND	ND	0.25 J	ND	ND	ND	ND	ND	ND
TRANS-1,2-DICHLOROETHENE	1.3													
TRANS-1,3-DICHLOROPROPENE	NA													
TRICHLOROETHENE (TCE)	0.7													
VINYL CHLORIDE	0.2													

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TABLE 6
VOLATILE COMPOUND ANALYSIS OF SOIL

REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

Notes:
Constituents with Levels above TAGM 4046 Guidance.
MDL = Method Detection Limit.
NA = Not available or not established.
ND = Not Detected.
J = Estimated value.

TABLE 7
PESTICIDE AND PCB COMPOUND ANALYSIS OF SOIL/MILLINGS

REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

IWP Sample Area Description	Unrestricted Use Screening Value TAGM 4046 (mg/kg)	PAOC 2, 4, 6, 7, 17						Millings						
Field Sample ID		SI-2-B1-A-1	SI-4-B1-A-1	SI-6-B1-A-1	SI-6-B1-A-2	SI-7-B1-A-1	SI-17-B1-A-1	SI-14-S1-A-1	SI-14-S1-A-2	SI-14-S2-A-1	SI-15-S1-A-1	SI-15-S2-A-1	SI-32-S1-A-1	SI-32-S2-A-1
Depth Interval (ft)		4 - 5	6 - 6.5	9 - 10	9 - 10	8.5 - 9	8.5 - 9	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1
TCL Pesticides (mg/Kg)														
4,4'-DDD	2.9	ND	ND	ND	ND	ND	ND							
4,4'-DDE	2.1	ND	ND	ND	ND	ND	ND							
4,4'-DDT	2.1	ND	ND	ND	ND	ND	ND							
ALDRIN	0.041	ND	ND	ND	ND	ND	ND							
ALPHA-BHC	0.11	ND	ND	ND	ND	ND	ND							
ALPHA-CHLORDANE	NA	ND	ND	ND	ND	ND	ND							
BETA-BHC	0.2	ND	ND	ND	ND	ND	ND							
DELTA-BHC	0.3	ND	ND	ND	ND	ND	ND							
DIELDRIN	0.044	ND	ND	ND	ND	ND	ND							
ENDOSULFAN I	0.9	ND	ND	ND	ND	ND	ND							
ENDOSULFAN II	0.9	ND	ND	ND	ND	ND	ND							
ENDOSULFAN SULFATE	1	ND	ND	ND	ND	ND	ND							
ENDRIN	0.1	ND	ND	ND	ND	ND	ND							
ENDRIN ALDEHYDE	NA	ND	ND	ND	ND	ND	ND							
ENDRIN KETONE	NA	ND	ND	ND	ND	ND	ND							
GAMMA-BHC (LINDANE)	0.06	ND	ND	ND	ND	ND	ND							
GAMMA-CHLORDANE	0.54	ND	ND	ND	ND	ND	ND							
HEPTACHLOR	0.1	ND	ND	ND	ND	ND	ND							
HEPTACHLOR EPOXIDE	0.02	ND	ND	ND	ND	ND	ND							
METHOXYCHLOR	NA	ND	ND	ND	ND	ND	ND							
TOXAPHENE	NA	ND	ND	ND	ND	ND	ND							
TCL PCBs (mg/Kg)														
AROCLOR 1016	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AROCLOR 1221	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AROCLOR 1232	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AROCLOR 1242	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AROCLOR 1248	NA	ND	ND	ND	ND	ND	ND	0.42	0.31	1.8	ND	0.34	0.44	0.66
AROCLOR 1254	NA	ND	0.07	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AROCLOR 1260	NA	ND	ND	ND	ND	ND	ND	0.47 J	0.38 J	2.6 J	ND	0.98	0.4	0.75
Total PCBs	1 / 10	ND	0.07	ND	ND	ND	ND	0.89	0.69	4.4	ND	1.32	0.84	1.41

Notes:

Constituents with Levels above TAGM 4046 Guidance.

NA = Not available or not established.

ND = Not Detected.

SB = Site Background.

Total PCB Screening Values are 1 mg/kg (ppm) for surface and 10 mg/kg (ppm) for subsurface (below 1 foot).

TABLE 8
INORGANIC COMPOUND ANALYSIS OF SOIL

REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

IWP Sample Area Description	**Unrestricted Use Screening Value TAGM 4046 (mg/kg)**	**PAOC-2, 4, 6, 7, 17**						**Millings**						
Field Sample ID		**SI-2-B1-A-1**	**SI-4-B1-A-1**	**SI-6-B1-A-1**	**SI-6-B1-A-2**	**SI-7-B1-A-1**	**SI-17-B1-A-1**	**SI-14-S1-A-1**	**SI-14-S1-A-2**	**SI-14-S2-A-1**	**SI-15-S1-A-1**	**SI-15-S2-A-1**	**SI-32-S1-A-1**	**SI-32-S2-A-1**
Depth Interval (ft)		**4.0 - 5.0**	**6.0 - 6.5**	**9.0 - 10.0**	**9.0 - 10.0**	**8.5 - 9.0**	**8.5 - 9.0**	**0.0 - 1.0**	**0.0 - 1.0**	**0.0 - 1.0**	**0.0 - 1.0**	**0.0 - 1.0**	**0.0 - 1.0**	**0.0 - 1.0**
TAL Inorganic Compounds (mg/Kg)														
ALUMINUM	SB	2550	2630	8640	6220	6630	5440	7850	8540	8460	7420	7130	8000	8100
ANTIMONY	SB	ND	110	ND	ND	27.7	ND	6.5	ND	ND	ND	64.9	ND	ND
ARSENIC	7.5 or SB	4.1 J	12.4 J	7.4 J	21.2 J	15.1 J	4.8 J	11.5	6.6	5.1	4.8	11.9	5.4	6.2
BARIUM	300 or SB	48.4	3140	134	209	1300	18.4	326 J	228 J	204 J	181 J	304 J	297 J	197 J
BERYLLIUM	0.16 or SB	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CADMIUM	1 or SB	ND	8.1	ND	ND	13.7	ND	1.2	1.1	1.2	1.9	2.6	1.7	1.8
CALCIUM	SB	16700 J	9000 J	3250 J	2380 J	17700 J	4540 J	1E+05	1E+05	1E+05	79600	67100	97400	1E+05
CHROMIUM	10 or SB	12	62.7	17.4	17.6	64.8	10.5	28.3 J	28.5 J	21.3 J	35.3 J	71.7 J	24.1 J	25.1 J
COBALT	30 or SB	7	ND	7.9	ND	8.7	ND	5.8	5.6	ND	7.8	10.1	6.2	6
COPPER	25 or SB	17.2	93.4	100	186	995	15.2	39.1 J	47.3 J	30 J	57 J	133 J	61.1 J	60.4 J
IRON	2000 or SB	15400	29900	21100	41900	46700	13200	27800 J	20300 J	15400 J	28000 J	41700 J	16800 J	19900 J
LEAD	500 or SB	59.9 J	6610 J	311 J	359 J	1750 J	19.6 J	288	248	171	214	1900	213	175
MAGNESIUM	SB	5060	1720	2910	1210	3160	3100	13500	9570	17200	9460	19800	12500	11900
MANGANESE	SB	51.9	158	146	106	274	147	780	412	293	289	446	340	313
NICKEL	13 or SB	10.6	13.5	21.3	18.1	36.8	10.3	15.5	16.4	13.3	19.4	39.3	19	19.7
POTASSIUM	SB	666	498	1580	1000	671	1010	825	825	1000	1280	1500	999	952
SELENIUM	2 or SB	ND	1.8	ND	1.1 J	3.7	ND	ND	ND	ND	ND	ND	ND	ND
SILVER	SB	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SODIUM	SB	286	2960	316	354	550	199	468	419	472	559	653	488	491
THALLIUM	SB	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
VANADIUM	150 or SB	12.4 J	11.5 J	22.6 J	20.7 J	59.4 J	20.7 J	23.9	24	23.9	25.3	56.2	28.2	31.6
ZINC	20 or SB	34.6	2440	203	104	719	53.5	552	430	378	468	564	776	651
MERCURY	0.1	ND	0.24	0.1	0.07	3.3	0.07	0.43	0.51	0.29	0.09	0.14	0.24	4.6
SOLIDS, TOTAL (%)	NA													
CYANIDE (mg/Kg)	Site-specific	ND	ND	ND	ND	ND	ND							

See Notes on Page 3.

TABLE 8
INORGANIC COMPOUND ANALYSIS OF SOIL

DRAFT

REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

IWP Sample Area Description	Unrestricted Use Screening Value TAGM 4046 (mg/kg)	PAOC-47													
Field Sample ID		SI-47-B1-A-1	SI-47-B1-A-2	SI-47-B1-B-1	SI-47-B2-A-1	SI-47-B2-B-1	SI-47-B3-A-1	SI-47-B3-B-1	SI-47-B4-A-1	SI-47-B4-B-1	SI-47-B5-A-1	SI-47-B5-B-1	SI-47-B5-B-2	SI-47-B6-A-1	SI-47-B6-B-1
Depth Interval (ft)		3.0 - 4.0	3.0 - 4.0	6.0 -7.0	6.5 -7.0	12.0 - 12.5	4.0 - 4.5	9.0 - 9.5	4.5 - 5.0	8.0 - 8.5	4.0 -4.6	11.2 - 12.0	11.2 - 12.0	5.4 - 6.0	9.0 - 9.6
TAL Inorganic Compounds (mg/Kg)															
ALUMINUM	SB														
ANTIMONY	SB														
ARSENIC	7.5 or SB														
BARIUM	300 or SB														
BERYLLIUM	0.16 or SB														
CADMIUM	1 or SB														
CALCIUM	SB														
CHROMIUM	10 or SB	25.6	28.6	33.4	1740	81.9	38.1	11.3	44.5	21.6	17.4	21.3	22.5	12.8	25.3
COBALT	30 or SB														
COPPER	25 or SB														
IRON	2000 or SB														
LEAD	500 or SB														
MAGNESIUM	SB														
MANGANESE	SB														
NICKEL	13 or SB														
POTASSIUM	SB														
SELENIUM	2 or SB														
SILVER	SB														
SODIUM	SB														
THALLIUM	SB														
VANADIUM	150 or SB														
ZINC	20 or SB														
MERCURY	0.1														
SOLIDS, TOTAL (%)	NA														
CYANIDE (mg/Kg)	Site-specific														

See Notes on Page 3.

DRAFT

TABLE 8
INORGANIC COMPOUND ANALYSIS OF SOIL

REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

IWP Sample Area Description	Unrestricted Use Screening Value TAGM 4046 (mg/kg)	PAOC-47													
Field Sample ID		SI-47-B7-A-1	SI-47-B7-B-1	SI-47-B8-A-1	SI-47-B8-B-1	SI-47-B9-A-1	SI-47-B10-A-1	SI-47-B11-A-1	SI-47-B12-A-1	SI-47-B13-A-1	SI-47-B15-A-1	SI-47-B-20-A-1	SI-47-B-22-A-1	SI-47-27A	SI-47-28A
Depth Interval (ft)		6.0 - 6.5	12.4 - 13.0	5.0 - 5.5	10.0 - 10.5	6.0 - 6.5	3.5 - 4.0	3.5 - 4.0	4.5 - 5.0	7.0 - 7.5	4.6 - 5.0	4.0 - 5.0	4.5 - 5.0	0 - 0.5	0 - 0.5
TAL Inorganic Compounds (mg/Kg)															
ALUMINUM	SB														
ANTIMONY	SB														
ARSENIC	7.5 or SB														
BARIUM	300 or SB														
BERYLLIUM	0.16 or SB														
CADMIUM	1 or SB														
CALCIUM	SB														
CHROMIUM	10 or SB	12.2	42.4	10.1	8.7	28.7	33.9	1470	16.3	10.4	3750	22.1	212	32	35.3
COBALT	30 or SB														
COPPER	25 or SB														
IRON	2000 or SB														
LEAD	500 or SB														
MAGNESIUM	SB														
MANGANESE	SB														
NICKEL	13 or SB														
POTASSIUM	SB														
SELENIUM	2 or SB														
SILVER	SB														
SODIUM	SB														
THALLIUM	SB														
VANADIUM	150 or SB														
ZINC	20 or SB														
MERCURY	0.1														
SOLIDS, TOTAL (%)	NA														
CYANIDE (mg/Kg)	Site-specific														

Notes:

Constituents with Levels above TAGM 4046 Guidance.
J = Estimated value.
ND = Not Detected.
SB = Site Background.

TABLE 9
CONFIRMATION OF EMCON SOIL SAMPLING RESULTS -PAOCS 2, 4, 6, 7, AND 17

DRAFT

REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

IWP Sample Area Description	**Unrestricted Use Screening Value TAGM 4046 (mg/kg)**	**PAOC 2**			**PAOC 4**			**PAOC 6**			**PAOC 7**			**PAOC 17**		
Investigation		**RI**	**PH2-ESI**	**RPD (%)**	**RI**	**PH2-ESI**	**RPD (%)**	**RI**	**PH2-ESI**	**RPD (%)**	**RI**	**PH2-ESI**	**RPD (%)**	**RI**	**PH2-ESI**	**RPD (%)**
Soil Boring ID		**SI-2-B1-A-1**	**2D**		**SI-4-B1-A-1**	**4B**		**SI-6-B1-A-1**	**6C**		**SI-7-B1-A-1**	**7B**		**SI-17-B1-A-1**	**17A**	
Sample Depth Interval (ft bgs)		**4 - 5**	**5 - 7**		**6 - 6.5**	**4 - 6**		**9 - 10**	**6-8**		**8.5 - 9**	**3-3.5**		**8.5 - 9**	**4-4.5**	
SVOCs (mg/Kg) TCL, STARS, PAHs																
2-METHYLNAPHTHALENE	36.4	0.43 J	1.4	106	7.2	ND		0.19 J	ND		0.74	ND		ND	ND	
ACENAPHTHENE	50	ND	ND		0.92 J	ND		ND	ND		1.6	ND		0.17 J	ND	
ACENAPHTHYLENE	50	0.2 J	ND		ND	ND		ND	ND		ND	ND		0.11 J	ND	
ANTHRACENE	50	0.15 J	ND		0.67 J	ND		0.069 J	0.5	151	1.1	ND		0.16 J	ND	
BENZO(A)ANTHRACENE	0.224 or MDL	1.2	ND		1.3 J	ND		0.26 J	0.99	117	0.76	ND		0.49	ND	
BENZO(A)PYRENE	0.061 or MDL	0.84	ND		1.6 J	ND		0.29 J	0.67	79	0.62	ND		0.49	ND	
BENZO(B)FLUORANTHENE	0.22 or MDL	1.1	ND		1.7	ND		0.27 J	1.2	127	0.6	ND		0.4 J	ND	
BENZO(G,H,I)PERYLENE	50	0.7	ND		1 J	ND		0.2 J	ND		0.37 J	ND		0.31 J	ND	
BENZO(K)FLUORANTHENE	0.22 or MDL	1	ND		1.3 J	ND		0.21 J	0.89	124	0.59	ND		0.41 J	ND	
BIS(2-ETHYLHEXYL) PHTHALATE	50	ND	ND		ND	ND		ND	ND		1.3	0.99	27	ND	ND	
BUTYL BENZYL PHTHALATE	50	ND	ND		ND	ND		ND	ND		ND	0.7		ND	ND	
CARBAZOLE	50	0.16 J	ND		ND	ND		ND	ND		0.33 J	ND		ND	ND	
CHRYSENE	0.4	1.6	ND		2	ND		0.38 J	1.2	104	0.78	ND		0.57	ND	
DIBENZO(A,H)ANTHRACENE	0.0143 or MDL	0.21 J	ND		ND	ND		ND	ND		ND	ND		ND	ND	
DIBENZOFURAN	6.2	0.21 J	ND		ND	ND		0.064 J	ND		1.3	ND		ND	ND	
DI-N-BUTYL PHTHALATE	8.1	0.054 J	4.6	195	9.4	ND		0.067 J	0.55	157	0.17 J	ND		ND	4.3B	
DI-N-OCTYL PHTHALATE	50	ND	0.55		ND	ND		ND	ND		ND	ND		ND	ND	
FLUORANTHENE	50	2.3	0.53	125	2.8	ND		0.39 J	2.2	140	3.1	ND		0.66	ND	
FLUORENE	50	ND	ND		1 J	ND		ND	ND		1.8	ND		0.068 J	ND	
INDENO(1,2,3-CD)PYRENE	3.2	0.63	ND		0.83 J	ND		0.17 J	ND		0.28 J	ND		0.28 J	ND	
NAPHTHALENE	13	0.33 J	0.88	91	4.7	10	72	0.13 J	0.49	116	0.88	ND		ND	ND	
PHENANTHRENE	50	0.79	0.81	3	2.8	ND		0.4 J	2.4	143	6.2	ND		0.57	ND	
PYRENE	50	2.3	0.63	114	2.9	ND		0.47	2.2	130	2	ND		0.93	ND	
Total C-PAHs	10	6.58	ND		8.73	ND		1.58	4.95	103	3.63	ND		2.64	ND	
Total Semi-Volatile	500	14.204	9.4	41	42.12	10	123	3.56	13.29	115	24.52	1.69	174	5.618	4.3B	
VOCs (mg/Kg) TCL and STARs																
1,1,1-TRICHLOROETHANE (TCA)	0.8	ND	ND		ND	ND		ND	ND		ND	ND		ND	ND	
1,1,2,2-TETRACHLOROETHANE	0.6	ND	ND		ND	ND		ND	ND		ND	ND		ND	ND	
2-BUTANONE (MEK)	0.3	ND	ND		ND	ND		0.013 J	ND		ND	ND		0.0032 J	ND	
2-HEXANONE	NA	ND	ND		ND	ND		ND	ND		ND	ND		ND	ND	
4-METHYL-2-PENTANONE (MIBK)	1	ND	ND		ND	ND		ND	ND		ND	ND		ND	ND	
ACETONE	0.2	0.012 J	0.084	150	ND	ND		0.08 J	0.018	127	0.21	ND		0.012 J	0.029	83
BENZENE	0.06 or MDL	ND	ND		1.4	ND		0.0022 J	ND		0.017 J	ND		ND	ND	
CARBON DISULFIDE	2.7	0.0036 J	ND		ND	ND		0.0017 J	ND		0.021 J	ND		0.0022 J	ND	
DICHLOROMETHANE (METHYLENE CHLORIDE)	0.1	ND	ND		ND	ND		ND	ND		ND	ND		ND	ND	
ETHYLBENZENE	6	ND	ND		0.86	ND		ND	ND		0.012 J	ND		ND	ND	
M,P-XYLENES	1.2 (total xylenes)	ND	ND		3.1	1.8	53	0.0016 J	ND		0.025 J	ND		ND	ND	
O-XYLENE	1.2 (total xylenes)	ND	ND		0.54 J	ND		ND	ND		0.021 J	ND		ND	ND	
TOLUENE	1.5	ND	0.0091		0.37 J	ND		ND	0.017		ND	ND		ND	ND	

See Notes on Page 2.

TABLE 9
CONFIRMATION OF EMCON SOIL SAMPLING RESULTS -PAOCS 2, 4, 6, 7, AND 17

REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

IWP Sample Area Description	Unrestricted Use Screening Value TAGM 4046 (mg/kg)	PAOC 2			PAOC 4			PAOC 6			PAOC 7			PAOC 17		
Investigation		RI	PH2-ESI	RPD (%)	RI	PH2-ESI	RPD (%)	RI	PH2-ESI	RPD (%)	RI	PH2-ESI	RPD (%)	RI	PH2-ESI	RPD (%)
Soil Boring ID		SI-2-B1-A-1	2D		SI-4-B1-A-1	4B		SI-6-B1-A-1	6C		SI-7-B1-A-1	7B		SI-17-B1-A-1	17A	
Sample Depth Interval (ft bgs)		4 - 5	5 - 7		6 - 6.5	4 - 6		9 - 10	6-8		8.5 - 9	3-3.5		8.5 - 9	4-4.5	
TCL Pesticides (mg/Kg)																
4,4'-DDE	2.1	ND	ND		ND	ND		ND	ND		ND	ND		ND	ND	
4,4'-DDT	2.1	ND	ND		ND	ND		ND	ND		ND	ND		ND	ND	
ALPHA-BHC	0.11	ND	ND		ND	ND		ND	ND		ND	ND		ND	ND	
TCL PCBs (mg/Kg)																
AROCLOR 1254	1/10	ND	ND		0.069	ND		ND	ND		ND	ND		ND	ND	
TAL Inorganic Compounds (mg/Kg)																
ALUMINUM	SB	2550	2870	12	2630	8480	105	8640	1610	137	6630	8190	21	5440	6850	23
ANTIMONY	SB	ND	<7.50		110	132	18	ND	<7.21		27.7	<1.10		ND	<7.85	
ARSENIC	7.5 or SB	4.1 J	6.91	51	12.4 J	13	5	7.4 J	10.2	32	15.1 J	2.1	151	4.8 J	1.47	106
BARIUM	300 or SB	48.4	90.3	60	3140	2100	40	134	181	30	1300	65.5	181	18.4	43.2	81
BERYLLIUM	0.16 or SB	ND	<0.625		ND	<.629		ND	<0.601		ND	<0.549		ND	<0.654	
CADMIUM	1 or SB	ND	<0.625		8.1	14.4	56	ND	<0.601		13.7	<0.549		ND	<0.654	
CALCIUM	SB	16700 J	11000	41	9000 J	17200	63	3250 J	7540	80	17700 J	1810	163	4540 J	2540	56
CHROMIUM	10 or SB	12	12.9	7	62.7	297	130	17.4	8.23	72	64.8	17.1	116	10.5	15.8	40
COBALT	30 or SB	7	<6.25		ND	15.4		7.9	<6.01		8.7	6.72	26	ND	<6.54	
COPPER	25 or SB	17.2	26.9	44	93.4	244	89	100	35.6	95	995	97.9	164	15.2	20.2	28
IRON	2000 or SB	15400	18000	16	29900	--		21100	17500	19	46700	20300	79	13200	14500	9
LEAD	500 or SB	59.9 J	159	91	6610 J	3640	58	311 J	138	77	1750 J	100	178	19.6 J	7.23	92
MAGNESIUM	SB	5060	2450	70	1720	6770	119	2910	558	136	3160	4460	34	3100	3050	2
MANGANESE	SB	51.9	57.6	10	158	441	94	146	32	128	274	216	24	147	138	6
NICKEL	13 or SB	10.6	10.3	3	13.5	49.8	115	21.3	8.6	85	36.8	16.9	74	10.3	13.4	26
POTASSIUM	SB	666	474	34	498	4250	158	1580	683	79	671	998	39	1010	1590	45
SELENIUM	2 or SB	ND	2.93		1.8	16.7	161	ND	3.34		3.7	<0.549		ND	5.06	
SILVER	SB	ND	<1.25		ND	1.6		ND	<1.20		ND	<1.10		ND	<1.31	
SODIUM	SB	286	460	47	2960	--		316	--		550	85.7	146	199	128	43
THALLIUM	SB	ND	<1.25		ND	<1.26		ND	<1.20		ND	<1.10		ND	<1.31	
VANADIUM	150 or SB	12.4 J	14.8	18	11.5 J	38	107	22.6 J	11	69	59.4 J	16	115	20.7 J	19.6	5
ZINC	20 or SB	34.6	108	103	2440	--		203	26.8	153	719	159	128	53.5	31	53
MERCURY	0.1	ND	<0.188		0.24	<0.189		0.1	0.835	157	3.3	<0.165		0.07	<0.196	
CYANIDE (mg/Kg)	Site-specific	ND	<1.25		ND	5.52		ND	1.84		ND	<1.10		ND	<1.31	

Notes:

Constituents with Levels above TAGM 4046 Guidance.

Investigation Key: RI refers to current Remedial Investigation. PH2-ESI refers to Phase 2 Environmental Site Investigation (EMCON 1997)

RPD = Relative Percent Difference [(difference divided by average) X 100%]

NA = Not available or not established.

MDL = Method Detection Limit.

ND = Not Detected.

J = Estimated value.

B = Presumed contamination from laboratory method blank

SB = Site Background.

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TABLE 10
TAL INORGANIC COMPOUND ANALYSIS OF GROUNDWATER

REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

Sampling Area Description	NYSDEC Standards and Guidance (1) (µg/L)	Onsite Groundwater Monitoring Wells												
Field Sample ID		OW-06-1	OW-6-1	OW-06-2	OW-07-1	OW-7-1	OW-8-1	OW-10-1	OW-11-1	OW-12-1	OW-20-1	OW-22-1	OW-24-1	OW-24-2
		Unfiltered	Unfiltered	Unfiltered	Unfiltered	Unfiltered	Unfiltered	Unfiltered	Unfiltered	Unfiltered	Unfiltered	Unfiltered	Unfiltered	Unfiltered
Date		5/21/04	5/21/04	5/20/04	5/21/04	5/20/04	5/26/04	10/30/03	10/29/03	5/21/04	10/29/03	5/21/04	10/30/03	10/30/03
TAL Inorganic Compounds (µg/L)														
ALUMINUM	NA	ND	195	ND	ND	103	ND	ND	ND	ND	2140	148	356	228
ANTIMONY	3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ARSENIC	25	ND	ND	ND	ND	ND	ND	ND	ND	10.5	ND	ND	ND	ND
BARIUM	1,000	ND	21.8	ND	ND	ND	102	6560	1180	330	521	155	62.5	59.3
BERYLLIUM	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CADMIUM	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CALCIUM	NA	22200	28600	21700	133000	151000	80900	78300	84200	43400	210000	55500	61500	60600
CHROMIUM	50	ND	ND	ND	ND	ND	ND	11.3	ND	ND	ND	ND	538	554
COBALT	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
COPPER	200	ND	ND	ND	ND	ND	ND	ND	ND	ND	26.2	ND	ND	ND
IRON	300	133	666	146	ND	155	2650	33900	16100	8950	174	2700	427	283
LEAD	25	ND	7.8	ND	ND	ND	ND	11.3	5.1	ND	81.7	13.5	ND	ND
MAGNESIUM	NA	8300	9220	8350	7390	7320	23900	22800	20200	8860	568	10000	15400	15000
MANGANESE	300	86	177	84.5	80.3	52.9	452	170	659	414	ND	96.4	25.6	18.8
NICKEL	100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
POTASSIUM	NA	13200	15600	14100	18300	31000	18800	21400	8550	10100	65500	43700	3310	3190
SELENIUM	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SILVER	50	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SODIUM	20,000	24900	41900	27000	19000	14200	121000	398000	43300	48600	101000	111000	51400	51100
THALLIUM	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
VANADIUM	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ZINC	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	34.7	ND	ND
MERCURY	0.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

See Notes on Page 8.

TABLE 10
TAL INORGANIC COMPOUND ANALYSIS OF GROUNDWATER

REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

Sampling Area Description	NYSDEC Standards and Guidance (1) (µg/L)	Onsite Groundwater Monitoring Wells												
Field Sample ID		OW-24-1	OW-24-2	OW-25-1	OW-26T-1	OW-26T-1	OW-34-1	OW-34-1-F	OW-34-2	OW-34-2-F	OW-40-1	OW-42-1	OW-45-1	OW-45-1-F
		Unfiltered	Unfiltered	Unfiltered	Unfiltered	Filtered	Unfiltered	Filtered	Unfiltered	Filtered	Unfiltered	Unfiltered	Unfiltered	Filtered
Date		05/03/04	05/03/04	10/30/03	10/30/03	10/30/03	7/29/04	7/29/04	7/26/04	7/26/04	5/20/04	5/20/04	5/20/04	5/20/04
TAL Inorganic Compounds (µg/L)														
ALUMINUM	NA			546	2600	581					ND	ND	309	ND
ANTIMONY	3			ND	ND	ND					ND	ND	ND	ND
ARSENIC	25			ND	ND	ND					ND	ND	ND	ND
BARIUM	1,000			88.9	371	281					619	1020	1380 J	1550 J
BERYLLIUM	NA			ND	ND	ND					ND	ND	ND	ND
CADMIUM	5			ND	ND	ND					ND	ND	ND	ND
CALCIUM	NA			179000	36900	35000					61900	42900	38100	38900
CHROMIUM	50	195	197	ND	ND	ND	39	41.5	42.1	42.5	ND	ND	ND	ND
COBALT	NA			ND	ND	ND					ND	ND	ND	ND
COPPER	200			ND	20.1	ND					ND	ND	ND	ND
IRON	300			757	5320	1720					827	2670	4160	4560
LEAD	25			ND	88.1	22.1					ND	ND	68.2	ND
MAGNESIUM	NA			29800	4630	3890					31300	29700	18900 J	21300 J
MANGANESE	300			4040	200	162					160	98	195	209
NICKEL	100			ND	ND	ND					ND	ND	ND	ND
POTASSIUM	NA			2750	2910	2580					17800	18400	19600 J	22500 J
SELENIUM	10			ND	ND	ND					ND	ND	ND	ND
SILVER	50			ND	ND	ND					ND	ND	ND	ND
SODIUM	20,000			65600	13500	13100					115000	97100	70600 J	87300 J
THALLIUM	NA			ND	ND	ND					ND	ND	ND	ND
VANADIUM	NA			ND	ND	ND					ND	ND	ND	ND
ZINC	NA			ND	162	45.4					ND	ND	37.7	ND
MERCURY	0.7			ND	ND	ND					ND	ND	ND	ND

See Notes on Page 8.

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TABLE 10
TAL INORGANIC COMPOUND ANALYSIS OF GROUNDWATER

REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

Sampling Area Description	NYSDEC Standards and Guidance (1) (µg/L)	Onsite Groundwater Monitoring Wells												
Field Sample ID		OW-45-1	OW-45-1	OW-45-1-F	OW-46-1	OW-46-2	OW-47-1	OW-47-1-F	OW-47-1	OW-47-1-F	OW-47-1	OW-48-1	OW-49-1	OW-49-1
		Unfiltered	Unfiltered	Filtered	Unfiltered	Unfiltered	Unfiltered	Filtered	Unfiltered	Filtered	Unfiltered	Unfiltered	Unfiltered	Unfiltered
Date		7/14/04	7/19/04	7/14/04	5/20/04	5/20/04	5/20/04	5/20/04	7/14/04	7/14/04	7/29/04	5/20/04	5/20/04	7/14/04
TAL Inorganic Compounds (µg/L)														
ALUMINUM	NA	197	ND	ND	200	231	121	ND	ND	ND	157	204	884	ND
ANTIMONY	3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ARSENIC	25	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BARIUM	1,000	1360	781	1330	ND	ND	4430	4220	5040	4860	5510	389	669	642
BERYLLIUM	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CADMIUM	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CALCIUM	NA	42200	50500	41500	46100	46600	45800	45600	48700	48200	52500	31900	76100 J	78600
CHROMIUM	50	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	10.4	ND
COBALT	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
COPPER	200	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
IRON	300	4570	2940	3890	696	736	1350	876	1410	1370	1520	708	4620	4440
LEAD	25	38.5	14.3	ND	ND	ND	32.7	ND	6.8	ND	21.2	ND	116	9.8
MAGNESIUM	NA	16800	14800	16600	11800	11600	23400	23100	27100	28500	24300	22400	130000 J	137000
MANGANESE	300	237	212	224	280	277	163	165	187	196	134	184	1410 J	1470
NICKEL	100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
POTASSIUM	NA	17200	14300	17000	9820	9110	13700	14000	15500	15500	15500	18200	47300 J	46100
SELENIUM	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SILVER	50	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SODIUM	20,000	57100	44200	56500	22600	19700	47700	47700	79200	86400	57300	80600	749000 J	82900
THALLIUM	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
VANADIUM	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ZINC	NA	31.4	ND	ND	ND	ND	ND	ND	ND	ND	20.9	ND	63.8	ND
MERCURY	0.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

See Notes on Page 8.

TABLE 10
TAL INORGANIC COMPOUND ANALYSIS OF GROUNDWATER

REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

Sampling Area Description	NYSDEC Standards and Guidance (1) (µg/L)	Onsite Groundwater Monitoring Wells										PAOC 47		
Field Sample ID		OW-49-1	OW-49-1-F	OW-49-1-F	OW-50-1	OW-51-1	OW-51-1-F	OW-51-1	OW-51-1	OW-51-1-F	OW-51-2	SI-47-B1W-1	SI-47-B1W-1-	SI-47-B2W-1
		Unfiltered	Filtered	Filtered	Unfiltered	Unfiltered	Filtered	Unfiltered	Unfiltered	Filtered	Unfiltered	Unfiltered	Filtered	Unfiltered
Date		7/27/04	7/27/04	7/27/04	5/20/04	5/20/04	5/20/04	7/14/2004	7/27/04	7/27/04	7/27/04	05/03/04	05/03/04	05/04/04
TAL Inorganic Compounds (µg/L)														
ALUMINUM	NA	151	ND	ND	599	721	ND	133	215	ND	328			
ANTIMONY	3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
ARSENIC	25	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
BARIUM	1,000	623	632	623	123	572	595	187	173	194	180			
BERYLLIUM	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
CADMIUM	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
CALCIUM	NA	88300	80900	94900 J	23400	51400	53500	33600	33000	33900	33700			
CHROMIUM	50	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	60	15.5	1130
COBALT	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
COPPER	200	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
IRON	300	5060	4520	3720	716	1090	192	274	271	ND	425			
LEAD	25	27.2	ND	ND	ND	9 J	ND	ND	ND	9.2 J	ND			
MAGNESIUM	NA	162000	144000	176000 J	14600	70000	77400	15300	8340	16300	8960			
MANGANESE	300	1670	1520	1870 J	61.7	586	625	127	62.4	127	69.2			
NICKEL	100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
POTASSIUM	NA	51400	47300	54400	34700	18600	18700	9280	9570	9340	9150			
SELENIUM	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
SILVER	50	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
SODIUM	20,000	1030000	884000	104000 J	111000	407000	428000	91600	48400	96700	48700			
THALLIUM	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
VANADIUM	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
ZINC	NA	ND	ND	ND	ND	26.1	ND	ND	40.7	ND	ND			
MERCURY	0.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			

See Notes on Page 8.

TABLE 10
TAL INORGANIC COMPOUND ANALYSIS OF GROUNDWATER

DRAFT

REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

Sampling Area Description	NYSDEC Standards and Guidance (1) (µg/L)	PAOC 47												
Field Sample ID		SI-47-B2W-1-	SI-47-B3W-1	SI-47-B3W-1-	SI-47-B4W-1	SI-47-B4W-1-	SI-47-B5W-1	SI-47-B5W-1-	SI-47-B6W-1	SI-47-B6W-1-	SI-47-B7W-1	SI-47-B7W-1 DISS	SI-47-B7W-1	SI-47-B7W-1-F
		Filtered	Unfiltered	Filtered	Unfiltered	Filtered	Unfiltered	Filtered	Unfiltered	Filtered	Unfiltered	Filtered	Unfiltered	Filtered
Date		05/04/04	05/04/04	05/04/04	05/04/04	05/04/04	05/04/04	05/04/04	05/04/04	05/04/04	05/04/04	05/04/04	05/24/04	05/24/04
TAL Inorganic Compounds (µg/L)														
ALUMINUM	NA													
ANTIMONY	3													
ARSENIC	25													
BARIUM	1,000													
BERYLLIUM	NA													
CADMIUM	5													
CALCIUM	NA													
CHROMIUM	50	1130	1910	1950	598	14.4	210	100	40.4	31.1	30100	29000	28400	42100
COBALT	NA													
COPPER	200													
IRON	300													
LEAD	25													
MAGNESIUM	NA													
MANGANESE	300													
NICKEL	100													
POTASSIUM	NA													
SELENIUM	10													
SILVER	50													
SODIUM	20,000													
THALLIUM	NA													
VANADIUM	NA													
ZINC	NA													
MERCURY	0.7													

See Notes on Page 8.

TABLE 10
TAL INORGANIC COMPOUND ANALYSIS OF GROUNDWATER

DRAFT

REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

Sampling Area Description	NYSDEC Standards and Guidance (1) (µg/L)	PAOC 47												
Field Sample ID		SI-47-B8W-1	SI-47-B8W-1 DISS	SI-47-B8W-1	SI-47-B8W-1-F	SI-47-B14W-1	SI-47-B14W-1-F	SI-47-B14W-2	SI-47-B14W-2-F	SI-47-B15W-1	SI-47-B15W-1-F	SI-47-B13W-1	SI-47-B13W-1F	SI-47-B16W-1
		Unfiltered	Filtered	Unfiltered	Filtered	Unfiltered	Filtered	Unfiltered	Filtered	Unfiltered	Filtered	Unfiltered	Filtered	Unfiltered
Date		05/04/04	05/04/04	05/24/04	05/24/04	05/24/04	05/24/04	05/24/04	05/24/04	05/24/04	05/24/04	7/29/04	7/29/04	7/29/04
TAL Inorganic Compounds (µg/L)														
ALUMINUM	NA													
ANTIMONY	3													
ARSENIC	25													
BARIUM	1,000													
BERYLLIUM	NA													
CADMIUM	5													
CALCIUM	NA													
CHROMIUM	50	1380	1660	4550	3640	25.4	23.5	24.4	23	4210	4130	130	130	ND
COBALT	NA													
COPPER	200													
IRON	300													
LEAD	25													
MAGNESIUM	NA													
MANGANESE	300													
NICKEL	100													
POTASSIUM	NA													
SELENIUM	10													
SILVER	50													
SODIUM	20,000													
THALLIUM	NA													
VANADIUM	NA													
ZINC	NA													
MERCURY	0.7													

See Notes on Page 8.

TABLE 10
TAL INORGANIC COMPOUND ANALYSIS OF GROUNDWATER

DRAFT

REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

Sampling Area Description	NYSDEC Standards and Guidance (1) (μg/L)	PAOC 47										
Field Sample ID		SI-47-B16W-1-F	SI-47-B17W-1	SI-47-B17W-1-F	SI-47-B18W-1	SI-47-B18W-1 F	SI-47-B19W-1	SI-47-B19W-1-F	SI-47-B27-W1	SI-47-B27-W1 DISSOLVED	SI-47-B28-W1	SI-47-B28-W1 DUPLICATE
		Filtered	Unfiltered	Filtered	Unfiltered	Filtered	Unfiltered	Filtered	Unfiltered	Filtered	Unfiltered	Unfiltered
Date		7/29/04	7/29/04	7/29/04	7/29/04	7/29/04	7/29/04	7/29/04	10/5/2004	10/5/2004	10/5/2004	10/5/2004
TAL Inorganic Compounds (μg/L)												
ALUMINUM	NA											
ANTIMONY	3											
ARSENIC	25											
BARIUM	1,000											
BERYLLIUM	NA											
CADMIUM	5											
CALCIUM	NA											
CHROMIUM	50	ND	11.3	ND	ND	ND	ND	ND	391	466	150	147
COBALT	NA											
COPPER	200											
IRON	300											
LEAD	25											
MAGNESIUM	NA											
MANGANESE	300											
NICKEL	100											
POTASSIUM	NA											
SELENIUM	10											
SILVER	50											
SODIUM	20,000											
THALLIUM	NA											
VANADIUM	NA											
ZINC	NA											
MERCURY	0.7											

See Notes on Page 8.

TABLE 10
TAL INORGANIC COMPOUND ANALYSIS OF GROUNDWATER

REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

Sampling Area Description	NYSDEC Standards and Guidance (1) (µg/L)	PAOC 47			
Field Sample ID		SI-47-B28-W1 DISSOLVED	SI-47-B28-W1 DISSOLVED DUPLICATE	SI-B29-B36	SI-B29-B36 DISSOLVED
		Filtered	Filtered	Unfiltered	Filtered
Date		10/5/2004	10/5/2004	10/6/2004	10/6/2004
TAL Inorganic Compounds (µg/L)					
ALUMINUM	NA				
ANTIMONY	3				
ARSENIC	25				
BARIUM	1,000				
BERYLLIUM	NA				
CADMIUM	5				
CALCIUM	NA				
CHROMIUM	50	149	150		
COBALT	NA				
COPPER	200				
IRON	300				
LEAD	25			75.2	ND
MAGNESIUM	NA				
MANGANESE	300				
NICKEL	100				
POTASSIUM	NA				
SELENIUM	10				
SILVER	50				
SODIUM	20,000				
THALLIUM	NA				
VANADIUM	NA				
ZINC	NA				
MERCURY	0.7				

Notes:
(1) 6 NYCRR Part 703, Class GA Standards and
TOGS 1.1.1 Guidance.
Constituents with Levels above Standards or Guidance.
J = Estimated value.
NA = Not available or not established.
ND = Not Detected.

TABLE 11

DRAFT

VOLATILE AND SEMI-VOLATILE ORGANIC COMPOUND ANALYSIS OF GROUNDWATER

REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

Sampling Area Description	NYSDEC Standards and Guidance (1) (µg/L)	Groundwater (UST; POAC 21 & 39)[2]											
Field Sample ID		SI-GWI-B1W-1	SI-GWI-B2W-1	SI-GWI-B2W-2	SI-GWI-B3W-1	SI-GWI-B4W-1	SI-GWI-B5W-1	SI-GWI-B6W-1	SI-GWI-B7W-1	SI-GWI-B8W-1	SI-GWI-B9W-1	SI-GWI-B10W-1	SI-GWI-B11W-1
Date		10/27/2003	10/28/2003	10/28/2003	10/28/2003	10/28/2003	10/28/2003	10/28/2003	10/28/2003	10/28/2003	10/28/2003	10/28/2003	10/28/2003
Volatile Organic Compounds (STARs) (µg/L)													
1,1,1-TRICHLOROETHANE (TCA)	5												
1,1,2,2-TETRACHLOROETHANE	5												
1,1,2-TRICHLOROETHANE	1												
1,1-DICHLOROETHANE (1,1-DCA)	5												
1,1-DICHLOROETHENE (1,1-DCE)	5												
1,2,4-TRIMETHYLBENZENE	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.2
1,2-DICHLOROETHANE	0.6												
1,2-DICHLOROPROPANE	1												
1,3,5-TRIMETHYLBENZENE	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-BUTANONE (MEK)	NA												
2-HEXANONE	50												
P-ISOPROPYLTOLUENE	5	ND	1.4	1.4	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-METHYL-2-PENTANONE (MIBK)	NA												
ACETONE	50												
BENZENE	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BROMODICHLOROMETHANE	50												
BROMOFORM	50												
BROMOMETHANE	5												
CARBON DISULFIDE	60												
CARBON TETRACHLORIDE	5												
CHLOROBENZENE	5												
CHLOROETHANE	5												
CHLOROFORM	7												
CHLOROMETHANE	NA												
CIS-1,2-DICHLOROETHENE	5												
CIS-1,3-DICHLOROPROPENE	0.4												
DIBROMOCHLOROMETHANE	NA												
DICHLOROMETHANE	5												
ETHYLBENZENE	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.5
ISOPROPYLBENZENE	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	10
M,P-XYLENES	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
METHYL TERT-BUTYL ETHER	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NAPHTHALENE	10	ND	2.4	1.1	ND	ND	2	ND	ND	ND	2.1	1.2	140
N-BUTYLBENZENE	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	19
N-PROPYLBENZENE	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	31
O-XYLENE	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SEC-BUTYLBENZENE	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	8.8
STYRENE	5												
TERT-BUTYLBENZENE	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TETRACHLOROETHENE (PCE)	5												
TOLUENE	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TRANS-1,2-DICHLOROETHENE	5												
TRANS-1,3-DICHLOROPROPENE	0.4												
TRICHLOROETHENE (TCE)	5												
VINYL CHLORIDE	2												

See Notes on Page 24.

TABLE 11
VOLATILE AND SEMI-VOLATILE ORGANIC COMPOUND ANALYSIS OF GROUNDWATER

DRAFT

REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

Sampling Area Description	NYSDEC Standards and Guidance (1) (µg/L)	Groundwater (UST; POAC 21 & 39)[(2)]											
Field Sample ID		SI-GWI-B1W-1	SI-GWI-B2W-1	SI-GWI-B2W-2	SI-GWI-B3W-1	SI-GWI-B4W-1	SI-GWI-B5W-1	SI-GWI-B6W-1	SI-GWI-B7W-1	SI-GWI-B8W-1	SI-GWI-B9W-1	SI-GWI-B10W-1	SI-GWI-B11W-1
Date		10/27/2003	10/28/2003	10/28/2003	10/28/2003	10/28/2003	10/28/2003	10/28/2003	10/28/2003	10/28/2003	10/28/2003	10/28/2003	10/28/2003
Semi-Volatile Organic Compounds (STARs) (µg/L)													
1,2,4-TRICHLOROBENZENE	5												
1,2-DICHLOROBENZENE	3												
1,3-DICHLOROBENZENE	3												
1,4-DICHLOROBENZENE	3												
2,4,5-TRICHLOROPHENOL	NA												
2,4,6-TRICHLOROPHENOL	NA												
2,4-DICHLOROPHENOL	1												
2,4-DIMETHYLPHENOL	50												
2,4-DINITROPHENOL	10												
2,4-DINITROTOLUENE	5												
2,6-DINITROTOLUENE	5												
2-CHLORONAPHTHALENE	10												
2-CHLOROPHENOL	NA												
2-METHYLNAPHTHALENE	NA												
2-METHYLPHENOL	1												
2-NITROANILINE	5												
2-NITROPHENOL	NA												
3,3'-DICHLOROBENZIDINE	5												
3+4-METHYLPHENOL	NA												
3-NITROANILINE	5												
4,6-DINITRO-2-METHYLPHENOL	NA												
4-BROMOPHENYL PHENYL ETHER	NA												
4-CHLORO-3-METHYLPHENOL	NA												
4-CHLOROANILINE	5												
4-CHLOROPHENYL PHENYL ETHER	NA												
4-NITROANILINE	5												
4-NITROPHENOL	NA												
ACENAPHTHENE	20	ND	1.6 J	2.2 J	ND	2 J	1.4 J	8.2 J	ND	ND	7 J	1.1 J	37
ACENAPHTHYLENE	NA												
ANTHRACENE	50	ND	2 J	3.4 J	1.1 J	8.3 J	1.5 J	21	ND	ND	12 J	ND	26
BENZ(A)ANTHRACENE	0.002	ND	3.4 J	6.1 J	2.9 J	25	5.2 J	50	ND	2 J	24	1.1 J	27
BENZO(A)PYRENE	ND	ND	3.1 J	5.3 J	3 J	27	4.9 J	48	ND	1.7 J	25	1.4 J	20
BENZO(B)FLUORANTHENE	0.002	ND	2.4 J	4.4 J	2.2 J	20	4.3 J	38	ND	1.6 J	19 J	1.3 J	17
BENZO(G,H,I)PERYLENE	NA	0.99 J	2.1 J	3.4 J	2.4 J	19 J	3.5 J	32	ND	1.2 J	19 J	1.1 J	13
BENZO(K)FLUORANTHENE	0.002	ND	2.5 J	4.6 J	2.2 J	22	3.9 J	39	ND	1.7 J	20 J	1.2 J	18
BENZYL ALCOHOL	NA												
BIS(1-CHLOROISOPROPYL) ETHER	5												
BIS(2-CHLOROETHOXY)METHANE	5												
BIS(2-CHLOROETHYL) ETHER	1												
BIS(2-ETHYLHEXYL) PHTHALATE	5												
BUTYL BENZYL PHTHALATE	50												
CARBAZOLE	NA												
CHRYSENE	0.002	1 J	3.7 J	6.5 J	3.4 J	28	5.8 J	52	ND	2.4 J	26	1.5 J	28
DIBENZ(A,H)ANTHRACENE	NA	ND	ND	1.2 J	ND	6.8 J	1.2 J	12	ND	ND	6.5 J	ND	4.5 J
DIBENZOFURAN	NA												

See Notes on Page 24.

TABLE 11
VOLATILE AND SEMI-VOLATILE ORGANIC COMPOUND ANALYSIS OF GROUNDWATER

REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

Sampling Area Description	NYSDEC	Groundwater (UST; POAC 21 & 39)[(2)]											
Field Sample ID	Standards and Guidance (1)	SI-GWI-B1W-1	SI-GWI-B2W-1	SI-GWI-B2W-2	SI-GWI-B3W-1	SI-GWI-B4W-1	SI-GWI-B5W-1	SI-GWI-B6W-1	SI-GWI-B7W-1	SI-GWI-B8W-1	SI-GWI-B9W-1	SI-GWI-B10W-1	SI-GWI-B11W-1
Date	(µg/L)	10/27/2003	10/28/2003	10/28/2003	10/28/2003	10/28/2003	10/28/2003	10/28/2003	10/28/2003	10/28/2003	10/28/2003	10/28/2003	10/28/2003
DIETHYL PHTHALATE	50												
DIMETHYL PHTHALATE	50												
DI-N-BUTYL PHTHALATE	50												
DI-N-OCTYL PHTHALATE	50												
FLUORANTHENE	50	ND	8 J	14	4.3 J	44	8.2 J	110	ND	3.7 J	46	2.6 J	93
FLUORENE	50	ND	ND	1.4 J	ND	2 J	ND	7.1 J	ND	ND	10 J	ND	42
HEXACHLOROBENZENE	0.04												
HEXACHLOROBUTADIENE	0.5												
HEXACHLOROCYCLOPENTADIENE	5												
HEXACHLOROETHANE	5												
INDENO(1,2,3-CD)PYRENE	0.002	ND	2 J	3.1 J	1.9 J	18 J	3.2 J	30	ND	1.1 J	16 J	ND	12
ISOPHORONE	50												
NAPHTHALENE	10	ND	1.1 J	1.9 J	ND	ND	5.3 J	6.7 J	ND	ND	7 J	1.1 J	99
PHENANTHRENE	50	1.2 J	5.7 J	12	2.9 J	19 J	3.5 J	78	ND	1.3 J	36	1.5 J	140
N-NITROSODIMETHYLAMINE	NA												
N-NITROSODI-N-PROPYLAMINE	NA												
N-NITROSODIPHENYLAMINE	NA												
PENTACHLOROPHENOL (PCP)	1												
PHENOL	1												
PYRENE	50	1 J	6.7 J	11	4.4 J	43	8.1 J	81	ND	3.6 J	44	2.4 J	60

See Notes on Page 24.

TABLE 11
VOLATILE AND SEMI-VOLATILE ORGANIC COMPOUND ANALYSIS OF GROUNDWATER

REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

Sampling Area Description	NYSDEC	PAOC 37		PAOC 39	PAOC 45	PAOC 47							
Field Sample ID	Standards and Guidance (1)	SI-37-B1W-1	SI-37-B1W-2	SI-39-B4W-1	SI-45-B1W-1	SI-47-B1W-1	SI-47-B2W-1	SI-47-B3W-1	SI-47-B4W-1	SI-47-B5W-1	SI-47-B6W-1	SI-47-B7W-1	SI-47-B8W-1
Date	(µg/L)	10/29/2003	10/29/2003	10/29/2003	10/29/2003	05/03/04	05/04/04	05/04/04	05/04/04	05/04/04	05/04/04	05/04/04	05/04/04
Volatile Organic Compounds (STARs) (µg/L)													
1,1,1-TRICHLOROETHANE (TCA)	5					ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-TETRACHLOROETHANE	5					ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-TRICHLOROETHANE	1					ND	ND	ND	ND	ND	ND	ND	ND
1,1-DICHLOROETHANE (1,1-DCA)	5					ND	ND	ND	ND	ND	ND	ND	ND
1,1-DICHLOROETHENE (1,1-DCE)	5					ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-TRIMETHYLBENZENE	5	3.8	1.9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-DICHLOROETHANE	0.6					ND	ND	ND	ND	ND	ND	ND	ND
1,2-DICHLOROPROPANE	1					ND	ND	ND	ND	ND	ND	ND	ND
1,3,5-TRIMETHYLBENZENE	5	4.6	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-BUTANONE (MEK)	NA					ND	ND	ND	ND	ND	ND	ND	ND
2-HEXANONE	50					ND	ND	ND	ND	ND	ND	ND	ND
P-ISOPROPYLTOLUENE	5	ND	ND	ND	1.2	ND	ND	ND	ND	ND	ND	ND	ND
4-METHYL-2-PENTANONE (MIBK)	NA					ND	ND	ND	ND	ND	ND	ND	ND
ACETONE	50					ND	ND	ND	7.5 J	ND	ND	ND	ND
BENZENE	1	ND	ND	1	ND	ND	ND	ND	ND	ND	ND	ND	ND
BROMODICHLOROMETHANE	50					ND	ND	ND	ND	ND	ND	ND	ND
BROMOFORM	50					ND	ND	ND	ND	ND	ND	ND	ND
BROMOMETHANE	5					ND	ND	ND	ND	ND	ND	ND	ND
CARBON DISULFIDE	60					ND	ND	ND	ND	ND	ND	ND	ND
CARBON TETRACHLORIDE	5					ND	ND	ND	ND	ND	ND	ND	ND
CHLOROBENZENE	5					ND	ND	ND	ND	ND	ND	ND	ND
CHLOROETHANE	5					ND	ND	ND	ND	ND	ND	ND	ND
CHLOROFORM	7					ND	ND	ND	ND	ND	ND	ND	ND
CHLOROMETHANE	NA					ND	ND	ND	ND	ND	ND	ND	ND
CIS-1,2-DICHLOROETHENE	5					ND	4.2 J	ND	ND	ND	ND	ND	ND
CIS-1,3-DICHLOROPROPENE	0.4					ND	ND	ND	ND	ND	ND	ND	ND
DIBROMOCHLOROMETHANE	NA					ND	ND	ND	ND	ND	ND	ND	ND
DICHLOROMETHANE	5					ND	ND	ND	ND	ND	ND	ND	ND
ETHYLBENZENE	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ISOPROPYLBENZENE	5	1.7	ND	2	ND	ND	ND	ND	ND	ND	ND	ND	ND
M,P-XYLENES	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
METHYL TERT-BUTYL ETHER	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NAPHTHALENE	10	8.1	5	1	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-BUTYLBENZENE	5	7.6	3.4	9.6	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-PROPYLBENZENE	5	8.1	3.8	5.7	ND	ND	ND	ND	ND	ND	ND	ND	ND
O-XYLENE	5	2.1	ND	2.7	ND	ND	ND	ND	ND	ND	ND	ND	ND
SEC-BUTYLBENZENE	5	4	2	7.2	ND	ND	ND	ND	ND	ND	ND	ND	ND
STYRENE	5					ND	ND	ND	ND	ND	ND	ND	ND
TERT-BUTYLBENZENE	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TETRACHLOROETHENE (PCE)	5					ND	ND	ND	ND	ND	ND	ND	ND
TOLUENE	5	ND	ND	2.2	ND	ND	ND	ND	ND	ND	ND	ND	ND
TRANS-1,2-DICHLOROETHENE	5					ND	ND	ND	ND	ND	ND	ND	ND
TRANS-1,3-DICHLOROPROPENE	0.4					ND	ND	ND	ND	ND	ND	ND	ND
TRICHLOROETHENE (TCE)	5					ND	14	2.1 J	ND	16	6	9.8	1.3 J
VINYL CHLORIDE	2					ND	ND	ND	ND	ND	ND	ND	ND

See Notes on Page 24.

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TABLE 11
VOLATILE AND SEMI-VOLATILE ORGANIC COMPOUND ANALYSIS OF GROUNDWATER

REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

Sampling Area Description	NYSDEC Standards and Guidance (1) (µg/L)	PAOC 37		PAOC 39	PAOC 45	PAOC 47							
Field Sample ID		SI-37-B1W-1	SI-37-B1W-2	SI-39-B4W-1	SI-45-B1W-1	SI-47-B1W-1	SI-47-B2W-1	SI-47-B3W-1	SI-47-B4W-1	SI-47-B5W-1	SI-47-B6W-1	SI-47-B7W-1	SI-47-B8W-1
Date		10/29/2003	10/29/2003	10/29/2003	10/29/2003	05/03/04	05/04/04	05/04/04	05/04/04	05/04/04	05/04/04	05/04/04	05/04/04
Semi-Volatile Organic Compounds (STARs) (µg/L)													
1,2,4-TRICHLOROBENZENE	5												
1,2-DICHLOROBENZENE	3												
1,3-DICHLOROBENZENE	3												
1,4-DICHLOROBENZENE	3												
2,4,5-TRICHLOROPHENOL	NA												
2,4,6-TRICHLOROPHENOL	NA												
2,4-DICHLOROPHENOL	1												
2,4-DIMETHYLPHENOL	50												
2,4-DINITROPHENOL	10												
2,4-DINITROTOLUENE	5												
2,6-DINITROTOLUENE	5												
2-CHLORONAPHTHALENE	10												
2-CHLOROPHENOL	NA												
2-METHYLNAPHTHALENE	NA												
2-METHYLPHENOL	1												
2-NITROANILINE	5												
2-NITROPHENOL	NA												
3,3'-DICHLOROBENZIDINE	5												
3+4-METHYLPHENOL	NA												
3-NITROANILINE	5												
4,6-DINITRO-2-METHYLPHENOL	NA												
4-BROMOPHENYL PHENYL ETHER	NA												
4-CHLORO-3-METHYLPHENOL	NA												
4-CHLOROANILINE	5												
4-CHLOROPHENYL PHENYL ETHER	NA												
4-NITROANILINE	5												
4-NITROPHENOL	NA												
ACENAPHTHENE	20	ND	ND	2.4 J									
ACENAPHTHYLENE	NA												
ANTHRACENE	50	ND	ND	4.2 J									
BENZ(A)ANTHRACENE	0.002	ND	2 J	7.7 J									
BENZO(A)PYRENE	ND	ND	1.8 J	8 J									
BENZO(B)FLUORANTHENE	0.002	ND	2 J	7 J									
BENZO(G,H,I)PERYLENE	NA	ND	1.6 J	7.1 J									
BENZO(K)FLUORANTHENE	0.002	ND	1.6 J	6.1 J									
BENZYL ALCOHOL	NA												
BIS(1-CHLOROISOPROPYL) ETHER	5												
BIS(2-CHLOROETHOXY)METHANE	5												
BIS(2-CHLOROETHYL) ETHER	1												
BIS(2-ETHYLHEXYL) PHTHALATE	5												
BUTYL BENZYL PHTHALATE	50												
CARBAZOLE	NA												
CHRYSENE	0.002	ND	2.2 J	8.4 J									
DIBENZ(A,H)ANTHRACENE	NA	ND	ND	1.8 J									
DIBENZOFURAN	NA												

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VOLATILE AND SEMI-VOLATILE ORGANIC COMPOUND ANALYSIS OF GROUNDWATER

REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

Sampling Area Description	NYSDEC	PAOC 37		PAOC 39	PAOC 45	PAOC 47							
Field Sample ID	Standards and Guidance (1)	SI-37-B1W-1	SI-37-B1W-2	SI-39-B4W-1	SI-45-B1W-1	SI-47-B1W-1	SI-47-B2W-1	SI-47-B3W-1	SI-47-B4W-1	SI-47-B5W-1	SI-47-B6W-1	SI-47-B7W-1	SI-47-B8W-1
Date	(µg/L)	10/29/2003	10/29/2003	10/29/2003	10/29/2003	05/03/04	05/04/04	05/04/04	05/04/04	05/04/04	05/04/04	05/04/04	05/04/04
DIETHYL PHTHALATE	50												
DIMETHYL PHTHALATE	50												
DI-N-BUTYL PHTHALATE	50												
DI-N-OCTYL PHTHALATE	50												
FLUORANTHENE	50	1.4 J	5.6 J	17									
FLUORENE	50	ND	ND	1.4 J									
HEXACHLOROBENZENE	0.04												
HEXACHLOROBUTADIENE	0.5												
HEXACHLOROCYCLOPENTADIENE	5												
HEXACHLOROETHANE	5												
INDENO(1,2,3-CD)PYRENE	0.002	ND	1.4 J	5.5 J									
ISOPHORONE	50												
NAPHTHALENE	10	ND	ND	ND									
PHENANTHRENE	50	2.1 J	3.1 J	6.8 J									
N-NITROSODIMETHYLAMINE	NA												
N-NITROSODI-N-PROPYLAMINE	NA												
N-NITROSODIPHENYLAMINE	NA												
PENTACHLOROPHENOL (PCP)	1												
PHENOL	1												
PYRENE	50	ND	4 J	15									

See Notes on Page 24.

TABLE 11
VOLATILE AND SEMI-VOLATILE ORGANIC COMPOUND ANALYSIS OF GROUNDWATER

REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

Sampling Area Description	NYSDEC	PAOC 47									
Field Sample ID	Standards and Guidance (1)	SI-47-B7W-1	SI-47-B8W-1	SI-47-B14W-1	SI-47-B14W-2	SI-47-B15W-1	SI-47-B16W-1	SI-47-B17W-1	SI-47-B18W-1	SI-47-B19W-1	SI-47-B13W-1
Date	(µg/L)	05/24/04	05/24/04	05/24/04	05/24/04	05/24/04	7/27/2004	7/26/2004	7/26/2004	7/26/2004	7/26/2004
Volatile Organic Compounds (STARs) (µg/L)											
1,1,1-TRICHLOROETHANE (TCA)	5	ND	ND	ND	ND	ND	ND	1.4 J	ND	ND	ND
1,1,2,2-TETRACHLOROETHANE	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-TRICHLOROETHANE	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-DICHLOROETHANE (1,1-DCA)	5	ND	ND	ND	ND	ND	ND	6.8	ND	ND	ND
1,1-DICHLOROETHENE (1,1-DCE)	5	ND	ND	ND	ND	ND	ND	1.8	ND	ND	ND
1,2,4-TRIMETHYLBENZENE	5	ND	ND	ND	ND	ND					
1,2-DICHLOROETHANE	0.6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-DICHLOROPROPANE	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3,5-TRIMETHYLBENZENE	5	ND	ND	ND	ND	ND					
2-BUTANONE (MEK)	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-HEXANONE	50	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
P-ISOPROPYLTOLUENE	5	ND	ND	ND	ND	ND					
4-METHYL-2-PENTANONE (MIBK)	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ACETONE	50	ND	ND	ND	ND	ND	ND	7	ND	ND	ND
BENZENE	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BROMODICHLOROMETHANE	50	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BROMOFORM	50	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BROMOMETHANE	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CARBON DISULFIDE	60	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CARBON TETRACHLORIDE	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CHLOROBENZENE	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CHLOROETHANE	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CHLOROFORM	7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CHLOROMETHANE	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CIS-1,2-DICHLOROETHENE	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CIS-1,3-DICHLOROPROPENE	0.4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
DIBROMOCHLOROMETHANE	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
DICHLOROMETHANE	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ETHYLBENZENE	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ISOPROPYLBENZENE	5	ND	ND	ND	ND	ND					
M,P-XYLENES	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
METHYL TERT-BUTYL ETHER	10	ND	ND	ND	ND	ND					
NAPHTHALENE	10	ND	ND	ND	ND	ND					
N-BUTYLBENZENE	5	ND	ND	ND	ND	ND					
N-PROPYLBENZENE	5	ND	ND	ND	ND	ND					
O-XYLENE	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SEC-BUTYLBENZENE	5	ND	ND	ND	ND	ND					
STYRENE	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TERT-BUTYLBENZENE	5	ND	ND	ND	ND	ND					
TETRACHLOROETHENE (PCE)	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TOLUENE	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TRANS-1,2-DICHLOROETHENE	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TRANS-1,3-DICHLOROPROPENE	0.4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TRICHLOROETHENE (TCE)	5	21	6.3	ND	ND	11	ND	ND	ND	13	1.9 J
VINYL CHLORIDE	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

See Notes on Page 24.

TABLE 11
VOLATILE AND SEMI-VOLATILE ORGANIC COMPOUND ANALYSIS OF GROUNDWATER

REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

Sampling Area Description	NYSDEC Standards and Guidance (1) (µg/L)	PAOC 47									
Field Sample ID		SI-47-B7W-1	SI-47-B8W-1	SI-47-B14W-1	SI-47-B14W-2	SI-47-B15W-1	SI-47-B16W-1	SI-47-B17W-1	SI-47-B18W-1	SI-47-B19W-1	SI-47-B13W-1
Date		05/24/04	05/24/04	05/24/04	05/24/04	05/24/04	7/27/2004	7/26/2004	7/26/2004	7/26/2004	7/26/2004
Semi-Volatile Organic Compounds (STARs) (µg/L)											
1,2,4-TRICHLOROBENZENE	5										
1,2-DICHLOROBENZENE	3										
1,3-DICHLOROBENZENE	3										
1,4-DICHLOROBENZENE	3										
2,4,5-TRICHLOROPHENOL	NA										
2,4,6-TRICHLOROPHENOL	NA										
2,4-DICHLOROPHENOL	1										
2,4-DIMETHYLPHENOL	50										
2,4-DINITROPHENOL	10										
2,4-DINITROTOLUENE	5										
2,6-DINITROTOLUENE	5										
2-CHLORONAPHTHALENE	10										
2-CHLOROPHENOL	NA										
2-METHYLNAPHTHALENE	NA										
2-METHYLPHENOL	1										
2-NITROANILINE	5										
2-NITROPHENOL	NA										
3,3'-DICHLOROBENZIDINE	5										
3+4-METHYLPHENOL	NA										
3-NITROANILINE	5										
4,6-DINITRO-2-METHYLPHENOL	NA										
4-BROMOPHENYL PHENYL ETHER	NA										
4-CHLORO-3-METHYLPHENOL	NA										
4-CHLOROANILINE	5										
4-CHLOROPHENYL PHENYL ETHER	NA										
4-NITROANILINE	5										
4-NITROPHENOL	NA										
ACENAPHTHENE	20										
ACENAPHTHYLENE	NA										
ANTHRACENE	50										
BENZ(A)ANTHRACENE	0.002										
BENZO(A)PYRENE	ND										
BENZO(B)FLUORANTHENE	0.002										
BENZO(G,H,I)PERYLENE	NA										
BENZO(K)FLUORANTHENE	0.002										
BENZYL ALCOHOL	NA										
BIS(1-CHLOROISOPROPYL) ETHER	5										
BIS(2-CHLOROETHOXY)METHANE	5										
BIS(2-CHLOROETHYL) ETHER	1										
BIS(2-ETHYLHEXYL) PHTHALATE	5										
BUTYL BENZYL PHTHALATE	50										
CARBAZOLE	NA										
CHRYSENE	0.002										
DIBENZ(A,H)ANTHRACENE	NA										
DIBENZOFURAN	NA										

See Notes on Page 24.

TABLE 11
VOLATILE AND SEMI-VOLATILE ORGANIC COMPOUND ANALYSIS OF GROUNDWATER

REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

Sampling Area Description	NYSDEC	PAOC 47									
Field Sample ID	Standards and Guidance (1)	SI-47-B7W-1	SI-47-B8W-1	SI-47-B14W-1	SI-47-B14W-2	SI-47-B15W-1	SI-47-B16W-1	SI-47-B17W-1	SI-47-B18W-1	SI-47-B19W-1	SI-47-B13W-1
Date	(µg/L)	05/24/04	05/24/04	05/24/04	05/24/04	05/24/04	7/27/2004	7/26/2004	7/26/2004	7/26/2004	7/26/2004
DIETHYL PHTHALATE	50										
DIMETHYL PHTHALATE	50										
DI-N-BUTYL PHTHALATE	50										
DI-N-OCTYL PHTHALATE	50										
FLUORANTHENE	50										
FLUORENE	50										
HEXACHLOROBENZENE	0.04										
HEXACHLOROBUTADIENE	0.5										
HEXACHLOROCYCLOPENTADIENE	5										
HEXACHLOROETHANE	5										
INDENO(1,2,3-CD)PYRENE	0.002										
ISOPHORONE	50										
NAPHTHALENE	10										
PHENANTHRENE	50										
N-NITROSODIMETHYLAMINE	NA										
N-NITROSODI-N-PROPYLAMINE	NA										
N-NITROSODIPHENYLAMINE	NA										
PENTACHLOROPHENOL (PCP)	1										
PHENOL	1										
PYRENE	50										

See Notes on Page 24.

TABLE 11
VOLATILE AND SEMI-VOLATILE ORGANIC COMPOUND ANALYSIS OF GROUNDWATER

REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

Sampling Area Description	NYSDEC Standards and Guidance (1) (µg/L)	PAOC 47			Onsite Groundwater Monitoring Wells			
Field Sample ID		SI-47-B27-W1	SI-47-B28-W1	SI-47-B28-W1 DUPLICATE	OW-3-1	OW-3-2	OW-08-1	OW-10-1
Date		10/5/2004	10/5/2004	10/5/2004	5/25/2004	5/25/2004	5/19/2004	10/30/03
Volatile Organic Compounds (STARs) (µg/L)								
1,1,1-TRICHLOROETHANE (TCA)	5	ND	ND	ND				
1,1,2,2-TETRACHLOROETHANE	5	ND	ND	ND				
1,1,2-TRICHLOROETHANE	1	ND	ND	ND				
1,1-DICHLOROETHANE (1,1-DCA)	5	ND	ND	ND				
1,1-DICHLOROETHENE (1,1-DCE)	5	ND	ND	ND				
1,2,4-TRIMETHYLBENZENE	5	ND	ND	ND	ND	ND	ND	4
1,2-DICHLOROETHANE	0.6	ND	ND	ND				
1,2-DICHLOROPROPANE	1							
1,3,5-TRIMETHYLBENZENE	5				ND	ND	ND	ND
2-BUTANONE (MEK)	NA	ND	ND	ND				
2-HEXANONE	50	ND	ND	ND				
P-ISOPROPYLTOLUENE	5	ND	ND	ND	ND	ND	ND	ND
4-METHYL-2-PENTANONE (MIBK)	NA							
ACETONE	50	ND	6.0 J	ND				
BENZENE	1	ND	ND	ND	ND	ND	ND	9.8
BROMODICHLOROMETHANE	50	ND	ND	ND				
BROMOFORM	50	ND	ND	ND				
BROMOMETHANE	5	ND	ND	ND				
CARBON DISULFIDE	60	ND	ND	ND				
CARBON TETRACHLORIDE	5	ND	ND	ND				
CHLOROBENZENE	5	ND	ND	ND				
CHLOROETHANE	5	ND	ND	ND				
CHLOROFORM	7	ND	ND	ND				
CHLOROMETHANE	NA	ND	ND	ND				
CIS-1,2-DICHLOROETHENE	5	ND	2.3 J	ND				
CIS-1,3-DICHLOROPROPENE	0.4	ND	ND	ND				
DIBROMOCHLOROMETHANE	NA	ND	ND	ND				
DICHLOROMETHANE	5	ND	ND	ND				
ETHYLBENZENE	5	ND	ND	ND	ND	ND	ND	ND
ISOPROPYLBENZENE	5				ND	ND	ND	20
M,P-XYLENES	5				ND	ND	ND	ND
METHYL TERT-BUTYL ETHER	10				ND	ND	ND	2.6
NAPHTHALENE	10				ND	ND	ND	1.5
N-BUTYLBENZENE	5				ND	ND	ND	5.8
N-PROPYLBENZENE	5	ND	ND	ND	ND	ND	ND	35
O-XYLENE	5	ND	ND	ND	ND	ND	ND	ND
SEC-BUTYLBENZENE	5				ND	ND	ND	3.9
STYRENE	5	ND	ND	ND				
TERT-BUTYLBENZENE	5				ND	ND	ND	1.1
TETRACHLOROETHENE (PCE)	5	ND	ND	ND				
TOLUENE	5	ND	ND	ND	ND	ND	ND	ND
TRANS-1,2-DICHLOROETHENE	5	ND	ND	ND				
TRANS-1,3-DICHLOROPROPENE	0.4	ND	ND	ND				
TRICHLOROETHENE (TCE)	5	ND	15	16				
VINYL CHLORIDE	2	ND	ND	ND				

See Notes on Page 24.

TABLE 11
VOLATILE AND SEMI-VOLATILE ORGANIC COMPOUND ANALYSIS OF GROUNDWATER

REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

Sampling Area Description	NYSDEC	PAOC 47			Onsite Groundwater Monitoring Wells			
Field Sample ID	Standards and Guidance (1)	SI-47-B27-W1	SI-47-B28-W1	SI-47-B28-W1 DUPLICATE	OW-3-1	OW-3-2	OW-08-1	OW-10-1
Date	(µg/L)	10/5/2004	10/5/2004	10/5/2004	5/25/2004	5/25/2004	5/19/2004	10/30/03
Semi-Volatile Organic Compounds (STARs) (µg/L)								
1,2,4-TRICHLOROBENZENE	5							
1,2-DICHLOROBENZENE	3							
1,3-DICHLOROBENZENE	3							
1,4-DICHLOROBENZENE	3							
2,4,5-TRICHLOROPHENOL	NA							
2,4,6-TRICHLOROPHENOL	NA							
2,4-DICHLOROPHENOL	1							
2,4-DIMETHYLPHENOL	50							
2,4-DINITROPHENOL	10							
2,4-DINITROTOLUENE	5							
2,6-DINITROTOLUENE	5							
2-CHLORONAPHTHALENE	10							
2-CHLOROPHENOL	NA							
2-METHYLNAPHTHALENE	NA							
2-METHYLPHENOL	1							
2-NITROANILINE	5							
2-NITROPHENOL	NA							
3,3'-DICHLOROBENZIDINE	5							
3+4-METHYLPHENOL	NA							
3-NITROANILINE	5							
4,6-DINITRO-2-METHYLPHENOL	NA							
4-BROMOPHENYL PHENYL ETHER	NA							
4-CHLORO-3-METHYLPHENOL	NA							
4-CHLOROANILINE	5							
4-CHLOROPHENYL PHENYL ETHER	NA							
4-NITROANILINE	5							
4-NITROPHENOL	NA							
ACENAPHTHENE	20				ND	2.1 J	ND	
ACENAPHTHYLENE	NA							
ANTHRACENE	50				2.1 J	4.6 J	ND	
BENZ(A)ANTHRACENE	0.002				9.7 J	21	ND	
BENZO(A)PYRENE	ND				11	23	ND	
BENZO(B)FLUORANTHENE	0.002				9 J	21	ND	
BENZO(G,H,I)PERYLENE	NA				9.7 J	20	ND	
BENZO(K)FLUORANTHENE	0.002				10 J	20	ND	
BENZYL ALCOHOL	NA							
BIS(1-CHLOROISOPROPYL) ETHER	5							
BIS(2-CHLOROETHOXY)METHANE	5							
BIS(2-CHLOROETHYL) ETHER	1							
BIS(2-ETHYLHEXYL) PHTHALATE	5							
BUTYL BENZYL PHTHALATE	50							
CARBAZOLE	NA							
CHRYSENE	0.002				11	23	ND	
DIBENZ(A,H)ANTHRACENE	NA				3.5 J	5.8 J	ND	
DIBENZOFURAN	NA							

See Notes on Page 24.

TABLE 11
VOLATILE AND SEMI-VOLATILE ORGANIC COMPOUND ANALYSIS OF GROUNDWATER

REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

Sampling Area Description	NYSDEC Standards and Guidance (1) (µg/L)	PAOC 47			Onsite Groundwater Monitoring Wells			
Field Sample ID		SI-47-B27-W1	SI-47-B28-W1	SI-47-B28-W1 DUPLICATE	OW-3-1	OW-3-2	OW-08-1	OW-10-1
Date		10/5/2004	10/5/2004	10/5/2004	5/25/2004	5/25/2004	5/19/2004	10/30/03
DIETHYL PHTHALATE	50							
DIMETHYL PHTHALATE	50							
DI-N-BUTYL PHTHALATE	50							
DI-N-OCTYL PHTHALATE	50							
FLUORANTHENE	50				19	40	ND	
FLUORENE	50				ND	1.6 J	ND	
HEXACHLOROBENZENE	0.04							
HEXACHLOROBUTADIENE	0.5							
HEXACHLOROCYCLOPENTADIENE	5							
HEXACHLOROETHANE	5							
INDENO(1,2,3-CD)PYRENE	0.002				8.9 J	18	ND	
ISOPHORONE	50							
NAPHTHALENE	10				ND	ND	ND	
PHENANTHRENE	50				9.3 J	20	ND	
N-NITROSODIMETHYLAMINE	NA							
N-NITROSODI-N-PROPYLAMINE	NA							
N-NITROSODIPHENYLAMINE	NA							
PENTACHLOROPHENOL (PCP)	1							
PHENOL	1							
PYRENE	50				18	36	ND	

See Notes on Page 24.

TABLE 11
VOLATILE AND SEMI-VOLATILE ORGANIC COMPOUND ANALYSIS OF GROUNDWATER

REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

Sampling Area Description	NYSDEC	Onsite Groundwater Monitoring Wells								
Field Sample ID	Standards and Guidance (1)	OW-12-1	OW-21-1	OW-22-1	OW-24-1	OW-24-2	OW-24-1	OW-24-2	OW-25-1	OW-25-1
Date	(µg/L)	5/21/2004	5/27/2004	5/21/2004	10/30/2003	10/30/2003	05/03/04	05/03/04	10/30/2003	5/21/2004
Volatile Organic Compounds (STARs) (µg/L)										
1,1,1-TRICHLOROETHANE (TCA)	5				ND	ND	ND	ND	ND	
1,1,2,2-TETRACHLOROETHANE	5				ND	ND	ND	ND	ND	
1,1,2-TRICHLOROETHANE	1				ND	ND	ND	ND	ND	
1,1-DICHLOROETHANE (1,1-DCA)	5				ND	ND	ND	ND	ND	
1,1-DICHLOROETHENE (1,1-DCE)	5				ND	ND	ND	ND	ND	
1,2,4-TRIMETHYLBENZENE	5	ND	ND	ND			ND	ND		ND
1,2-DICHLOROETHANE	0.6				ND	ND	ND	ND	ND	
1,2-DICHLOROPROPANE	1				ND	ND	ND	ND	ND	
1,3,5-TRIMETHYLBENZENE	5	ND	ND	ND			ND	ND		ND
2-BUTANONE (MEK)	NA				ND	ND	ND	ND	ND	
2-HEXANONE	50				ND	ND	ND	ND	ND	
P-ISOPROPYLTOLUENE	5	ND	ND	ND			ND	ND		ND
4-METHYL-2-PENTANONE (MIBK)	NA				ND	ND	ND	ND	ND	
ACETONE	50				ND	ND	ND	ND	ND	
BENZENE	1	ND	ND	1.5 J	ND	ND	ND	ND	ND	ND
BROMODICHLOROMETHANE	50				ND	ND	ND	ND	ND	
BROMOFORM	50				ND	ND	ND	ND	ND	
BROMOMETHANE	5				ND	ND	ND	ND	ND	
CARBON DISULFIDE	60				ND	ND	ND	ND	ND	
CARBON TETRACHLORIDE	5				ND	ND	ND	ND	ND	
CHLOROBENZENE	5				ND	ND	ND	ND	ND	
CHLOROETHANE	5				ND	ND	ND	ND	ND	
CHLOROFORM	7				ND	ND	ND	ND	ND	
CHLOROMETHANE	NA				ND	ND	ND	ND	ND	
CIS-1,2-DICHLOROETHENE	5				8.8	9.1	2.6 J	2.8 J	ND	
CIS-1,3-DICHLOROPROPENE	0.4				ND	ND	ND	ND	ND	
DIBROMOCHLOROMETHANE	NA				ND	ND	ND	ND	ND	
DICHLOROMETHANE	5				ND	ND	ND	ND	ND	
ETHYLBENZENE	5	ND	ND	ND	ND	ND	ND	ND	ND	ND
ISOPROPYLBENZENE	5	ND	ND	ND			ND	ND		7.9
M,P-XYLENES	5	ND	ND	ND	ND	ND	ND	ND	ND	ND
METHYL TERT-BUTYL ETHER	10	ND	ND	ND			ND	ND		ND
NAPHTHALENE	10	ND	ND	ND			ND	ND		ND
N-BUTYLBENZENE	5	ND	ND	ND			ND	ND		ND
N-PROPYLBENZENE	5	ND	ND	ND			ND	ND		5.2
O-XYLENE	5	ND	ND	ND	ND	ND	ND	ND	ND	ND
SEC-BUTYLBENZENE	5	ND	ND	ND			ND	ND		2.8 J
STYRENE	5				ND	ND	ND	ND	ND	
TERT-BUTYLBENZENE	5	ND	ND	ND			ND	ND		ND
TETRACHLOROETHENE (PCE)	5				ND	ND	ND	ND	ND	
TOLUENE	5	ND	ND	ND	ND	ND	ND	ND	ND	ND
TRANS-1,2-DICHLOROETHENE	5				ND	ND	ND	ND	ND	
TRANS-1,3-DICHLOROPROPENE	0.4				ND	ND	ND	ND	ND	
TRICHLOROETHENE (TCE)	5				72	75	33	35	ND	
VINYL CHLORIDE	2				ND	ND	ND	ND	ND	

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TABLE 11
VOLATILE AND SEMI-VOLATILE ORGANIC COMPOUND ANALYSIS OF GROUNDWATER

REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

Sampling Area Description	NYSDEC Standards and Guidance (1) (µg/L)	Onsite Groundwater Monitoring Wells								
Field Sample ID		OW-12-1	OW-21-1	OW-22-1	OW-24-1	OW-24-2	OW-24-1	OW-24-2	OW-25-1	OW-25-1
Date		5/21/2004	5/27/2004	5/21/2004	10/30/2003	10/30/2003	05/03/04	05/03/04	10/30/2003	5/21/2004
Semi-Volatile Organic Compounds (STARs) (µg/L)										
1,2,4-TRICHLOROBENZENE	5				ND	ND			ND	
1,2-DICHLOROBENZENE	3				ND	ND			ND	
1,3-DICHLOROBENZENE	3				ND	ND			ND	
1,4-DICHLOROBENZENE	3				ND	ND			ND	
2,4,5-TRICHLOROPHENOL	NA				ND	ND			ND	
2,4,6-TRICHLOROPHENOL	NA				ND	ND			ND	
2,4-DICHLOROPHENOL	1				ND	ND			ND	
2,4-DIMETHYLPHENOL	50				ND	ND			ND	
2,4-DINITROPHENOL	10				ND	ND			ND	
2,4-DINITROTOLUENE	5				ND	ND			ND	
2,6-DINITROTOLUENE	5				ND	ND			ND	
2-CHLORONAPHTHALENE	10				ND	ND			ND	
2-CHLOROPHENOL	NA				ND	ND			ND	
2-METHYLNAPHTHALENE	NA				ND	ND			ND	
2-METHYLPHENOL	1				ND	ND			ND	
2-NITROANILINE	5				ND	ND			ND	
2-NITROPHENOL	NA				ND	ND			ND	
3,3'-DICHLOROBENZIDINE	5				ND	ND			ND	
3+4-METHYLPHENOL	NA				ND	ND			ND	
3-NITROANILINE	5				ND	ND			ND	
4,6-DINITRO-2-METHYLPHENOL	NA				ND	ND			ND	
4-BROMOPHENYL PHENYL ETHER	NA				ND	ND				
4-CHLORO-3-METHYLPHENOL	NA				ND	ND				
4-CHLOROANILINE	5				ND	ND			ND	
4-CHLOROPHENYL PHENYL ETHER	NA				ND	ND				
4-NITROANILINE	5				ND	ND			ND	
4-NITROPHENOL	NA				ND	ND			ND	
ACENAPHTHENE	20	ND	2.1 J	ND	ND	ND			ND	ND
ACENAPHTHYLENE	NA				ND	ND			ND	
ANTHRACENE	50	ND	ND	ND	ND	ND			ND	ND
BENZ(A)ANTHRACENE	0.002	ND	ND	ND	ND	ND			ND	ND
BENZO(A)PYRENE	ND	ND	ND	ND	ND	ND			ND	ND
BENZO(B)FLUORANTHENE	0.002	ND	ND	ND	ND	ND			ND	ND
BENZO(G,H,I)PERYLENE	NA	ND	ND	ND	ND	ND			ND	ND
BENZO(K)FLUORANTHENE	0.002	ND	ND	ND	ND	ND			ND	ND
BENZYL ALCOHOL	NA				ND	ND			ND	
BIS(1-CHLOROISOPROPYL) ETHER	5				ND	ND			ND	
BIS(2-CHLOROETHOXY)METHANE	5				ND	ND			ND	
BIS(2-CHLOROETHYL) ETHER	1				ND	ND				
BIS(2-ETHYLHEXYL) PHTHALATE	5				ND	5.4 J			ND	
BUTYL BENZYL PHTHALATE	50				ND	ND			ND	
CARBAZOLE	NA				ND	ND			ND	
CHRYSENE	0.002	ND	ND	ND	ND	ND			ND	ND
DIBENZ(A,H)ANTHRACENE	NA	ND	ND	ND	ND	ND			ND	ND
DIBENZOFURAN	NA				ND	ND			ND	

See Notes on Page 24.

TABLE 11
VOLATILE AND SEMI-VOLATILE ORGANIC COMPOUND ANALYSIS OF GROUNDWATER

REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

Sampling Area Description	NYSDEC Standards and Guidance (1) (µg/L)	Onsite Groundwater Monitoring Wells								
Field Sample ID		OW-12-1	OW-21-1	OW-22-1	OW-24-1	OW-24-2	OW-24-1	OW-24-2	OW-25-1	OW-25-1
Date		5/21/2004	5/27/2004	5/21/2004	10/30/2003	10/30/2003	05/03/04	05/03/04	10/30/2003	5/21/2004
DIETHYL PHTHALATE	50				ND	ND			ND	
DIMETHYL PHTHALATE	50				ND	ND			ND	
DI-N-BUTYL PHTHALATE	50				ND	ND			ND	
DI-N-OCTYL PHTHALATE	50				ND	ND				
FLUORANTHENE	50	ND	ND	ND	ND	ND			ND	ND
FLUORENE	50	ND	ND	ND	ND	ND			ND	ND
HEXACHLOROBENZENE	0.04				ND	ND			ND	
HEXACHLOROBUTADIENE	0.5				ND	ND			ND	
HEXACHLOROCYCLOPENTADIENE	5				ND	ND			ND	
HEXACHLOROETHANE	5				ND	ND			ND	
INDENO(1,2,3-CD)PYRENE	0.002	ND	ND	ND	ND	ND			ND	ND
ISOPHORONE	50				ND	ND			ND	
NAPHTHALENE	10	ND	ND	ND	ND	ND			ND	ND
PHENANTHRENE	50	ND	1.2 J	ND	ND	ND			ND	
N-NITROSODIMETHYLAMINE	NA				ND	ND			ND	
N-NITROSODI-N-PROPYLAMINE	NA				ND	ND				
N-NITROSODIPHENYLAMINE	NA				ND	ND			ND	
PENTACHLOROPHENOL (PCP)	1				ND	ND			ND	
PHENOL	1				ND	ND			ND	
PYRENE	50	ND	1.1 J	ND	ND	ND			1 J	ND

See Notes on Page 24.

TABLE 11
VOLATILE AND SEMI-VOLATILE ORGANIC COMPOUND ANALYSIS OF GROUNDWATER

REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

Sampling Area Description	NYSDEC Standards and Guidance (1) (µg/L)	Onsite Groundwater Monitoring Wells											
Field Sample ID		OW-26T-1	OW-27-1	OW-28-1	OW-29-1	OW-30-1	OW-31-1	OW-32-1	OW-32-2	OW-33-1	OW-34-1	OW-34-1	OW-34-2
Date		10/30/03	5/21/2004	5/21/2004	5/20/2004	5/21/2004	5/21/2004	5/21/2004	5/21/2004	5/21/2004	5/21/2004	7/26/2004	7/26/2004
Volatile Organic Compounds (STARs) (µg/L)													
1,1,1-TRICHLOROETHANE (TCA)	5											ND	ND
1,1,2,2-TETRACHLOROETHANE	5											ND	ND
1,1,2-TRICHLOROETHANE	1											ND	ND
1,1-DICHLOROETHANE (1,1-DCA)	5											ND	ND
1,1-DICHLOROETHENE (1,1-DCE)	5											ND	ND
1,2,4-TRIMETHYLBENZENE	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
1,2-DICHLOROETHANE	0.6											ND	ND
1,2-DICHLOROPROPANE	1											ND	ND
1,3,5-TRIMETHYLBENZENE	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
2-BUTANONE (MEK)	NA											ND	ND
2-HEXANONE	50											ND	ND
P-ISOPROPYLTOLUENE	5	1.8	ND	ND	41	ND	ND	ND	ND	ND	ND		
4-METHYL-2-PENTANONE (MIBK)	NA											ND	ND
ACETONE	50											ND	ND
BENZENE	1	0.71	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BROMODICHLOROMETHANE	50											ND	ND
BROMOFORM	50											ND	ND
BROMOMETHANE	5											ND	ND
CARBON DISULFIDE	60											ND	ND
CARBON TETRACHLORIDE	5											ND	ND
CHLOROBENZENE	5											ND	ND
CHLOROETHANE	5											ND	ND
CHLOROFORM	7											ND	ND
CHLOROMETHANE	NA											ND	ND
CIS-1,2-DICHLOROETHENE	5											ND	ND
CIS-1,3-DICHLOROPROPENE	0.4											ND	ND
DIBROMOCHLOROMETHANE	NA											ND	ND
DICHLOROMETHANE	5											ND	ND
ETHYLBENZENE	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ISOPROPYLBENZENE	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
M,P-XYLENES	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
METHYL TERT-BUTYL ETHER	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
NAPHTHALENE	10	11	ND	ND	2.3 J	ND	ND	ND	ND	ND	ND		
N-BUTYLBENZENE	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
N-PROPYLBENZENE	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
O-XYLENE	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SEC-BUTYLBENZENE	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
STYRENE	5											ND	ND
TERT-BUTYLBENZENE	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
TETRACHLOROETHENE (PCE)	5											ND	ND
TOLUENE	5	1	ND	ND	2.7 J	ND	ND	ND	ND	ND	ND	ND	ND
TRANS-1,2-DICHLOROETHENE	5											ND	ND
TRANS-1,3-DICHLOROPROPENE	0.4											ND	ND
TRICHLOROETHENE (TCE)	5											ND	ND
VINYL CHLORIDE	2											ND	ND

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VOLATILE AND SEMI-VOLATILE ORGANIC COMPOUND ANALYSIS OF GROUNDWATER

REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

Sampling Area Description	NYSDEC Standards and Guidance (1) (µg/L)	Onsite Groundwater Monitoring Wells											
Field Sample ID		OW-26T-1	OW-27-1	OW-28-1	OW-29-1	OW-30-1	OW-31-1	OW-32-1	OW-32-2	OW-33-1	OW-34-1	OW-34-1	OW-34-2
Date		10/30/03	5/21/2004	5/21/2004	5/20/2004	5/21/2004	5/21/2004	5/21/2004	5/21/2004	5/21/2004	5/21/2004	7/26/2004	7/26/2004
Semi-Volatile Organic Compounds (STARs) (µg/L)													
1,2,4-TRICHLOROBENZENE	5												
1,2-DICHLOROBENZENE	3												
1,3-DICHLOROBENZENE	3												
1,4-DICHLOROBENZENE	3												
2,4,5-TRICHLOROPHENOL	NA												
2,4,6-TRICHLOROPHENOL	NA												
2,4-DICHLOROPHENOL	1												
2,4-DIMETHYLPHENOL	50												
2,4-DINITROPHENOL	10												
2,4-DINITROTOLUENE	5												
2,6-DINITROTOLUENE	5												
2-CHLORONAPHTHALENE	10												
2-CHLOROPHENOL	NA												
2-METHYLNAPHTHALENE	NA												
2-METHYLPHENOL	1												
2-NITROANILINE	5												
2-NITROPHENOL	NA												
3,3'-DICHLOROBENZIDINE	5												
3+4-METHYLPHENOL	NA												
3-NITROANILINE	5												
4,6-DINITRO-2-METHYLPHENOL	NA												
4-BROMOPHENYL PHENYL ETHER	NA												
4-CHLORO-3-METHYLPHENOL	NA												
4-CHLOROANILINE	5												
4-CHLOROPHENYL PHENYL ETHER	NA												
4-NITROANILINE	5												
4-NITROPHENOL	NA												
ACENAPHTHENE	20		ND	ND	ND	ND	ND	ND	ND	ND	1.8 J		
ACENAPHTHYLENE	NA												
ANTHRACENE	50		ND	ND	ND	ND	ND	ND	1.3 J	ND	3.3 J		
BENZ(A)ANTHRACENE	0.002		ND	ND	ND	ND	ND	1.2 J	3.4 J	1.8 J	7.6 J		
BENZO(A)PYRENE	ND		ND	ND	ND	ND	ND	ND	3.4 J	1.8 J	6.6 J		
BENZO(B)FLUORANTHENE	0.002		ND	ND	ND	ND	ND	ND	3.2 J	1.6 J	5.9 J		
BENZO(G,H,I)PERYLENE	NA		ND	ND	ND	ND	ND	ND	2.1 J	1.5 J	4.7 J		
BENZO(K)FLUORANTHENE	0.002		ND	ND	ND	ND	ND	ND	3 J	1.4 J	5.4 J		
BENZYL ALCOHOL	NA												
BIS(1-CHLOROISOPROPYL) ETHER	5												
BIS(2-CHLOROETHOXY)METHANE	5												
BIS(2-CHLOROETHYL) ETHER	1												
BIS(2-ETHYLHEXYL) PHTHALATE	5												
BUTYL BENZYL PHTHALATE	50												
CARBAZOLE	NA												
CHRYSENE	0.002		ND	ND	ND	ND	ND	1.4 J	4.4 J	2.1 J	7.5 J		
DIBENZ(A,H)ANTHRACENE	NA		ND	ND	ND	ND	ND	ND	ND	ND	1.6 J		
DIBENZOFURAN	NA												

See Notes on Page 24.

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VOLATILE AND SEMI-VOLATILE ORGANIC COMPOUND ANALYSIS OF GROUNDWATER

REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

Sampling Area Description	NYSDEC	Onsite Groundwater Monitoring Wells											
Field Sample ID	Standards and Guidance (1)	OW-26T-1	OW-27-1	OW-28-1	OW-29-1	OW-30-1	OW-31-1	OW-32-1	OW-32-2	OW-33-1	OW-34-1	OW-34-1	OW-34-2
Date	(µg/L)	10/30/03	5/21/2004	5/21/2004	5/20/2004	5/21/2004	5/21/2004	5/21/2004	5/21/2004	5/21/2004	5/21/2004	7/26/2004	7/26/2004
DIETHYL PHTHALATE	50												
DIMETHYL PHTHALATE	50												
DI-N-BUTYL PHTHALATE	50												
DI-N-OCTYL PHTHALATE	50												
FLUORANTHENE	50		ND	ND	ND	ND	ND	2.6 J	7.1 J	3.2 J	17		
FLUORENE	50		ND	ND	ND	ND	ND	ND	ND	ND	1.5 J		
HEXACHLOROBENZENE	0.04												
HEXACHLOROBUTADIENE	0.5												
HEXACHLOROCYCLOPENTADIENE	5												
HEXACHLOROETHANE	5												
INDENO(1,2,3-CD)PYRENE	0.002		ND	ND	ND	ND	ND	ND	2 J	1.2 J	4.1 J		
ISOPHORONE	50												
NAPHTHALENE	10		ND	ND	ND	ND	ND	ND	ND	1.9 J	ND		
PHENANTHRENE	50		ND	ND	ND	ND	ND	ND	2.6 J	1.6 J	14		
N-NITROSODIMETHYLAMINE	NA												
N-NITROSODI-N-PROPYLAMINE	NA												
N-NITROSODIPHENYLAMINE	NA												
PENTACHLOROPHENOL (PCP)	1												
PHENOL	1												
PYRENE	50		ND	ND	ND	ND	ND	2.8 J	7.9 J	4 J	16		

See Notes on Page 24.

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TABLE 11
VOLATILE AND SEMI-VOLATILE ORGANIC COMPOUND ANALYSIS OF GROUNDWATER

REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

Sampling Area Description	NYSDEC Standards and Guidance (1) (µg/L)	Onsite Groundwater Monitoring Wells								
Field Sample ID		OW-36-1	OW-37-1	OW-37-2	OW-38-1	OW-39-1	OW-40-1	OW-41-1	OW-42-1	OW-43-1
Date		5/19/2004	5/19/2004	5/19/2004	5/19/2004	5/19/2004	5/20/2004	5/19/2004	5/20/2004	5/19/2004
Volatile Organic Compounds (STARs) (µg/L)										
1,1,1-TRICHLOROETHANE (TCA)	5									
1,1,2,2-TETRACHLOROETHANE	5									
1,1,2-TRICHLOROETHANE	1									
1,1-DICHLOROETHANE (1,1-DCA)	5									
1,1-DICHLOROETHENE (1,1-DCE)	5									
1,2,4-TRIMETHYLBENZENE	5	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-DICHLOROETHANE	0.6									
1,2-DICHLOROPROPANE	1									
1,3,5-TRIMETHYLBENZENE	5	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-BUTANONE (MEK)	NA									
2-HEXANONE	50									
P-ISOPROPYLTOLUENE	5	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-METHYL-2-PENTANONE (MIBK)	NA									
ACETONE	50									
BENZENE	1	ND	ND	ND	ND	ND	ND	ND	ND	ND
BROMODICHLOROMETHANE	50									
BROMOFORM	50									
BROMOMETHANE	5									
CARBON DISULFIDE	60									
CARBON TETRACHLORIDE	5									
CHLOROBENZENE	5									
CHLOROETHANE	5									
CHLOROFORM	7									
CHLOROMETHANE	NA									
CIS-1,2-DICHLOROETHENE	5									
CIS-1,3-DICHLOROPROPENE	0.4									
DIBROMOCHLOROMETHANE	NA									
DICHLOROMETHANE	5									
ETHYLBENZENE	5	ND	ND	ND	ND	ND	ND	ND	1 J	ND
ISOPROPYLBENZENE	5	ND	ND	ND	ND	ND	ND	ND	3 J	ND
M,P-XYLENES	5	ND	ND	ND	ND	ND	ND	ND	ND	ND
METHYL TERT-BUTYL ETHER	10	ND	ND	ND	ND	ND	ND	ND	ND	ND
NAPHTHALENE	10	ND	2 J	1.9 J	ND	ND	3.6 J	9.8 J	47	ND
N-BUTYLBENZENE	5	ND	ND	ND	ND	ND	ND	ND	1.6 J	ND
N-PROPYLBENZENE	5	ND	ND	ND	ND	ND	ND	ND	3.9 J	ND
O-XYLENE	5	ND	ND	ND	ND	ND	ND	ND	ND	ND
SEC-BUTYLBENZENE	5	ND	ND	ND	ND	ND	ND	ND	1.9 J	ND
STYRENE	5									
TERT-BUTYLBENZENE	5	ND	ND	ND	ND	ND	ND	ND	ND	ND
TETRACHLOROETHENE (PCE)	5									
TOLUENE	5	ND	ND	ND	ND	ND	ND	ND	ND	ND
TRANS-1,2-DICHLOROETHENE	5									
TRANS-1,3-DICHLOROPROPENE	0.4									
TRICHLOROETHENE (TCE)	5									
VINYL CHLORIDE	2									

See Notes on Page 24.

TABLE 11
VOLATILE AND SEMI-VOLATILE ORGANIC COMPOUND ANALYSIS OF GROUNDWATER

REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

Sampling Area Description	NYSDEC Standards and Guidance (1) (µg/L)	Onsite Groundwater Monitoring Wells								
Field Sample ID		OW-36-1	OW-37-1	OW-37-2	OW-38-1	OW-39-1	OW-40-1	OW-41-1	OW-42-1	OW-43-1
Date		5/19/2004	5/19/2004	5/19/2004	5/19/2004	5/19/2004	5/20/2004	5/19/2004	5/20/2004	5/19/2004
Semi-Volatile Organic Compounds (STARs) (µg/L)										
1,2,4-TRICHLOROBENZENE	5									
1,2-DICHLOROBENZENE	3									
1,3-DICHLOROBENZENE	3									
1,4-DICHLOROBENZENE	3									
2,4,5-TRICHLOROPHENOL	NA									
2,4,6-TRICHLOROPHENOL	NA									
2,4-DICHLOROPHENOL	1									
2,4-DIMETHYLPHENOL	50									
2,4-DINITROPHENOL	10									
2,4-DINITROTOLUENE	5									
2,6-DINITROTOLUENE	5									
2-CHLORONAPHTHALENE	10									
2-CHLOROPHENOL	NA									
2-METHYLNAPHTHALENE	NA									
2-METHYLPHENOL	1									
2-NITROANILINE	5									
2-NITROPHENOL	NA									
3,3'-DICHLOROBENZIDINE	5									
3+4-METHYLPHENOL	NA									
3-NITROANILINE	5									
4,6-DINITRO-2-METHYLPHENOL	NA									
4-BROMOPHENYL PHENYL ETHER	NA									
4-CHLORO-3-METHYLPHENOL	NA									
4-CHLOROANILINE	5									
4-CHLOROPHENYL PHENYL ETHER	NA									
4-NITROANILINE	5									
4-NITROPHENOL	NA									
ACENAPHTHENE	20	ND	ND	ND	ND	ND	6.4 J	19	5.7 J	1.6 J
ACENAPHTHYLENE	NA									
ANTHRACENE	50	ND	ND	ND	ND	ND	1.7 J	18	5.4 J	3.9 J
BENZ(A)ANTHRACENE	0.002	ND	1.7 J	ND	ND	ND	3.8 J	36	12	11
BENZO(A)PYRENE	ND	ND	1.6 J	ND	ND	ND	3.2 J	35	12	11
BENZO(B)FLUORANTHENE	0.002	ND	1.5 J	ND	ND	ND	2.7 J	30	8.6 J	9.4 J
BENZO(G,H,I)PERYLENE	NA	ND	1 J	ND	ND	ND	2.1 J	24	7.5 J	7.8 J
BENZO(K)FLUORANTHENE	0.002	ND	1.5 J	ND	ND	ND	2.9 J	28	8.8 J	8.6 J
BENZYL ALCOHOL	NA									
BIS(1-CHLOROISOPROPYL) ETHER	5									
BIS(2-CHLOROETHOXY)METHANE	5									
BIS(2-CHLOROETHYL) ETHER	1									
BIS(2-ETHYLHEXYL) PHTHALATE	5									
BUTYL BENZYL PHTHALATE	50									
CARBAZOLE	NA									
CHRYSENE	0.002	ND	1.9 J	ND	ND	ND	4 J	44	13	14
DIBENZ(A,H)ANTHRACENE	NA	ND	ND	ND	ND	ND	ND	8.6 J	3.2 J	2.4 J
DIBENZOFURAN	NA									

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TABLE 11
VOLATILE AND SEMI-VOLATILE ORGANIC COMPOUND ANALYSIS OF GROUNDWATER

REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

Sampling Area Description	NYSDEC Standards and Guidance (1) (µg/L)	Onsite Groundwater Monitoring Wells								
Field Sample ID		OW-36-1	OW-37-1	OW-37-2	OW-38-1	OW-39-1	OW-40-1	OW-41-1	OW-42-1	OW-43-1
Date		5/19/2004	5/19/2004	5/19/2004	5/19/2004	5/19/2004	5/20/2004	5/19/2004	5/20/2004	5/19/2004
DIETHYL PHTHALATE	50									
DIMETHYL PHTHALATE	50									
DI-N-BUTYL PHTHALATE	50									
DI-N-OCTYL PHTHALATE	50									
FLUORANTHENE	50	ND	3.9 J	1.8 J	ND	ND	9.4 J	68 J	23	20
FLUORENE	50	ND	ND	ND	ND	ND	1.9 J	24	3.3 J	2.2 J
HEXACHLOROBENZENE	0.04									
HEXACHLOROBUTADIENE	0.5									
HEXACHLOROCYCLOPENTADIENE	5									
HEXACHLOROETHANE	5									
INDENO(1,2,3-CD)PYRENE	0.002	ND	ND	ND	ND	ND	1.8 J	20	6.6 J	6.6 J
ISOPHORONE	50									
NAPHTHALENE	10	ND	ND	ND	ND	ND	1.2 J	4.8 J	1.5 J	1.8 J
PHENANTHRENE	50	ND	2.9 J	1.6 J	ND	ND	3.9 J	64 J	14	12
N-NITROSODIMETHYLAMINE	NA									
N-NITROSODI-N-PROPYLAMINE	NA									
N-NITROSODIPHENYLAMINE	NA									
PENTACHLOROPHENOL (PCP)	1									
PHENOL	1									
PYRENE	50	ND	3.4 J	1.5 J	ND	ND	8.7 J	62 J	21	24

See Notes on Page 24.

TABLE 11
VOLATILE AND SEMI-VOLATILE ORGANIC COMPOUND ANALYSIS OF GROUNDWATER

REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

Sampling Area Description	NYSDEC Standards and Guidance (1) (µg/L)	Onsite Groundwater Monitoring Wells								
Field Sample ID		OW-44-1	OW-45-1	OW-46-1	OW-46-2	OW-47-1	OW-48-1	OW-49-1	OW-50-1	OW-51-1
Date		5/21/2004	5/20/2004	5/20/2004	5/20/2004	5/20/2004	5/20/2004	5/20/2004	5/20/2004	5/20/2004
Volatile Organic Compounds (STARs) (µg/L)										
1,1,1-TRICHLOROETHANE (TCA)	5		ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-TETRACHLOROETHANE	5		ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-TRICHLOROETHANE	1		ND	ND	ND	ND	ND	ND	ND	ND
1,1-DICHLOROETHANE (1,1-DCA)	5		ND	ND	ND	ND	ND	ND	ND	ND
1,1-DICHLOROETHENE (1,1-DCE)	5		ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-TRIMETHYLBENZENE	5	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-DICHLOROETHANE	0.6		ND	ND	ND	ND	ND	ND	ND	ND
1,2-DICHLOROPROPANE	1		ND	ND	ND	ND	ND	ND	ND	ND
1,3,5-TRIMETHYLBENZENE	5	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-BUTANONE (MEK)	NA		ND	ND	ND	ND	ND	ND	ND	ND
2-HEXANONE	50		ND	ND	ND	ND	ND	ND	ND	ND
P-ISOPROPYLTOLUENE	5	ND	1.1 J	ND	ND	ND	ND	ND	ND	ND
4-METHYL-2-PENTANONE (MIBK)	NA		ND	ND	ND	ND	ND	ND	ND	ND
ACETONE	50		6.2 J	ND	ND	ND	7.5 J	ND	ND	ND
BENZENE	1	ND	ND	ND	ND	1.8 J	1.1 J	ND	ND	ND
BROMODICHLOROMETHANE	50		ND	ND	ND	ND	ND	ND	ND	ND
BROMOFORM	50		ND	ND	ND	ND	ND	ND	ND	ND
BROMOMETHANE	5		ND	ND	ND	ND	ND	ND	ND	ND
CARBON DISULFIDE	60		ND	ND	ND	ND	ND	ND	ND	ND
CARBON TETRACHLORIDE	5		ND	ND	ND	ND	ND	ND	ND	ND
CHLOROBENZENE	5		ND	ND	ND	ND	ND	ND	ND	ND
CHLOROETHANE	5		ND	ND	ND	ND	ND	ND	ND	ND
CHLOROFORM	7		ND	ND	ND	ND	ND	ND	ND	ND
CHLOROMETHANE	NA		ND	ND	ND	ND	ND	ND	ND	ND
CIS-1,2-DICHLOROETHENE	5		ND	ND	ND	ND	ND	ND	ND	ND
CIS-1,3-DICHLOROPROPENE	0.4		ND	ND	ND	ND	ND	ND	ND	ND
DIBROMOCHLOROMETHANE	NA		ND	ND	ND	ND	ND	ND	ND	ND
DICHLOROMETHANE	5		ND	ND	ND	ND	ND	ND	ND	ND
ETHYLBENZENE	5	ND	ND	ND	ND	ND	4.5 J	ND	ND	ND
ISOPROPYLBENZENE	5	ND	ND	ND	ND	2.4 J	2.3 J	ND	ND	ND
M,P-XYLENES	5	ND	ND	ND	ND	ND	ND	ND	ND	ND
METHYL TERT-BUTYL ETHER	10	ND	ND	ND	ND	ND	ND	ND	ND	ND
NAPHTHALENE	10	ND	1.2 J	ND	ND	44	23	ND	ND	1.3 J
N-BUTYLBENZENE	5	ND	ND	ND	ND	1.2 J	ND	ND	ND	ND
N-PROPYLBENZENE	5	ND	ND	ND	ND	2.6 J	ND	ND	ND	ND
O-XYLENE	5	ND	ND	ND	ND	ND	1.8 J	ND	ND	ND
SEC-BUTYLBENZENE	5	ND	ND	ND	ND	1.5 J	ND	ND	ND	ND
STYRENE	5		ND	ND	ND	ND	ND	ND	ND	ND
TERT-BUTYLBENZENE	5	ND	ND	ND	ND	ND	ND	ND	ND	ND
TETRACHLOROETHENE (PCE)	5		ND	ND	ND	ND	ND	ND	ND	ND
TOLUENE	5	ND	ND	ND	ND	ND	ND	ND	ND	ND
TRANS-1,2-DICHLOROETHENE	5		ND	ND	ND	ND	ND	ND	ND	ND
TRANS-1,3-DICHLOROPROPENE	0.4		ND	ND	ND	ND	ND	ND	ND	ND
TRICHLOROETHENE (TCE)	5		ND	ND	ND	ND	ND	ND	ND	ND
VINYL CHLORIDE	2		ND	ND	ND	ND	ND	ND	ND	ND

See Notes on Page 24.

TABLE 11
VOLATILE AND SEMI-VOLATILE ORGANIC COMPOUND ANALYSIS OF GROUNDWATER

REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

Sampling Area Description	NYSDEC Standards and Guidance (1) (µg/L)	Onsite Groundwater Monitoring Wells								
Field Sample ID		OW-44-1	OW-45-1	OW-46-1	OW-46-2	OW-47-1	OW-48-1	OW-49-1	OW-50-1	OW-51-1
Date		5/21/2004	5/20/2004	5/20/2004	5/20/2004	5/20/2004	5/20/2004	5/20/2004	5/20/2004	5/20/2004
Semi-Volatile Organic Compounds (STARs) (µg/L)										
1,2,4-TRICHLOROBENZENE	5		ND	ND	ND	ND	ND	ND	ND	ND
1,2-DICHLOROBENZENE	3		ND	ND	ND	ND	ND	ND	ND	ND
1,3-DICHLOROBENZENE	3		ND	ND	ND	ND	ND	ND	ND	ND
1,4-DICHLOROBENZENE	3		ND	ND	ND	ND	ND	ND	ND	ND
2,4,5-TRICHLOROPHENOL	NA		ND	ND	ND	ND	ND	ND	ND	ND
2,4,6-TRICHLOROPHENOL	NA		ND	ND	ND	ND	ND	ND	ND	ND
2,4-DICHLOROPHENOL	1		ND	ND	ND	ND	ND	ND	ND	ND
2,4-DIMETHYLPHENOL	50		ND	ND	ND	ND	ND	ND	ND	ND
2,4-DINITROPHENOL	10		ND	ND	ND	ND	ND	0.061 J	ND	ND
2,4-DINITROTOLUENE	5		ND	ND	ND	ND	ND	ND	ND	ND
2,6-DINITROTOLUENE	5		ND	ND	ND	ND	ND	ND	ND	ND
2-CHLORONAPHTHALENE	10		ND	ND	ND	ND	ND	ND	ND	ND
2-CHLOROPHENOL	NA		ND	ND	ND	ND	ND	ND	ND	ND
2-METHYLNAPHTHALENE	NA		ND	ND	ND	ND	ND	ND	ND	ND
2-METHYLPHENOL	1		ND	ND	ND	ND	ND	ND	ND	ND
2-NITROANILINE	5		ND	ND	ND	ND	ND	ND	ND	ND
2-NITROPHENOL	NA		ND	ND	ND	ND	ND	ND	ND	ND
3,3'-DICHLOROBENZIDINE	5		ND	ND	ND	ND	ND	ND	ND	ND
3+4-METHYLPHENOL	NA		ND	ND	ND	ND	ND	ND	ND	ND
3-NITROANILINE	5		ND	ND	ND	ND	ND	ND	ND	ND
4,6-DINITRO-2-METHYLPHENOL	NA		ND	ND	ND	ND	ND	ND	ND	ND
4-BROMOPHENYL PHENYL ETHER	NA		ND	ND	ND	ND	ND	ND	ND	ND
4-CHLORO-3-METHYLPHENOL	NA		ND	ND	ND	ND	ND	ND	ND	ND
4-CHLOROANILINE	5		ND	ND	ND	ND	ND	ND	ND	ND
4-CHLOROPHENYL PHENYL ETHER	NA		ND	ND	ND	ND	ND	ND	ND	ND
4-NITROANILINE	5		ND	ND	ND	ND	ND	ND	ND	ND
4-NITROPHENOL	NA		ND	ND	ND	ND	ND	ND	ND	ND
ACENAPHTHENE	20	ND	5 J	ND	ND	ND	4.6 J	ND	ND	ND
ACENAPHTHYLENE	NA		ND	ND	ND	ND	ND	ND	ND	ND
ANTHRACENE	50	ND	ND	ND	ND	2.4 J	ND	ND	ND	ND
BENZ(A)ANTHRACENE	0.002	ND	ND	ND	ND	1.1 J	ND	ND	ND	2 J
BENZO(A)PYRENE	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.2
BENZO(B)FLUORANTHENE	0.002	ND	ND	ND	ND	ND	ND	ND	ND	2.1 J
BENZO(G,H,I)PERYLENE	NA	ND	ND	ND	ND	ND	ND	ND	ND	1.5 J
BENZO(K)FLUORANTHENE	0.002	ND	ND	ND	ND	ND	ND	ND	ND	1.9 J
BENZYL ALCOHOL	NA		ND	ND	ND	ND	ND	ND	ND	ND
BIS(1-CHLOROISOPROPYL) ETHER	5		ND	ND	ND	ND	ND	ND	ND	ND
BIS(2-CHLOROETHOXY)METHANE	5		ND	ND	ND	ND	ND	ND	ND	ND
BIS(2-CHLOROETHYL) ETHER	1		ND	ND	ND	ND	ND	ND	ND	ND
BIS(2-ETHYLHEXYL) PHTHALATE	5		ND	ND	1.4 J	1.1 J	4.2 J	ND	ND	2.1 J
BUTYL BENZYL PHTHALATE	50		1.7 J	ND	ND	ND	8.3 J	ND	ND	7.8 J
CARBAZOLE	NA		ND	ND	ND	ND	ND	ND	ND	ND
CHRYSENE	0.002	ND	ND	ND	ND	1.1 J	ND	ND	ND	2.4 J
DIBENZ(A,H)ANTHRACENE	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND
DIBENZOFURAN	NA		ND	ND	ND	ND	ND	ND	ND	ND

See Notes on Page 24.

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TABLE 11
VOLATILE AND SEMI-VOLATILE ORGANIC COMPOUND ANALYSIS OF GROUNDWATER

REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

Sampling Area Description	NYSDEC Standards and Guidance (1) (µg/L)	Onsite Groundwater Monitoring Wells								
Field Sample ID		OW-44-1	OW-45-1	OW-46-1	OW-46-2	OW-47-1	OW-48-1	OW-49-1	OW-50-1	OW-51-1
Date		5/21/2004	5/20/2004	5/20/2004	5/20/2004	5/20/2004	5/20/2004	5/20/2004	5/20/2004	5/20/2004
DIETHYL PHTHALATE	50		ND	ND	ND	ND	ND	ND	ND	ND
DIMETHYL PHTHALATE	50		ND	ND	ND	ND	ND	ND	ND	ND
DI-N-BUTYL PHTHALATE	50		ND	ND	ND	ND	1.9 J	ND	ND	ND
DI-N-OCTYL PHTHALATE	50		ND	ND	ND	ND	ND	ND	ND	ND
FLUORANTHENE	50	ND	1.1 J	ND	ND	4 J	1.9 J	ND	ND	4.1
FLUORENE	50	ND	ND	ND	ND	ND	1.6 J	ND	ND	ND
HEXACHLOROBENZENE	0.04		ND	ND	ND	ND	ND	ND	ND	ND
HEXACHLOROBUTADIENE	0.5		ND	ND	ND	ND	ND	ND	ND	ND
HEXACHLOROCYCLOPENTADIENE	5		ND	ND	ND	ND	ND	ND	ND	ND
HEXACHLOROETHANE	5		ND	ND	ND	ND	ND	ND	ND	ND
INDENO(1,2,3-CD)PYRENE	0.002	ND	ND	ND	ND	ND	ND	ND	ND	ND
ISOPHORONE	50		ND	ND	ND	ND	ND	ND	ND	ND
NAPHTHALENE	10	ND	ND	ND	ND	ND	ND	ND	ND	ND
PHENANTHRENE	50	ND	ND	ND	ND	1.3 J	ND	ND	ND	2.2 J
N-NITROSODIMETHYLAMINE	NA		ND	ND	ND	ND	ND	ND	ND	ND
N-NITROSODI-N-PROPYLAMINE	NA		ND	ND	ND	ND	ND	ND	ND	ND
N-NITROSODIPHENYLAMINE	NA		ND	ND	ND	ND	ND	ND	ND	ND
PENTACHLOROPHENOL (PCP)	1		ND	ND	ND	ND	ND	ND	ND	ND
PHENOL	1		ND	ND	ND	ND	ND	ND	ND	ND
PYRENE	50	ND	ND	ND	ND	3.3 J	1.8 J	ND	ND	3.9 J

Notes:

(1) 6 NYCRR Part 703, Class GA Standards and TOGS 1.1.1 Guidance.

(2) Temporary 1 inch wells without sandpack.

Constituents with Levels above Standards or Guidance.

J = Estimated value.

NA = Not available or not established.

ND = Not Detected.

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TABLE 12
TCL PESTICIDE AND PCB ANALYSIS OF GROUNDWATER

REMEDIAL INVESTIGATION REPORT FORMER GENERAL MOTORS ASSEMBLY PLANT SITE

Sampling Area Description	NYSDEC Standards & Guidance (1) (ug/l)			
Field Sample ID		OW-24-1	OW-24-2	OW-25-1
Date		10/30/2003	10/30/2003	10/30/2003
TCL Pesticides & PCBs (µg/L)		ND	ND	ND
4,4'-DDD	0.3	ND	ND	ND
T4,4'-DDE	0.2	ND	ND	ND
4,4'-DDT	0.2	ND	ND	ND
ALDRIN	ND	ND	ND	ND
ALPHA-BHC	NA	ND	ND	ND
ALPHA-CHLORDANE	0.05	ND	ND	ND
BETA-BHC	NA	ND	ND	ND
DELTA-BHC	NA	ND	ND	ND
DIELDRIN	0.0004	ND	ND	ND
ENDOSULFAN I	NA	ND	ND	ND
ENDOSULFAN II	NA	ND	ND	ND
ENDOSULFAN SULFATE	NA	ND	ND	ND
ENDRIN	ND	ND	ND	ND
ENDRIN ALDEHYDE	5	ND	ND	ND
ENDRIN KETONE	5	ND	ND	ND
GAMMA-BHC (LINDANE)	NA	ND	ND	ND
GAMMA-CHLORDANE	0.1	ND	ND	ND
HEPTACHLOR	0.04	ND	ND	ND
HEPTACHLOR EPOXIDE	0.03	ND	ND	ND
METHOXYCHLOR	35	ND	ND	ND
TOXAPHENE	0.06	ND	ND	ND
AROCLOR 1016	NA	ND	ND	ND
AROCLOR 1221	NA	ND	ND	ND
AROCLOR 1232	NA	ND	ND	ND
AROCLOR 1242	NA	ND	ND	ND
AROCLOR 1248	NA	ND	ND	ND
AROCLOR 1254	NA	ND	ND	ND
AROCLOR 1260	NA	ND	ND	ND
Total PCBs	0.09	ND	ND	ND

Notes:

(1) 6 NYCRR Part 703, Class GA Standards and TOGS 1.1.1 Guidance.

Constituents with Levels above Standards or Guidance.

J = Estimated value.

NA = Not available or not established.

ND = Not Detected.

TABLE 13 ***DRAFT***

METHANE AND SOIL GAS SURVEY RESULTS - EAST PARCEL

REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

Location ID	Depth (ft)	Date	Methane (%)	Oxygen (%)	FID (ppm)	Hydrogen Sulfide (ppm)	Hydrogen Sulfide [Jerome] (ppm)	Comments
SG1	1	10/15/2003	0.0	18.6	65.1	1	0.001	WATER AT 1'
SG2	1	10/15/2003	2.6	0.0	0.0	1	0.000	
SG2	2	10/15/2003	3.0	0.0	0.0	1	0.003	
SG2	3	10/15/2003	3.0	0.0	NM	1	0.001	WATER AT 3'
SG2	3	10/15/2003	3.0	0.0	NM	1	0.000	MOVED OVER 6 INCHES TO CONFIRM WATER AT 3'
SG3	1	10/15/2003	13.4	0.0	NM	1	0.000	
SG3	2	10/15/2003	13.7	0.0	NM	1	0.120	
SG3	3	10/15/2003	13.6	0.0	NM	1	0.150	
SG3	4	10/15/2003	14.0	0.0	NM	0	0.002	WATER AT 4'
SG4	1	10/15/2003	0.6	0.0	>9421	0	0.001	
SG4	2	10/15/2003	0.6	0.0	>4345	0	0.000	
SG4	3	10/15/2003	0.9	0.0	>4345	0	0.000	WATER AT 3'
SG5	1	10/17/2003	0.0	18.8	0.0	0	0.002	
SG5	2	10/17/2003	0.0	18.1	0.0	0	0.001	
SG5	3	10/17/2003	0.0	6.6	44.5	0	0.000	
SG5	4	10/17/2003	0.0	6.2	3.6	0	0.001	
SG5	5	10/17/2003	0.0	5.1	3.6	0	0.001	
SG5	6	10/17/2003	-	-	-	-	-	WATER AT 6'
SG6	1	10/16/2003	0.0	18.4	0.0	0	0.000	
SG6	2	10/16/2003	0.0	14.0	0.9	0	0.000	
SG6	3	10/16/2003	0.0	13.1	0.0	0	0.000	
SG6	4	10/16/2003	0.0	12.0	0.0	0	0.000	
SG6	5	10/16/2003	0.0	11.2	0.0	0	0.000	
SG6	6	10/16/2003	0.0	10.9	0.0	0	0.000	
SG6	7	10/16/2003	0.0	13.6	0.0	0	0.001	WATER AT 7'
SG7	1	10/15/2003	31.6	0.0	NM	0	0.002	
SG7	2	10/15/2003	31.8	0.0	NM	0	0.008	
SG7	3	10/15/2003	31.6	0.0	NM	0	0.430	
SG7	4	10/15/2003	31.9	0.0	NM	0	0.930	
SG7	5	10/15/2003	-	-	-	-	-	WATER AT 5'
SG8	1	10/14/2003	57.3	0.0	NM	0	-	
SG8	2	10/14/2003	57.7	0.0	NM	0	-	
SG8	3	10/14/2003	57.7	0.0	NM	0	-	WATER AT 3'
SG8	1	10/15/2003	58.8	0.0	NM	1	0.145	
SG8	2	10/15/2003	59.1	0.0	NM	1	0.091	
SG8	3	10/15/2003	-	-	-	-	-	WATER AT 3'
SG9	1	10/14/2003	46.1	1.2	NM	0	-	
SG9	2	10/14/2003	48.1	0.8	NM	0	-	WATER AT 2'
SG10	1	10/17/2003	13.1	0.0	NM	0	0.000	
SG10	2	10/17/2003	10.1	0.0	NM	0	0.003	
SG10	3	10/17/2003	-	-	-	-	-	WATER AT 3'
SG11	1	10/13/2003	26.6	0.0	NM	1	-	
SG11	2	10/13/2003	28.6	0.0	NM	1	-	
SG11	3	10/13/2003	29.8	0.0	NM	0	-	
SG11	4	10/13/2003	34.6	0.0	NM	0	-	
SG11	5	10/13/2003	5.8	13.3	NM	0	-	WATER AT 5'
SG12	1	10/16/2003	0.0	19.3	0.0	0	0.000	
SG12	2	10/16/2003	0.0	19.1	0.0	0	0.000	

See Note on Page 4.

TABLE 13 ***DRAFT***

METHANE AND SOIL GAS SURVEY RESULTS - EAST PARCEL

REMEDIAL INVESTIGATION REPORT

FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

Location ID	Depth (ft)	Date	Methane (%)	Oxygen (%)	FID (ppm)	Hydrogen Sulfide (ppm)	Hydrogen Sulfide [Jerome] (ppm)	Comments
SG12	3	10/16/2003	0.0	18.6	0.0	0	0.000	
SG12	4	10/16/2003	0.0	18.3	0.0	0	0.000	
SG12	5	10/16/2003	0.0	18.2	0.0	0	0.000	
SG12	6	10/16/2003	0.0	17.9	0.0	0	0.000	
SG12	7	10/16/2003	0.0	18.4	0.0	0	0.001	WATER AT 7'
SG13	1	10/16/2003	-	-	-	-	-	SOIL LOOSE; WENT TO 3 FEET
SG13	3	10/16/2003	0.0	17.5	0.0	1	0.000	
SG13	4	10/16/2003	0.0	17.0	0.0	1	0.000	
SG13	5	10/16/2003	0.0	16.5	0.0	0	0.000	
SG13	6	10/16/2003	0.0	16.2	0.0	0	0.000	
SG13	7	10/16/2003	0.0	15.9	0.0	0	0.000	
SG13	8	10/16/2003	0.0	15.7	0.0	0	0.000	
SG13	9	10/16/2003	0.0	15.5	0.0	0	0.000	
SG13	10	10/16/2003	0.0	15.4	0.0	0	0.002	WATER AT 10'
SG13		10/16/2003	0.0	18.2	4.6	1	0.002	
SG14	3	10/16/2003	0.0	20.0	0.0	1	0.003	SG14 THROUGH SOIL/MULCH
SG14	4	10/16/2003	6.7	8.2	NM	1	0.003	
SG14	5	10/16/2003	-	-	-	-	-	WATER AT 5'
SG15	1	10/13/2003	11.7	0.0	NM	1	-	
SG15	2	10/13/2003	26.3	0.0	NM	1	-	
SG15	1	10/16/2003	13.4	0.0	NM	0	0.000	SAMPLES COLLECTED FOR VOC, NMHC
SG16	1	10/13/2003	105.8	0.0	NM	1	-	
SG16	2	10/13/2003	106.8	0.0	NM	0	-	
SG17	1	10/15/2003	38.6	0.0	NM	0	0.002	
SG17	2	10/15/2003	38.8	0.0	NM	0	0.030	
SG17	3	10/15/2003	-	-	-	-	-	WATER AT 3'
SG18	1	10/14/2003	23.6	0.0	NM	0	-	
SG18	2	10/14/2003	23.4	0.0	NM	0	-	
SG18	3	10/14/2003	-	-	-	-	-	WATER AT 3'
SG18	1	10/16/2003	28.1	0.0	NM	0	1.500	SAMPLES COLLECTED FOR SULFUR, VOC, NMHC
SG19	1	10/14/2003	18.8	0.0	NM	1	-	
SG19	2	10/14/2003	19.6	0.0	NM	1	-	
SG19	3	10/14/2003	-	-		-	-	WATER AT 3'
SG20	1	10/14/2003	0.0	17.6	0.0	0	-	
SG20	2	10/14/2003	0.0	17.4	5.8	0	-	
SG20	3	10/14/2003	-	-		-	-	WATER AT 3'
SG21	1	10/15/2003	17.8	0.0	NM	0	0.003	
SG21	2	10/15/2003	82.0	0.0	NM	0	0.110	
SG21	3	10/15/2003	90.8	0.0	NM	0	0.002	WATER AT 3'
SG22	1	10/13/2003	0.1	17.8	126.1	2	-	
SG22	2	10/13/2003	45.8	0.0	NM	1	-	
SG22	3	10/13/2003	63.7	0.0	NM	1	-	
SG22	4	10/13/2003	59.4	0.0	NM	1	-	
SG22	5	10/13/2003	53.0	0.0	NM	1	-	WET AT PROBE TIP
SG22	6	10/13/2003	-	-	-	-	-	WATER AT 6'
SG22	1	10/16/2003	0.0	19.2	870.3	0	0.000	
SG22	2	10/16/2003	33.1	0.0	NM	0	0.000	SAMPLES COLLECTED FOR VOC, NMHC

See Note on Page 4.

TABLE 13
METHANE AND SOIL GAS SURVEY RESULTS - EAST PARCEL

REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

Location ID	Depth (ft)	Date	Methane (%)	Oxygen (%)	FID (ppm)	Hydrogen Sulfide (ppm)	Hydrogen Sulfide [Jerome] (ppm)	Comments
SG23	1	10/13/2003	36.5	0.0	NM	3	-	
SG23	2	10/13/2003	92.9	0.0	NM	3	-	
SG23	3	10/13/2003	-	-	-	-	-	WATER AT 3'
SG23	1	10/16/2003	91.3	0.0	NM	0	0.000	
SG24	1	10/17/2003	0.0	18.7	10.1	0	0.000	
SG24	2	10/17/2003	0.0	19.1	0.0	0	0.002	WATER AT 2'
SG25	1	10/13/2003	99.5	0.0	NM	3	-	
SG25	2	10/13/2003	99.9	0.0	NM	2	-	
SG25	3	10/13/2003	-	-	-	-	-	WATER AT 3'
SG26	1	10/14/2003	0.0	19.3	5.1	0	-	
SG26	2	10/14/2003	-	-	-	-	-	WATER AT 2'
SG27	1	10/13/2003	0.0	17.6	8.1	3	-	
SG27	2	10/13/2003	-	-	-	-	-	WATER AT 2'
SG28	2	10/17/2003	0.0	17.8	0.0	0	0.000	
SG28	3	10/17/2003	-	-	-	-	-	WATER AT 3'
SG29	1	10/13/2003	65.1	0.0	NM	2	-	
SG29	2	10/13/2003	65.2	0.0	NM	2	-	
SG29	3	10/13/2003	67.9	0.0	NM	2	-	WATER AT 3'
SG30	1	10/14/2003	0.0	16.1	262.0	0	-	
SG30	2	10/14/2003	21.5	0.0	NM	0	-	
SG30	3	10/14/2003	21.9	0.0	NM	0	-	
SG30	4	10/14/2003	22.0	0.0	NM	0	-	
SG30	5	10/14/2003	5.1	13.7	NM	0	-	WATER AT 5'
SG31	1	10/14/2003	36.2	0.8	NM	0	-	
SG31	2	10/14/2003	42.2	0.0	NM	0	-	
SG31	3	10/14/2003	-	-	-	-	-	WATER AT 3'
SG32	1	10/14/2003	0.0	19.2	0.4	0	-	
SG32	2	10/14/2003	15.9	0.2	NM	2	-	
SG32	3	10/14/2003	15.8	0.0	NM	1	-	
SG32	4	10/14/2003	6.3	15.1	NM	1	-	FLOW INDICATOR
SG32	5	10/14/2003	18.3	14.9	NM	0	-	
SG32	6	10/14/2003	2.6	17.6	NM	0	-	WATER AT 6'
SG32	3	10/17/2003	17.8	0.0	NM	0	0.003	SAMPLE COLLECTED FOR VOC, NMHC
SG33	1	10/14/2003	0.0	18.5	0.0	0	-	
SG33	2	10/14/2003	0.0	19.0	0.0	0	-	
SG33	3	10/14/2003	0.0	18.7	0.0	0	-	WATER AT 3'
SG34	1	10/13/2003	0.0	18.0	0.0	2	-	
SG34	2	10/13/2003	0.0	18.3	0.0	2	-	WATER AT 2'
SG34	1	10/14/2003	0.0	19.3	0.0	0	-	
SG34	2	10/14/2003	0.0	18.6	0.0	0	-	WATER AT 2'
SG35	1	10/14/2003	0.0	19.7	0.0	1	-	WATER AT 1'
SG36	1	10/17/2003	81.1	0.0	NM	0	0.032	
SG36	2	10/17/2003	80.8	0.0	NM	0	1.070	
SG36	3	10/17/2003	-	-	-	-	-	WATER AT 3'
SG37	1	10/17/2003	0.0	18.2	0.0	0	0.000	
SG37	2	10/17/2003	36.5	0.0	NM	0	0.170	
SG37	3	10/17/2003	-	-	-	-	-	WATER AT 3'

See Note on Page 4.

TABLE 13
METHANE AND SOIL GAS SURVEY RESULTS - EAST PARCEL

REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

Location ID	Depth (ft)	Date	Methane (%)	Oxygen (%)	FID (ppm)	Hydrogen Sulfide (ppm)	Hydrogen Sulfide [Jerome] (ppm)	Comments
SG38	1	10/15/2003	29.5	0.0	NM	0	0.041	
SG38	2	10/15/2003	29.3	0.0	NM	0	0.043	
SG38	3	10/15/2003	-	-	-	-	-	WATER AT 3'
SG39	1	10/15/2003	0.0	2.8	15.4	0	0.000	
SG39	2	10/15/2003	0.0	0.0	50.1	0	0.620	
SG39	3	10/15/2003	0.0	0.0	1.6	0	0.003	WATER AT 3'
SG40	1	10/17/2003	59.1	0.0	NM	0	0.000	
SG40	2	10/17/2003	59.4	0.0	NM	0	0.025	
SG40	3	10/17/2003	58.8	0.0	NM	1	1.500	
SG40	4	10/17/2003	81.8	0.0	NM	0	0.004	WATER AT 4'
SG41	1	10/17/2003	0.0	6.1	0.0	0	0.000	WEST OF SG32
SG41	2	10/17/2003	0.0	19.5	0.0	0	0.002	FLOW INDICATOR
SG41	3	10/17/2003	-	-	-	-	-	WATER AT 3'
SG42	1	10/17/2003	0.6	6.6	3499.0	0	0.002	SOUTHWEST OF SG1
SG42	2	10/17/2003	89.4	0.0	NM	0	0.003	
SG42	3	10/17/2003	-	-	-	-	-	WATER AT 3'
SG43	1	10/17/2003	0.0	19.3	0.0	0	0.000	THOUGH BALLAST
SG43	2	10/17/2003	-	-	-	-	-	WATER AT 2'
SG44	1	11/3/2003	0.0	19.1	-	-	-	
SG44	2	11/3/2003	48.0	5.2	-	-	-	
SG44	3	11/3/2003	32.4	0.0	-	-	-	
SG44	4	11/3/2003	-	-	-	-	-	WATER AT 4'
SG45	1	11/3/2003	0.0	18.5	-	-	-	
SG45	2	11/3/2003	0.0	16.2	-	-	-	
SG45	3	11/3/2003	0.0	15.3	-	-	-	
SG45	4	11/3/2003	0.0	14.1	-	-	-	
SG45	5	11/3/2003	0.0	18.5	-	-	-	WATER AT 5'
SG46	1	11/3/2003	0.0	18.9	-	-	-	
SG46	2	11/3/2003	0.0	19.2	-	-	-	
SG46	3	11/3/2003	-	-	-	-	-	WATER AT 3'
SG47	1	11/3/2003	0.0	18.5	-	-	-	
SG47	2	11/3/2003	0.0	17.5	-	-	-	
SG47	3	11/3/2003	0.0	16.7	-	-	-	
SG47	4	11/3/2003	0.0	15.1	-	-	-	WATER AT 4'

Note:
FID = Measurement of total hydrocarbons (including methane) by flame-ionization detector
NM = Not Measured

TABLE 14 *DRAFT*

VOLATILE ORGANIC COMPOUND ANALYSIS IN SOIL GAS - EAST PARCEL

REMEDIAL INVESTIGATION REPORT

FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

Sample ID	SG32	SG15	SG22	SG22 Duplicate	SG18
Location	NW of landfill	Above landfill	Above landfill		W of landfill
Volatile Organic Compound (ug/m^3)					
Freon 12	ND	ND	4.4	ND	ND
Freon 113	ND	ND	14	21	ND
Benzene	ND	17	ND	8.4	3.3
Trichloroethene	22	ND	5.5	25	ND
Toluene	26	14	5.8	25	49
Tetrachloroethene	96	ND	12	50	ND
Ethylbenzene	ND	ND	ND	ND	4.4
m,p-Xylene	ND	5.2	ND	ND	16
o-Xylene	ND	ND	ND	ND	6.8
1,3-Butadiene	19	12	ND	ND	ND
Hexane	19	45	26	79	41
Cyclohexane	18	34	18	53	26
Heptane	ND	19	12	33	12
Acetone	87	50	23	73	18
2-Propanol	ND	41	ND	ND	31
2-Butanone (methyl ethyl ketone)	ND	12	ND	ND	ND
Ethanol	ND	15	15	32	12
Methyl-t-butyl ether (MTBE)	ND	14	ND	ND	ND

Note:
All soil gas samples were obtained beneath pavement, within 1-foot of surface.

TABLE 15
METHANE SURVEY RESULTS - WEST PARCEL

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REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

Location ID	Probe Depth (ft)	Date	Time	Methane (%)	Oxygen (%)	PID (ppm)	FID (ppm)	FID Background (PPM)	Ground Surface Description/Notes
MS-1	2'	5/13/2004	7:40	18.0	5.7		NM		CONCRETE SLAB 8", DREW WATER
MS-1A	1'	5/17/2004	8:25	0.0	14.0	1.4	88.0	0.3	CONCRETE SLAB
MS-1A	2'	5/17/2004	8:30	8.1	16.0	0.4	NM		CONCRETE SLAB
MS-1A	3'	5/17/2004	8:35	1.1	19.0	0.1	NM		HIT WATER AT 4'
MS-2	2'	5/13/2004	8:20	2.2	4.7	NM	NM		CONCRETE SLAB 8"
MS-3	2'	5/13/2004	8:10	0.0	19.3	NM	0.0		CONCRETE SLAB 8"
MS-4	2'	5/12/2004	14:10	0.0	18.8	NM	NM		FILL; DREW WATER
MS-4	1'	5/12/2004	14:20	0.0	18.8	NM	25.0		FILL
MS-5	2'	5/13/2004	9:00	0.0	17.1	NM	0.0		CONCRETE SLAB 8"
MS-6	2'	5/13/2004	8:40	0.0	20.0	NM	0.0		CONCRETE SLAB 8", MOVED LOCATION TO AVOID DRAIN
MS-7	2'	5/12/2004	14:00	0.0	18.0	NM	1.2		FILL
MS-8	2'	5/12/2004	13:45	0.0	10.2	NM	3.3		FILL
MS-9	2'	5/12/2004	14:30	0.0	19.8	NM	0.1		ASPHALT
MS-10	VOID (1")	5/13/2004	11:50	0.0	20.0	NM	0.0		CONCRETE, 1" VOID
MS-10	2'	5/13/2004	11:55	0.0	19.4	NM	0.0		FILL
MS-11	2'	5/12/2004	13:25	0.0	11.2	NM	24.0		FILL
MS-12	2'	5/13/2004	9:25	0.0	19.4	NM	0.0		FILL OVER CONCRETE LAYER OVER FILL
MS-13	2'	5/13/2004	9:45	0.0	19.5	NM	0.0		FILL
MS-14	2'	5/13/2004	10:00	0.0	20.2	NM	0.4		FILL
MS-14	3'	5/13/2004	10:05	NM	NM	NM	NM		HIT WATER - NO READINGS
MS-15	2'	5/13/2004	12:50	0.0	19.6	NM	0.0		CONCRETE 11"; NO VOID
MS-15	2' 11"	5/13/2004	13:00	0.0	19.4	NM	0.5	0.0	CONCRETE 11"; NO VOID
MS-16	2'	5/13/2004	12:20	0.0	19.5	NM	0.2	0.4	CONCRETE
MS-16	2' 10"	5/13/2004	12:25	0.0	19.4	NM	0.3	0.3	CONCRETE
MS-17	2'	5/13/2004	10:25	0.0	14.5	NM	0.3		ASPHALT
MS-18	2'	5/13/2004	13:35	0.0	19.5	NM	0.0		CONCRETE 10", NO VOID
MS-18	2' 10"	5/13/2004	13:40	0.0	19.4	NM	0.0	0.0	CONCRETE 10", NO VOID
MS-19	VOID (2")	5/14/2004	10:00	0.0	20.1	NM	0.0	0.0	CONCRETE 10", 2" VOID
MS-19	2' BELOW VOID	5/14/2004	10:10	0.0	19.8	NM	0.0		DEPTH 3' 2" FROM TOP OF SLAB
MS-20	2'	5/14/2004	11:30	0.0	18.8	NM	0.0	0.0	CONCRETE 10", NO VOID
MS-20	2' 10"	5/14/2004	11:35	0.0	18.4	NM	0.0		CONCRETE 10", NO VOID
MS-21A	VOID (4")	5/13/2004	14:20	0.0	19.5	NM	0.0		CONCRETE 10", REFUSAL AT 1.5'
MS-21B	2'	5/13/2004	14:45	0.0	19.2	NM	0.8		CONCRETE 10"
MS-21B	2' 10"	5/13/2004	14:50	0.0	19.9	NM	0.0		CONCRETE 10"
MS-22	2'	5/14/2004	9:30	0.0	20.0	NM	2.4	1.9	CONCRETE 10", NO VOID
MS-22	2' 10"	5/14/2004	9:35	0.0	19.9	NM	3.3	0.5	FILL
MS-23	2'	5/13/2004	11:00	0.0	16.5	NM	0.0		FILL, OLD RAIL BED, HAND PUSHED ROD
MS-24	1'	5/17/2004	8:55	0.0	19.0	0.0	4.5	0.3	FILL
MS-24	2'	5/17/2004	9:00	0.0	19.5	0.3	1.0	0.9	FILL, BROKE THROUGH CONCRETE BETWEEN 1' AND 2'
MS-25	1'	5/17/2004	9:25	6.0	17.0	0.0	NM		ASPHALT
MS-25	2'	5/17/2004	9:50	1.0	19.0	0.0	NM		ASPHALT

See Notes on Page 2.

TABLE 15
METHANE SURVEY RESULTS - WEST PARCEL

REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

Location ID	Probe Depth (ft)	Date	Time	Methane (%)	Oxygen (%)	PID (ppm)	FID (ppm)	FID Background (PPM)	Ground Surface Description/Notes
MS-26	1'	5/17/2004	10:05	0.2	6.3	1.8	NM		FILL; 2' OFF ASPHALT
MS-26	2'	5/17/2004	10:10	0.1	10.5	0.0	NM		FILL; 2' OFF ASPHALT
MS-27	1'	5/17/2004	10:20	0.0	20.1	0.0	0.0		ASPHALT
MS-27	2'	5/17/2004	10:25	8.1	10.5	0.0	NM		ASPHALT
MS-28	1'	5/17/2004	10:35	0.0	16.0	0.8	171.8		ASPHALT
MS-28	2'	5/17/2004	10:45	0.0	16.0	0.9	9.2		ASPHALT
MS-29	1'	5/17/2004	10:55	0.0	18.7	4.8	752.5		ASPHALT
MS-29	2'	5/17/2004	11:00	0.0	19.8	0.0	0.0		ASPHALT
MS-30	2'	5/17/2004	11:25	0.0	16.2	4.9	87.0		CONCRETE 10"
MS-31	2'	5/17/2004	11:45	0.0	18.4	0.1	0.0		CONCRETE 12"
MS-31	3'	5/17/2004	11:50	0.0	17.0	NM	NM		DREW WATER
MS-32	2'	5/17/2004	12:10	0.0	20.0	0.0	0.0		CONCRETE 10"
MS-32	3'	5/17/2004	12:15	0.0	18.0	0.0	0.0		CONCRETE 10"

Notes:
NM = Not Measured.
PID = Measurement of total volatile organic compounds in soil gas by photo-ionization detector.
FID = Measurement of total hydrocarbons in soil gas (including methane) by flame-ionization detector.

DRAFT

TABLE 16
VOLATILE ORGANIC COMPOUND ANALYSIS IN SOIL GAS - WEST PARCEL

REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

Sample Area Description	Background Samples			Paired Crawl Space Air and Soil Gas Samples																					
Amount (ug/m3) **Sample ID** **Samples ending in "2" are field duplicates (except background samples). Samples marked "Duplicate" are lab duplicates. Samples with "A" are ambient crawl space air, "G" are soil vapor.** **Compound**	**SV-BK-1**	**SV-BK-1 Duplicate**	**SV-BK-2**	**SV-1A-1**	**SV-1G-1**	**SV-2A-1**	**SV-2G-1**	**SV-3A-1**	**SV-3G-1**	**SV-4A-1**	**SV-4G-1**	**SV-5A-1**	**SV-5G-1**	**SV-6A-1**	**SV-6G-1**	**SV-7A-1**	**SV-7G-1**	**SV-8A-1**	**SV-8A-2**	**SV-8A-2 Duplicate**	**SV-8G-1**	**SV-8G-2**	**SV-9A-1**	**SV-9G-1**	**SV-9G-1 Duplicate**
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	24	ND	6.1	ND	6.8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3,5-Trimethylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dioxane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone (Methyl Ethyl Ketone)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Propanol	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Ethyltoluene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acetone	12	11	8.4	ND	7.6	9.3	11	14	20	ND	25	8.7	25	8	ND	ND	8.8	ND	ND	ND	9.1	ND	ND	9.6	8.3
Benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Disulfide	ND	ND	ND	ND	ND	ND	ND	ND	14	ND	ND	ND	ND	20	ND	10	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND	ND	ND	7.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cyclohexane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethanol	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Heptane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m,p-Xylene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Propylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	11	ND	55	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	ND	ND	3.2	ND	3.1	ND	3.5	ND	4.7	ND	5.4	ND	8.8	16	ND	ND	ND	ND	ND	6.1	6.1
Trichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

See Notes on Page 2.

TABLE 16
VOLATILE ORGANIC COMPOUND ANALYSIS IN SOIL GAS - WEST PARCEL

REMEDIAL INVESTIGATION REPORT
FORMER GENERAL MOTORS NORTH TARRYTOWN ASSEMBLY PLANT SITE

Sample Area Description	Sub-Slab and Sub-Pavement Samples																									
Amount (ug/m3) **Sample ID** Samples ending in "2" are field duplicates (except background samples). Samples marked "Duplicate" are lab duplicates. Samples with "A" are ambient crawl space air, "G" are soil vapor. **Compound**	SV-10-1	SV-10-1 Duplicate	SV-10-2	SV-11-1	SV-12-1	SV-13-1	SV-14-1	SV-15-1	SV-16-1	SV-16-1 Duplicate	SV-17-1	SV-18-1	SV-19-1	SV-20-1	SV-21-1	SV-22-1	SV-22-2	SV-23-1	SV-24-1	SV-25-1	SV-26-1	SV-27-1	SV-28-1	SV-28-2	SV-29-1	SV-30-1	SV-31-1
1,1,1-Trichloroethane	17	16	16	ND	ND	12	ND	ND	ND	ND	7.3	410	54	28	ND	ND	ND	ND	ND	ND	ND	ND	12	11	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	44	ND	4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene	ND	ND	ND	8.2	ND	ND	ND	83	5.7	5.6	ND	ND	ND	ND	ND	ND	ND	14	58	ND	ND	45	ND	ND	ND	ND	ND
1,3,5-Trimethylbenzene	ND	ND	ND	ND	ND	ND	ND	24	ND	ND	ND	ND	ND	ND	ND	ND	ND	4.3	46	ND	ND	9.5	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND	34	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	16	ND	ND	ND	ND	ND
1,4-Dioxane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	160	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone (Methyl Ethyl Ketone)	ND	ND	ND	ND	ND	ND	ND	73	ND	ND	ND	ND	ND	ND	ND	ND	ND	9.9 J	38	ND	ND	17	ND	ND	ND	12	ND
2-Propanol	ND	ND	ND	ND	140	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	420	ND	ND	ND	25	130
4-Ethyltoluene	ND	ND	ND	ND	ND	ND	ND	97	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	64	ND	ND	37	ND	ND	ND	ND	ND
Acetone	57	55	57	270	180	99	360	2500	140	140	250	92	290	260	230	43	33	98	840	260	420	130	180	77	57	250	140
Benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	15	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Disulfide	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	26	27	110	ND	14
Cyclohexane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	7	ND	ND	ND	ND	16	ND	ND	ND	ND	ND	ND	ND	ND
Ethanol	ND	ND	ND	6.3	8.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	15	ND	ND	ND	69	9.9	9.2	ND	7.3	ND	ND	17	12
Ethyl Benzene	ND	ND	ND	ND	ND	ND	ND	57	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	18	ND	ND	7.5	ND	ND	ND	ND	ND
Freon 11	ND	ND	ND	ND	ND	80	21	ND	ND	ND	ND	31	ND	200	12	ND	ND	ND	ND	14	ND	ND	100	110	9.8	ND	5.2
Freon 12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	4.8	ND	ND	ND	ND	ND	4.5	35	ND	ND	ND	4.9	ND	7.2
Heptane	ND	ND	ND	ND	ND	ND	ND	14	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	22	ND	ND	ND	ND	ND	ND	ND	ND
Hexane	ND	ND	ND	ND	ND	ND	ND	ND	4	4	ND	ND	ND	3.8	ND	ND	ND	ND	21	3.3	ND	ND	ND	ND	ND	ND	ND
m,p-Xylene	ND	ND	ND	ND	ND	ND	ND	200	ND	ND	ND	28	ND	ND	ND	ND	ND	ND	58	3.8	ND	29	ND	ND	ND	4.6	ND
Naphthalene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	24	ND	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	ND	ND	ND	ND	ND	ND	ND	73	ND	ND	ND	10	ND	ND	ND	ND	ND	ND	28	ND	ND	13	ND	ND	ND	ND	ND
Propylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.3	ND	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	ND	ND	ND	26	ND	ND	ND	ND	ND	ND	30	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	ND	ND	ND	140	4.9	5	ND	ND	ND	5.5	ND	ND	ND	ND	72	4.1	ND	10	ND	ND	ND	4.7	ND
Trichloroethene	ND	ND	ND	ND	ND	160	ND	ND	ND	ND	210	2900	2600	6.9	ND	ND	ND	ND	ND	5.8	ND	ND	ND	ND	ND	ND	ND

Notes:
** SV-15-1 drew water into the sampling tubing, but not all the way to the canister. The sample dilution factor is 6.2.
SV-BK-1 background ambient air sample was obtained outside of Body Plant crawl space closest to SV-1 (downwind).
SV-BK-2 background ambient air sample was obtained outside of Body Plant crawl space next to OW-27 (upwind).
Strong skunk smell noted during sampling at SV-6.

FIGURES

an ARCADIS company

REFERENCE: BASE MAP USGS 7.5 MIN. QUAD., WHITE PLAINS, NY, 1967, PHOTOREVISED 1979.

2000' 0 2000'

Approximate Scale: 1" = 2000'

Area Location

FORMER GENERAL MOTORS ASSEMBLY PLANT SITE
SLEEPY HOLLOW, NEW YORK

DRAFT REMEDIAL INVESTIGATION REPORT

SITE LOCATION MAP

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BLASLAND, BOUCK & LEE, INC.
engineers, scientists, economists

FIGURE
1A

08/11/05 SYR-D85-DJH LJP DJH
64462024/64462n01.cdr

SOURCE: EARTH ATTRIBUTES
DATE OF PHOTOGRAPH: APRIL 24, 2000

REFERENCE: FIGURE FROM DEIS FOR LIGHTHOUSE LANDING AT SLEEPY HOLLOW, NOVEMBER 2004, PREPARED BY DIVNEY TUNG SCHWALBE.

N

DIVNEY • TUNG • SCHWALBE

08/11/05 SYR-D85-DJH - 64462024/64462g02.cdr

FORMER GENERAL MOTORS ASSEMBLY PLANT SITE
SLEEPY HOLLOW, NEW YORK

DRAFT REMEDIAL INVESTIGATION REPORT

EXISTING AERIAL PHOTOGRAPH

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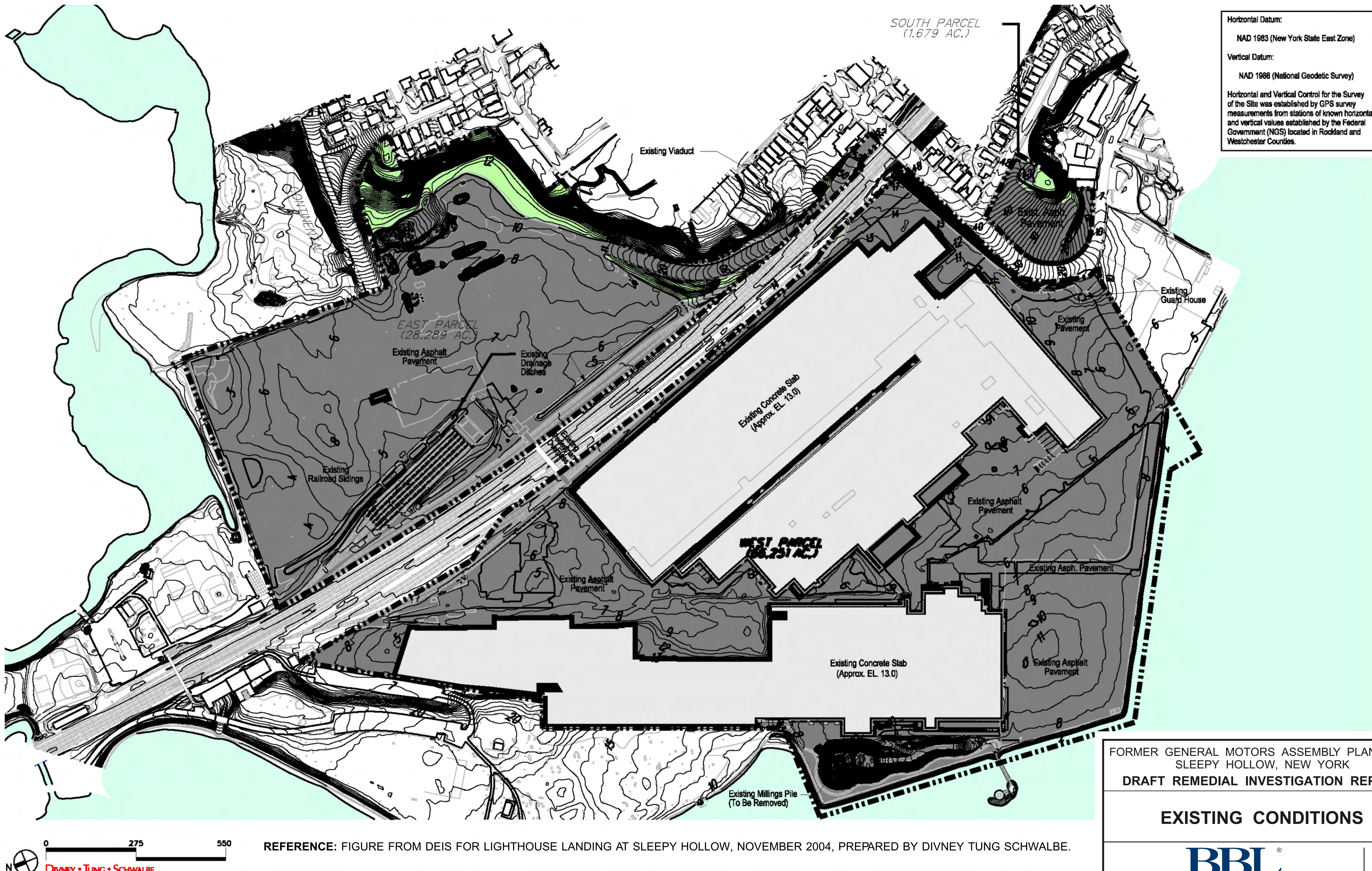
FIGURE
1B



REFERENCE: FIGURE FROM DEIS FOR LIGHTHOUSE LANDING AT SLEEPY HOLLOW, NOVEMBER 2004, PREPARED BY DIVNEY TUNG SCHWALBE.

08/11/05 SYR-D85-DJH - 64462024/64462g03.cdr

FORMER GENERAL MOTORS ASSEMBLY PLANT SITE
SLEEPY HOLLOW, NEW YORK

DRAFT REMEDIAL INVESTIGATION REPORT

EXISTING CONDITIONS

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FIGURE
1C

GM

ROSELAND PROPERTY COMPANY

N

0 200 400 800

DIVNEY • TUNG • SCHWALBE

RTKL

REFERENCE: FIGURE PREPARED BY DIVNEY TUNG SCHWALBE.

FORMER GENERAL MOTORS ASSEMBLY PLANT SITE
SLEEPY HOLLOW, NEW YORK

DRAFT REMEDIAL INVESTIGATION REPORT

PROPOSED SITE DEVELOPMENT PLAN

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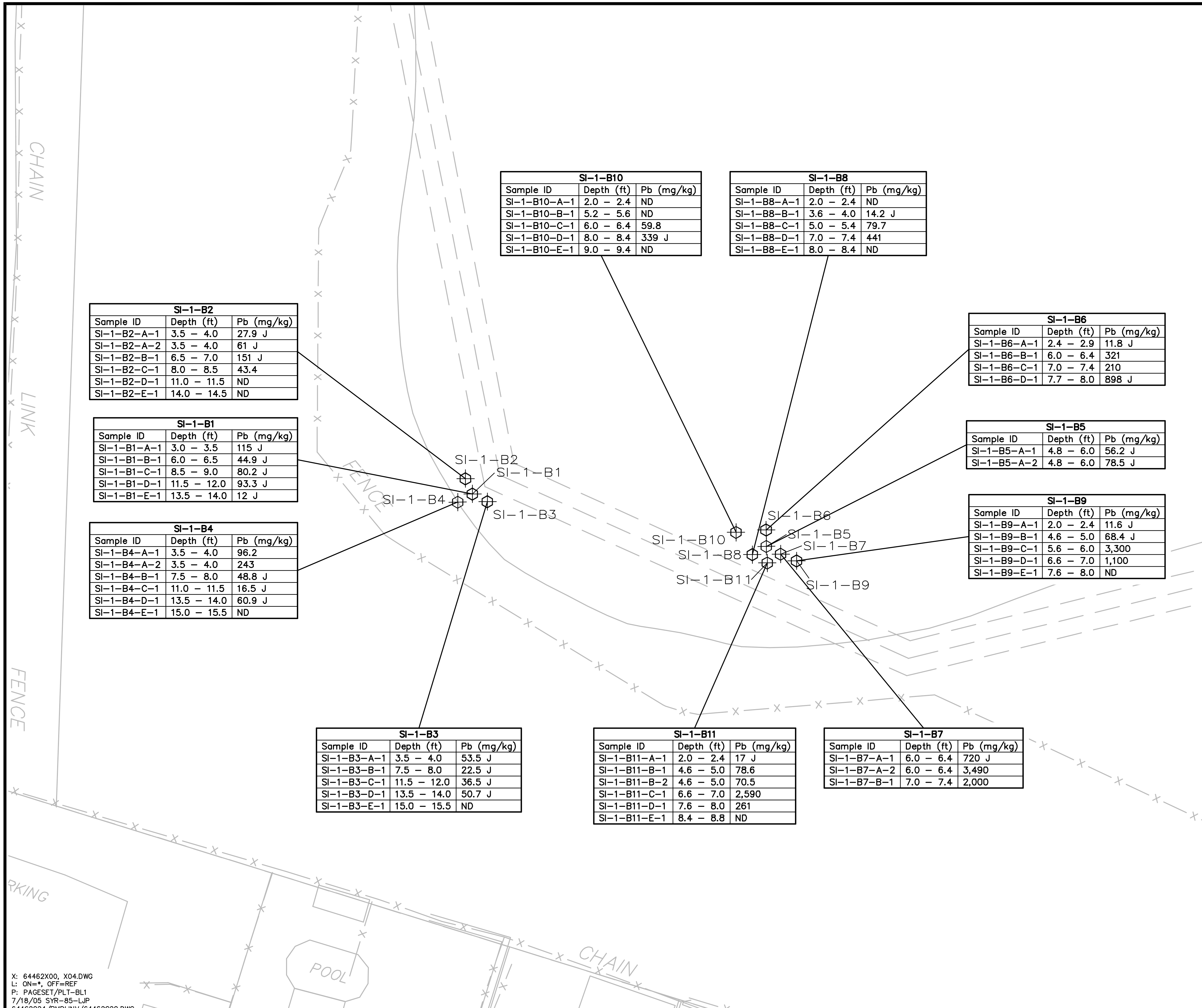
FIGURE
2

10/26/05 SYR-D85-DJH - 64462026/64462g04.cdr



SI-1-B10		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-1-B10-A-1	2.0 - 2.4	ND
SI-1-B10-B-1	5.2 - 5.6	ND
SI-1-B10-C-1	6.0 - 6.4	59.8
SI-1-B10-D-1	8.0 - 8.4	339 J
SI-1-B10-E-1	9.0 - 9.4	ND

SI-1-B8		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-1-B8-A-1	2.0 - 2.4	ND
SI-1-B8-B-1	3.6 - 4.0	14.2 J
SI-1-B8-C-1	5.0 - 5.4	79.7
SI-1-B8-D-1	7.0 - 7.4	441
SI-1-B8-E-1	8.0 - 8.4	ND

SI-1-B2		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-1-B2-A-1	3.5 - 4.0	27.9 J
SI-1-B2-A-2	3.5 - 4.0	61 J
SI-1-B2-B-1	6.5 - 7.0	151 J
SI-1-B2-C-1	8.0 - 8.5	43.4
SI-1-B2-D-1	11.0 - 11.5	ND
SI-1-B2-E-1	14.0 - 14.5	ND

SI-1-B1		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-1-B1-A-1	3.0 - 3.5	115 J
SI-1-B1-B-1	6.0 - 6.5	44.9 J
SI-1-B1-C-1	8.5 - 9.0	80.2 J
SI-1-B1-D-1	11.5 - 12.0	93.3 J
SI-1-B1-E-1	13.5 - 14.0	12 J

SI-1-B4		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-1-B4-A-1	3.5 - 4.0	96.2
SI-1-B4-A-2	3.5 - 4.0	243
SI-1-B4-B-1	7.5 - 8.0	48.8 J
SI-1-B4-C-1	11.0 - 11.5	16.5 J
SI-1-B4-D-1	13.5 - 14.0	60.9 J
SI-1-B4-E-1	15.0 - 15.5	ND

SI-1-B6		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-1-B6-A-1	2.4 - 2.9	11.8 J
SI-1-B6-B-1	6.0 - 6.4	321
SI-1-B6-C-1	7.0 - 7.4	210
SI-1-B6-D-1	7.7 - 8.0	898 J

SI-1-B5		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-1-B5-A-1	4.8 - 6.0	56.2 J
SI-1-B5-A-2	4.8 - 6.0	78.5 J

SI-1-B9		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-1-B9-A-1	2.0 - 2.4	11.6 J
SI-1-B9-B-1	4.6 - 5.0	68.4 J
SI-1-B9-C-1	5.6 - 6.0	3,300
SI-1-B9-D-1	6.6 - 7.0	1,100
SI-1-B9-E-1	7.6 - 8.0	ND

SI-1-B3		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-1-B3-A-1	3.5 - 4.0	53.5 J
SI-1-B3-B-1	7.5 - 8.0	22.5 J
SI-1-B3-C-1	11.5 - 12.0	36.5 J
SI-1-B3-D-1	13.5 - 14.0	50.7 J
SI-1-B3-E-1	15.0 - 15.5	ND

SI-1-B11		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-1-B11-A-1	2.0 - 2.4	17 J
SI-1-B11-B-1	4.6 - 5.0	78.6
SI-1-B11-B-2	4.6 - 5.0	70.5
SI-1-B11-C-1	6.6 - 7.0	2,590
SI-1-B11-D-1	7.6 - 8.0	261
SI-1-B11-E-1	8.4 - 8.8	ND

SI-1-B7		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-1-B7-A-1	6.0 - 6.4	720 J
SI-1-B7-A-2	6.0 - 6.4	3,490
SI-1-B7-B-1	7.0 - 7.4	2,000

LEGEND:

- PERMANENT MONITORING WELL
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- 2003 SI TEMPORARY MONITORING WELL
- 2003 SI SOIL BORING
- 2004 SI TEMPORARY MONITORING WELL
- 2004 SI SOIL BORING
- SOIL LEAD RESULT >10,000 ppm

TAGM 4046 GUIDANCE	
UNRESTRICTED USE SCREENING VALUE	
LEAD (mg/kg)	400

NOTES:

1. BASE MAPS PROVIDED BY AMEC EARTH & ENVIRONMENTAL, NEW YORK, NEW YORK, DATED APRIL 2004.
2. SAMPLE RESULTS SHOWN IN MG/KG.
3. J = ESTIMATED CONCENTRATION
4. ND = CONSTITUENT NOT DETECTED
5. NA = NOT ANALYZED

0 30' 60'
GRAPHIC SCALE

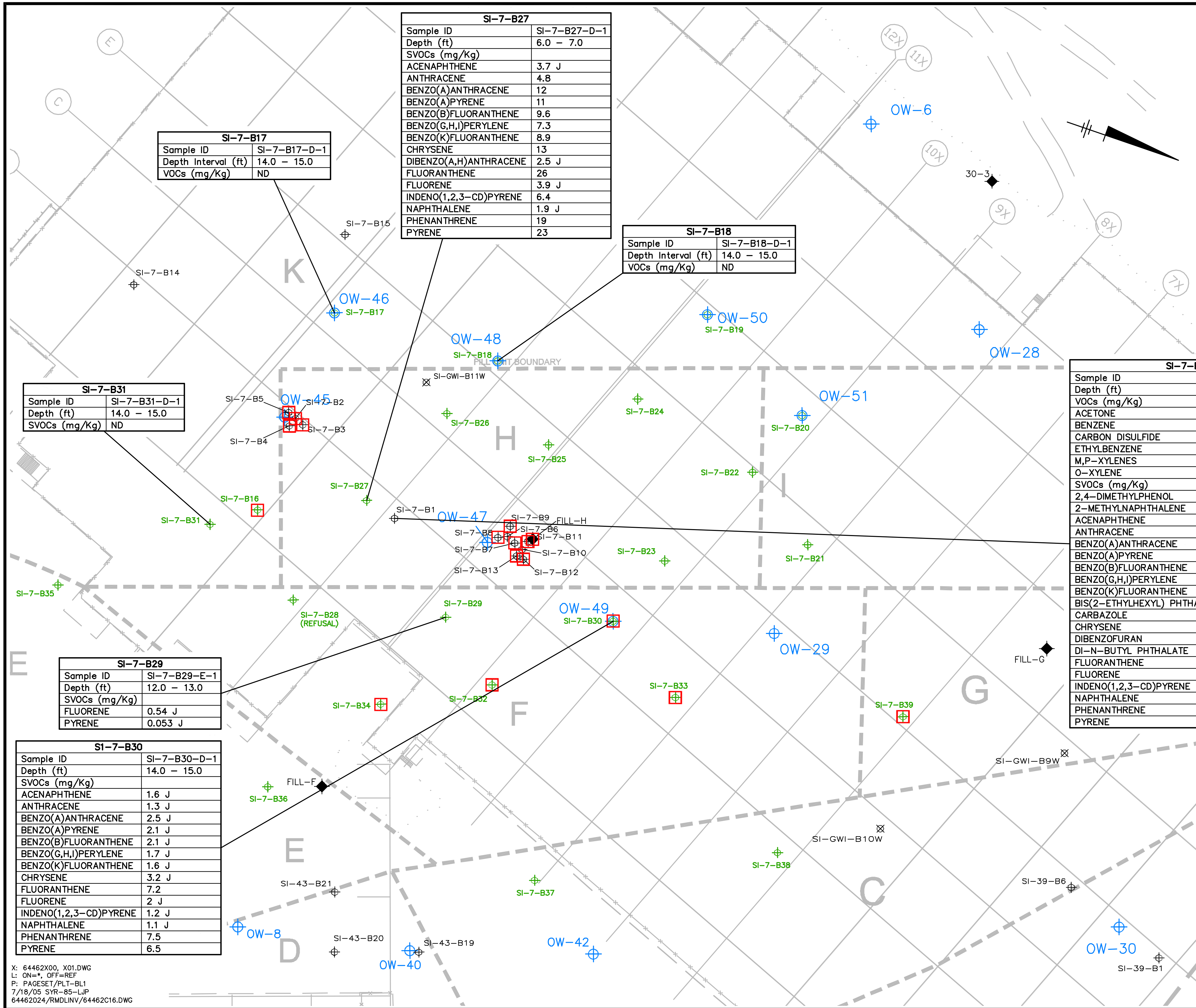
X: 64462X00, X04.DWG
L: ON=*, OFF=REF
P: PAGESET/PLT-BL1
7/18/05 SYR-85-LJP
64462024/RMDLINV/64462C20.DWG

FORMER GENERAL MOTORS ASSEMBLY PLANT SITE
SLEEPY HOLLOW, NEW YORK
DRAFT REMEDIAL INVESTIGATION REPORT

LEAD IN SOIL - PAOC 1

BLASLAND, BOUCK & LEE, INC.
engineers, scientists, economists

FIGURE
3



SI-7-B27	
Sample ID	SI-7-B27-D-1
Depth (ft)	6.0 - 7.0
SVOCs (mg/Kg)	
ACENAPHTHENE	3.7 J
ANTHRACENE	4.8
BENZO(A)ANTHRACENE	12
BENZO(A)PYRENE	11
BENZO(B)FLUORANTHENE	9.6
BENZO(G,H,I)PERYLENE	7.3
BENZO(K)FLUORANTHENE	8.9
CHRYSENE	13
DIBENZO(A,H)ANTHRACENE	2.5 J
FLUORANTHENE	26
FLUORENE	3.9 J
INDENO(1,2,3-CD)PYRENE	6.4
NAPHTHALENE	1.9 J
PHENANTHRENE	19
PYRENE	23

SI-7-B17	
Sample ID	SI-7-B17-D-1
Depth Interval (ft)	14.0 - 15.0
VOCs (mg/Kg)	ND

SI-7-B18	
Sample ID	SI-7-B18-D-1
Depth Interval (ft)	14.0 - 15.0
VOCs (mg/Kg)	ND

SI-7-B31	
Sample ID	SI-7-B31-D-1
Depth (ft)	14.0 - 15.0
SVOCs (mg/Kg)	ND

SI-7-B1	
Sample ID	SI-7-B1-A-1
Depth (ft)	8.5 - 9.0
VOCs (mg/Kg)	
ACETONE	0.21
BENZENE	0.017 J
CARBON DISULFIDE	0.021 J
ETHYLBENZENE	0.012 J
M,P-XYLENES	0.025 J
O-XYLENE	0.021 J
SVOCs (mg/Kg)	
2,4-DIMETHYLPHENOL	0.21 J
2-METHYLNAPHTHALENE	0.74
ACENAPHTHENE	1.6
ANTHRACENE	1.1
BENZO(A)ANTHRACENE	0.76
BENZO(A)PYRENE	0.62
BENZO(B)FLUORANTHENE	0.6
BENZO(G,H,I)PERYLENE	0.37 J
BENZO(K)FLUORANTHENE	0.59
BIS(2-ETHYLHEXYL) PHTHALATE	1.3
CARBAZOLE	0.33 J
CHRYSENE	0.78
DIBENZOFURAN	1.3
DI-N-BUTYL PHTHALATE	0.17 J
FLUORANTHENE	3.1
FLUORENE	1.8
INDENO(1,2,3-CD)PYRENE	0.28 J
NAPHTHALENE	0.88
PHENANTHRENE	6.2
PYRENE	2

SI-7-B29	
Sample ID	SI-7-B29-E-1
Depth (ft)	12.0 - 13.0
SVOCs (mg/Kg)	
FLUORENE	0.54 J
PYRENE	0.053 J

SI-7-B30	
Sample ID	SI-7-B30-D-1
Depth (ft)	14.0 - 15.0
SVOCs (mg/Kg)	
ACENAPHTHENE	1.6 J
ANTHRACENE	1.3 J
BENZO(A)ANTHRACENE	2.5 J
BENZO(A)PYRENE	2.1 J
BENZO(B)FLUORANTHENE	2.1 J
BENZO(G,H,I)PERYLENE	1.7 J
BENZO(K)FLUORANTHENE	1.6 J
CHRYSENE	3.2 J
FLUORANTHENE	7.2
FLUORENE	2 J
INDENO(1,2,3-CD)PYRENE	1.2 J
NAPHTHALENE	1.1 J
PHENANTHRENE	7.5
PYRENE	6.5

LEGEND:

- PERMANENT MONITORING WELL
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- 2003 SI SOIL BORING
- 2004 SI TEMPORARY MONITORING WELL
- 2004 SI SOIL BORING
- SOIL LEAD RESULT >10,000 ppm
- INFERRED FILL UNIT BOUNDARIES (EMCON PHASE I)

TAGM 4046 GUIDANCE	
UNRESTRICTED USE SCREENING VALUE	
VOCs (mg/Kg)	
ACETONE	0.2
BENZENE	0.06 or MDL
CARBON DISULFIDE	2.7
ETHYLBENZENE	5.5
M,P-XYLENES	1.2
O-XYLENE	1.2
SVOCs (mg/Kg)	
2,4-DIMETHYLPHENOL	NA
2-METHYLNAPHTHALENE	36.4
ACENAPHTHENE	50
ANTHRACENE	41
BENZO(A)ANTHRACENE	0.224 or MDL
BENZO(A)PYRENE	0.61 or MDL
BENZO(B)FLUORANTHENE	0.220 or MDL
BENZO(G,H,I)PERYLENE	50
BENZO(K)FLUORANTHENE	0.220 or MDL
BIS(2-ETHYLHEXYL) PHTHALATE	50
CARBAZOLE	NA
CHRYSENE	0.4
DIBENZO(A,H)ANTHRACENE	0.014 or MDL
DIBENZOFURAN	6.2
DI-N-BUTYL PHTHALATE	50
FLUORANTHENE	50
FLUORENE	50
INDENO(1,2,3-CD)PYRENE	3.2
NAPHTHALENE	13
PHENANTHRENE	50
PYRENE	50
TOTAL C-PAHs	10
TOTAL SVOCs	500

NOTES:

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3. J = ESTIMATED CONCENTRATION
4. ND = CONSTITUENT NOT DETECTED
5. NA = NOT ANALYZED

0 50' 100'

GRAPHIC SCALE

FORMER GENERAL MOTORS ASSEMBLY PLANT SITE
SLEEPY HOLLOW, NEW YORK

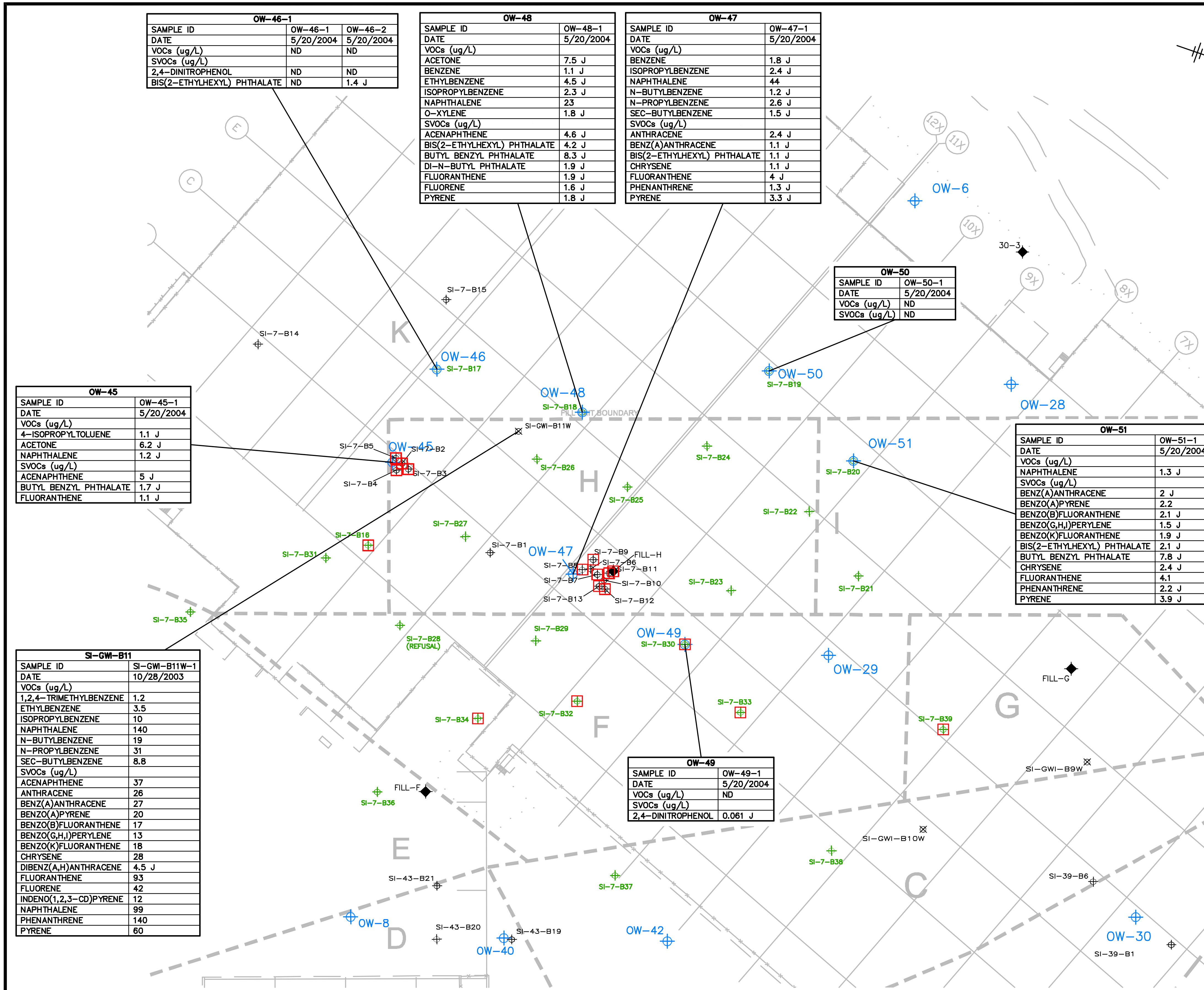
DRAFT REMEDIAL INVESTIGATION REPORT

VOCs/SVOCs IN SOIL - PAOC 7/FILL AREA H & F

BBL® BLASLAND, BOUCK & LEE, INC. engineers, scientists, economists

FIGURE **4A**

X: 64462X00, X01.DWG
L: ON=*, OFF=REF
P: PAGESET/PLT-BL1
7/18/05 SYR-85-LJP
64462024/RMDLINV/64462C16.DWG



OW-46-1

SAMPLE ID	OW-46-1	OW-46-2
DATE	5/20/2004	5/20/2004
VOCs (ug/L)	ND	ND
SVOCs (ug/L)		
2,4-DINITROPHENOL	ND	ND
BIS(2-ETHYLHEXYL) PHTHALATE	ND	1.4 J

OW-48

SAMPLE ID	OW-48-1
DATE	5/20/2004
VOCs (ug/L)	
ACETONE	7.5 J
BENZENE	1.1 J
ETHYLBENZENE	4.5 J
ISOPROPYLBENZENE	2.3 J
NAPHTHALENE	23
O-XYLENE	1.8 J
SVOCs (ug/L)	
ACENAPHTHENE	4.6 J
BIS(2-ETHYLHEXYL) PHTHALATE	4.2 J
BUTYL BENZYL PHTHALATE	8.3 J
DI-N-BUTYL PHTHALATE	1.9 J
FLUORANTHENE	1.9 J
FLUORENE	1.6 J
PYRENE	1.8 J

OW-47

SAMPLE ID	OW-47-1
DATE	5/20/2004
VOCs (ug/L)	
BENZENE	1.8 J
ISOPROPYLBENZENE	2.4 J
NAPHTHALENE	44
N-BUTYLBENZENE	1.2 J
N-PROPYLBENZENE	2.6 J
SEC-BUTYLBENZENE	1.5 J
SVOCs (ug/L)	
ANTHRACENE	2.4 J
BENZ(A)ANTHRACENE	1.1 J
BIS(2-ETHYLHEXYL) PHTHALATE	1.1 J
CHRYSENE	1.1 J
FLUORANTHENE	4 J
PHENANTHRENE	1.3 J
PYRENE	3.3 J

OW-50

SAMPLE ID	OW-50-1
DATE	5/20/2004
VOCs (ug/L)	ND
SVOCs (ug/L)	ND

OW-45

SAMPLE ID	OW-45-1
DATE	5/20/2004
VOCs (ug/L)	
4-ISOPROPYLTOLUENE	1.1 J
ACETONE	6.2 J
NAPHTHALENE	1.2 J
SVOCs (ug/L)	
ACENAPHTHENE	5 J
BUTYL BENZYL PHTHALATE	1.7 J
FLUORANTHENE	1.1 J

OW-51

SAMPLE ID	OW-51-1
DATE	5/20/2004
VOCs (ug/L)	
NAPHTHALENE	1.3 J
SVOCs (ug/L)	
BENZ(A)ANTHRACENE	2 J
BENZO(A)PYRENE	2.2
BENZO(B)FLUORANTHENE	2.1 J
BENZO(G,H,I)PERYLENE	1.5 J
BENZO(K)FLUORANTHENE	1.9 J
BIS(2-ETHYLHEXYL) PHTHALATE	2.1 J
BUTYL BENZYL PHTHALATE	7.8 J
CHRYSENE	2.4 J
FLUORANTHENE	4.1
PHENANTHRENE	2.2 J
PYRENE	3.9 J

SI-GWI-B11

SAMPLE ID	SI-GWI-B11W-1
DATE	10/28/2003
VOCs (ug/L)	
1,2,4-TRIMETHYLBENZENE	1.2
ETHYLBENZENE	3.5
ISOPROPYLBENZENE	10
NAPHTHALENE	140
N-BUTYLBENZENE	19
N-PROPYLBENZENE	31
SEC-BUTYLBENZENE	8.8
SVOCs (ug/L)	
ACENAPHTHENE	37
ANTHRACENE	26
BENZ(A)ANTHRACENE	27
BENZO(A)PYRENE	20
BENZO(B)FLUORANTHENE	17
BENZO(G,H,I)PERYLENE	13
BENZO(K)FLUORANTHENE	18
CHRYSENE	28
DIBENZ(A,H)ANTHRACENE	4.5 J
FLUORANTHENE	93
FLUORENE	42
INDENO(1,2,3-CD)PYRENE	12
NAPHTHALENE	99
PHENANTHRENE	140
PYRENE	60

OW-49

SAMPLE ID	OW-49-1
DATE	5/20/2004
VOCs (ug/L)	ND
SVOCs (ug/L)	
2,4-DINITROPHENOL	0.061 J

LEGEND:

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- 2004 SI TEMPORARY MONITORING WELL
- 2004 SI SOIL BORING
- SOIL LEAD RESULT >10,000 ppm
- INFERRED FILL UNIT BOUNDARIES (EMCON PHASE I)

CLASS GA GROUNDWATER STANDARDS AND GUIDANCE

VOCs (ug/L)	
1,2,4-TRIMETHYLBENZENE	5
4-ISOPROPYLTOLUENE	5
ACETONE	50
BENZENE	1
ETHYLBENZENE	5
ISOPROPYLBENZENE	5
N-BUTYLBENZENE	5
N-PROPYLBENZENE	5
O-XYLENE	5
SEC-BUTYLBENZENE	5
SVOCs (ug/L)	
2,4-DINITROPHENOL	5
ACENAPHTHENE	20
ANTHRACENE	50
BENZ(A)ANTHRACENE	0.002
BENZO(A)PYRENE	ND
BENZO(B)FLUORANTHENE	0.002
BENZO(G,H,I)PERYLENE	NA
BENZO(K)FLUORANTHENE	0.002
BIS(2-ETHYLHEXYL) PHTHALATE	5
BUTYL BENZYL PHTHALATE	50
CHRYSENE	0.002
DIBENZ(A,H)ANTHRACENE	NA
DI-N-BUTYL PHTHALATE	50
FLUORANTHENE	50
FLUORENE	50
INDENO(1,2,3-CD)PYRENE	0.002
NAPHTHALENE	10
PHENANTHRENE	50
PYRENE	50

NOTES:

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2. SAMPLE RESULTS SHOWN IN ug/L.
3. J = ESTIMATED CONCENTRATION
4. ND = CONSTITUENT NOT DETECTED
5. NA = NOT ANALYZED

0 60' 120'
GRAPHIC SCALE

X: 64462X00, X01.DWG
L: ON=*, OFF=REF
P: PAGESET/PLT-BL1
8/2/05 SYR-85-LJP
64462024/RMDLINV/64462C17.DWG

FORMER GENERAL MOTORS ASSEMBLY PLANT SITE
SLEEPY HOLLOW, NEW YORK
DRAFT REMEDIAL INVESTIGATION REPORT

VOCs/SVOCs IN GROUNDWATER - PAOC 7/FILL AREA H & F

BBL
BLASLAND, BOUCK & LEE, INC.
engineers, scientists, economists

FIGURE
4B

SI-7-B26		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-7-B26-A-1	0 - 1.0	2,430 J
SI-7-B26-B-1	2.0 - 3.0	1,980 J
SI-7-B26-D-1	4.0 - 5.0	2,390 J
SI-7-B26-F-1	10.5 - 11.5	318 J
SI-7-B26-F-2	10.5 - 11.5	169 J

SI-7-B15		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-7-B15-A-1	2.6 - 3.0	ND
SI-7-B15-B-1	5.6 - 6.0	ND
SI-7-B15-C-1	8.6 - 9.0	ND
SI-7-B15-D-1	11.6 - 12.0	ND

SI-7-B18		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-7-B18-A-1	2.0 - 3.0	6,400
SI-7-B18-A-2	2.5 - 3.5	274
SI-7-B18-B-1	4.0 - 4.5	ND
SI-7-B18-C-1	4.5 - 5.5	132
SI-7-B18-D-1	6.5 - 7.5	ND
SI-7-B18-E-1	8.5 - 9.5	ND
SI-7-B18-F-1	10.5 - 11.5	ND
SI-7-B18-G-1	12.5 - 13.5	ND
SI-7-B18-H-1	14.5 - 15.5	ND

SI-7-B25		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-7-B25-A-1	0.0 - 1.0	976 J
SI-7-B25-B-1	2.0 - 3.0	512 J
SI-7-B25-C-1	4.0 - 5.0	463 J
SI-7-B25-D-1	6.0 - 7.0	1,000 J
SI-7-B25-E-1	10. 0 - 11.0	2,780 J
SI-7-B25-F-1	16.0 - 17.0	71.4 J
SI-7-B25-G-1	18.0 - 19.0	ND
SI-7-B25-G-2	18.0 - 19.0	ND
SI-7-B25-H-1	19.5 -20.0	ND

SI-7-B19		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-7-B19-A-1	0 - 1.0	ND
SI-7-B19-B-1	2.0 - 3.0	ND
SI-7-B19-B-2	2.0 - 3.0	ND
SI-7-B19-C-1	4.0 - 5.0	25.1
SI-7-B19-D-1	6.0 - 7.0	ND
SI-7-B19-E-1	8.0 - 9.0	ND
SI-7-B19-F-1	10.0 - 11.0	27.3
SI-7-B19-G-1	12.0 - 13.0	ND
SI-7-B19-H-1	14.0 - 14.5	ND

SI-7-B7		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-7-B7-A-1	2.5 - 3.0	248 J
SI-7-B7-A-2	2.5 - 3.0	49.3 J
SI-7-B7-B-1	5.5 - 6.0	6,750
SI-7-B7-C-1	7.5 - 8.0	16,400
SI-7-B7-D-1	8.5 - 9.0	1,120 J

SI-7-B17		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-7-B17-A-1	0 - 1.0	34.3
SI-7-B17-B-1	2.0 - 3.0	ND
SI-7-B17-B-2	2.0 - 3.0	ND
SI-7-B17-C-1	4.0 - 5.0	ND
SI-7-B17-D-1	6.0 - 7.0	ND
SI-7-B17-E-1	8.0 - 9.0	ND
SI-7-B17-F-1	10.0 - 11.0	ND
SI-7-B17-G-1	12.0 - 13.0	44.7
SI-7-B17-H-1	14.0 - 15.0	ND

SI-7-B6		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-7-B6-A-1	2.5 - 3.0	96.2
SI-7-B6-A-2	2.5 - 3.0	87.6
SI-7-B6-B-1	5.5 - 6.5	2,200
SI-7-B6-C-1	8.0 - 8.5	1,020
SI-7-B6-D-1	11.5 - 12.0	36
SI-7-B6-G-1	17.0 - 17.5	63
SI-7-B6-H-1	19.0 - 19.5	1,040

SI-7-B9		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-7-B9-A-1	2.5 - 3.0	12,400 J
SI-7-B9-B-1	5.5 - 6.0	6,460 J
SI-7-B9-C-1	8.0 - 8.5	6,250 J
SI-7-B9-D-1	11.5 - 12.0	1,610 J

SI-7-B24		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-7-B24-A-1	0 - 1.0	264 J
SI-7-B24-B-1	2.0 - 3.0	112 J
SI-7-B24-C-1	4.0 - 5.0	ND
SI-7-B24-D-1	6.0 - 7.0	ND
SI-7-B24-D-2	6.0 - 7.0	ND
SI-7-B24-E-1	8.0 - 9.0	3,140 J
SI-7-B24-F-1	10.0 - 11.0	4,230 J
SI-7-B24-G-1	12.0 - 13.0	ND
SI-7-B24-H-1	14.0 - 15.0	ND
SI-7-B24-I-1	16.0 - 17.0	ND

SI-7-B11		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-7-B11-A-1	2.6 - 3.0	32,300 J
SI-7-B11-B-1	5.6 - 6.0	2,750
SI-7-B11-C-1	0.0 - 0.4	2,060 J

SI-7-B14		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-7-B14-A-1	2.6 - 3.0	22.5 J
SI-7-B14-A-2	2.6 - 3.0	ND
SI-7-B14-B-1	5.6 - 6.0	ND
SI-7-B14-C-1	8.6 - 9.0	ND
SI-7-B14-D-1	11.6 - 12.0	ND

SI-7-B20		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-7-B20-A-1	0 - 1.0	ND
SI-7-B20-A-2	0 - 1.0	23.2 J
SI-7-B20-B-1	2.0 - 3.0	ND
SI-7-B20-C-1	4.0 - 5.0	21.5 J
SI-7-B20-D-1	6.0 - 7.0	17.2 J
SI-7-B20-E-1	8.0 - 9.0	ND
SI-7-B20-F-1	10.0 - 11.0	18 J
SI-7-B20-G-1	12.0 - 13.0	ND
SI-7-B20-H-1	14.0 - 15.0	ND

SI-7-B5		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-7-B5-A-1	2.6 - 3.0	ND
SI-7-B5-B-1	5.6 - 6.0	ND
SI-7-B5-C-1	8.6 - 9.0	783 J
SI-7-B5-D-1	11.6 - 12.0	43,000 J

SI-7-B2		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-7-B2-A-1	2.6 - 3.0	18.8 J
SI-7-B2-A-2	2.6 - 3.0	21.1 J
SI-7-B2-B-1	5.6 - 6.0	795 J
SI-7-B2-C-1	7.6 - 8.0	155 J
SI-7-B2-D-1	11.6 - 12.0	16,000 J

SI-7-B22		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-7-B22-A-1	0 - 1.0	25.8 J
SI-7-B22-B-1	2.0 - 3.0	1,270 J
SI-7-B22-C-1	4.0 - 5.0	4,460
SI-7-B22-G-1	12.0 - 13.0	ND
SI-7-B22-G-2	12.0 - 13.0	ND
SI-7-B22-H-1	14.0 - 15.	ND

SI-7-B4		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-7-B4-A-1	2.6 - 3.0	11,100 J
SI-7-B4-B-1	5.6 - 6.0	435 J
SI-7-B4-C-1	8.6 - 9.0	4,300 J
SI-7-B4-D-1	11.6 - 12.0	7,490 J

SI-7-B23		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-7-B23-A-1	0.0 - 1.0	2,840 J
SI-7-B23-B-1	2.0 - 3.0	13.3 J
SI-7-B23-C-1	4.0 - 5.0	222 J
SI-7-B23-D-1	6.0 - 7.0	1,430 J
SI-7-B23-E-1	8.0 - 9.0	4,100 J
SI-7-B23-E-2	8.0 - 9.0	2,480 J
SI-7-B23-F-1	10.0 - 11.0	1,030 J
SI-7-B23-G-1	12.0 - 13.0	294 J
SI-7-B23-H-1	14.0 - 15.0	23.2 J
SI-7-B23-I-1	16.0 - 17.0	ND

SI-7-B3		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-7-B3-A-1	2.6 - 3.0	ND
SI-7-B3-B-1	5.6 - 6.0	ND
SI-7-B3-C-1	8.6 - 9.0	31,700 J
SI-7-B3-D-1	11.6 - 12.0	26,300 J

SI-7-B21		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-7-B21-A-1	0.0 - 1.0	55.2 J
SI-7-B21-B-1	2.0 - 3.0	1,240 J
SI-7-B21-C-1	4.0 - 5.0	8,070 J
SI-7-B21-D-1	6.0 - 7.0	391 J
SI-7-B21-E-1	8.0 - 9.0	229 J
SI-7-B21-E-2	8.0 - 9.0	1,070 J
SI-7-B21-F-1	10.0 - 11.0	3,640 J
SI-7-B21-G-1	12.0 - 13.0	257 J
SI-7-B21-H-1	14.0 - 15.0	18.7 J

SI-7-B31		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-7-B31-A-1	0 - 1.0	150 J
SI-7-B31-A-2	0 - 1.0	116 J
SI-7-B31-B-1	2.0 - 3.0	10.9 J
SI-7-B31-C-1	4.0 - 5.0	ND
SI-7-B31-D-1	6.5 - 7.5	ND
SI-7-B31-E-1	8.5 - 9.5	ND
SI-7-B31-F-1	10.5 - 11.5	ND
SI-7-B31-G-1	12.5 - 13.5	ND
SI-7-B31-H-1	14.5 - 15.5	ND
SI-7-B31-I-1	16.5 - 17.5	1,710 J

SI-7-B10		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-7-B10-A-1	2.8 - 3.2	522 J
SI-7-B10-A-2	2.8 - 3.2	707 J
SI-7-B10-B-1	5.6 - 6.0	6,550 J
SI-7-B10-C-1	8.6 - 9.0	956 J
SI-7-B10-D-1	11.6 - 12.0	1,720 J
SI-7-B10-E-1	12.6 - 13.0	15.8 J

SI-7-B35		
Sample ID	Depth (ft)	Pb (mg/kg)
S1-7-B35-A-1	1.0 - 2.0	4.9
S1-7-B35-A-3	1.0 - 2.0	7.8
S1-7-B35-B-1	3.0 - 4.0	4.7
S1-7-B35-C-1	5.0 - 6.0	17.6
S1-7-B35-D-1	7.0 - 8.0	9.5
S1-7-B35-E-1	9.0 - 10.0	6
S1-7-B35-F-1	11.0 - 12.0	5.9
S1-7-B35-G-1	13.0 - 14.0	4.3
S1-7-B35-H-1	22.0 - 23.0	4.8

SI-7-B12		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-7-B12-A-1	2.5 - 3.0	314
SI-7-B12-B-1	5.5 - 6.0	3,970
SI-7-B12-C-1	7.5 - 8.0	13,500
SI-7-B12-D-1	9.0 - 9.5	1,100

SI-7-B16		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-7-B16-A-1	0 - 0.5	555
SI-7-B16-A-2	0 - 0.5	360
SI-7-B16-B-1	2.1 - 2.5	ND
SI-7-B16-C-1	3.5 - 4.0	18,000
SI-7-B16-D-1	4.5 - 5.5	2,120
SI-7-B16-F-1	8.5 - 9.5	53,900
SI-7-B16-G-1	10.5 - 11.5	589
SI-7-B16-H-1	12.5 - 13.5	350

SI-7-B39		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-7-B-39-A-1	0 - 1.0	420 J
SI-7-B39-B-1	2.0 - 3.0	2,910 J
SI-7-B-39-C-1	4.0 - 5.0	518 J
SI-7-B-39-D-1	6.0 - 7.0	682 J
SI-7-B-39-E-1	8.0 - 9.0	13,700 J
SI-7-B39-F-1	10.0 - 11.0	1,550 J
SI-7-B-39-G-1	12.0 - 13.0	643
SI-7-B-39-H-1	14.0 - 15.0	13.4

SI-7-B27		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-7-B27-A-1	0.0 - 1.0	15.5 J
SI-7-B27-B-1	2.0 - 3.0	3,630 J
SI-7-B27-C-1	4.0 - 5.0	2,090 J
SI-7-B27-D-1	6.0 - 7.0	2,110 J
SI-7-B27-E-1	8.0 - 9.0	3,040 J
SI-7-B27-F-1	10.0 - 11.0	1,780 J
SI-7-B27-G-1	12.0 - 13.0	8,420 J
SI-7-B27-G-2	12.0 - 13.0	4,840 J
SI-7-B27-H-1	14.0 - 15.0	2,510 J
SI-7-B27-I-1	18.0 - 19.0	94.1 J

SI-7-B30		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-7-B30-A-1	0 - 1.0	2,020 J
SI-7-B30-B-1	2.0 - 3.0	935 J
SI-7-B30-C-1	4.0 - 5.0	3,000 J
SI-7-B30-D-1	6.0 - 7.0	18,300 J
SI-7-B30-F-1	10.0 - 11.0	49,700 J
SI-7-B30-G-1	12.0 - 13.0	34.9 J
SI-7-B30-H-1	14.0 - 15.0	ND

SI-7-B36		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-7-B36-A-1	1.0 - 2.0	57.1
S1-7-B36-A-2	1.0 - 2.0	34
SI-7-B36-B-1	3.0 - 4.0	27.4
S1-7-B36-C-1	5.0 - 6.0	4.4
SI-7-B36-D-1	7.0 - 8.0	44.7
S1-7-B36-E-1	9.0 - 10.0	10.4
SI-7-B36-F-1	11.0 - 12.0	35.1
S1-7-B36-G-1	13.0 - 14.0	1,280
S1-7-B36-I-1	17.0 - 18.0	297
S1-7-B36-K-1	24.0 - 25.0	15.7

SI-7-B34		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-7-B34-A-1	0.5 - 1.0	41.4
SI-7-B34-A-2	0.5 - 1	36.4
SI-7-B34-B-1	2.0 - 3.0	38.6
SI-7-B34-C-1	4.0 - 5.0	11
SI-7-B34-D-1	6.0 - 7.0	91.6
SI-7-B34-E-1	8.0 - 9.0	35.9
SI-7-B34-F-1	10.0 -11.0	12.4
SI-7-B34-G-1	12.0 - 13.0	21,700
SI-7-B34-H-1	14.0 - 15.0	16,700

SI-7-B29C		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-7-B29C-A1	0 - 1.0	2,460 J

SI-7-B29A		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-7-B29A-A1	0.0 - 1.0	8,280 J
SI-7-B29A-A2	0.0 - 1.0	8,250 J
SI-7-B29A-A3	0.0 - 1.0	ND

SI-7-B29E		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-7-B29E-AA1	0 - 1.0	7,470 J
SI-7-B29E-A1	1.0 - 2.0	4,730 J

SI-7-B29		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-7-B29-A-1	0.0 - 1.0	9,990 J
SI-7-B29-B-1	2.0 - 3.0	6,020 J
SI-7-B29-C-1	4.0 - 5.0	3,470 J
SI-7-B29-D-1	6.0 - 7.0	2,790 J
SI-7-B29-E-1	12.0 - 13.0	21.1 J
SI-7-B29-F-1	14.0 - 15.0	ND
SI-7-B29-G-1	16.0 -17.0	58.2 J

SI-7-B29D		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-7-B29D-AA1	0 - 1.0	2,220 J
SI-7-B29D-A1	1.0 - 2.0	167,000 J

SI-7-B29B		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-7-B29B-A1	0 - 1.0	2,150 J

SI-7-B37		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-7-B37-A-1	2.5 - 3.0	47.1
S1-7-B37-B-2	4.0 - 5.0	53
S1-7-B37-C-1	6.0 - 7.0	253
S1-7-B37-D-1	8.0 - 9.0	39.3
S1-7-B37-E-1	10.0 - 11.0	33.4
S1-7-B37-F-1	12.0 - 13.0	104
SI -7-B37-G-1	13.0 - 14.0	72
S1-7-B37-H-1	18.0 - 19.0	119
SI- 7-B37-I-1	24.0 - 25.0	46.6

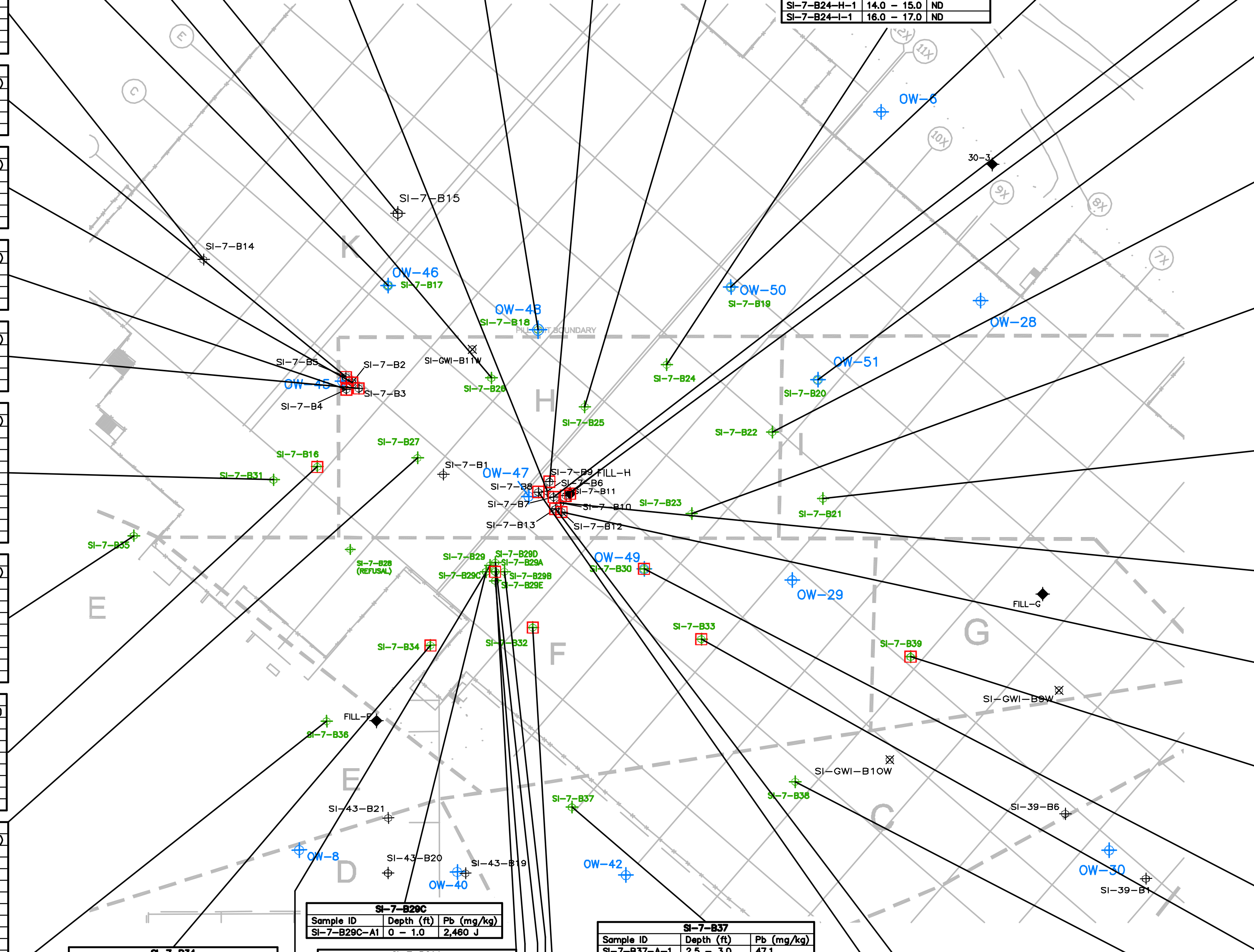
SI-7-B32		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-7-B32-A-1	0 - 1.0	534
SI-7-B32-B-1	2.0 - 3.0	ND
SI-7-B32-B-2	2.0 - 3.0	ND
SI-7-B32-C-1	4.0 - 5.0	5,670
SI-7-B32-D-1	6.0 - 7.0	21,800
SI-7-B32-E-1	8.0 - 9.0	3,830
SI-7-B32-F-1	10.0 - 11.0	7,360
SI-7-B32-G-1	12.0 - 13.0	2,260 J
SI-7-B32-H-1	14.0 - 15.0	464

SI-7-B13		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-7-B13-A-1	1.5 - 2.0	10,500
SI-7-B13-B-1	5.5 - 6.0	6,420
SI-7-B13-C-1	8.0 - 8.5	5,940 J
SI-7-B13-D-1	11.5 - 12.1	984

SI-7-B8		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-7-B8-A-1	2.5 - 3.0	6,620
SI-7-B8-B-1	5.5 - 6.0	778
SI-7-B8-C-1	9.0 - 9.5	38,400 J
SI-7-B8-D-1	11.5 - 12.0	55.1

SI-7-B38		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-7-B-38-A-1	0 - 1.0	13.9 J
SI-7-B-38-A-2	0 - 1.0	11.4 J
SI-7-B-38-B-1	2.0 - 3.0	103 J
SI-7-B-38-C-1	4.0 - 5.0	16.7 J
SI-7-B-38-D-1	6.0 - 7.0	18.9 J
SI-7-B-38-E-1	8.0 - 9.0	6.2 J
SI-7-B-38-E-2	8.0 - 9.0	21.8 J
SI-7-B-38-F-1	10.0 - 11.0	ND
SI-7-B-38-G-1	14.0 - 15.0	156
SI-7-B-38-H-1	18.0 - 19.0	19.9 J

SI-7-B33		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-7-B33-A-1	0.0 - 1.0	55.4
SI-7-B33-B-1	2.0 - 3.0	11,000
SI-7-B33-C-1	4.0 - 5.0	6,460
SI-7-B33-D-1	6.0 - 7.0	5,330
SI-7-B33-E-1	8.0 - 9.0	761
SI-7-B33-F-1	10.0 - 11.0	550
SI-7-B33-G-1	12.0 - 13.0	2,320
SI-7-B33-H-1	15.0 - 16.0	1,090



LEGEND:

- PERMANENT MONITORING WELL
- 2002 DUE DILIGENCE SOIL SAMPLE
- 2002 DUE DILIGENCE SOIL & GW SAMPLES
- 2003 SI TEMPORARY MONITORING WELL
- 2003 SI SOIL BORING
- 2004 SI TEMPORARY MONITORING WELL
- 2004 SI SOIL BORING
- SOIL LEAD RESULT >10,000 ppm
- INFERRED FILL UNIT BOUNDARIES (EMCON PHASE I)

TAGM 4046 GUIDANCE	
UNRESTRICTED USE SCREENING VALUE	
LEAD (mg/kg)	400

NOTES:

1. BASE MAPS PROVIDED BY AMEC EARTH & ENVIRONMENTAL, NEW YORK, NEW YORK, DATED APRIL 2004.
2. SAMPLE RESULTS SHOWN IN MG/KG.
3. J = ESTIMATED CONCENTRATION
4. ND = CONSTITUENT NOT DETECTED
5. NA = NOT ANALYZED

0 80' 160'

GRAPHIC SCALE

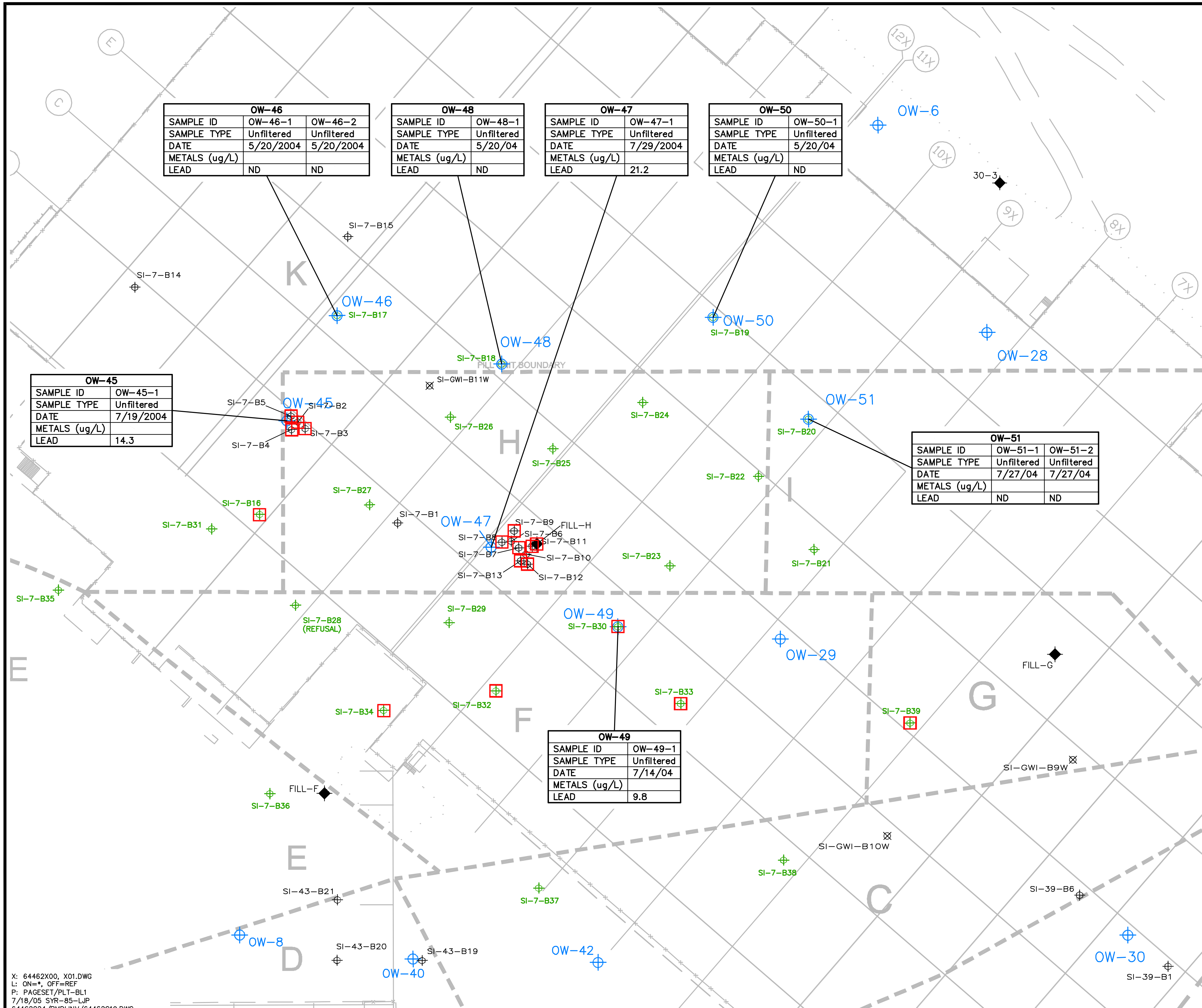
FORMER GENERAL MOTORS ASSEMBLY PLANT SITE
SLEEPY HOLLOW, NEW YORK
DRAFT REMEDIAL INVESTIGATION REPORT

LEAD IN SOIL - PAOC 7/ FILL AREA H & F

BLASLAND, BOUCK & LEE, INC.
engineers, scientists, economists

FIGURE
4C

X: 64462X00, X01.DWG
L: ON=*, OFF=REF
P: PAGESET/PLT-BL1
8/2/05 SYR-85-LJP
64462024/RMDLINV/64462C18.DWG



OW-46		
SAMPLE ID	OW-46-1	OW-46-2
SAMPLE TYPE	Unfiltered	Unfiltered
DATE	5/20/2004	5/20/2004
METALS (ug/L)		
LEAD	ND	ND

OW-48	
SAMPLE ID	OW-48-1
SAMPLE TYPE	Unfiltered
DATE	5/20/04
METALS (ug/L)	
LEAD	ND

OW-47	
SAMPLE ID	OW-47-1
SAMPLE TYPE	Unfiltered
DATE	7/29/2004
METALS (ug/L)	
LEAD	21.2

OW-50	
SAMPLE ID	OW-50-1
SAMPLE TYPE	Unfiltered
DATE	5/20/04
METALS (ug/L)	
LEAD	ND

OW-45	
SAMPLE ID	OW-45-1
SAMPLE TYPE	Unfiltered
DATE	7/19/2004
METALS (ug/L)	
LEAD	14.3

OW-51		
SAMPLE ID	OW-51-1	OW-51-2
SAMPLE TYPE	Unfiltered	Unfiltered
DATE	7/27/04	7/27/04
METALS (ug/L)		
LEAD	ND	ND

OW-49	
SAMPLE ID	OW-49-1
SAMPLE TYPE	Unfiltered
DATE	7/14/04
METALS (ug/L)	
LEAD	9.8

LEGEND:

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- 2002 DUE DILIGENCE SOIL & GW SAMPLES
- 2003 SI TEMPORARY MONITORING WELL
- 2003 SI SOIL BORING
- 2004 SI TEMPORARY MONITORING WELL
- 2004 SI SOIL BORING
- SOIL LEAD RESULT >10,000 ppm
- INFERRED FILL UNIT BOUNDARIES (EMCON PHASE I)

CLASS GA GROUNDWATER STANDARDS AND GUIDANCE	
LEAD (ug/L)	25

NOTES:

1. BASE MAPS PROVIDED BY AMEC EARTH & ENVIRONMENTAL, NEW YORK, NEW YORK, DATED APRIL 2004.
2. SAMPLE RESULTS SHOWN IN ug/L. (SAMPLES WITH LOWEST TURBIDITY SHOWN.)
3. J = ESTIMATED CONCENTRATION
4. ND = CONSTITUENT NOT DETECTED
5. NA = NOT ANALYZED

0 50' 100'

GRAPHIC SCALE

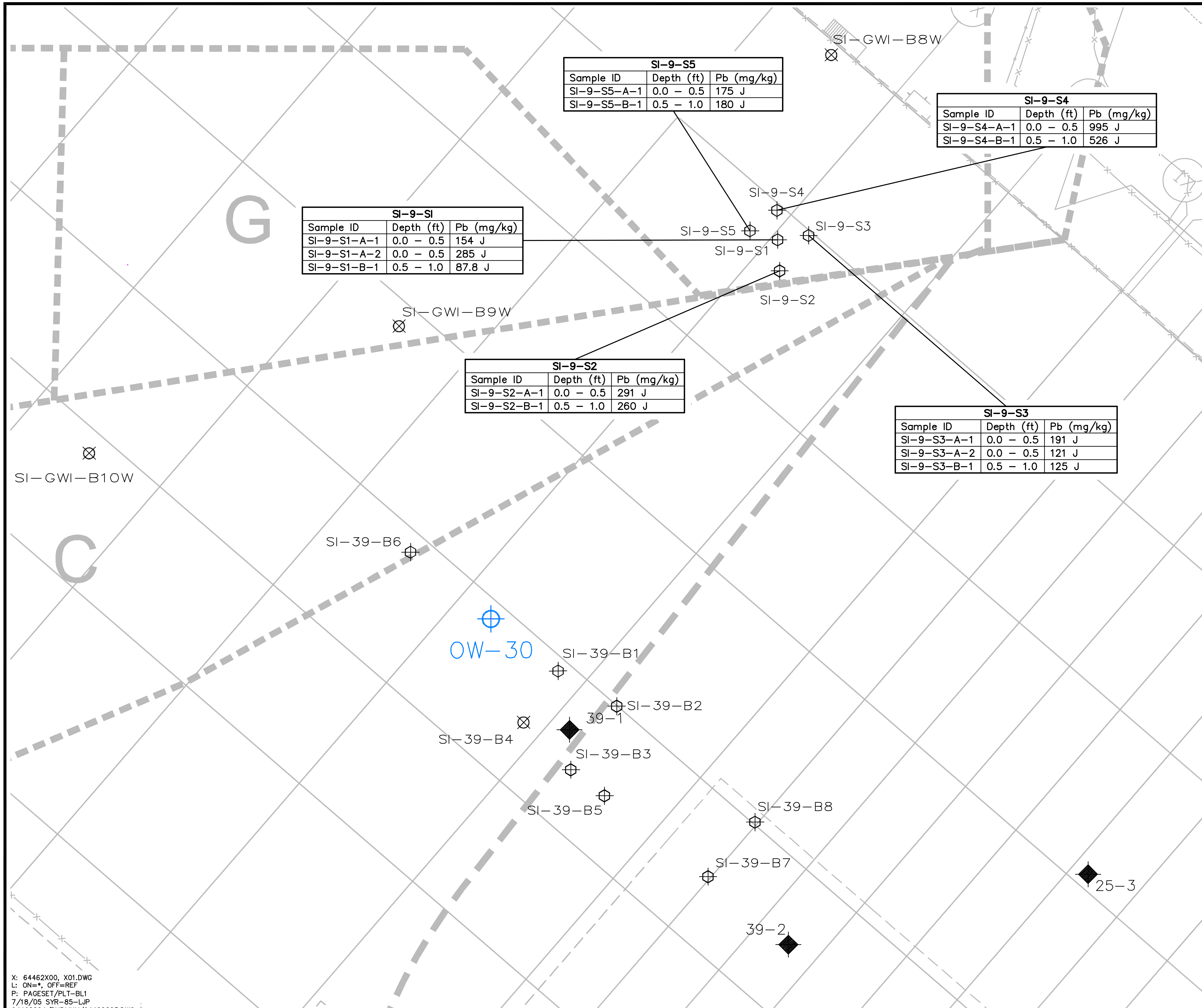
FORMER GENERAL MOTORS ASSEMBLY PLANT SITE
SLEEPY HOLLOW, NEW YORK
DRAFT REMEDIAL INVESTIGATION REPORT

LEAD IN GROUNDWATER - PAOC 7/FILL AREA H & F

BBL
BLASLAND, BOUCK & LEE, INC.
engineers, scientists, economists

FIGURE **4D**

X: 64462X00, X01.DWG
L: ON=*, OFF=REF
P: PAGESET/PLT-BL1
7/18/05 SYR-85-LJP
64462024/RMDLINV/64462C19.DWG



SI-9-S5

Sample ID	Depth (ft)	Pb (mg/kg)
SI–9–S5–A–1	0.0 – 0.5	175 J
SI–9–S5–B–1	0.5 – 1.0	180 J

SI-9-S4

Sample ID	Depth (ft)	Pb (mg/kg)
SI–9–S4–A–1	0.0 – 0.5	995 J
SI–9–S4–B–1	0.5 – 1.0	526 J

SI-9-SI

Sample ID	Depth (ft)	Pb (mg/kg)
SI–9–S1–A–1	0.0 – 0.5	154 J
SI–9–S1–A–2	0.0 – 0.5	285 J
SI–9–S1–B–1	0.5 – 1.0	87.8 J

SI-9-S2

Sample ID	Depth (ft)	Pb (mg/kg)
SI–9–S2–A–1	0.0 – 0.5	291 J
SI–9–S2–B–1	0.5 – 1.0	260 J

SI-9-S3

Sample ID	Depth (ft)	Pb (mg/kg)
SI–9–S3–A–1	0.0 – 0.5	191 J
SI–9–S3–A–2	0.0 – 0.5	121 J
SI–9–S3–B–1	0.5 – 1.0	125 J

LEGEND:

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- 2002 DUE DILIGENCE SOIL & GW SAMPLES
- 2003 SI TEMPORARY MONITORING WELL
- 2003 SI SOIL BORING
- 2004 SI TEMPORARY MONITORING WELL
- 2004 SI SOIL BORING
- INFERRED FILL UNIT BOUNDARIES (EMCON PHASE I)

TAGM 4046 GUIDANCE	
UNRESTRICTED USE SCREENING VALUE	
LEAD (mg/kg)	400

NOTES:

1. BASE MAPS PROVIDED BY AMEC EARTH & ENVIRONMENTAL, NEW YORK, NEW YORK, DATED APRIL 2004.
2. SAMPLE RESULTS SHOWN IN MG/KG.
3. J = ESTIMATED CONCENTRATION

0 30' 60'
GRAPHIC SCALE

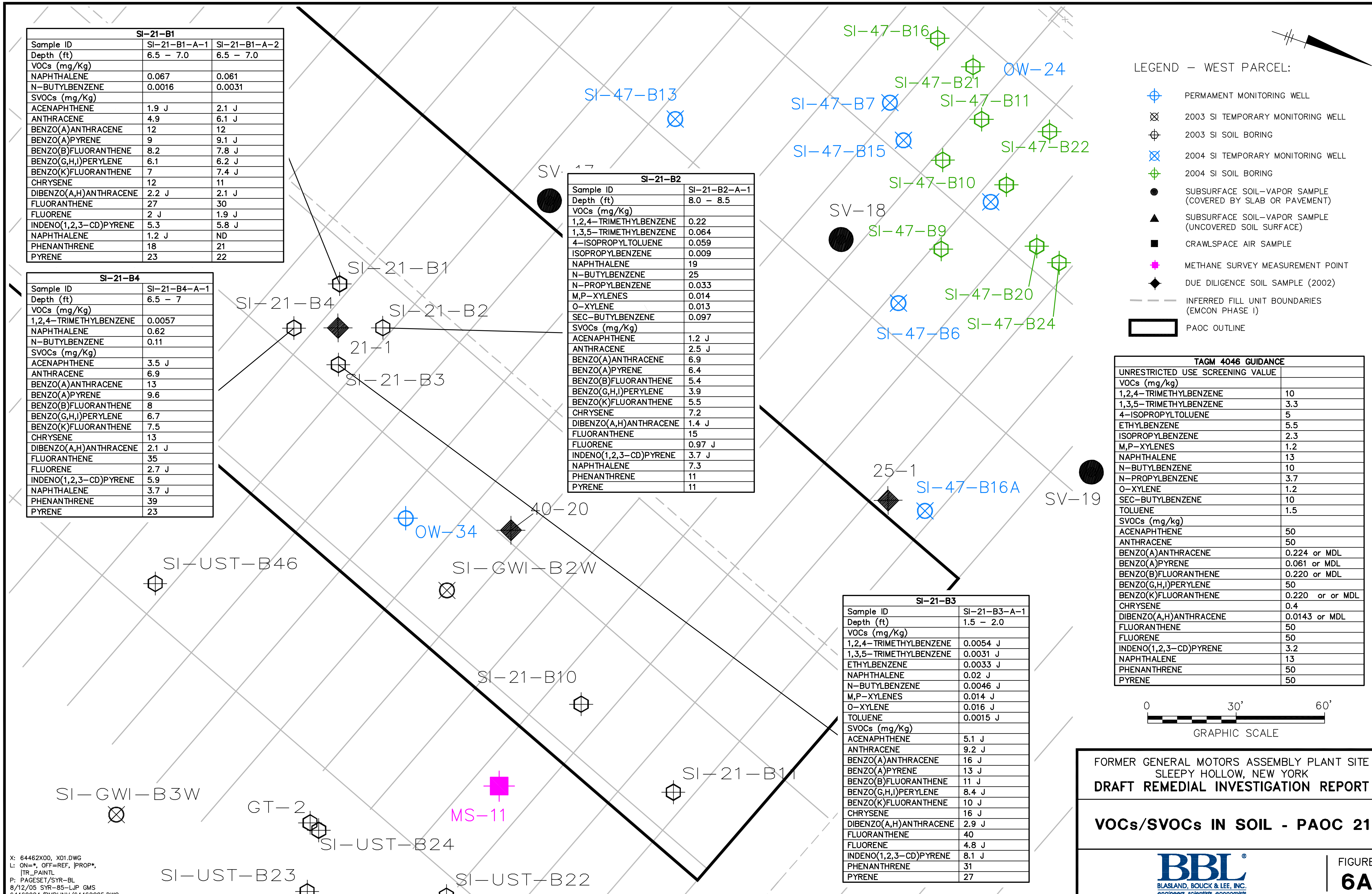
X: 64462X00, X01.DWG
L: ON=*, OFF=REF
P: PAGESET/PLT-BL1
7/18/05 SYR-85-LJP
64462024/RMDLINV/64462C23.DWG

FORMER GENERAL MOTORS ASSEMBLY PLANT SITE
SLEEPY HOLLOW, NEW YORK
DRAFT REMEDIAL INVESTIGATION REPORT

LEAD IN SOIL - PAOC 9

BBL
BLASLAND, BOUCK & LEE, INC.
engineers, scientists, economists

FIGURE
5



SI-21-B1

Sample ID	SI-21-B1-A-1	SI-21-B1-A-2
Depth (ft)	6.5 - 7.0	6.5 - 7.0
VOCs (mg/Kg)		
NAPHTHALENE	0.067	0.061
N-BUTYLBENZENE	0.0016	0.0031
SVOCs (mg/Kg)		
ACENAPHTHENE	1.9 J	2.1 J
ANTHRACENE	4.9	6.1 J
BENZO(A)ANTHRACENE	12	12
BENZO(A)PYRENE	9	9.1 J
BENZO(B)FLUORANTHENE	8.2	7.8 J
BENZO(G,H,I)PERYLENE	6.1	6.2 J
BENZO(K)FLUORANTHENE	7	7.4 J
CHRYSENE	12	11
DIBENZO(A,H)ANTHRACENE	2.2 J	2.1 J
FLUORANTHENE	27	30
FLUORENE	2 J	1.9 J
INDENO(1,2,3-CD)PYRENE	5.3	5.8 J
NAPHTHALENE	1.2 J	ND
PHENANTHRENE	18	21
PYRENE	23	22

SI-21-B4

Sample ID	SI-21-B4-A-1
Depth (ft)	6.5 - 7
VOCs (mg/Kg)	
1,2,4-TRIMETHYLBENZENE	0.0057
NAPHTHALENE	0.62
N-BUTYLBENZENE	0.11
SVOCs (mg/Kg)	
ACENAPHTHENE	3.5 J
ANTHRACENE	6.9
BENZO(A)ANTHRACENE	13
BENZO(A)PYRENE	9.6
BENZO(B)FLUORANTHENE	8
BENZO(G,H,I)PERYLENE	6.7
BENZO(K)FLUORANTHENE	7.5
CHRYSENE	13
DIBENZO(A,H)ANTHRACENE	2.1 J
FLUORANTHENE	35
FLUORENE	2.7 J
INDENO(1,2,3-CD)PYRENE	5.9
NAPHTHALENE	3.7 J
PHENANTHRENE	39
PYRENE	23

SI-21-B2

Sample ID	SI-21-B2-A-1
Depth (ft)	8.0 - 8.5
VOCs (mg/Kg)	
1,2,4-TRIMETHYLBENZENE	0.22
1,3,5-TRIMETHYLBENZENE	0.064
4-ISOPROPYLTOLUENE	0.059
ISOPROPYLBENZENE	0.009
NAPHTHALENE	19
N-BUTYLBENZENE	25
N-PROPYLBENZENE	0.033
M,P-XYLENES	0.014
O-XYLENE	0.013
SEC-BUTYLBENZENE	0.097
SVOCs (mg/Kg)	
ACENAPHTHENE	1.2 J
ANTHRACENE	2.5 J
BENZO(A)ANTHRACENE	6.9
BENZO(A)PYRENE	6.4
BENZO(B)FLUORANTHENE	5.4
BENZO(G,H,I)PERYLENE	3.9
BENZO(K)FLUORANTHENE	5.5
CHRYSENE	7.2
DIBENZO(A,H)ANTHRACENE	1.4 J
FLUORANTHENE	15
FLUORENE	0.97 J
INDENO(1,2,3-CD)PYRENE	3.7 J
NAPHTHALENE	7.3
PHENANTHRENE	11
PYRENE	11

TAGM 4046 GUIDANCE

UNRESTRICTED USE SCREENING VALUE	
VOCs (mg/kg)	
1,2,4-TRIMETHYLBENZENE	10
1,3,5-TRIMETHYLBENZENE	3.3
4-ISOPROPYLTOLUENE	5
ETHYLBENZENE	5.5
ISOPROPYLBENZENE	2.3
M,P-XYLENES	1.2
NAPHTHALENE	13
N-BUTYLBENZENE	10
N-PROPYLBENZENE	3.7
O-XYLENE	1.2
SEC-BUTYLBENZENE	10
TOLUENE	1.5
SVOCs (mg/kg)	
ACENAPHTHENE	50
ANTHRACENE	50
BENZO(A)ANTHRACENE	0.224 or MDL
BENZO(A)PYRENE	0.061 or MDL
BENZO(B)FLUORANTHENE	0.220 or MDL
BENZO(G,H,I)PERYLENE	50
BENZO(K)FLUORANTHENE	0.220 or or MDL
CHRYSENE	0.4
DIBENZO(A,H)ANTHRACENE	0.0143 or MDL
FLUORANTHENE	50
FLUORENE	50
INDENO(1,2,3)PYRENE	3.2
NAPHTHALENE	13
PHENANTHRENE	50
PYRENE	50

SI-21-B3

Sample ID	SI-21-B3-A-1
Depth (ft)	1.5 - 2.0
VOCs (mg/Kg)	
1,2,4-TRIMETHYLBENZENE	0.0054 J
1,3,5-TRIMETHYLBENZENE	0.0031 J
ETHYLBENZENE	0.0033 J
NAPHTHALENE	0.02 J
N-BUTYLBENZENE	0.0046 J
M,P-XYLENES	0.014 J
O-XYLENE	0.016 J
TOLUENE	0.0015 J
SVOCs (mg/Kg)	
ACENAPHTHENE	5.1 J
ANTHRACENE	9.2 J
BENZO(A)ANTHRACENE	16 J
BENZO(A)PYRENE	13 J
BENZO(B)FLUORANTHENE	11 J
BENZO(G,H,I)PERYLENE	8.4 J
BENZO(K)FLUORANTHENE	10 J
CHRYSENE	16 J
DIBENZO(A,H)ANTHRACENE	2.9 J
FLUORANTHENE	40
FLUORENE	4.8 J
INDENO(1,2,3-CD)PYRENE	8.1 J
PHENANTHRENE	31
PYRENE	27

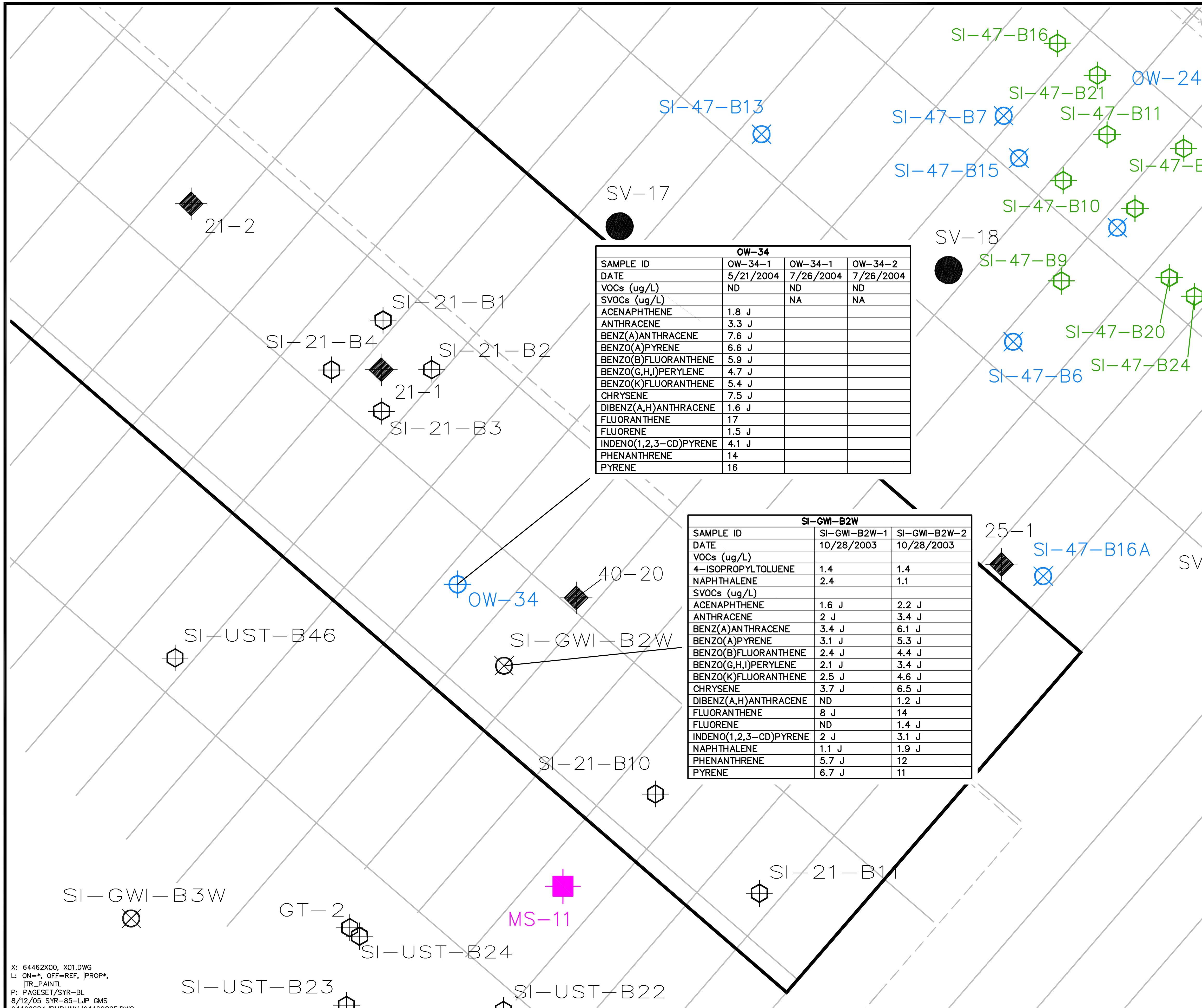
X: 64462X00, X01.DWG
L: ON=*, OFF=REF, |PROP*, |TR_PAINTL
P: PAGESET/SYR-BL
8/12/05 SYR-85-LJP GMS
64462024/RMDLINV/64462C25.DWG

FORMER GENERAL MOTORS ASSEMBLY PLANT SITE
SLEEPY HOLLOW, NEW YORK
DRAFT REMEDIAL INVESTIGATION REPORT

VOCs/SVOCs IN SOIL - PAOC 21

BBL®
BLASLAND, BOUCK & LEE, INC.
engineers, scientists, economists

FIGURE
6A



OW-34			
SAMPLE ID	OW-34-1	OW-34-1	OW-34-2
DATE	5/21/2004	7/26/2004	7/26/2004
VOCs (ug/L)	ND	ND	ND
SVOCs (ug/L)		NA	NA
ACENAPHTHENE	1.8 J		
ANTHRACENE	3.3 J		
BENZ(A)ANTHRACENE	7.6 J		
BENZO(A)PYRENE	6.6 J		
BENZO(B)FLUORANTHENE	5.9 J		
BENZO(G,H,I)PERYLENE	4.7 J		
BENZO(K)FLUORANTHENE	5.4 J		
CHRYSENE	7.5 J		
DIBENZ(A,H)ANTHRACENE	1.6 J		
FLUORANTHENE	17		
FLUORENE	1.5 J		
INDENO(1,2,3-CD)PYRENE	4.1 J		
PHENANTHRENE	14		
PYRENE	16		

SI-GWI-B2W		
SAMPLE ID	SI-GWI-B2W-1	SI-GWI-B2W-2
DATE	10/28/2003	10/28/2003
VOCs (ug/L)		
4-ISOPROPYLTOLUENE	1.4	1.4
NAPHTHALENE	2.4	1.1
SVOCs (ug/L)		
ACENAPHTHENE	1.6 J	2.2 J
ANTHRACENE	2 J	3.4 J
BENZ(A)ANTHRACENE	3.4 J	6.1 J
BENZO(A)PYRENE	3.1 J	5.3 J
BENZO(B)FLUORANTHENE	2.4 J	4.4 J
BENZO(G,H,I)PERYLENE	2.1 J	3.4 J
BENZO(K)FLUORANTHENE	2.5 J	4.6 J
CHRYSENE	3.7 J	6.5 J
DIBENZ(A,H)ANTHRACENE	ND	1.2 J
FLUORANTHENE	8 J	14
FLUORENE	ND	1.4 J
INDENO(1,2,3-CD)PYRENE	2 J	3.1 J
NAPHTHALENE	1.1 J	1.9 J
PHENANTHRENE	5.7 J	12
PYRENE	6.7 J	11

LEGEND - WEST PARCEL:

- PERMANENT MONITORING WELL
- 2003 SI TEMPORARY MONITORING WELL
- 2003 SI SOIL BORING
- 2004 SI TEMPORARY MONITORING WELL
- 2004 SI SOIL BORING
- SUBSURFACE SOIL-VAPOR SAMPLE (COVERED BY SLAB OR PAVEMENT)
- SUBSURFACE SOIL-VAPOR SAMPLE (UNCOVERED SOIL SURFACE)
- CRAWLSPACE AIR SAMPLE
- METHANE SURVEY MEASUREMENT POINT
- DUE DILIGENCE SOIL SAMPLE (2002)
- INFERRED FILL UNIT BOUNDARIES (EMCON PHASE I)
- PAOC OUTLINE

CLASS GA GROUNDWATER STANDARDS AND GUIDANCE	
VOCs (ug/L)	
4-ISOPROPYLTOLUENE	5
NAPHTHALENE	10
SVOCs (ug/L)	
ACENAPHTHENE	20
ANTHRACENE	50
BENZ(A)ANTHRACENE	0.002
BENZO(A)PYRENE	ND
BENZO(B)FLUORANTHENE	0.002
BENZO(G,H,I)PERYLENE	NA
BENZO(K)FLUORANTHENE	0.002
CHRYSENE	0.002
DIBENZ(A,H)ANTHRACENE	NA
FLUORANTHENE	50
FLUORENE	50
INDENO(1,2,3-CD)PYRENE	0.002
NAPHTHALENE	10
PHENANTHRENE	50
PYRENE	50

0 30' 60'
GRAPHIC SCALE

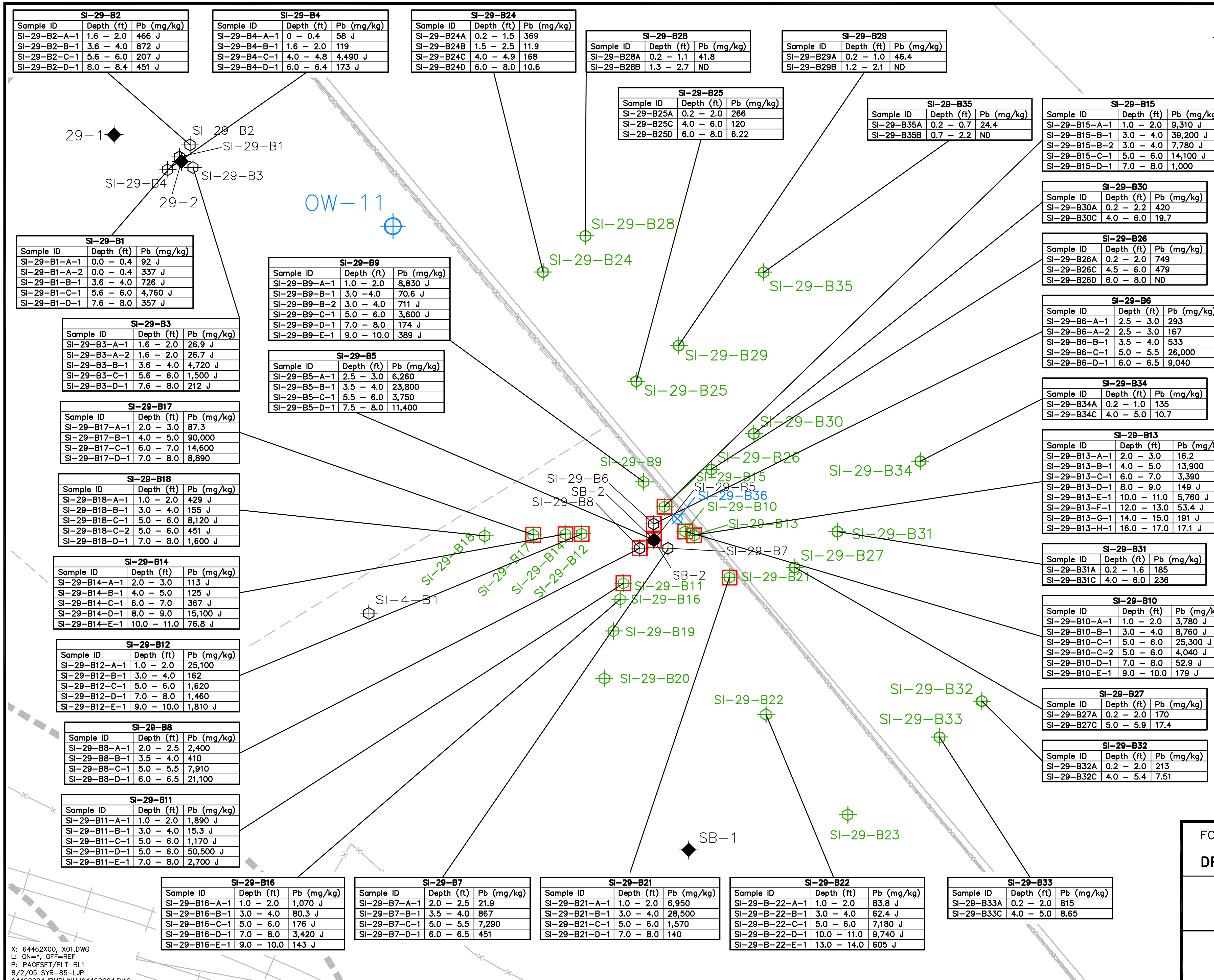
FORMER GENERAL MOTORS ASSEMBLY PLANT SITE
SLEEPY HOLLOW, NEW YORK
DRAFT REMEDIAL INVESTIGATION REPORT

VOCs/SVOCs IN GROUNDWATER - PAOC 21

BBL BLASLAND, BOUCK & LEE, INC. engineers, scientists, economists

FIGURE **6B**

X: 64462X00, X01.DWG
L: ON=*, OFF=REF, |PROP*, |TR_PAINTL
P: PAGESET/SYR-BL
8/12/05 SYR-85-LJP GMS
64462024/RMDLINV/64462C25.DWG



SI-29-B2		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-29-B2-A-1	1.6 - 2.0	466 J
SI-29-B2-B-1	3.6 - 4.0	872 J
SI-29-B2-C-1	5.6 - 6.0	207 J
SI-29-B2-D-1	8.0 - 8.4	451 J

SI-29-B4		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-29-B4-A-1	0 - 0.4	58 J
SI-29-B4-B-1	1.6 - 2.0	119
SI-29-B4-C-1	4.0 - 4.8	4,490 J
SI-29-B4-D-1	6.0 - 6.4	173 J

SI-29-B24		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-29-B24A	0.2 - 1.5	369
SI-29-B24B	1.5 - 2.5	11.9
SI-29-B24C	4.0 - 4.9	168
SI-29-B24D	6.0 - 8.0	10.6

SI-29-B28		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-29-B28A	0.2 - 1.1	41.8
SI-29-B28B	1.3 - 2.7	ND

SI-29-B29		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-29-B29A	0.2 - 1.0	46.4
SI-29-B29B	1.2 - 2.1	ND

SI-29-B25		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-29-B25A	0.2 - 2.0	266
SI-29-B25C	4.0 - 6.0	120
SI-29-B25D	6.0 - 8.0	6.22

SI-29-B35		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-29-B35A	0.2 - 0.7	24.4
SI-29-B35B	0.7 - 2.2	ND

SI-29-B15		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-29-B15-A-1	1.0 - 2.0	9,310 J
SI-29-B15-B-1	3.0 - 4.0	39,200 J
SI-29-B15-B-2	3.0 - 4.0	7,780 J
SI-29-B15-C-1	5.0 - 6.0	14,100 J
SI-29-B15-D-1	7.0 - 8.0	1,000

SI-29-B1		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-29-B1-A-1	0.0 - 0.4	92 J
SI-29-B1-A-2	0.0 - 0.4	337 J
SI-29-B1-B-1	3.6 - 4.0	726 J
SI-29-B1-C-1	5.6 - 6.0	4,760 J
SI-29-B1-D-1	7.6 - 8.0	357 J

SI-29-B9		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-29-B9-A-1	1.0 - 2.0	8,830 J
SI-29-B9-B-1	3.0 -4.0	70.6 J
SI-29-B9-B-2	3.0 - 4.0	711 J
SI-29-B9-C-1	5.0 - 6.0	3,600 J
SI-29-B9-D-1	7.0 - 8.0	174 J
SI-29-B9-E-1	9.0 - 10.0	389 J

SI-29-B3		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-29-B3-A-1	1.6 - 2.0	26.9 J
SI-29-B3-A-2	1.6 - 2.0	26.7 J
SI-29-B3-B-1	3.6 - 4.0	4,720 J
SI-29-B3-C-1	5.6 - 6.0	1,500 J
SI-29-B3-D-1	7.6 - 8.0	212 J

SI-29-B5		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-29-B5-A-1	2.5 - 3.0	6,260
SI-29-B5-B-1	3.5 - 4.0	23,800
SI-29-B5-C-1	5.5 - 6.0	3,750
SI-29-B5-D-1	7.5 - 8.0	11,400

SI-29-B17		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-29-B17-A-1	2.0 - 3.0	87.3
SI-29-B17-B-1	4.0 - 5.0	90,000
SI-29-B17-C-1	6.0 - 7.0	14,600
SI-29-B17-D-1	7.0 - 8.0	8,890

SI-29-B18		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-29-B18-A-1	1.0 - 2.0	429 J
SI-29-B18-B-1	3.0 - 4.0	155 J
SI-29-B18-C-1	5.0 - 6.0	8,120 J
SI-29-B18-C-2	5.0 - 6.0	451 J
SI-29-B18-D-1	7.0 - 8.0	1,600 J

SI-29-B14		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-29-B14-A-1	2.0 - 3.0	113 J
SI-29-B14-B-1	4.0 - 5.0	125 J
SI-29-B14-C-1	6.0 - 7.0	367 J
SI-29-B14-D-1	8.0 - 9.0	15,100 J
SI-29-B14-E-1	10.0 - 11.0	76.8 J

SI-29-B12		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-29-B12-A-1	1.0 - 2.0	25,100
SI-29-B12-B-1	3.0 - 4.0	162
SI-29-B12-C-1	5.0 - 6.0	1,620
SI-29-B12-D-1	7.0 - 8.0	1,460
SI-29-B12-E-1	9.0 - 10.0	1,810 J

SI-29-B8		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-29-B8-A-1	2.0 - 2.5	2,400
SI-29-B8-B-1	3.5 - 4.0	410
SI-29-B8-C-1	5.0 - 5.5	7,910
SI-29-B8-D-1	6.0 - 6.5	21,100

SI-29-B11		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-29-B11-A-1	1.0 - 2.0	1,890 J
SI-29-B11-B-1	3.0 - 4.0	15.3 J
SI-29-B11-C-1	5.0 - 6.0	1,170 J
SI-29-B11-D-1	5.0 - 6.0	50,500 J
SI-29-B11-E-1	7.0 - 8.0	2,700 J

SI-29-B30		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-29-B30A	0.2 - 2.2	420
SI-29-B30C	4.0 - 6.0	19.7

SI-29-B26		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-29-B26A	0.2 - 2.0	749
SI-29-B26C	4.5 - 6.0	479
SI-29-B26D	6.0 - 8.0	ND

SI-29-B6		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-29-B6-A-1	2.5 - 3.0	293
SI-29-B6-A-2	2.5 - 3.0	167
SI-29-B6-B-1	3.5 - 4.0	533
SI-29-B6-C-1	5.0 - 5.5	26,000
SI-29-B6-D-1	6.0 - 6.5	9,040

SI-29-B34		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-29-B34A	0.2 - 1.0	135
SI-29-B34C	4.0 - 5.0	10.7

SI-29-B13		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-29-B13-A-1	2.0 - 3.0	16.2
SI-29-B13-B-1	4.0 - 5.0	13,900
SI-29-B13-C-1	6.0 - 7.0	3,390
SI-29-B13-D-1	8.0 - 9.0	149 J
SI-29-B13-E-1	10.0 - 11.0	5,760 J
SI-29-B13-F-1	12.0 - 13.0	53.4 J
SI-29-B13-G-1	14.0 - 15.0	191 J
SI-29-B13-H-1	16.0 - 17.0	17.1 J

SI-29-B31		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-29-B31A	0.2 - 1.6	185
SI-29-B31C	4.0 - 6.0	236

SI-29-B10		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-29-B10-A-1	1.0 - 2.0	3,780 J
SI-29-B10-B-1	3.0 - 4.0	8,760 J
SI-29-B10-C-1	5.0 - 6.0	25,300 J
SI-29-B10-C-2	5.0 - 6.0	4,040 J
SI-29-B10-D-1	7.0 - 8.0	52.9 J
SI-29-B10-E-1	9.0 - 10.0	179 J

SI-29-B27		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-29-B27A	0.2 - 2.0	170
SI-29-B27C	5.0 - 5.9	17.4

SI-29-B32		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-29-B32A	0.2 - 2.0	213
SI-29-B32C	4.0 - 5.4	7.51

SI-29-B16		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-29-B16-A-1	1.0 - 2.0	1,070 J
SI-29-B16-B-1	3.0 - 4.0	80.3 J
SI-29-B16-C-1	5.0 - 6.0	176 J
SI-29-B16-D-1	7.0 - 8.0	3,420 J
SI-29-B16-E-1	9.0 - 10.0	143 J

SI-29-B7		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-29-B7-A-1	2.0 - 2.5	21.9
SI-29-B7-B-1	3.5 - 4.0	867
SI-29-B7-C-1	5.0 - 5.5	7,290
SI-29-B7-D-1	6.0 - 6.5	451

SI-29-B21		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-29-B21-A-1	1.0 - 2.0	6,950
SI-29-B21-B-1	3.0 - 4.0	28,500
SI-29-B21-C-1	5.0 - 6.0	1,570
SI-29-B21-D-1	7.0 - 8.0	140

SI-29-B22		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-29-B-22-A-1	1.0 - 2.0	83.8 J
SI-29-B-22-B-1	3.0 - 4.0	62.4 J
SI-29-B-22-C-1	5.0 - 6.0	7,180 J
SI-29-B-22-D-1	10.0 - 11.0	9,740 J
SI-29-B-22-E-1	13.0 - 14.0	605 J

SI-29-B33		
Sample ID	Depth (ft)	Pb (mg/kg)
SI-29-B33A	0.2 - 2.0	815
SI-29-B33C	4.0 - 5.0	8.65

X: 64462X00, X01.DWG
L: ON=*, OFF=REF
P: PAGESET/PLT-BL1
8/2/05 SYR-85-LJP
64462024/RMDLINV/64462C04.DWG

LEGEND:

- PERMANENT MONITORING WELL
- 2002 DUE DILIGENCE SOIL SAMPLE
- 2002 DUE DILIGENCE SOIL & GW SAMPLES
- 2003 SI TEMPORARY MONITORING WELL
- 2003 SI SOIL BORING
- 2004 SI TEMPORARY MONITORING WELL
- 2004 SI SOIL BORING
- SOIL LEAD RESULT >10,000 ppm

TAGM 4046 GUIDANCE	
UNRESTRICTED USE SCREENING VALUE	
LEAD (mg/kg)	400

NOTES:

1. BASE MAPS PROVIDED BY AMEC EARTH & ENVIRONMENTAL, NEW YORK, NEW YORK, DATED APRIL 2004.
2. SAMPLE RESULTS SHOWN IN MG/KG.
3. J = ESTIMATED CONCENTRATION
4. ND = CONSTITUENT NOT DETECTED
5. NA = NOT ANALYZED

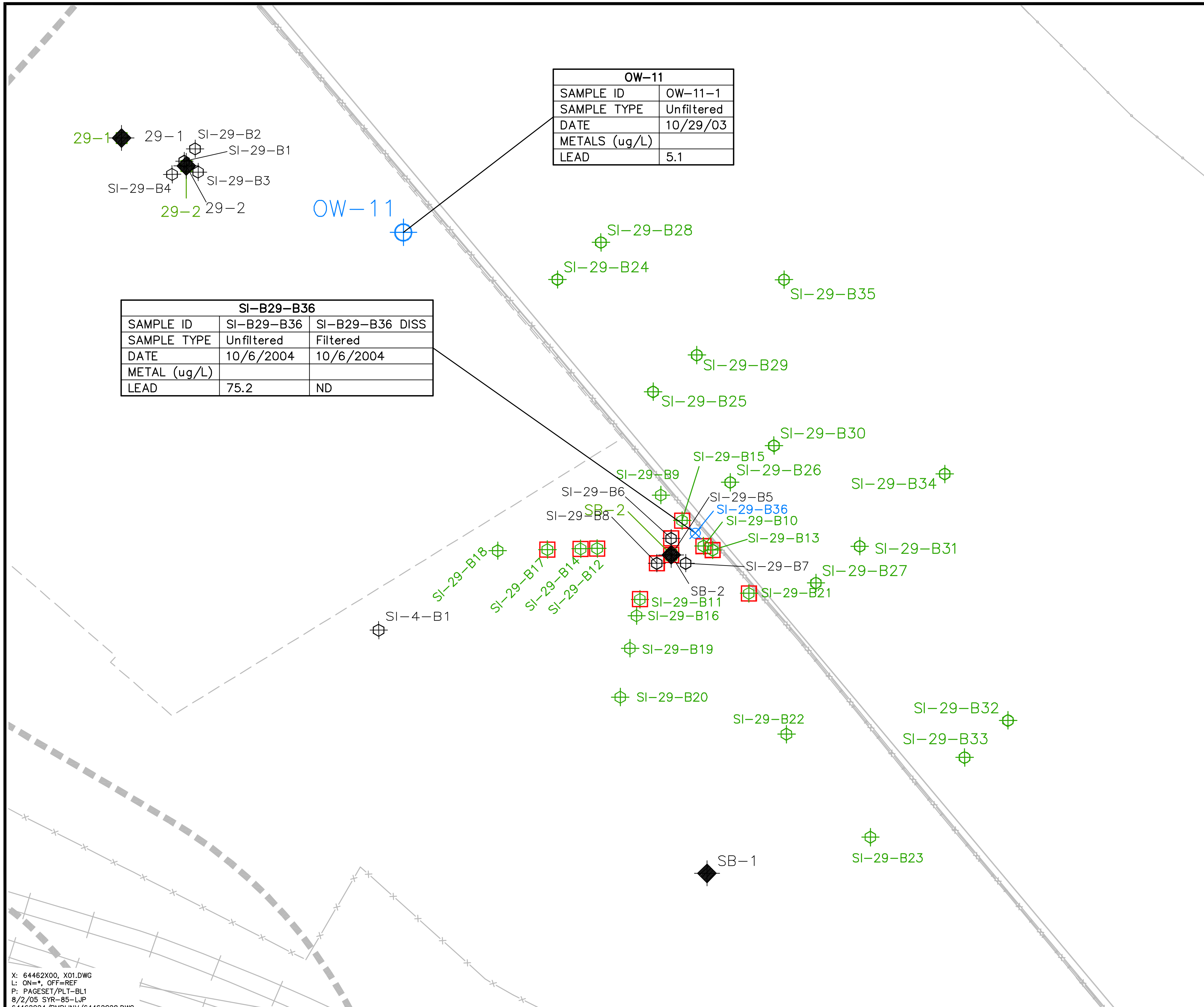
0 30' 60'
GRAPHIC SCALE

FORMER GENERAL MOTORS ASSEMBLY PLANT SITE
SLEEPY HOLLOW, NEW YORK
DRAFT REMEDIAL INVESTIGATION REPORT

LEAD IN SOIL - PAOC 29

BBL
BLASLAND, BOUCK & LEE, INC.
engineers, scientists, economists

FIGURE
7A



OW-11	
SAMPLE ID	OW-11-1
SAMPLE TYPE	Unfiltered
DATE	10/29/03
METALS (ug/L)	
LEAD	5.1

SI-B29-B36		
SAMPLE ID	SI-B29-B36	SI-B29-B36 DISS
SAMPLE TYPE	Unfiltered	Filtered
DATE	10/6/2004	10/6/2004
METAL (ug/L)		
LEAD	75.2	ND

LEGEND:

- PERMANENT MONITORING WELL
- 2002 DUE DILIGENCE SOIL SAMPLE
- 2002 DUE DILIGENCE SOIL & GW SAMPLES
- 2003 SI TEMPORARY MONITORING WELL
- 2003 SI SOIL BORING
- 2004 SI TEMPORARY MONITORING WELL
- 2004 SI SOIL BORING
- SOIL LEAD RESULT >10,000 ppm

CLASS GA GROUNDWATER STANDARDS AND GUIDANCE	
LEAD (ug/L)	25

NOTES:

1. BASE MAPS PROVIDED BY AMEC EARTH & ENVIRONMENTAL, NEW YORK, NEW YORK, DATED APRIL 2004.
2. SAMPLE RESULTS SHOWN IN ug/L.
3. J = ESTIMATED CONCENTRATION
4. ND = CONSTITUENT NOT DETECTED
5. NA = NOT ANALYZED

0 30' 60'
GRAPHIC SCALE

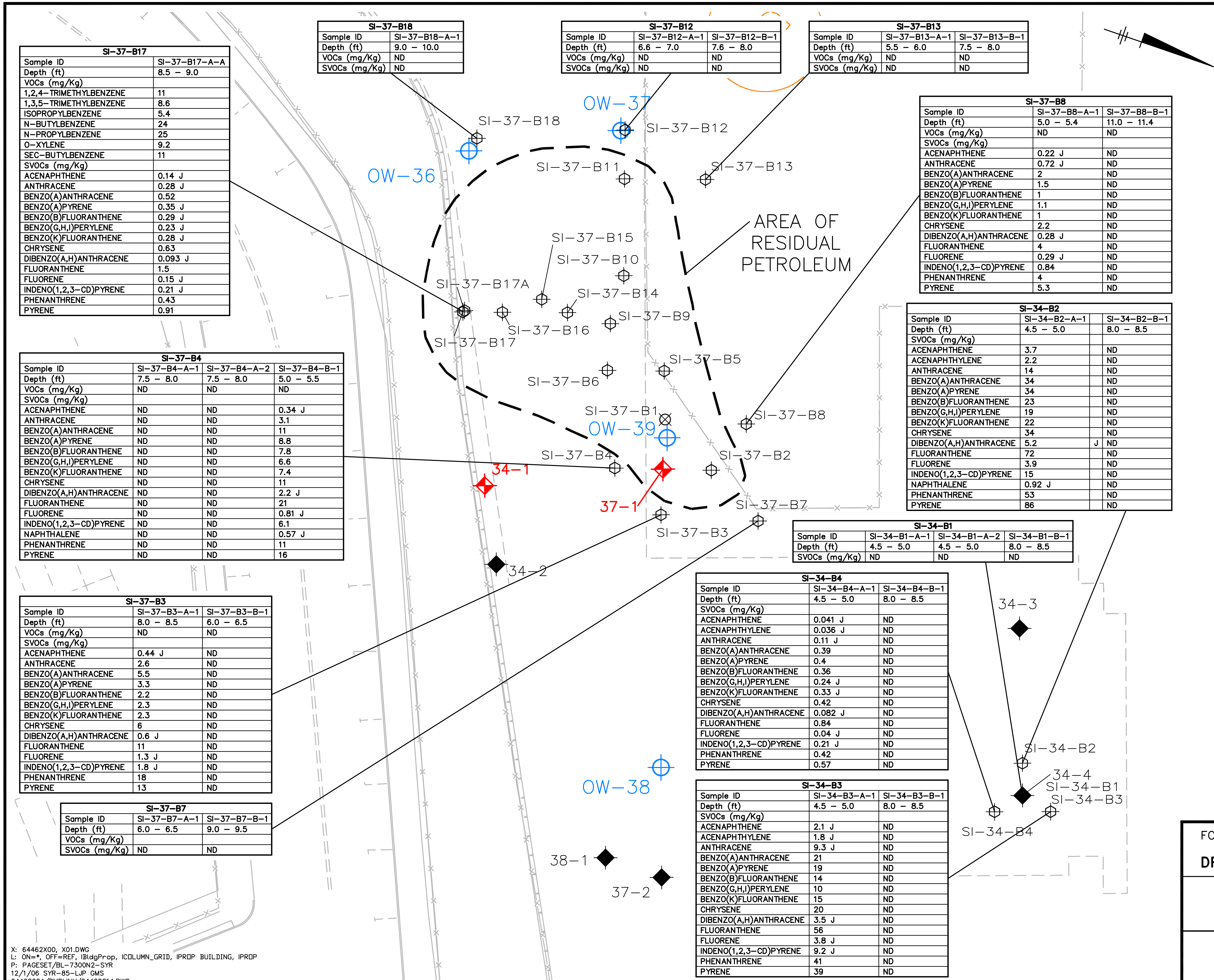
FORMER GENERAL MOTORS ASSEMBLY PLANT SITE
SLEEPY HOLLOW, NEW YORK
DRAFT REMEDIAL INVESTIGATION REPORT

LEAD IN GROUNDWATER - PAOC 29

BBL BLASLAND, BOUCK & LEE, INC. engineers, scientists, economists

FIGURE **7B**

X: 64462X00, X01.DWG
L: ON=*, OFF=REF
P: PAGESET/PLT-BL1
8/2/05 SYR-85-LJP
64462024/RMDLINV/64462C28.DWG



SI-37-B18	
Sample ID	SI-37-B18-A-1
Depth (ft)	9.0 - 10.0
VOCs (mg/Kg)	ND
SVOCs (mg/Kg)	ND

SI-37-B12		
Sample ID	SI-37-B12-A-1	SI-37-B12-B-1
Depth (ft)	6.6 - 7.0	7.6 - 8.0
VOCs (mg/Kg)	ND	ND
SVOCs (mg/Kg)	ND	ND

SI-37-B13		
Sample ID	SI-37-B13-A-1	SI-37-B13-B-1
Depth (ft)	5.5 - 6.0	7.5 - 8.0
VOCs (mg/Kg)	ND	ND
SVOCs (mg/Kg)	ND	ND

SI-37-B17	
Sample ID	SI-37-B17-A-A
Depth (ft)	8.5 - 9.0
VOCs (mg/Kg)	
1,2,4-TRIMETHYLBENZENE	11
1,3,5-TRIMETHYLBENZENE	8.6
ISOPROPYLBENZENE	5.4
N-BUTYLBENZENE	24
N-PROPYLBENZENE	25
O-XYLENE	9.2
SEC-BUTYLBENZENE	11
SVOCs (mg/Kg)	
ACENAPHTHENE	0.14 J
ANTHRACENE	0.28 J
BENZO(A)ANTHRACENE	0.52
BENZO(A)PYRENE	0.35 J
BENZO(B)FLUORANTHENE	0.29 J
BENZO(G,H,I)PERYLENE	0.23 J
BENZO(K)FLUORANTHENE	0.28 J
CHRYSENE	0.63
DIBENZO(A,H)ANTHRACENE	0.093 J
FLUORANTHENE	1.5
FLUORENE	0.15 J
INDENO(1,2,3-CD)PYRENE	0.21 J
PHENANTHRENE	0.43
PYRENE	0.91

SI-37-B8		
Sample ID	SI-37-B8-A-1	SI-37-B8-B-1
Depth (ft)	5.0 - 5.4	11.0 - 11.4
VOCs (mg/Kg)	ND	ND
SVOCs (mg/Kg)		
ACENAPHTHENE	0.22 J	ND
ANTHRACENE	0.72 J	ND
BENZO(A)ANTHRACENE	2	ND
BENZO(A)PYRENE	1.5	ND
BENZO(B)FLUORANTHENE	1	ND
BENZO(G,H,I)PERYLENE	1.1	ND
BENZO(K)FLUORANTHENE	1	ND
CHRYSENE	2.2	ND
DIBENZO(A,H)ANTHRACENE	0.28 J	ND
FLUORANTHENE	4	ND
FLUORENE	0.29 J	ND
INDENO(1,2,3-CD)PYRENE	0.84	ND
PHENANTHRENE	4	ND
PYRENE	5.3	ND

SI-37-B4			
Sample ID	SI-37-B4-A-1	SI-37-B4-A-2	SI-37-B4-B-1
Depth (ft)	7.5 - 8.0	7.5 - 8.0	5.0 - 5.5
VOCs (mg/Kg)	ND	ND	ND
SVOCs (mg/Kg)			
ACENAPHTHENE	ND	ND	0.34 J
ANTHRACENE	ND	ND	3.1
BENZO(A)ANTHRACENE	ND	ND	11
BENZO(A)PYRENE	ND	ND	8.8
BENZO(B)FLUORANTHENE	ND	ND	7.8
BENZO(G,H,I)PERYLENE	ND	ND	6.6
BENZO(K)FLUORANTHENE	ND	ND	7.4
CHRYSENE	ND	ND	11
DIBENZO(A,H)ANTHRACENE	ND	ND	2.2 J
FLUORANTHENE	ND	ND	21
FLUORENE	ND	ND	0.81 J
INDENO(1,2,3-CD)PYRENE	ND	ND	6.1
NAPHTHALENE	ND	ND	0.57 J
PHENANTHRENE	ND	ND	11
PYRENE	ND	ND	16

SI-34-B2		
Sample ID	SI-34-B2-A-1	SI-34-B2-B-1
Depth (ft)	4.5 - 5.0	8.0 - 8.5
SVOCs (mg/Kg)		
ACENAPHTHENE	3.7	ND
ACENAPHTHYLENE	2.2	ND
ANTHRACENE	14	ND
BENZO(A)ANTHRACENE	34	ND
BENZO(A)PYRENE	34	ND
BENZO(B)FLUORANTHENE	23	ND
BENZO(G,H,I)PERYLENE	19	ND
BENZO(K)FLUORANTHENE	22	ND
CHRYSENE	34	ND
DIBENZO(A,H)ANTHRACENE	5.2 J	ND
FLUORANTHENE	72	ND
FLUORENE	3.9	ND
INDENO(1,2,3-CD)PYRENE	15	ND
NAPHTHALENE	0.92 J	ND
PHENANTHRENE	53	ND
PYRENE	86	ND

SI-34-B1			
Sample ID	SI-34-B1-A-1	SI-34-B1-A-2	SI-34-B1-B-1
Depth (ft)	4.5 - 5.0	4.5 - 5.0	8.0 - 8.5
SVOCs (mg/Kg)	ND	ND	ND

SI-37-B3		
Sample ID	SI-37-B3-A-1	SI-37-B3-B-1
Depth (ft)	8.0 - 8.5	6.0 - 6.5
VOCs (mg/Kg)	ND	ND
SVOCs (mg/Kg)		
ACENAPHTHENE	0.44 J	ND
ANTHRACENE	2.6	ND
BENZO(A)ANTHRACENE	5.5	ND
BENZO(A)PYRENE	3.3	ND
BENZO(B)FLUORANTHENE	2.2	ND
BENZO(G,H,I)PERYLENE	2.3	ND
BENZO(K)FLUORANTHENE	2.3	ND
CHRYSENE	6	ND
DIBENZO(A,H)ANTHRACENE	0.6 J	ND
FLUORANTHENE	11	ND
FLUORENE	1.3 J	ND
INDENO(1,2,3-CD)PYRENE	1.8 J	ND
PHENANTHRENE	18	ND
PYRENE	13	ND

SI-37-B7		
Sample ID	SI-37-B7-A-1	SI-37-B7-B-1
Depth (ft)	6.0 - 6.5	9.0 - 9.5
VOCs (mg/Kg)		
SVOCs (mg/Kg)	ND	ND

SI-34-B4		
Sample ID	SI-34-B4-A-1	SI-34-B4-B-1
Depth (ft)	4.5 - 5.0	8.0 - 8.5
SVOCs (mg/Kg)		
ACENAPHTHENE	0.041 J	ND
ACENAPHTHYLENE	0.036 J	ND
ANTHRACENE	0.11 J	ND
BENZO(A)ANTHRACENE	0.39	ND
BENZO(A)PYRENE	0.4	ND
BENZO(B)FLUORANTHENE	0.36	ND
BENZO(G,H,I)PERYLENE	0.24 J	ND
BENZO(K)FLUORANTHENE	0.33 J	ND
CHRYSENE	0.42	ND
DIBENZO(A,H)ANTHRACENE	0.082 J	ND
FLUORANTHENE	0.84	ND
FLUORENE	0.04 J	ND
INDENO(1,2,3-CD)PYRENE	0.21 J	ND
PHENANTHRENE	0.42	ND
PYRENE	0.57	ND

SI-34-B3		
Sample ID	SI-34-B3-A-1	SI-34-B3-B-1
Depth (ft)	4.5 - 5.0	8.0 - 8.5
SVOCs (mg/Kg)		
ACENAPHTHENE	2.1 J	ND
ACENAPHTHYLENE	1.8 J	ND
ANTHRACENE	9.3 J	ND
BENZO(A)ANTHRACENE	21	ND
BENZO(A)PYRENE	19	ND
BENZO(B)FLUORANTHENE	14	ND
BENZO(G,H,I)PERYLENE	10	ND
BENZO(K)FLUORANTHENE	15	ND
CHRYSENE	20	ND
DIBENZO(A,H)ANTHRACENE	3.5 J	ND
FLUORANTHENE	56	ND
FLUORENE	3.8 J	ND
INDENO(1,2,3-CD)PYRENE	9.2 J	ND
PHENANTHRENE	41	ND
PYRENE	39	ND

LEGEND:

- PERMANENT MONITORING WELL
- 2002 DUE DILIGENCE SOIL SAMPLE
- 2002 DUE DILIGENCE SOIL & GW SAMPLE
- 2003 SI TEMPORARY MONITORING WELL
- 2003 SI SOIL BORING

TAGM 4046 GUIDANCE	
UNRESTRICTED USE SCREENING VALUE	
VOCs (mg/Kg)	
1,2,4-TRIMETHYLBENZENE	10
1,3,5-TRIMETHYLBENZENE	3.3
ISOPROPYLBENZENE	2.3
N-BUTYLBENZENE	10
N-PROPYLBENZENE	10
O-XYLENE	1.2
SEC-BUTYLBENZENE	10
SVOCs (mg/Kg)	
ACENAPHTHENE	50
ACENAPHTHYLENE	41
ANTHRACENE	50
BENZO(A)ANTHRACENE	0.224 or MDL
BENZO(A)PYRENE	0.61 or MDL
BENZO(B)FLUORANTHENE	0.220 or MDL
BENZO(G,H,I)PERYLENE	50
BENZO(K)FLUORANTHENE	0.220 or MDL
CHRYSENE	0.4
DIBENZO(A,H)ANTHRACENE	0.014 or MDL
FLUORANTHENE	50
FLUORENE	50
INDENO(1,2,3-CD)PYRENE	3.2
NAPHTHALENE	13
PHENANTHRENE	50
PYRENE	50
TOTAL C-PAHs	10
TOTAL SVOCs	500

NOTES:

1. BASE MAPS PROVIDED BY AMEC EARTH & ENVIRONMENTAL, NEW YORK, NEW YORK, DATED APRIL 2004.
2. SAMPLE RESULTS SHOWN IN MG/KG.
3. J = ESTIMATED CONCENTRATION
4. ND = CONSTITUENT NOT DETECTED
5. NA = NOT ANALYZED

0 30' 60'
GRAPHIC SCALE

FORMER GENERAL MOTORS ASSEMBLY PLANT SITE
SLEEPY HOLLOW, NEW YORK
DRAFT REMEDIAL INVESTIGATION REPORT

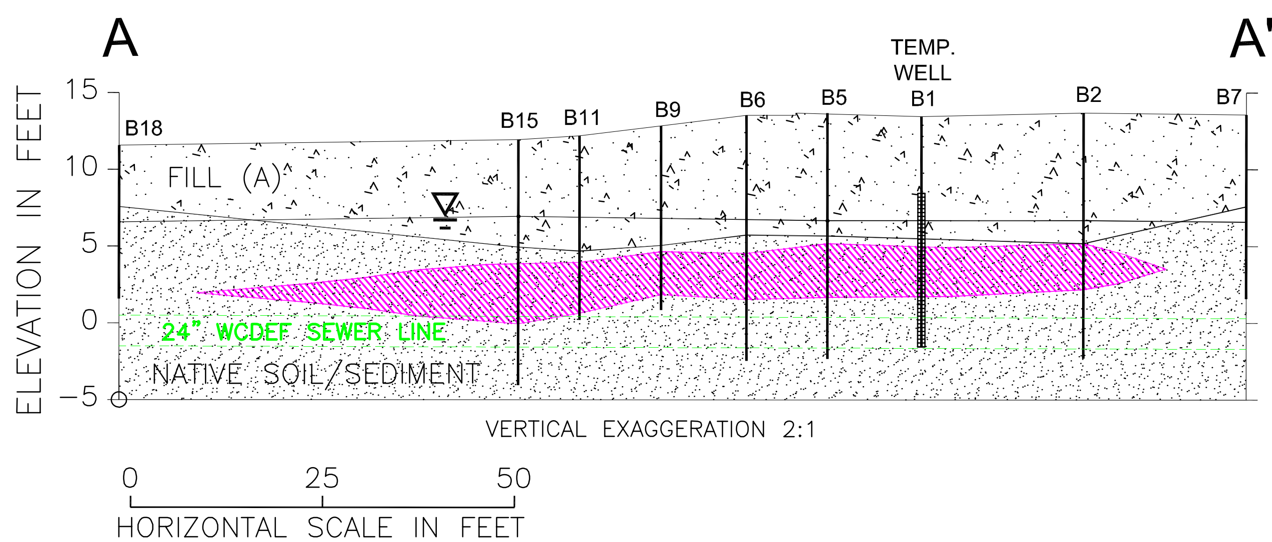
VOCs/SVOCs IN SOIL - PAOC 34 AND 37

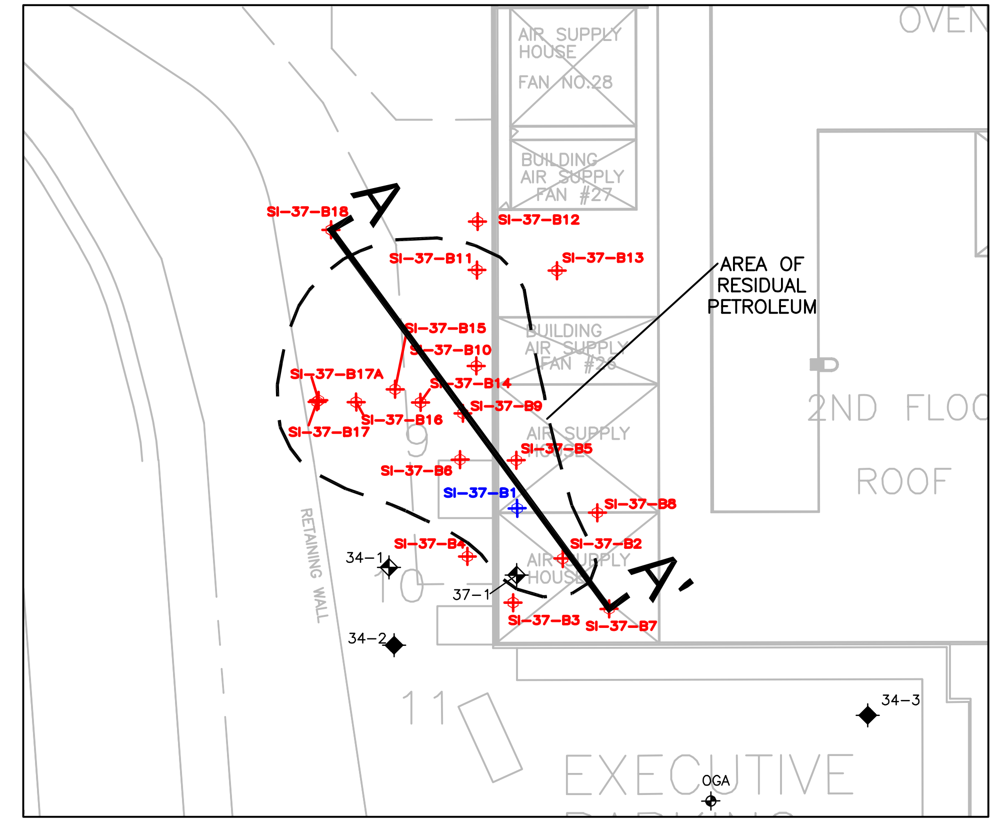
BBL
BLASLAND, BOUCK & LEE, INC.
engineers, scientists, economists

FIGURE
8A

X: 64462X00, X01.DWG
L: ON=*, OFF=REF, IBldgProp, ICOLUMN_GRID, IPROP BUILDING, IPROP
P: PAGESET/BL-7300N2-SYR
12/1/06 SYR-85-LJP GMS
64462024/RMDLINV/64462C14.DWG

CROSS-SECTION OF PAOC 37





CROSS SECTION LOCATION MAP

SCALE: 1"=60'

KEY TO UNITS:

FILL(A)	FILL consisting predominantly of hydraulic fill (f. brown SAND with traces of oyster shells) mixed with crushed stone, concrete, brick fragments, and traces of coal ash, compact.
FILL(B)	FILL consisting predominantly of coarse grained (i.e., gravelly textured)) coal ash (cinders), along with wood, brick fragments, concrete, metal debris, and glass.
SILT/SAND	Interbedded SILT, silty CLAY, and f-m-c SAND, loose, poorly compacted, stratified (floodplain and bay deposits); lower portion consists of poorly sorted m-f SAND.
SAND	Stratified f-c SAND, w./ gravelly horizons, loose, poorly sorted (possibly glacial outwash or deltaic deposits)
PEAT	PEAT (marsh deposits) containing up to 25% CLAY by volume, stiff, compact, stratified (undisturbed); contact with underlying clay unit may be gradational.
CLAY	Massive CLAY (marsh deposits), with up to 25% macroscopic organic matter and locallized PEAT-rich horizons, stiff, compact, stratified (undisturbed).
	Evidence of oil contamination observed (e.g., staining, odor, sheen,PID readings >100 ppm).

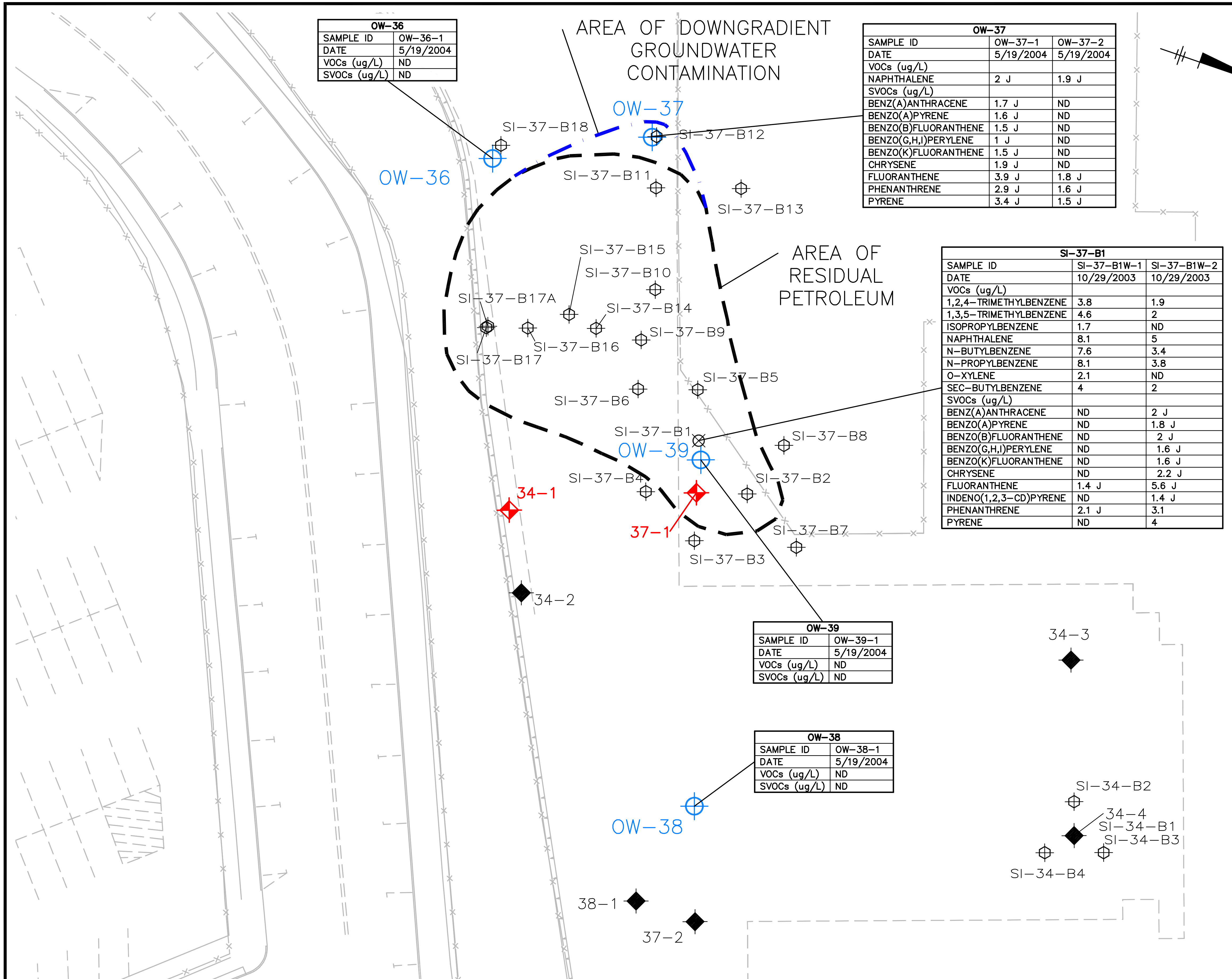
X: 64462X00, X04.DWG
L: ON=*, OFF=REF, lBldgProp, lTextBldgNumbers
P: PAGESET/BL-7300N2-SYR
11/30/06 SYR-85-LJP GMS
64462024/RMDLINV/64462V04.DWG

FORMER GENERAL MOTORS ASSEMBLY PLANT SITE
SLEEPY HOLLOW, NEW YORK
DRAFT REMEDIAL INVESTIGATION REPORT

SUBSURFACE CROSS-SECTION
PAOC 37

BBL
BLASLAND, BOUCK & LEE, INC.
engineers, scientists, economists

FIGURE
8B



OW-36	
SAMPLE ID	OW-36-1
DATE	5/19/2004
VOCs (ug/L)	ND
SVOCs (ug/L)	ND

OW-37		
SAMPLE ID	OW-37-1	OW-37-2
DATE	5/19/2004	5/19/2004
VOCs (ug/L)		
NAPHTHALENE	2 J	1.9 J
SVOCs (ug/L)		
BENZ(A)ANTHRACENE	1.7 J	ND
BENZO(A)PYRENE	1.6 J	ND
BENZO(B)FLUORANTHENE	1.5 J	ND
BENZO(G,H,I)PERYLENE	1 J	ND
BENZO(K)FLUORANTHENE	1.5 J	ND
CHRYSENE	1.9 J	ND
FLUORANTHENE	3.9 J	1.8 J
PHENANTHRENE	2.9 J	1.6 J
PYRENE	3.4 J	1.5 J

SI-37-B1		
SAMPLE ID	SI-37-B1W-1	SI-37-B1W-2
DATE	10/29/2003	10/29/2003
VOCs (ug/L)		
1,2,4-TRIMETHYLBENZENE	3.8	1.9
1,3,5-TRIMETHYLBENZENE	4.6	2
ISOPROPYLBENZENE	1.7	ND
NAPHTHALENE	8.1	5
N-BUTYLBENZENE	7.6	3.4
N-PROPYLBENZENE	8.1	3.8
O-XYLENE	2.1	ND
SEC-BUTYLBENZENE	4	2
SVOCs (ug/L)		
BENZ(A)ANTHRACENE	ND	2 J
BENZO(A)PYRENE	ND	1.8 J
BENZO(B)FLUORANTHENE	ND	2 J
BENZO(G,H,I)PERYLENE	ND	1.6 J
BENZO(K)FLUORANTHENE	ND	1.6 J
CHRYSENE	ND	2.2 J
FLUORANTHENE	1.4 J	5.6 J
INDENO(1,2,3-CD)PYRENE	ND	1.4 J
PHENANTHRENE	2.1 J	3.1
PYRENE	ND	4

OW-39	
SAMPLE ID	OW-39-1
DATE	5/19/2004
VOCs (ug/L)	ND
SVOCs (ug/L)	ND

OW-38	
SAMPLE ID	OW-38-1
DATE	5/19/2004
VOCs (ug/L)	ND
SVOCs (ug/L)	ND

LEGEND:

- PERMANENT MONITORING WELL
- 2002 DUE DILIGENCE SOIL SAMPLE
- 2002 DUE DILIGENCE SOIL & GW SAMPLE
- 2003 SI TEMPORARY MONITORING WELL
- 2003 SI SOIL BORING

CLASS GA GROUNDWATER STANDARDS AND GUIDANCE	
VOCs (ug/L)	
1,2,4-TRIMETHYLBENZENE	5
1,3,5-TRIMETHYLBENZENE	5
ISOPROPYLBENZENE	5
NAPHTHALENE	10
N-BUTYLBENZENE	5
N-PROPYLBENZENE	5
O-XYLENE	5
SEC-BUTYLBENZENE	5
SVOCs (ug/L)	
BENZ(A)ANTHRACENE	0.002
BENZO(A)PYRENE	0.002
BENZO(B)FLUORANTHENE	0.002
BENZO(G,H,I)PERYLENE	5
BENZO(K)FLUORANTHENE	0.002
CHRYSENE	0.002
FLUORANTHENE	50
INDENO(1,2,3-CD)PYRENE	0.002
PHENANTHRENE	50
PYRENE	50

NOTES:

1. BASE MAPS PROVIDED BY AMEC EARTH & ENVIRONMENTAL, NEW YORK, NEW YORK, DATED APRIL 2004.
2. SAMPLE RESULTS SHOWN IN ug/L.
3. J = ESTIMATED CONCENTRATION
4. ND = CONSTITUENT NOT DETECTED
5. NA = NOT ANALYZED

0 30' 60'
GRAPHIC SCALE

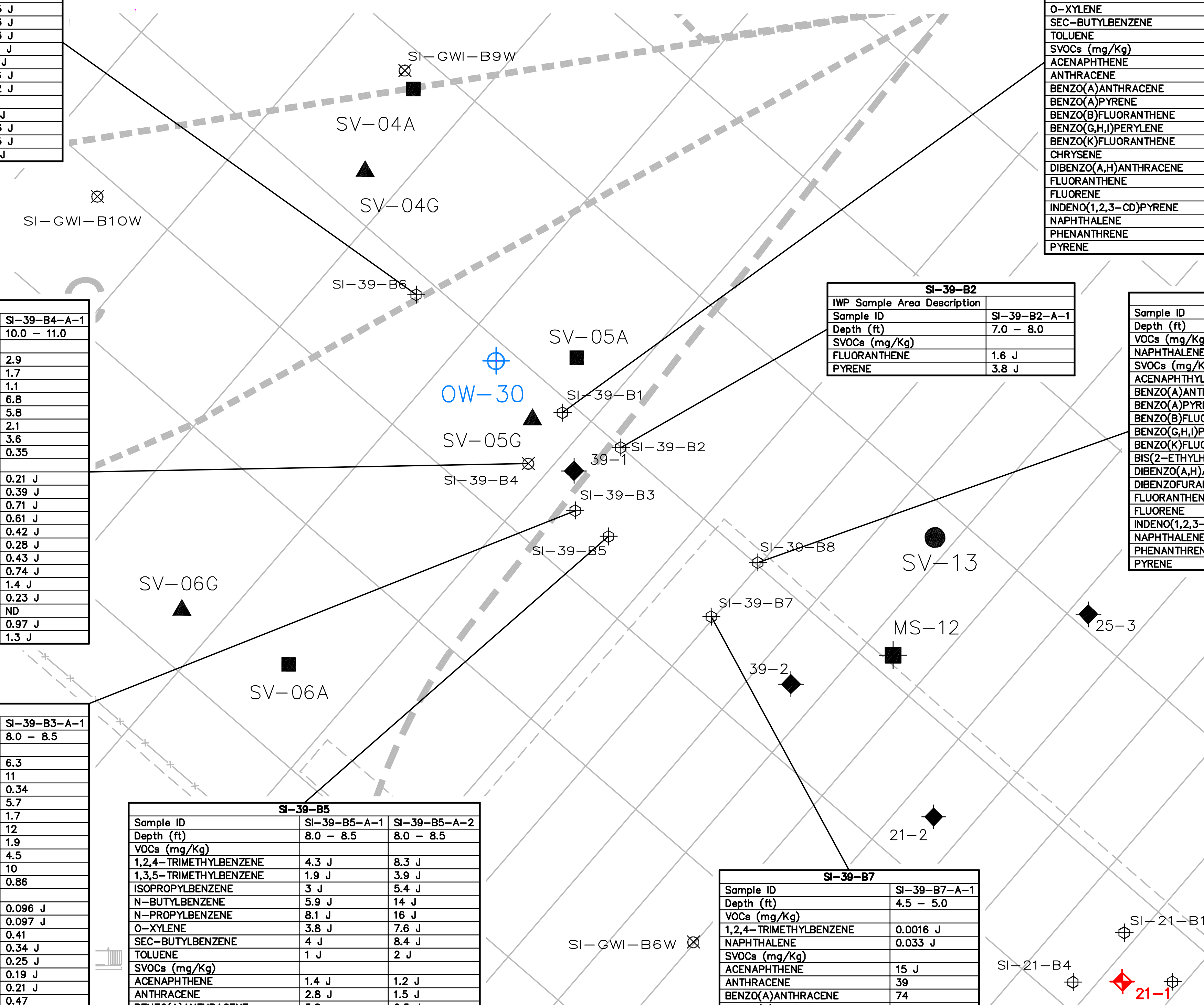
X: 64462X00, X01.DWG
L: ON=*, OFF=REF, IBldgProp, ICOLUMN_GRID, IPROP BUILDING TEXT, IPROP BUILDINGS, ITextBldgNumbers
P: PAGESET/BL-7300N2-SYR
11/30/06 SYR-85-LJP GMS
64462024/RMDLINV/64462C15.DWG

FORMER GENERAL MOTORS ASSEMBLY PLANT SITE
SLEEPY HOLLOW, NEW YORK
DRAFT REMEDIAL INVESTIGATION REPORT

VOCs/SVOCs IN GROUNDWATER - PAOC 34 AND 37

BBL BLASLAND, BOUCK & LEE, INC. engineers, scientists, economists

FIGURE 8C



SI-39-B6	
Sample ID	SI-39-B6-A-1
Depth (ft)	4.0 - 4.5
VOCs (mg/Kg)	ND
SVOCs (mg/Kg)	
ACENAPHTHENE	ND
ANTHRACENE	0.25 J
BENZO(A)ANTHRACENE	0.73 J
BENZO(A)PYRENE	0.83 J
BENZO(B)FLUORANTHENE	0.71 J
BENZO(G,H,I)PERYLENE	0.5 J
BENZO(K)FLUORANTHENE	0.66 J
CHRYSENE	0.82 J
DIBENZO(A,H)ANTHRACENE	ND
FLUORANTHENE	1.3 J
INDENO(1,2,3-CD)PYRENE	0.43 J
PHENANTHRENE	0.55 J
PYRENE	1.2 J

SI-39-B4	
Sample ID	SI-39-B4-A-1
Depth (ft)	10.0 - 11.0
VOCs (mg/Kg)	
1,2,4-TRIMETHYLBENZENE	2.9
1,3,5-TRIMETHYLBENZENE	1.7
ISOPROPYLBENZENE	1.1
N-BUTYLBENZENE	6.8
N-PROPYLBENZENE	5.8
O-XYLENE	2.1
SEC-BUTYLBENZENE	3.6
TOLUENE	0.35
SVOCs (mg/Kg)	
ACENAPHTHENE	0.21 J
ANTHRACENE	0.39 J
BENZO(A)ANTHRACENE	0.71 J
BENZO(A)PYRENE	0.61 J
BENZO(B)FLUORANTHENE	0.42 J
BENZO(G,H,I)PERYLENE	0.28 J
BENZO(K)FLUORANTHENE	0.43 J
CHRYSENE	0.74 J
FLUORANTHENE	1.4 J
INDENO(1,2,3-CD)PYRENE	0.23 J
NAPHTHALENE	ND
PHENANTHRENE	0.97 J
PYRENE	1.3 J

SI-39-B3	
Sample ID	SI-39-B3-A-1
Depth (ft)	8.0 - 8.5
VOCs (mg/Kg)	
1,2,4-TRIMETHYLBENZENE	6.3
1,3,5-TRIMETHYLBENZENE	11
BENZENE	0.34
ISOPROPYLBENZENE	5.7
NAPHTHALENE	1.7
N-PROPYLBENZENE	12
M,P-XYLENES	1.9
O-XYLENE	4.5
SEC-BUTYLBENZENE	10
TOLUENE	0.86
SVOCs (mg/Kg)	
ACENAPHTHENE	0.096 J
ANTHRACENE	0.097 J
BENZO(A)ANTHRACENE	0.41
BENZO(A)PYRENE	0.34 J
BENZO(B)FLUORANTHENE	0.25 J
BENZO(G,H,I)PERYLENE	0.19 J
BENZO(K)FLUORANTHENE	0.21 J
CHRYSENE	0.47
DIBENZO(A,H)ANTHRACENE	0.066 J
FLUORANTHENE	0.51
INDENO(1,2,3-CD)PYRENE	0.15 J
NAPHTHALENE	0.21 J
PHENANTHRENE	0.064 J
PYRENE	0.56

SI-39-B5		
Sample ID	SI-39-B5-A-1	SI-39-B5-A-2
Depth (ft)	8.0 - 8.5	8.0 - 8.5
VOCs (mg/Kg)		
1,2,4-TRIMETHYLBENZENE	4.3 J	8.3 J
1,3,5-TRIMETHYLBENZENE	1.9 J	3.9 J
ISOPROPYLBENZENE	3 J	5.4 J
N-BUTYLBENZENE	5.9 J	14 J
N-PROPYLBENZENE	8.1 J	16 J
O-XYLENE	3.8 J	7.6 J
SEC-BUTYLBENZENE	4 J	8.4 J
TOLUENE	1 J	2 J
SVOCs (mg/Kg)		
ACENAPHTHENE	1.4 J	1.2 J
ANTHRACENE	2.8 J	1.5 J
BENZO(A)ANTHRACENE	5.8	2.5 J
BENZO(A)PYRENE	6.1	1.7 J
BENZO(B)FLUORANTHENE	4.7	1.3 J
BENZO(G,H,I)PERYLENE	3.5 J	0.7 J
BENZO(K)FLUORANTHENE	4.7	1 J
CHRYSENE	6.8	2.7 J
DIBENZO(A,H)ANTHRACENE	1.3 J	ND
FLUORANTHENE	12	6.4
FLUORENE	1.8 J	1.3 J
INDENO(1,2,3-CD)PYRENE	3 J	0.65 J
PHENANTHRENE	9.3	5.4
PYRENE	7.6	4.4

SI-39-B2	
IWP Sample Area Description	
Sample ID	SI-39-B2-A-1
Depth (ft)	7.0 - 8.0
SVOCs (mg/Kg)	
FLUORANTHENE	1.6 J
PYRENE	3.8 J

SI-39-B7	
Sample ID	SI-39-B7-A-1
Depth (ft)	4.5 - 5.0
VOCs (mg/Kg)	
1,2,4-TRIMETHYLBENZENE	0.0016 J
NAPHTHALENE	0.033 J
SVOCs (mg/Kg)	
ACENAPHTHENE	15 J
ANTHRACENE	39
BENZO(A)ANTHRACENE	74
BENZO(A)PYRENE	66
BENZO(B)FLUORANTHENE	49
BENZO(G,H,I)PERYLENE	41
BENZO(K)FLUORANTHENE	52
CHRYSENE	71
DIBENZO(A,H)ANTHRACENE	14 J
FLUORANTHENE	160
FLUORENE	16 J
INDENO(1,2,3-CD)PYRENE	37
NAPHTHALENE	3 J
PHENANTHRENE	140
PYRENE	120

SI-39-B1		
Sample ID	SI-39-B1-A-1	SI-39-B2-A-1
Depth (ft)	4.0 - 4.5	7.0 - 8.0
VOCs (mg/Kg)		
1,2,4-TRIMETHYLBENZENE	0.0036	0.54
1,3,5-TRIMETHYLBENZENE	0.0081	1.8
ISOPROPYLBENZENE	ND	0.63
NAPHTHALENE	0.0019	ND
N-BUTYLBENZENE	0.0014	ND
N-PROPYLBENZENE	0.0065	1.7
O-XYLENE	0.0034	0.54
SEC-BUTYLBENZENE	0.004	0.96
TOLUENE	0.0024	ND
SVOCs (mg/Kg)		
ACENAPHTHENE	0.26 J	ND
ANTHRACENE	1.1 J	ND
BENZO(A)ANTHRACENE	3	ND
BENZO(A)PYRENE	3.2	ND
BENZO(B)FLUORANTHENE	2.4	ND
BENZO(G,H,I)PERYLENE	2.1	ND
BENZO(K)FLUORANTHENE	2.3	ND
CHRYSENE	3.3	ND
DIBENZO(A,H)ANTHRACENE	0.64 J	ND
FLUORANTHENE	5	1.6 J
FLUORENE	0.34 J	ND
INDENO(1,2,3-CD)PYRENE	1.7 J	ND
NAPHTHALENE	0.38 J	ND
PHENANTHRENE	2.4	ND
PYRENE	5.1	3.8 J

SI-39-B8	
Sample ID	
Depth (ft)	SI-39-B8-A-1
VOCs (mg/Kg)	5.0 - 5.5
NAPHTHALENE	0.002
SVOCs (mg/Kg)	
ACENAPHTHYLENE	13 J
BENZO(A)ANTHRACENE	34
BENZO(A)PYRENE	68
BENZO(B)FLUORANTHENE	66
BENZO(G,H,I)PERYLENE	54
BENZO(K)FLUORANTHENE	29
BIS(2-ETHYLHEXYL) PHTHALATE	50
DIBENZO(A,H)ANTHRACENE	67
DIBENZOFURAN	11 J
FLUORANTHENE	160
FLUORENE	13 J
INDENO(1,2,3-CD)PYRENE	27
NAPHTHALENE	3 J
PHENANTHRENE	100
PYRENE	110

LEGEND:

- PERMANENT MONITORING WELL
- 2002 DUE DILIGENCE SOIL SAMPLE
- 2002 DUE DILIGENCE SOIL & GW SAMPLES
- 2003 SI TEMPORARY MONITORING WELL
- 2003 SI SOIL BORING
- 2004 SI TEMPORARY MONITORING WELL
- 2004 SI SOIL BORING
- INFERRED FILL UNIT BOUNDARIES (EMCON PHASE I)

TAGM 4046 GUIDANCE	
UNRESTRICTED USE SCREENING VALUE	
VOCs (mg/Kg)	
1,3,5-TRIMETHYLBENZENE	3.3
BENZENE	0.06 or MDL
ISOPROPYLBENZENE	2.3
M,P-XYLENES	1.2
N-BUTYLBENZENE	10
N-PROPYLBENZENE	10
O-XYLENE	1.2
SEC-BUTYLBENZENE	10
TOLUENE	1.5
SVOCs (mg/Kg)	
ACENAPHTHENE	50
ACENAPHTHYLENE	41
ANTHRACENE	50
BENZO(A)ANTHRACENE	0.224 or MDL
BENZO(A)PYRENE	0.61 or MDL
BENZO(B)FLUORANTHENE	0.220 or MDL
BENZO(G,H,I)PERYLENE	50
BENZO(K)FLUORANTHENE	0.220 or MDL
BIS(2-ETHYLHEXYL) PHTHALATE	50
CHRYSENE	0.4
DIBENZO(A,H)ANTHRACENE	0.014 or MDL
DIBENZOFURAN	6.2
FLUORANTHENE	50
FLUORENE	50
INDENO(1,2,3-CD)PYRENE	3.2
NAPHTHALENE	13
PHENANTHRENE	50
PYRENE	50
TOTAL C-PAHs	10
TOTAL SVOCs	500

NOTES:

1. BASE MAPS PROVIDED BY AMEC EARTH & ENVIRONMENTAL, NEW YORK, NEW YORK, DATED APRIL 2004.
2. SAMPLE RESULTS SHOWN IN MG/KG.
3. J = ESTIMATED CONCENTRATION
4. ND = CONSTITUENT NOT DETECTED
5. NA = NOT ANALYZED

X: 64462X00, X01.DWG
L: ON=*, OFF=REF
P: PAGESET/PLT-BL1
8/2/05 SYR-85-LJP
64462024/RMDLINV/64462C21.DWG

FORMER GENERAL MOTORS ASSEMBLY PLANT SITE
SLEEPY HOLLOW, NEW YORK
DRAFT REMEDIAL INVESTIGATION REPORT

VOCs/SVOCs IN SOIL - PAOC 39

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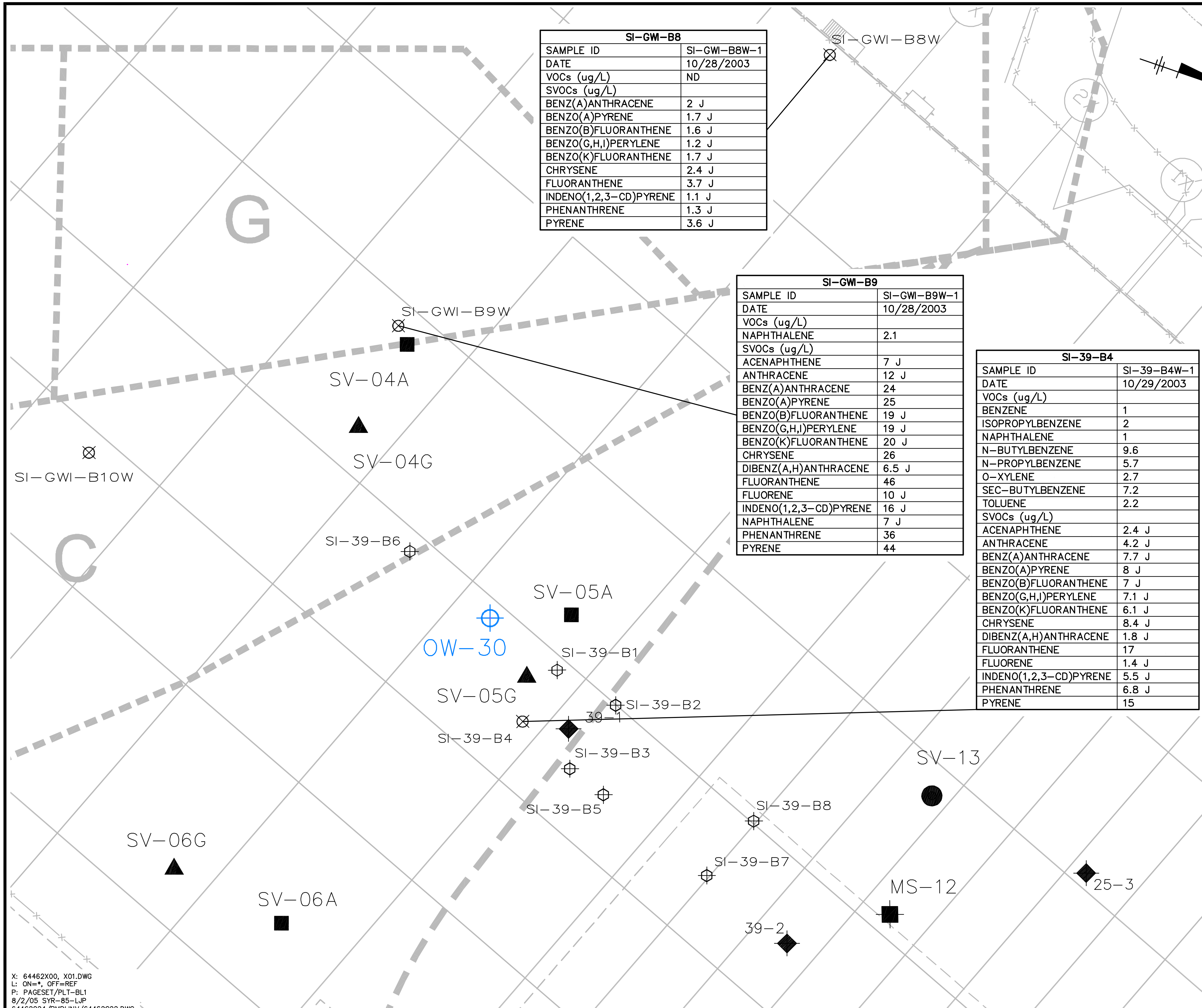
engineers, scientists, economists

FIGURE
9A



SI-GW-B8

SAMPLE ID	SI-GWI-B8W-1
DATE	10/28/2003
VOCs (ug/L)	ND
SVOCs (ug/L)	
BENZ(A)ANTHRACENE	2 J
BENZO(A)PYRENE	1.7 J
BENZO(B)FLUORANTHENE	1.6 J
BENZO(G,H,I)PERYLENE	1.2 J
BENZO(K)FLUORANTHENE	1.7 J
CHRYSENE	2.4 J
FLUORANTHENE	3.7 J
INDENO(1,2,3-CD)PYRENE	1.1 J
PHENANTHRENE	1.3 J
PYRENE	3.6 J

SI-GWI-B9

SAMPLE ID	SI-GWI-B9W-1
DATE	10/28/2003
VOCs (ug/L)	
NAPHTHALENE	2.1
SVOCs (ug/L)	
ACENAPHTHENE	7 J
ANTHRACENE	12 J
BENZ(A)ANTHRACENE	24
BENZO(A)PYRENE	25
BENZO(B)FLUORANTHENE	19 J
BENZO(G,H,I)PERYLENE	19 J
BENZO(K)FLUORANTHENE	20 J
CHRYSENE	26
DIBENZ(A,H)ANTHRACENE	6.5 J
FLUORANTHENE	46
FLUORENE	10 J
INDENO(1,2,3-CD)PYRENE	16 J
NAPHTHALENE	7 J
PHENANTHRENE	36
PYRENE	44

SI-39-B4

SAMPLE ID	SI-39-B4W-1
DATE	10/29/2003
VOCs (ug/L)	
BENZENE	1
ISOPROPYLBENZENE	2
NAPHTHALENE	1
N-BUTYLBENZENE	9.6
N-PROPYLBENZENE	5.7
O-XYLENE	2.7
SEC-BUTYLBENZENE	7.2
TOLUENE	2.2
SVOCs (ug/L)	
ACENAPHTHENE	2.4 J
ANTHRACENE	4.2 J
BENZ(A)ANTHRACENE	7.7 J
BENZO(A)PYRENE	8 J
BENZO(B)FLUORANTHENE	7 J
BENZO(G,H,I)PERYLENE	7.1 J
BENZO(K)FLUORANTHENE	6.1 J
CHRYSENE	8.4 J
DIBENZ(A,H)ANTHRACENE	1.8 J
FLUORANTHENE	17
FLUORENE	1.4 J
INDENO(1,2,3-CD)PYRENE	5.5 J
PHENANTHRENE	6.8 J
PYRENE	15

LEGEND:

- PERMANENT MONITORING WELL
- 2002 DUE DILIGENCE SOIL SAMPLE
- 2002 DUE DILIGENCE SOIL & GW SAMPLES
- 2003 SI TEMPORARY MONITORING WELL
- 2003 SI SOIL BORING
- 2004 SI TEMPORARY MONITORING WELL
- 2004 SI SOIL BORING
- INFERRED FILL UNIT BOUNDARIES (EMCON PHASE I)

CLASS GA GROUNDWATER STANDARDS AND GUIDANCE

VOCs (ug/L)	
BENZENE	1
ISOPROPYLBENZENE	5
N-BUTYLBENZENE	5
N-PROPYLBENZENE	5
O-XYLENE	5
SEC-BUTYLBENZENE	5
TOLUENE	5
SVOCs (ug/L)	
ACENAPHTHENE	20
ACENAPHTHYLENE	NA
ANTHRACENE	50
BENZ(A)ANTHRACENE	0.002
BENZO(A)PYRENE	ND
BENZO(G,H,I)PERYLENE	NA
BENZO(K)FLUORANTHENE	0.002
CHRYSENE	0.002
DIBENZ(A,H)ANTHRACENE	NA
FLUORANTHENE	50
INDENO(1,2,3-CD)PYRENE	0.002
NAPHTHALENE	10
PHENANTHRENE	50
PYRENE	50

NOTES:

1. BASE MAPS PROVIDED BY AMEC EARTH & ENVIRONMENTAL, NEW YORK, NEW YORK, DATED APRIL 2004.
2. SAMPLE RESULTS SHOWN IN ug/L.
3. J = ESTIMATED CONCENTRATION
4. ND = CONSTITUENT NOT DETECTED
5. NA = NOT ANALYZED

0 30' 60'

GRAPHIC SCALE

FORMER GENERAL MOTORS ASSEMBLY PLANT SITE
SLEEPY HOLLOW, NEW YORK
DRAFT REMEDIAL INVESTIGATION REPORT

VOCs/SVOCs IN GROUNDWATER - PAOC 39

BBL
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engineers, scientists, economists

FIGURE
9B

X: 64462X00, X01.DWG
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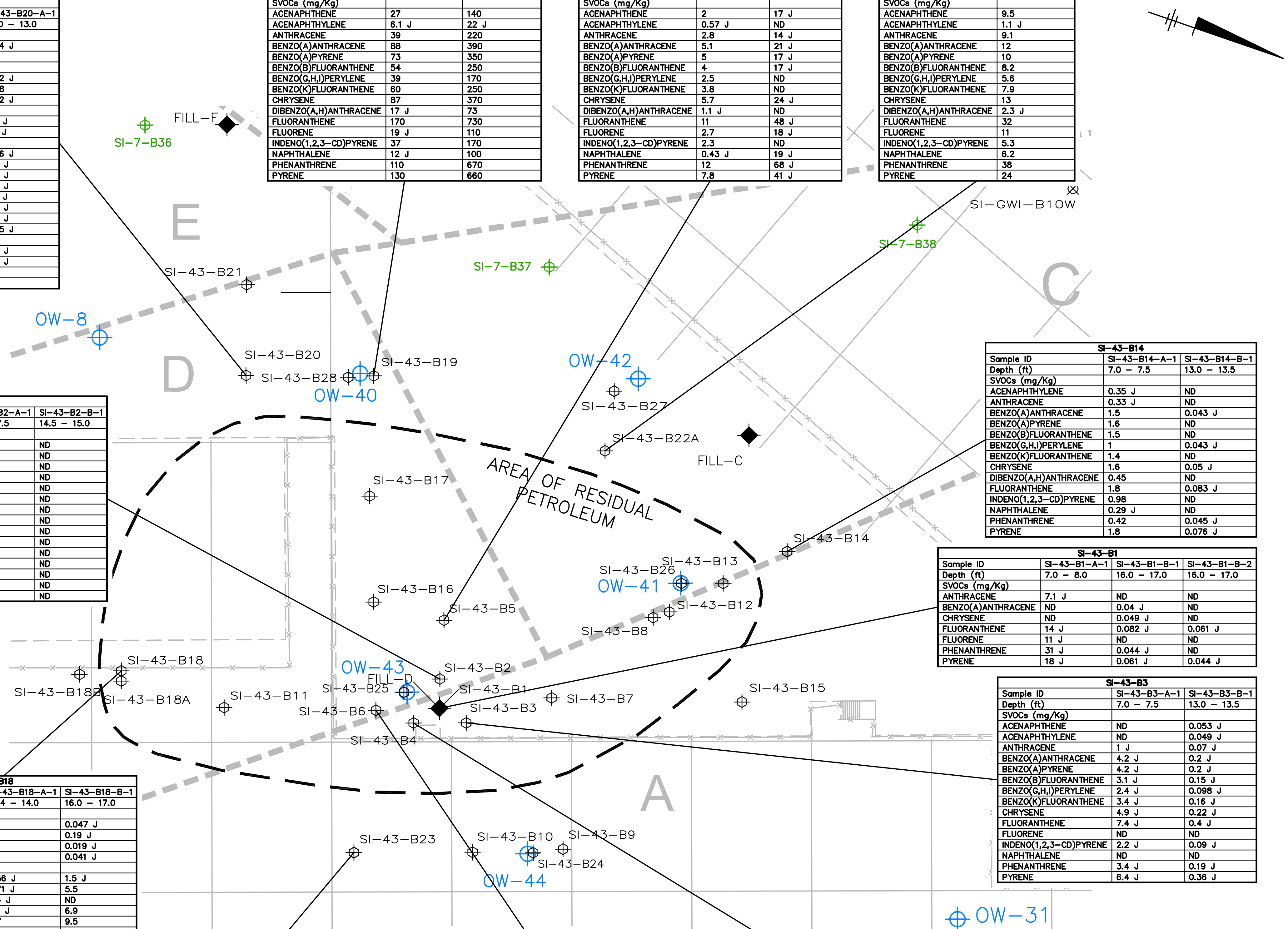
8/2/05 SYR-85-LJP
64462024/RMDLINV/64462C22.DWG



SI–43–B20	
Sample ID	SI–43–B20–A–1
Depth (ft)	12.0 – 13.0
VOCs (mg/Kg)	
ISOPROPYLBENZENE	0.34 J
NAPHTHALENE	1
N–BUTYLBENZENE	1.7
N–PROPYLBENZENE	0.42 J
SEC–BUTYLBENZENE	0.98
TERT–BUTYLBENZENE	0.22 J
SVOCs (mg/Kg)	
2–METHYLNAPHTHALENE	2.1 J
ACENAPHTHENE	1.1 J
ACENAPHTHYLENE	ND
ANTHRACENE	0.96 J
BENZO(A)ANTHRACENE	2.8 J
BENZO(A)PYRENE	2.8 J
BENZO(B)FLUORANTHENE	3.4 J
BENZO(G,H,I)PERYLENE	3.1 J
BENZO(K)FLUORANTHENE	2.7 J
CHRYSENE	4.4 J
DIBENZO(A,H)ANTHRACENE	0.95 J
FLUORANTHENE	9.9
FLUORENE	2.3 J
INDENO(1,2,3–CD)PYRENE	2.4 J
PHENANTHRENE	7.5
PYRENE	6.4

SI–43–B19		
Sample ID	SI–43–B19–A–1	SI–43–B19–A–2
Depth (ft)	12.0 – 13.0	12.0 – 13.0
SVOCs (mg/Kg)		
ACENAPHTHENE	27	140
ACENAPHTHYLENE	6.1 J	22 J
ANTHRACENE	39	220
BENZO(A)ANTHRACENE	88	390
BENZO(A)PYRENE	73	350
BENZO(B)FLUORANTHENE	54	250
BENZO(G,H,I)PERYLENE	39	170
BENZO(K)FLUORANTHENE	60	250
CHRYSENE	87	370
DIBENZO(A,H)ANTHRACENE	17 J	73
FLUORANTHENE	170	730
FLUORENE	19 J	110
INDENO(1,2,3–CD)PYRENE	37	170
NAPHTHALENE	12 J	100
PHENANTHRENE	110	670
PYRENE	130	660

SI–43–B5		
Sample ID	SI–43–B5–A–1	SI–43–B5–B–1
Depth (ft)	6.5 – 7.0	12.5 – 13.0
SVOCs (mg/Kg)		
ACENAPHTHENE	2	17 J
ACENAPHTHYLENE	0.57 J	ND
ANTHRACENE	2.8	14 J
BENZO(A)ANTHRACENE	5.1	21 J
BENZO(A)PYRENE	5	17 J
BENZO(B)FLUORANTHENE	4	17 J
BENZO(G,H,I)PERYLENE	2.5	ND
BENZO(K)FLUORANTHENE	3.8	ND
CHRYSENE	5.7	24 J
DIBENZO(A,H)ANTHRACENE	1.1 J	ND
FLUORANTHENE	11	48 J
FLUORENE	2.7	18 J
INDENO(1,2,3–CD)PYRENE	2.3	ND
NAPHTHALENE	0.43 J	19 J
PHENANTHRENE	12	68 J
PYRENE	7.8	41 J

SI–43–B22	
Sample ID	SI–43–B22–A–1
Depth (ft)	12.0 – 13.0
SVOCs (mg/Kg)	
ACENAPHTHENE	9.5
ACENAPHTHYLENE	1.1 J
ANTHRACENE	9.1
BENZO(A)ANTHRACENE	12
BENZO(A)PYRENE	10
BENZO(B)FLUORANTHENE	8.2
BENZO(G,H,I)PERYLENE	5.6
BENZO(K)FLUORANTHENE	7.9
CHRYSENE	13
DIBENZO(A,H)ANTHRACENE	2.3 J
FLUORANTHENE	32
FLUORENE	11
INDENO(1,2,3–CD)PYRENE	5.3
NAPHTHALENE	6.2
PHENANTHRENE	38
PYRENE	24

LEGEND:

- PERMANENT MONITORING WELL
- 2002 DUE DILIGENCE SOIL SAMPLE
- 2002 DUE DILIGENCE SOIL & GW SAMPLES
- 2003 SI TEMPORARY MONITORING WELL
- 2003 SI SOIL BORING
- 2004 SI TEMPORARY MONITORING WELL
- 2004 SI SOIL BORING
- INFERRED FILL UNIT BOUNDARIES (EMCON PHASE I)

SI–43–B2		
Sample ID	SI–43–B2–A–1	SI–43–B2–B–1
Depth (ft)	7.0 – 7.5	14.5 – 15.0
SVOCs (mg/Kg)		
ACENAPHTHYLENE	0.3 J	ND
ANTHRACENE	0.45 J	ND
BENZO(A)ANTHRACENE	1.5	ND
BENZO(A)PYRENE	1.1	ND
BENZO(B)FLUORANTHENE	1.4	ND
BENZO(G,H,I)PERYLENE	0.81 J	ND
BENZO(K)FLUORANTHENE	1.4	ND
CHRYSENE	1.9	ND
DIBENZO(A,H)ANTHRACENE	0.3 J	ND
FLUORANTHENE	3.5	ND
FLUORENE	0.15 J	ND
INDENO(1,2,3–CD)PYRENE	0.76 J	ND
NAPHTHALENE	0.15 J	ND
PHENANTHRENE	2	ND
PYRENE	2.2	ND

SI–43–B14		
Sample ID	SI–43–B14–A–1	SI–43–B14–B–1
Depth (ft)	7.0 – 7.5	13.0 – 13.5
SVOCs (mg/Kg)		
ACENAPHTHYLENE	0.35 J	ND
ANTHRACENE	0.33 J	ND
BENZO(A)ANTHRACENE	1.5	0.043 J
BENZO(A)PYRENE	1.6	ND
BENZO(B)FLUORANTHENE	1.5	ND
BENZO(G,H,I)PERYLENE	1	0.043 J
BENZO(K)FLUORANTHENE	1.4	ND
CHRYSENE	1.6	0.05 J
DIBENZO(A,H)ANTHRACENE	0.45	ND
FLUORANTHENE	1.8	0.083 J
INDENO(1,2,3–CD)PYRENE	0.98	ND
NAPHTHALENE	0.29 J	ND
PHENANTHRENE	0.42	0.045 J
PYRENE	1.8	0.076 J

TAGM 4046 GUIDANCE	
UNRESTRICTED USE SCREENING VALUE	
VOCs (mg/Kg)	
2–BUTANONE (MEK)	0.3
ACETONE	0.2
ISOPROPYLBENZENE	2.3
NAPHTHALENE	13
N–BUTYLBENZENE	10
N–PROPYLBENZENE	3.7
SEC–BUTYLBENZENE	10
TERT–BUTYLBENZENE	10
SVOCs (mg/Kg)	
2–METHYLNAPHTHALENE	36.4
ACENAPHTHENE	50
ACENAPHTHYLENE	41
ANTHRACENE	50
BENZO(A)ANTHRACENE	0.224 or MDL
BENZO(A)PYRENE	0.61 or MDL
BENZO(B)FLUORANTHENE	0.220 or MDL
BENZO(G,H,I)PERYLENE	50
BENZO(K)FLUORANTHENE	0.220 or MDL
CARBAZOLE	NA
CHRYSENE	0.4
DIBENZO(A,H)ANTHRACENE	0.014 or MDL
DIBENZOFURAN	6.2
DI–N–BUTYL PHTHALATE	50
FLUORANTHENE	50
FLUORENE	50
INDENO(1,2,3–CD)PYRENE	3.2
NAPHTHALENE	13
PHENANTHRENE	50
PYRENE	50
TOTAL C–PAHs	10
TOTAL SVOCs	500

SI–43–B1			
Sample ID	SI–43–B1–A–1	SI–43–B1–B–1	SI–43–B1–B–2
Depth (ft)	7.0 – 8.0	16.0 – 17.0	16.0 – 17.0
SVOCs (mg/Kg)			
ANTHRACENE	7.1 J	ND	ND
BENZO(A)ANTHRACENE	ND	0.04 J	ND
CHRYSENE	ND	0.049 J	ND
FLUORANTHENE	14 J	0.082 J	0.061 J
FLUORENE	11 J	ND	ND
PHENANTHRENE	31 J	0.044 J	ND
PYRENE	18 J	0.061 J	0.044 J

SI–43–B3		
Sample ID	SI–43–B3–A–1	SI–43–B3–B–1
Depth (ft)	7.0 – 7.5	13.0 – 13.5
SVOCs (mg/Kg)		
ACENAPHTHENE	ND	0.053 J
ACENAPHTHYLENE	ND	0.049 J
ANTHRACENE	1 J	0.07 J
BENZO(A)ANTHRACENE	4.2 J	0.2 J
BENZO(A)PYRENE	4.2 J	0.2 J
BENZO(B)FLUORANTHENE	3.1 J	0.15 J
BENZO(G,H,I)PERYLENE	2.4 J	0.098 J
BENZO(K)FLUORANTHENE	3.4 J	0.16 J
CHRYSENE	4.9 J	0.22 J
FLUORANTHENE	7.4 J	0.4 J
FLUORENE	ND	ND
INDENO(1,2,3–CD)PYRENE	2.2 J	0.09 J
NAPHTHALENE	ND	ND
PHENANTHRENE	3.4 J	0.19 J
PYRENE	6.4 J	0.36 J

NOTES:

1. BASE MAPS PROVIDED BY AMEC EARTH & ENVIRONMENTAL, NEW YORK, NEW YORK, DATED APRIL 2004.
2. SAMPLE RESULTS SHOWN IN mg/kg.
3. J = ESTIMATED CONCENTRATION
4. ND = CONSTITUENT NOT DETECTED
5. NA = NOT ANALYZED

SI–43–B18		
Sample ID	SI–43–B18–A–1	SI–43–B18–B–1
Depth (ft)	13.4 – 14.0	16.0 – 17.0
VOCs (mg/Kg)		
2–BUTANONE (MEK)	NA	0.047 J
ACETONE	NA	0.19 J
SEC–BUTYLBENZENE	NA	0.019 J
TERT–BUTYLBENZENE	NA	0.041 J
SVOCs (mg/Kg)		
2–METHYLNAPHTHALENE	0.56 J	1.5 J
ACENAPHTHENE	0.71 J	5.5
ACENAPHTHYLENE	0.4 J	ND
ANTHRACENE	1.4 J	6.9
BENZO(A)ANTHRACENE	3.7	9.5
BENZO(A)PYRENE	3.3	8.4
BENZO(B)FLUORANTHENE	2.6	6.3
BENZO(G,H,I)PERYLENE	2.1 J	4.9
BENZO(K)FLUORANTHENE	2.4 J	6.3
CARBAZOLE	0.38 J	3
CHRYSENE	4.1	9.4
DIBENZO(A,H)ANTHRACENE	0.76 J	1.7 J
DIBENZOFURAN	0.28 J	2.1 J
DI–N–BUTYL PHTHALATE	3.9	0.57 J
FLUORANTHENE	7.5	23
FLUORENE	0.87 J	4.1
INDENO(1,2,3–CD)PYRENE	1.9 J	4.6
NAPHTHALENE	0.43 J	2.4
PHENANTHRENE	6.2	23
PYRENE	6.2	16

SI–43–B23	
Sample ID	SI–43–B23–A–1
Depth (ft)	13.0 – 14.0
SVOCs (mg/Kg)	
ACENAPHTHENE	0.095 J
ACENAPHTHYLENE	0.24 J
ANTHRACENE	0.17 J
BENZO(A)ANTHRACENE	0.99
BENZO(A)PYRENE	1.1
BENZO(B)FLUORANTHENE	1
BENZO(G,H,I)PERYLENE	0.71
BENZO(K)FLUORANTHENE	0.84
CHRYSENE	1.2
DIBENZO(A,H)ANTHRACENE	0.25 J
FLUORANTHENE	1.6
INDENO(1,2,3–CD)PYRENE	0.68
NAPHTHALENE	0.052 J
PHENANTHRENE	0.31 J
PYRENE	1.5

SI–43–B6		
Sample ID	SI–43–B6–A–1	SI–43–B6–B–1
Depth (ft)	7.5 – 8.0	15.5 – 16.0
SVOCs (mg/Kg)		
ACENAPHTHENE	120	0.13 J
ACENAPHTHYLENE	23 J	0.24 J
ANTHRACENE	230	0.24 J
BENZO(A)ANTHRACENE	360	0.87
BENZO(A)PYRENE	340	0.85
BENZO(B)FLUORANTHENE	250	0.78
BENZO(G,H,I)PERYLENE	230	0.61
BENZO(K)FLUORANTHENE	260	0.65
CHRYSENE	360	1
DIBENZO(A,H)ANTHRACENE	83	0.21 J
FLUORANTHENE	750	1.8
FLUORENE	160	0.078 J
INDENO(1,2,3–CD)PYRENE	200	0.54
NAPHTHALENE	56 J	0.073 J
PHENANTHRENE	710	0.84
PYRENE	550	1.4

SI–43–B4	
Sample ID	SI–43–B4–B–1
Depth (ft)	13.0 – 13.5
SVOCs (mg/Kg)	
ACENAPHTHENE	0.071 J
ACENAPHTHYLENE	0.082 J
ANTHRACENE	0.1 J
BENZO(A)ANTHRACENE	0.32 J
BENZO(A)PYRENE	0.31 J
BENZO(B)FLUORANTHENE	0.26 J
BENZO(G,H,I)PERYLENE	0.16 J
BENZO(K)FLUORANTHENE	0.25 J
CHRYSENE	0.38 J
DIBENZO(A,H)ANTHRACENE	0.059 J
FLUORANTHENE	0.81
INDENO(1,2,3–CD)PYRENE	0.15 J
PHENANTHRENE	0.23 J
PYRENE	0.63

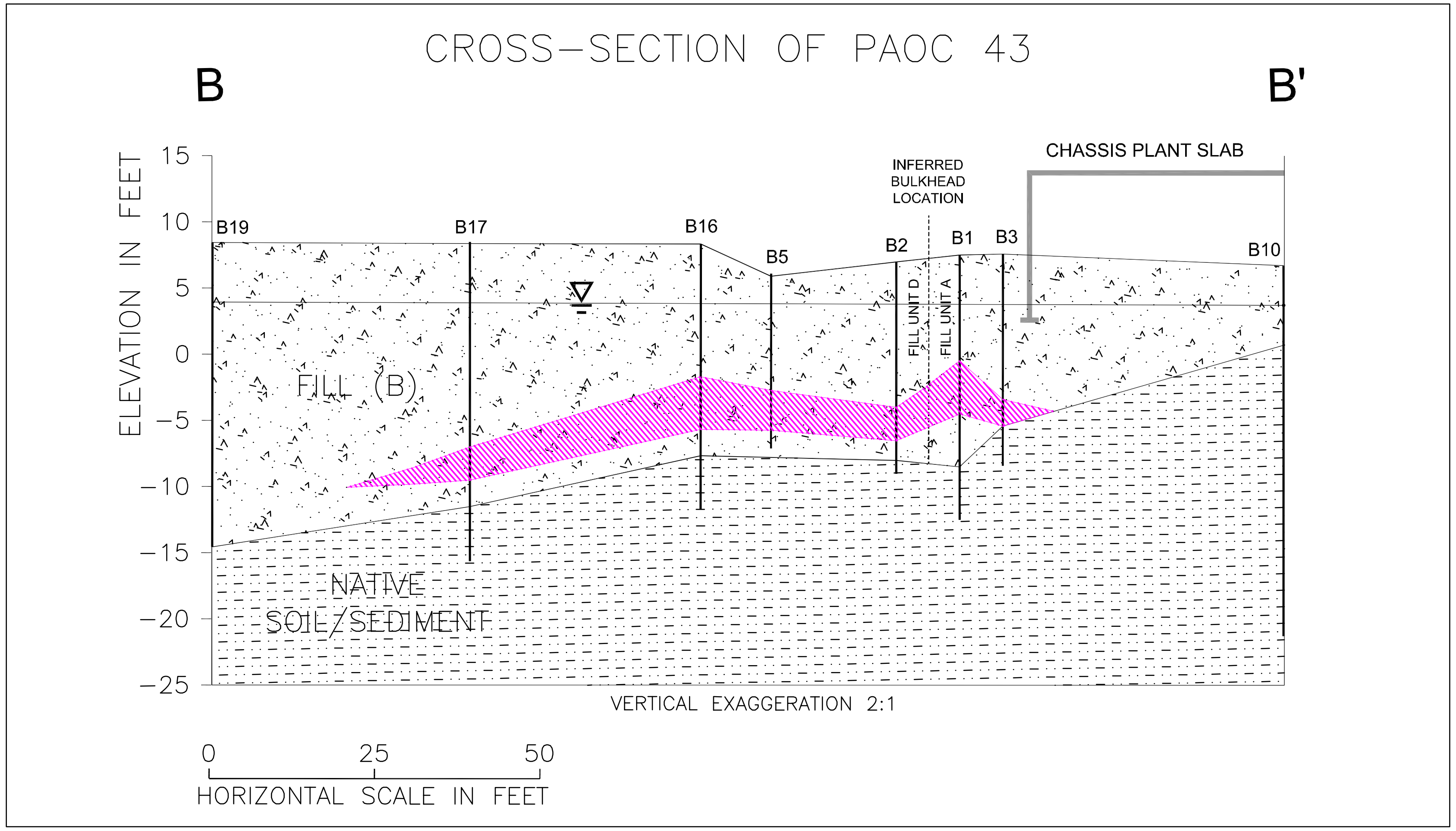
X: 64462X00, X01.DWG
L: ON=*, OFF=REF, IBldgProp, IPROP BUILDINGS
P: PAGESET/BL–7300N2–SYR
12/1/06 SYR–85–LJP GMS
64462024/RMDLINV/64462C06.DWG

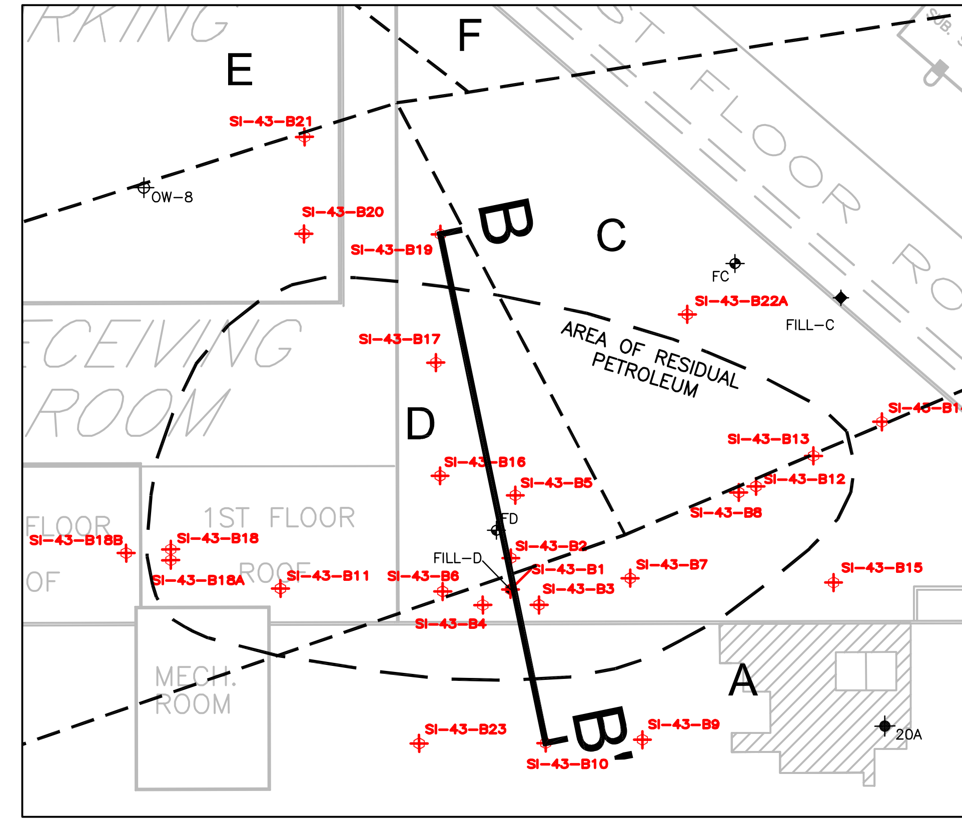
FORMER GENERAL MOTORS ASSEMBLY PLANT SITE
SLEEPY HOLLOW, NEW YORK
DRAFT REMEDIAL INVESTIGATION REPORT

VOCs/SVOCs IN SOIL - PAOC 43

BBL® BLASLAND, BOUCK & LEE, INC. engineers, scientists, economists

FIGURE
10A





CROSS SECTION LOCATION MAP

SCALE: 1"=60'

KEY TO UNITS:

FILL(A)	FILL consisting predominantly of hydraulic fill (f. brown SAND with traces of oyster shells) mixed with crushed stone, concrete, brick fragments, and traces of coal ash, compact.
FILL(B)	FILL consisting predominantly of coarse grained (i.e., gravelly textured)) coal ash (cinders), along with wood, brick fragments, concrete, metal debris, and glass.
SILT/SAND	Interbedded SILT, silty CLAY, and f-m-c SAND, loose, poorly compacted, stratified (floodplain and bay deposits); lower portion consists of poorly sorted m-f SAND.
SAND	Stratified f-c SAND, w./ gravelly horizons, loose, poorly sorted (possibly glacial outwash or deltaic deposits)
PEAT	PEAT (marsh deposits) containing up to 25% CLAY by volume, stiff, compact, stratified (undisturbed); contact with underlying clay unit may be gradational.
CLAY	Massive CLAY (marsh deposits), with up to 25% macroscopic organic matter and locallized PEAT-rich horizons, stiff, compact, stratified (undisturbed).
	Evidence of oil contamination observed (e.g., staining, odor, sheen,PID readings >100 ppm).

FORMER GENERAL MOTORS ASSEMBLY PLANT SITE
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SUBSURFACE CROSS-SECTION PAOC 43

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FIGURE
10B

X: 64462X00, X04.DWG
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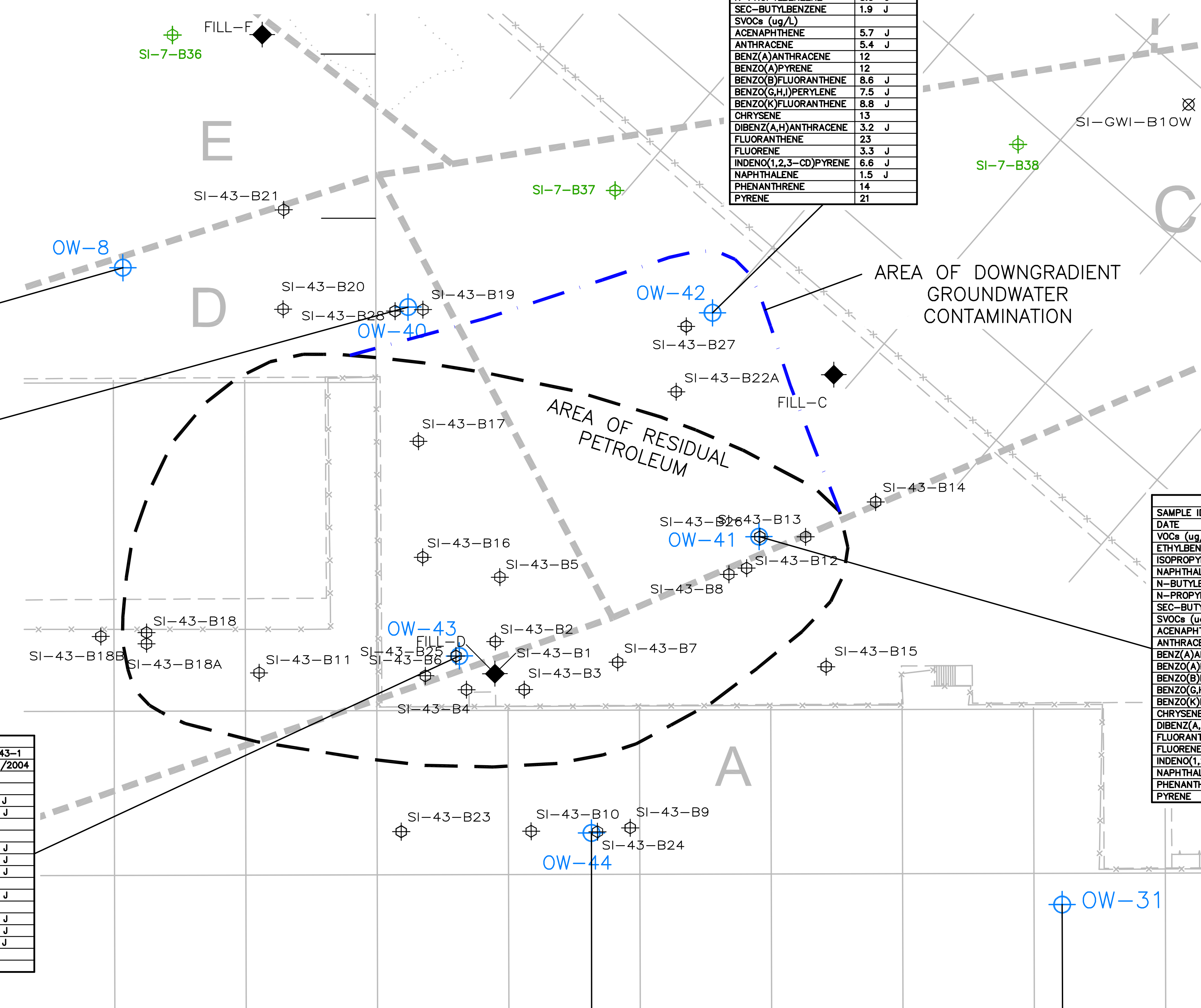
P: PAGESET/BL-7300N2-SYR
12/1/06 SYR-85-LJP GMS
64462024/RMDLINV/64462V03.DWG



OW–08	
SAMPLE ID	OW–08–1
DATE	5/19/2004
VOCs (ug/L)	ND
SVOCs (ug/L)	ND

OW–40–1	
SAMPLE ID	OW–40–1
DATE	5/20/2004
VOCs (ug/L)	
NAPHTHALENE	3.6 J
SVOCs (ug/L)	

OW–42	
SAMPLE ID	OW–42–1
DATE	5/20/2004
VOCs (ug/L)	
ETHYLBENZENE	1 J
ISOPROPYLBENZENE	3 J
NAPHTHALENE	47
N–BUTYLBENZENE	1.6 J
N–PROPYLBENZENE	3.9 J
SEC–BUTYLBENZENE	1.9 J
SVOCs (ug/L)	
ACENAPHTHENE	5.7 J
ANTHRACENE	5.4 J
BENZ(A)ANTHRACENE	12
BENZO(A)PYRENE	12
BENZO(B)FLUORANTHENE	8.6 J
BENZO(G,H,I)PERYLENE	7.5 J
BENZO(K)FLUORANTHENE	8.8 J
CHRYSENE	13
DIBENZ(A,H)ANTHRACENE	3.2 J
FLUORANTHENE	23
FLUORENE	3.3 J
INDENO(1,2,3–CD)PYRENE	6.6 J
NAPHTHALENE	1.5 J
PHENANTHRENE	14
PYRENE	21

OW–41	
SAMPLE ID	OW–41–1
DATE	5/19/2004
VOCs (ug/L)	
ETHYLBENZENE	ND
ISOPROPYLBENZENE	ND
NAPHTHALENE	9.8 J
N–BUTYLBENZENE	ND
N–PROPYLBENZENE	ND
SEC–BUTYLBENZENE	ND
SVOCs (ug/L)	
ACENAPHTHENE	19
ANTHRACENE	18
BENZ(A)ANTHRACENE	36
BENZO(A)PYRENE	35
BENZO(B)FLUORANTHENE	30
BENZO(G,H,I)PERYLENE	24
BENZO(K)FLUORANTHENE	28
CHRYSENE	44
DIBENZ(A,H)ANTHRACENE	8.6 J
FLUORANTHENE	68 J
FLUORENE	24
INDENO(1,2,3–CD)PYRENE	20
NAPHTHALENE	4.8 J
PHENANTHRENE	64 J
PYRENE	62 J

OW–43	
SAMPLE ID	OW–43–1
DATE	5/19/2004
VOCs (ug/L)	ND
SVOCs (ug/L)	
ACENAPHTHENE	1.6 J
ANTHRACENE	3.9 J
BENZ(A)ANTHRACENE	11
BENZO(A)PYRENE	11
BENZO(B)FLUORANTHENE	9.4 J
BENZO(G,H,I)PERYLENE	7.8 J
BENZO(K)FLUORANTHENE	8.6 J
CHRYSENE	14
DIBENZ(A,H)ANTHRACENE	2.4 J
FLUORANTHENE	20
FLUORENE	2.2 J
INDENO(1,2,3–CD)PYRENE	6.6 J
NAPHTHALENE	1.8 J
PHENANTHRENE	12
PYRENE	24

OW–44	
SAMPLE ID	OW–44–1
DATE	5/21/2004
VOCs (ug/L)	ND
SVOCs (ug/L)	ND

OW–31	
SAMPLE ID	OW–31–1
DATE	5/21/2004
VOCs (ug/L)	ND
SVOCs (ug/L)	ND

LEGEND:

- PERMANENT MONITORING WELL
- 2002 DUE DILIGENCE SOIL SAMPLE
- 2002 DUE DILIGENCE SOIL & GW SAMPLES
- 2003 SI TEMPORARY MONITORING WELL
- 2003 SI SOIL BORING
- 2004 SI TEMPORARY MONITORING WELL
- 2004 SI SOIL BORING
- INFERRED FILL UNIT BOUNDARIES (EMCON PHASE I)

CLASS GA GROUNDWATER STANDARDS AND GUIDANCE	
VOCs (ug/L)	
ETHYLBENZENE	5
ISOPROPYLBENZENE	5
NAPHTHALENE	10
N–BUTYLBENZENE	5
N–PROPYLBENZENE	5
SEC–BUTYLBENZENE	5
SVOCs (ug/L)	
ACENAPHTHENE	20
ANTHRACENE	50
BENZ(A)ANTHRACENE	0.002
BENZO(A)PYRENE	ND
BENZO(B)FLUORANTHENE	0.002
BENZO(G,H,I)PERYLENE	NA
BENZO(K)FLUORANTHENE	0.002
CHRYSENE	0.002
DIBENZ(A,H)ANTHRACENE	NA
FLUORANTHENE	50
FLUORENE	50
INDENO(1,2,3–CD)PYRENE	0.002
NAPHTHALENE	10
PHENANTHRENE	50
PYRENE	50

NOTES:

1. BASE MAPS PROVIDED BY AMEC EARTH & ENVIRONMENTAL, NEW YORK, NEW YORK, DATED APRIL 2004.
2. SAMPLE RESULTS SHOWN IN ug/L.
3. J = ESTIMATED CONCENTRATION
4. ND = CONSTITUENT NOT DETECTED
5. NA = NOT ANALYZED

0 40' 80'
GRAPHIC SCALE

FORMER GENERAL MOTORS ASSEMBLY PLANT SITE
SLEEPY HOLLOW, NEW YORK
DRAFT REMEDIAL INVESTIGATION REPORT

VOCs/SVOCs IN GROUNDWATER - PAOC 43

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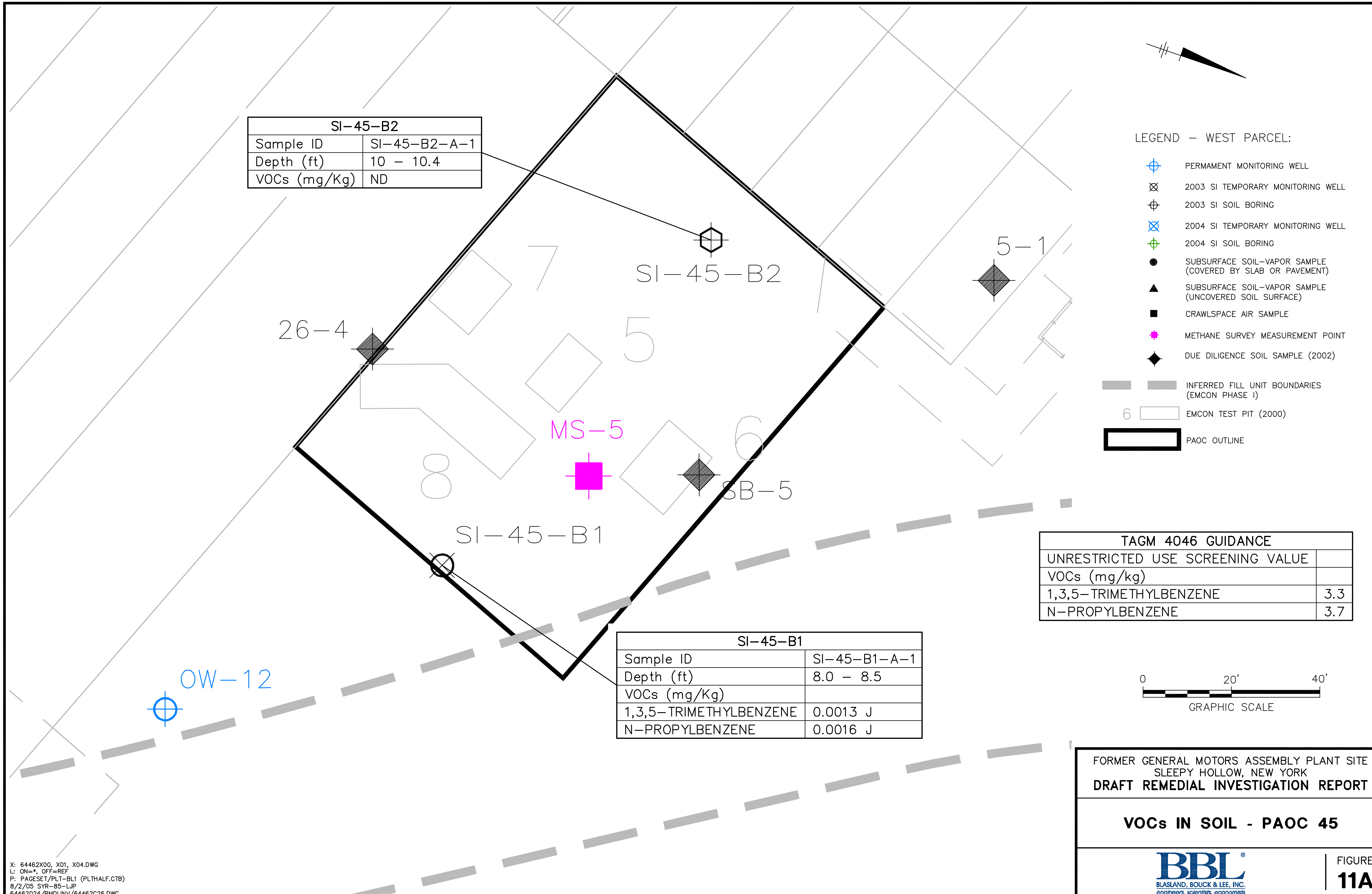
engineers, scientists, economists

FIGURE
10C

X: 64462X00, X01.DWG
L: ON=*, OFF=REF, |BLDGPROP, |PROP BUILDINGS
P: PAGESET/BL–7300N2–SYR
12/1/06 SYR–85–LJP GMS
64462024/RMDLINV/64462C07.DWG



SI–45–B2	
Sample ID	SI–45–B2–A–1
Depth (ft)	10 – 10.4
VOCs (mg/Kg)	ND

SI–45–B1	
Sample ID	SI–45–B1–A–1
Depth (ft)	8.0 – 8.5
VOCs (mg/Kg)	
1,3,5–TRIMETHYLBENZENE	0.0013 J
N–PROPYLBENZENE	0.0016 J

TAGM 4046 GUIDANCE	
UNRESTRICTED USE SCREENING VALUE	
VOCs (mg/kg)	
1,3,5–TRIMETHYLBENZENE	3.3
N–PROPYLBENZENE	3.7

FORMER GENERAL MOTORS ASSEMBLY PLANT SITE
SLEEPY HOLLOW, NEW YORK
DRAFT REMEDIAL INVESTIGATION REPORT

VOCs IN SOIL - PAOC 45

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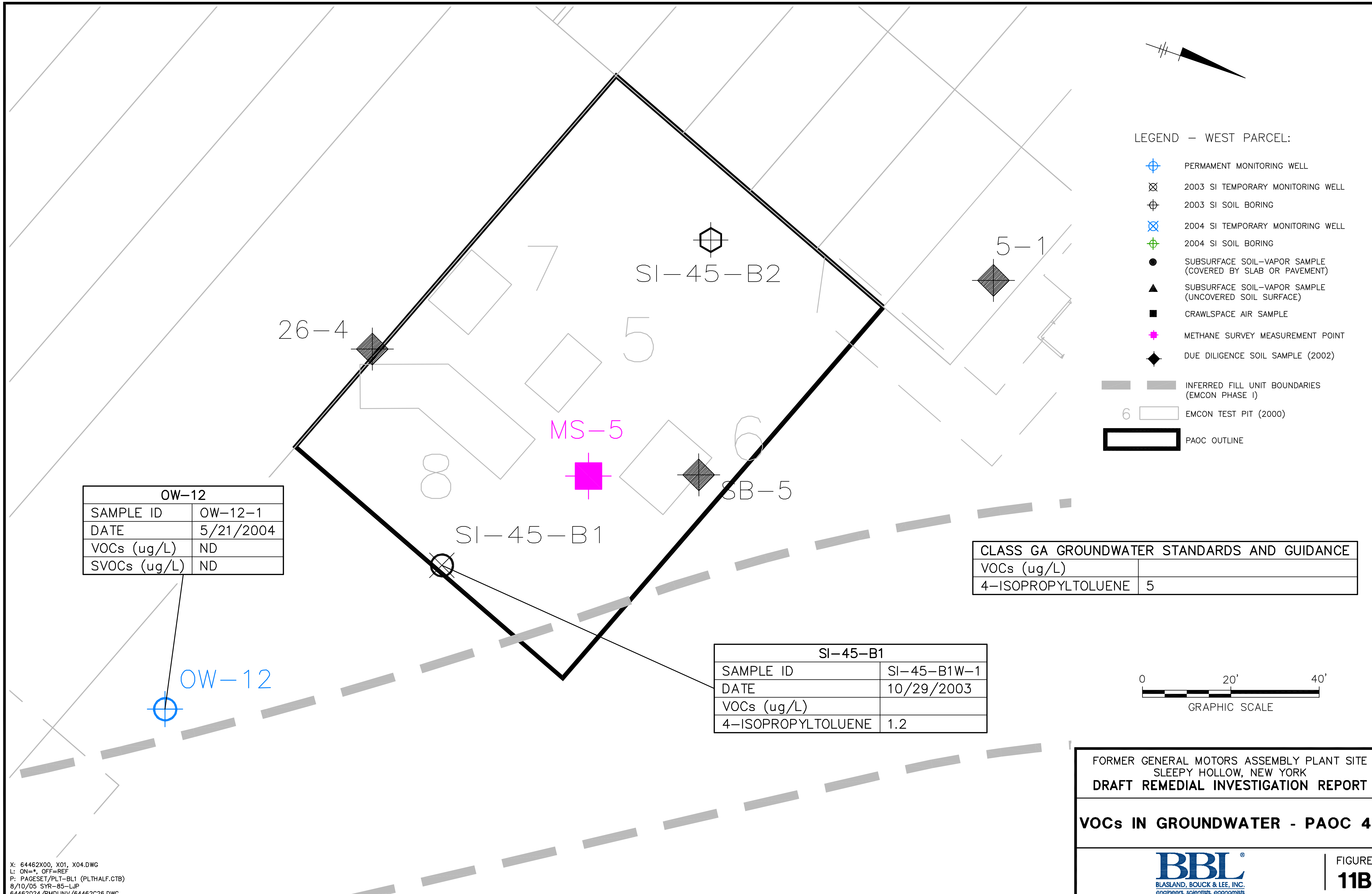
FIGURE
11A

X: 64462X00, X01, X04.DWG
L: ON=*, OFF=REF
P: PAGESET/PLT-BL1 (PLTHALF.CTB)
8/2/05 SYR-85-LJP
64462024/RMDLINV/64462C26.DWG



OW-12	
SAMPLE ID	OW-12-1
DATE	5/21/2004
VOCs (ug/L)	ND
SVOCs (ug/L)	ND

SI-45-B1	
SAMPLE ID	SI-45-B1W-1
DATE	10/29/2003
VOCs (ug/L)	
4-ISOPROPYLTOLUENE	1.2

CLASS GA GROUNDWATER STANDARDS AND GUIDANCE	
VOCs (ug/L)	
4-ISOPROPYLTOLUENE	5

X: 64462X00, X01, X04.DWG
L: ON=*, OFF=REF
P: PAGESET/PLT-BL1 (PLTHALF.CTB)
8/10/05 SYR-85-LJP
64462024/RMDLINV/64462C26.DWG

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DRAFT REMEDIAL INVESTIGATION REPORT

VOCs IN GROUNDWATER - PAOC 45

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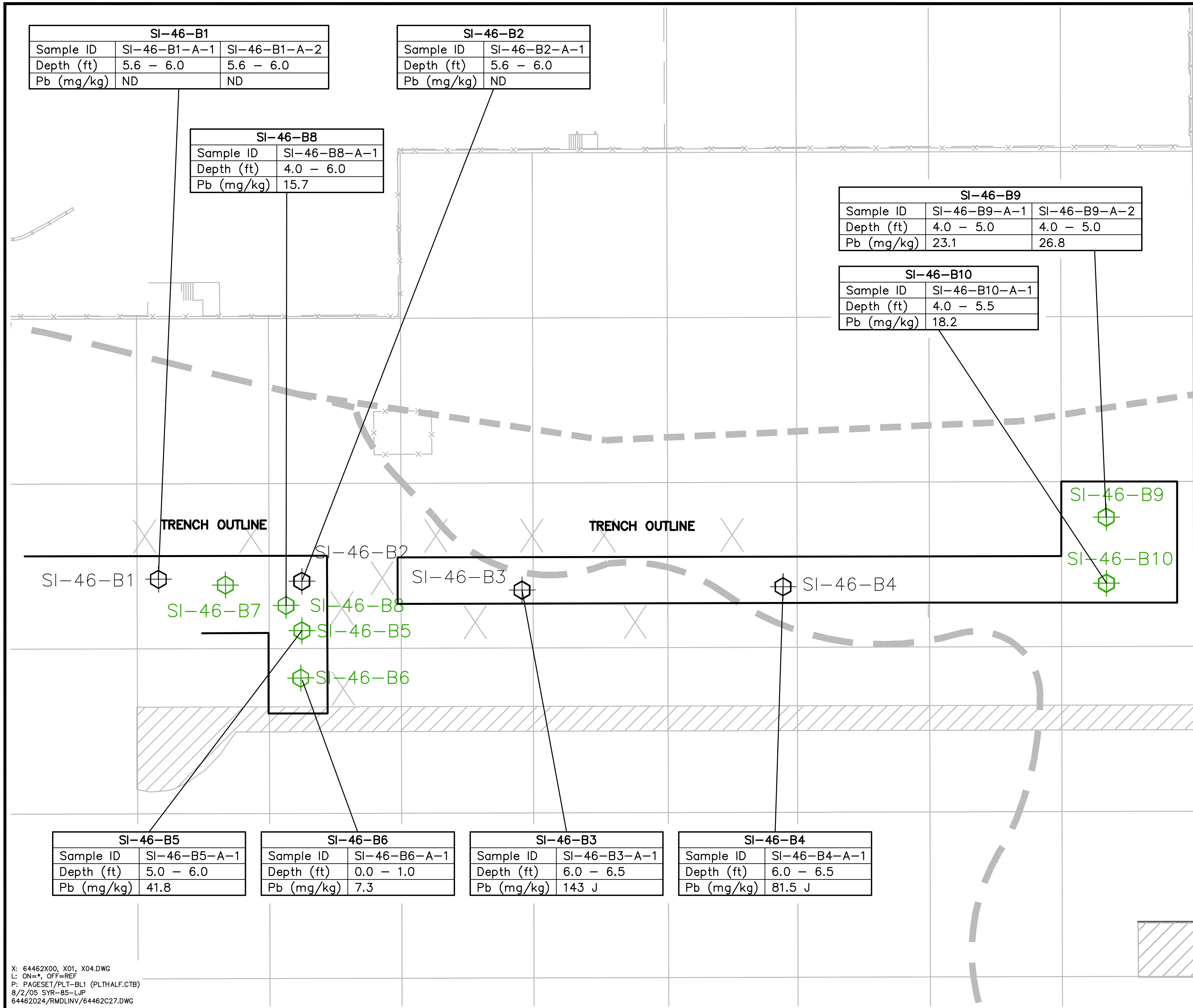
FIGURE
11B



SI–46–B1		
Sample ID	SI–46–B1–A–1	SI–46–B1–A–2
Depth (ft)	5.6 – 6.0	5.6 – 6.0
Pb (mg/kg)	ND	ND

SI–46–B2	
Sample ID	SI–46–B2–A–1
Depth (ft)	5.6 – 6.0
Pb (mg/kg)	ND

SI–46–B8	
Sample ID	SI–46–B8–A–1
Depth (ft)	4.0 – 6.0
Pb (mg/kg)	15.7

SI–46–B9		
Sample ID	SI–46–B9–A–1	SI–46–B9–A–2
Depth (ft)	4.0 – 5.0	4.0 – 5.0
Pb (mg/kg)	23.1	26.8

SI–46–B10	
Sample ID	SI–46–B10–A–1
Depth (ft)	4.0 – 5.5
Pb (mg/kg)	18.2

SI–46–B5	
Sample ID	SI–46–B5–A–1
Depth (ft)	5.0 – 6.0
Pb (mg/kg)	41.8

SI–46–B6	
Sample ID	SI–46–B6–A–1
Depth (ft)	0.0 – 1.0
Pb (mg/kg)	7.3

SI–46–B3	
Sample ID	SI–46–B3–A–1
Depth (ft)	6.0 – 6.5
Pb (mg/kg)	143 J

SI–46–B4	
Sample ID	SI–46–B4–A–1
Depth (ft)	6.0 – 6.5
Pb (mg/kg)	81.5 J

LEGEND – WEST PARCEL:

- PERMAMENT MONITORING WELL
- 2003 SI TEMPORARY MONITORING WELL
- 2003 SI SOIL BORING
- 2004 SI TEMPORARY MONITORING WELL
- 2004 SI SOIL BORING
- SUBSURFACE SOIL–VAPOR SAMPLE (COVERED BY SLAB OR PAVEMENT)
- SUBSURFACE SOIL–VAPOR SAMPLE (UNCOVERED SOIL SURFACE)
- CRAWLSPACE AIR SAMPLE
- METHANE SURVEY MEASUREMENT POINT
- INFERRED FILL UNIT BOUNDARIES (EMCON PHASE I)
- INTERIM REMEDIAL MEASURES (AREAS EXCAVATED)

TAGM 4046 GUIDANCE	
UNRESTRICTED USE SCREENING VALUE	
LEAD (mg/kg)	400

0 30' 60'

GRAPHIC SCALE

X: 64462X00, X01, X04.DWG
L: ON=*, OFF=REF
P: PAGESET/PLT–BL1 (PLTHALF.CTB)
8/2/05 SYR–85–LJP
64462024/RMDLINV/64462C27.DWG

FORMER GENERAL MOTORS ASSEMBLY PLANT SITE
SLEEPY HOLLOW, NEW YORK
DRAFT REMEDIAL INVESTIGATION REPORT

LEAD IN SOIL - PAOC 46

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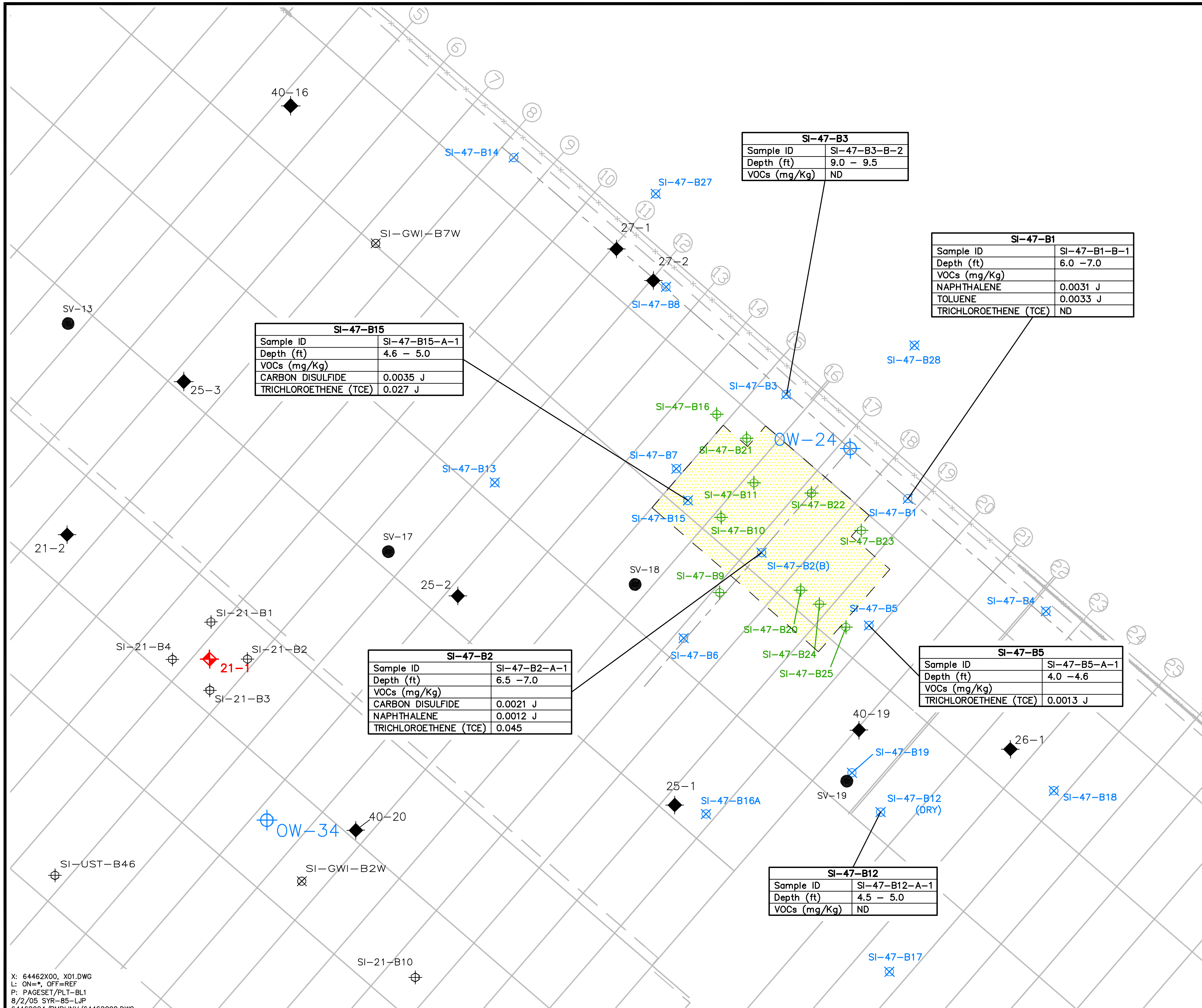
FIGURE
12



SI–47–B3

Sample ID	SI–47–B3–B–2
Depth (ft)	9.0 – 9.5
VOCs (mg/Kg)	ND

SI–47–B1

Sample ID	SI–47–B1–B–1
Depth (ft)	6.0 –7.0
VOCs (mg/Kg)	
NAPHTHALENE	0.0031 J
TOLUENE	0.0033 J
TRICHLOROETHENE (TCE)	ND

SI–47–B15

Sample ID	SI–47–B15–A–1
Depth (ft)	4.6 – 5.0
VOCs (mg/Kg)	
CARBON DISULFIDE	0.0035 J
TRICHLOROETHENE (TCE)	0.027 J

SI–47–B2

Sample ID	SI–47–B2–A–1
Depth (ft)	6.5 –7.0
VOCs (mg/Kg)	
CARBON DISULFIDE	0.0021 J
NAPHTHALENE	0.0012 J
TRICHLOROETHENE (TCE)	0.045

SI–47–B5

Sample ID	SI–47–B5–A–1
Depth (ft)	4.0 –4.6
VOCs (mg/Kg)	
TRICHLOROETHENE (TCE)	0.0013 J

SI–47–B12

Sample ID	SI–47–B12–A–1
Depth (ft)	4.5 – 5.0
VOCs (mg/Kg)	ND

LEGEND;

- PERMANENT MONITORING WELL
- 2002 DUE DILIGENCE SOIL SAMPLE
- 2002 DUE DILIGENCE SOIL & GW SAMPLES
- 2003 SI TEMPORARY MONITORING WELL
- 2003 SI SOIL BORING
- 2004 SI TEMPORARY MONITORING WELL
- 2004 SI SOIL BORING
- SOIL VAPOR SAMPLE
- APPROXIMATE EXTENT OF BURIED PIT

TAGM 4046 GUIDANCE

UNRESTRICTED USE SCREENING VALUE	
SVOCs (mg/Kg)	
CARBON DISULFIDE	2.7
NAPHTHALENE	13
TOLUENE	1.5
TRICHLOROETHENE (TCE)	0.7
TOTAL C–PAHs	10
TOTAL SVOCs	500

NOTES:

1. BASE MAPS PROVIDED BY AMEC EARTH & ENVIRONMENTAL, NEW YORK, NEW YORK, DATED APRIL 2004.
2. SAMPLE RESULTS SHOWN IN MG/KG.
3. J = ESTIMATED CONCENTRATION
4. ND = CONSTITUENT NOT DETECTED
5. NA = NOT ANALYZED

0 40' 80'

GRAPHIC SCALE

X: 64462X00, X01.DWG
L: ON=*, OFF=REF
P: PAGESET/PLT–BL1
8/2/05 SYR–85–LJP
64462024/RMDLINV/64462C08.DWG

FORMER GENERAL MOTORS ASSEMBLY PLANT SITE
SLEEPY HOLLOW, NEW YORK
DRAFT REMEDIAL INVESTIGATION REPORT

VOCs IN SOIL - PAOC 47

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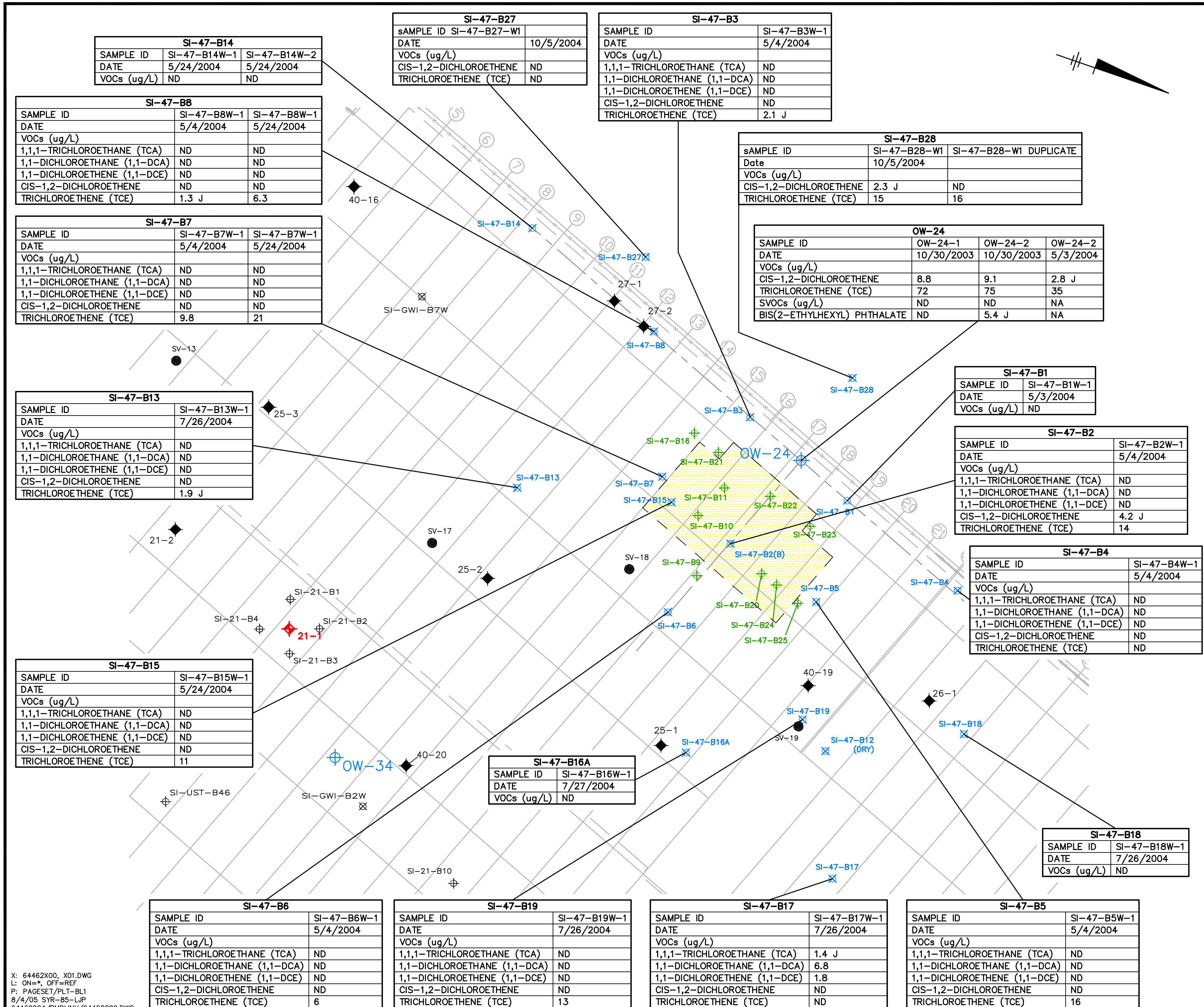
FIGURE
13A



SI-47-B14

SAMPLE ID	SI-47-B14W-1	SI-47-B14W-2
DATE	5/24/2004	5/24/2004
VOCs (ug/L)	ND	ND

SI-47-B8

SAMPLE ID	SI-47-B8W-1	SI-47-B8W-1
DATE	5/4/2004	5/24/2004
VOCs (ug/L)		
1,1,1-TRICHLOROETHANE (TCA)	ND	ND
1,1-DICHLOROETHANE (1,1-DCA)	ND	ND
1,1-DICHLOROETHENE (1,1-DCE)	ND	ND
CIS-1,2-DICHLOROETHENE	ND	ND
TRICHLOROETHENE (TCE)	1.3 J	6.3

SI-47-B7

SAMPLE ID	SI-47-B7W-1	SI-47-B7W-1
DATE	5/4/2004	5/24/2004
VOCs (ug/L)		
1,1,1-TRICHLOROETHANE (TCA)	ND	ND
1,1-DICHLOROETHANE (1,1-DCA)	ND	ND
1,1-DICHLOROETHENE (1,1-DCE)	ND	ND
CIS-1,2-DICHLOROETHENE	ND	ND
TRICHLOROETHENE (TCE)	9.8	21

SI-47-B27

sAMPLE ID	SI-47-B27-W1
DATE	10/5/2004
VOCs (ug/L)	
CIS-1,2-DICHLOROETHENE	ND
TRICHLOROETHENE (TCE)	ND

SI-47-B3

SAMPLE ID	SI-47-B3W-1
DATE	5/4/2004
VOCs (ug/L)	
1,1,1-TRICHLOROETHANE (TCA)	ND
1,1-DICHLOROETHANE (1,1-DCA)	ND
1,1-DICHLOROETHENE (1,1-DCE)	ND
CIS-1,2-DICHLOROETHENE	ND
TRICHLOROETHENE (TCE)	2.1 J

SI-47-B28

sAMPLE ID	SI-47-B28-W1	SI-47-B28-W1 DUPLICATE
Date	10/5/2004	
VOCs (ug/L)		
CIS-1,2-DICHLOROETHENE	2.3 J	ND
TRICHLOROETHENE (TCE)	15	16

OW-24

SAMPLE ID	OW-24-1	OW-24-2	OW-24-2
DATE	10/30/2003	10/30/2003	5/3/2004
VOCs (ug/L)			
CIS-1,2-DICHLOROETHENE	8.8	9.1	2.8 J
TRICHLOROETHENE (TCE)	72	75	35
SVOCs (ug/L)	ND	ND	NA
BIS(2-ETHYLHEXYL) PHTHALATE	ND	5.4 J	NA

SI-47-B1

SAMPLE ID	SI-47-B1W-1
DATE	5/3/2004
VOCs (ug/L)	ND

SI-47-B2

SAMPLE ID	SI-47-B2W-1
DATE	5/4/2004
VOCs (ug/L)	
1,1,1-TRICHLOROETHANE (TCA)	ND
1,1-DICHLOROETHANE (1,1-DCA)	ND
1,1-DICHLOROETHENE (1,1-DCE)	ND
CIS-1,2-DICHLOROETHENE	4.2 J
TRICHLOROETHENE (TCE)	14

SI-47-B4

SAMPLE ID	SI-47-B4W-1
DATE	5/4/2004
VOCs (ug/L)	
1,1,1-TRICHLOROETHANE (TCA)	ND
1,1-DICHLOROETHANE (1,1-DCA)	ND
1,1-DICHLOROETHENE (1,1-DCE)	ND
CIS-1,2-DICHLOROETHENE	ND
TRICHLOROETHENE (TCE)	ND

SI-47-B13

SAMPLE ID	SI-47-B13W-1
DATE	7/26/2004
VOCs (ug/L)	
1,1,1-TRICHLOROETHANE (TCA)	ND
1,1-DICHLOROETHANE (1,1-DCA)	ND
1,1-DICHLOROETHENE (1,1-DCE)	ND
CIS-1,2-DICHLOROETHENE	ND
TRICHLOROETHENE (TCE)	1.9 J

SI-47-B15

SAMPLE ID	SI-47-B15W-1
DATE	5/24/2004
VOCs (ug/L)	
1,1,1-TRICHLOROETHANE (TCA)	ND
1,1-DICHLOROETHANE (1,1-DCA)	ND
1,1-DICHLOROETHENE (1,1-DCE)	ND
CIS-1,2-DICHLOROETHENE	ND
TRICHLOROETHENE (TCE)	11

SI-47-B16A

SAMPLE ID	SI-47-B16W-1
DATE	7/27/2004
VOCs (ug/L)	ND

SI-47-B18

SAMPLE ID	SI-47-B18W-1
DATE	7/26/2004
VOCs (ug/L)	ND

SI-47-B6

SAMPLE ID	SI-47-B6W-1
DATE	5/4/2004
VOCs (ug/L)	
1,1,1-TRICHLOROETHANE (TCA)	ND
1,1-DICHLOROETHANE (1,1-DCA)	ND
1,1-DICHLOROETHENE (1,1-DCE)	ND
CIS-1,2-DICHLOROETHENE	ND
TRICHLOROETHENE (TCE)	6

SI-47-B19

SAMPLE ID	SI-47-B19W-1
DATE	7/26/2004
VOCs (ug/L)	
1,1,1-TRICHLOROETHANE (TCA)	ND
1,1-DICHLOROETHANE (1,1-DCA)	ND
1,1-DICHLOROETHENE (1,1-DCE)	ND
CIS-1,2-DICHLOROETHENE	ND
TRICHLOROETHENE (TCE)	13

SI-47-B17

SAMPLE ID	SI-47-B17W-1
DATE	7/26/2004
VOCs (ug/L)	
1,1,1-TRICHLOROETHANE (TCA)	1.4 J
1,1-DICHLOROETHANE (1,1-DCA)	6.8
1,1-DICHLOROETHENE (1,1-DCE)	1.8
CIS-1,2-DICHLOROETHENE	ND
TRICHLOROETHENE (TCE)	ND

SI-47-B5

SAMPLE ID	SI-47-B5W-1
DATE	5/4/2004
VOCs (ug/L)	
1,1,1-TRICHLOROETHANE (TCA)	ND
1,1-DICHLOROETHANE (1,1-DCA)	ND
1,1-DICHLOROETHENE (1,1-DCE)	ND
CIS-1,2-DICHLOROETHENE	ND
TRICHLOROETHENE (TCE)	16

LEGEND;

- PERMANENT MONITORING WELL
- 2002 DUE DILIGENCE SOIL SAMPLE
- 2002 DUE DILIGENCE SOIL & GW SAMPLES
- 2003 SI TEMPORARY MONITORING WELL
- 2003 SI SOIL BORING
- 2004 SI TEMPORARY MONITORING WELL
- 2004 SI SOIL BORING
- SOIL VAPOR SAMPLE
- APPROXIMATE EXTENT OF BURIED PIT

CLASS GA GROUNDWATER STANDARDS AND GUIDANCE

VOCs (ug/L)	5
1,1,1-TRICHLOROETHANE (TCA)	5
1,1-DICHLOROETHANE (1,1-DCA)	5
1,1-DICHLOROETHENE (1,1-DCE)	5
BIS(2-ETHYLHEXYL) PHTHALATE	5
CIS-1,2-DICHLOROETHENE	5
TRICHLOROETHENE (TCE)	5

NOTES:

1. BASE MAPS PROVIDED BY AMEC EARTH & ENVIRONMENTAL, NEW YORK, NEW YORK, DATED APRIL 2004.
2. SAMPLE RESULTS SHOWN IN ug/L.
3. J = ESTIMATED CONCENTRATION
4. ND = CONSTITUENT NOT DETECTED
5. NA = NOT ANALYZED

0 50' 100'

GRAPHIC SCALE

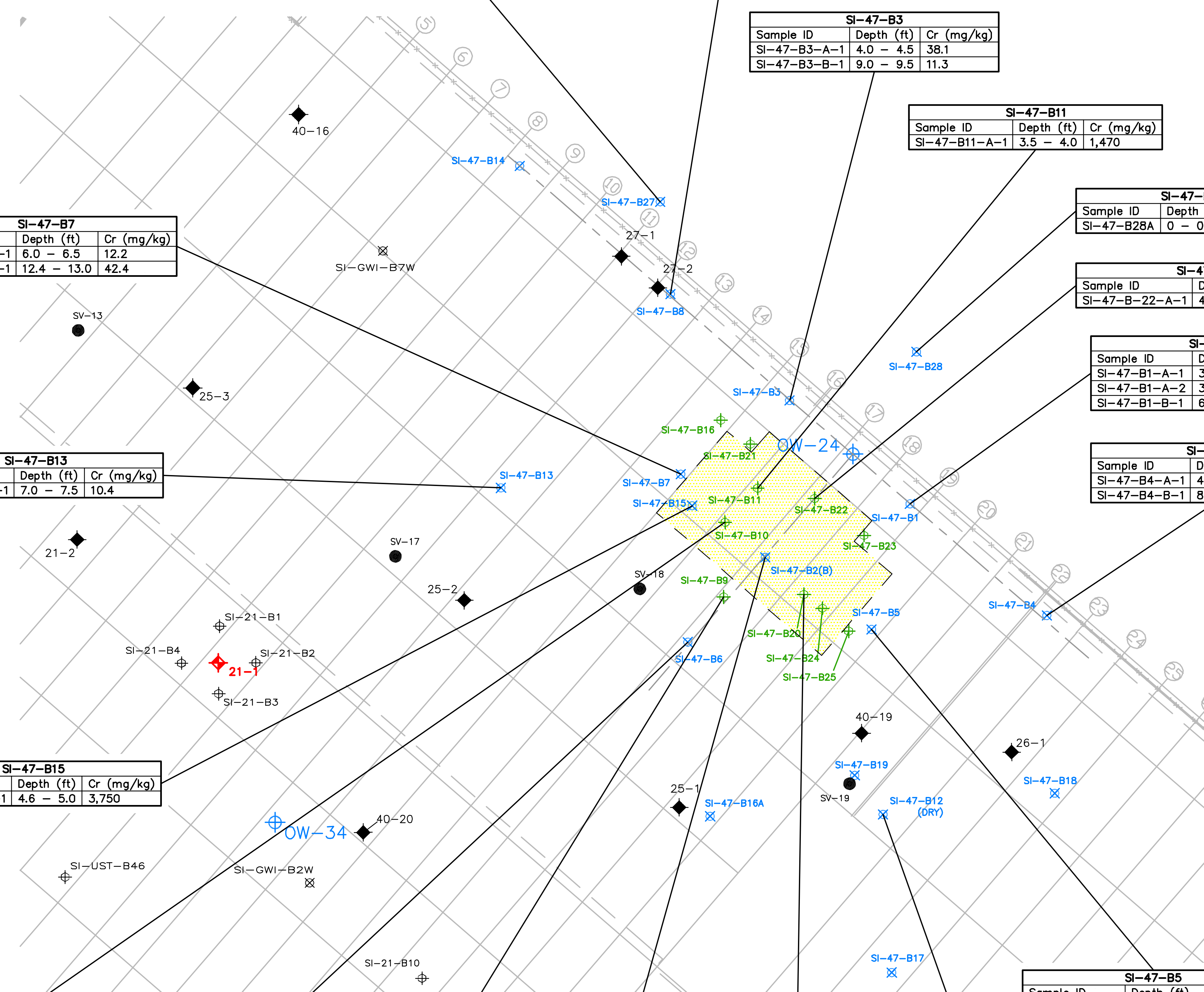
FORMER GENERAL MOTORS ASSEMBLY PLANT SITE
SLEEPY HOLLOW, NEW YORK
DRAFT REMEDIAL INVESTIGATION REPORT

VOCs IN GROUNDWATER - PAOC 47

BBL® BLASLAND, BOUCK & LEE, INC. engineers, scientists, economists

FIGURE **13B**

X: 64462X00, X01.DWG
L: ON=*, OFF=REF
P: PAGESET/PLT-BL1
8/4/05 SYR-85-LJP
64462024/RMDLINV/64462C09.DWG



SI–47–B27

Sample ID	Depth (ft)	Cr (mg/kg)
SI–47–B27A	0 – 0.5	32

SI–47–B8

Sample ID	Depth (ft)	Cr (mg/kg)
SI–47–B8–A–1	5.0 – 5.5	10.1
SI–47–B8–B–1	10.0 – 10.5	8.7

SI–47–B3

Sample ID	Depth (ft)	Cr (mg/kg)
SI–47–B3–A–1	4.0 – 4.5	38.1
SI–47–B3–B–1	9.0 – 9.5	11.3

SI–47–B11

Sample ID	Depth (ft)	Cr (mg/kg)
SI–47–B11–A–1	3.5 – 4.0	1,470

SI–47–B28

Sample ID	Depth (ft)	Cr (mg/kg)
SI–47–B28A	0 – 0.5	35.3

SI–47–B22

Sample ID	Depth (ft)	Cr (mg/kg)
SI–47–B–22–A–1	4.5 – 5.0	212

SI–47–B1

Sample ID	Depth (ft)	Cr (mg/kg)
SI–47–B1–A–1	3.0 – 4.0	25.6
SI–47–B1–A–2	3.0 – 4.0	28.6
SI–47–B1–B–1	6.0 – 7.0	33.4

SI–47–B4

Sample ID	Depth (ft)	Cr (mg/kg)
SI–47–B4–A–1	4.5 – 5.0	44.5
SI–47–B4–B–1	8.0 – 8.5	21.6

SI–47–B7

Sample ID	Depth (ft)	Cr (mg/kg)
SI–47–B7–A–1	6.0 – 6.5	12.2
SI–47–B7–B–1	12.4 – 13.0	42.4

SI–47–B13

Sample ID	Depth (ft)	Cr (mg/kg)
SI–47–B13–A–1	7.0 – 7.5	10.4

SI–47–B15

Sample ID	Depth (ft)	Cr (mg/kg)
SI–47–B15–A–1	4.6 – 5.0	3,750

SI–47–B10

Sample ID	Depth (ft)	Cr (mg/kg)
SI–47–B10–A–1	3.5 – 4.0	33.9

SI–47–B6

Sample ID	Depth (ft)	Cr (mg/kg)
SI–47–B6–A–1	5.4 – 6.0	12.8
SI–47–B6–B–1	9.0 – 9.6	25.3

SI–47–B9

Sample ID	Depth (ft)	Cr (mg/kg)
SI–47–B9–A–1	6.0 – 6.5	28.7

SI–47–B2

Sample ID	Depth (ft)	Cr (mg/kg)
SI–47–B2–A–1	5.0 – 5.4	1,740
SI–47–B2–B–1	12.0 – 12.5	81.9

SI–47–B20

Sample ID	Depth (ft)	Cr (mg/kg)
SI–47–B–20–A–1	4.0 – 5.0	22.1

SI–47–B12

Sample ID	Depth (ft)	Cr (mg/kg)
SI–47–B12–A–1	4.5 – 5.0	16.3

SI–47–B5

Sample ID	Depth (ft)	Cr (mg/kg)
SI–47–B5–A–1	4.0 – 4.6	17.4
SI–47–B5–B–1	11.2 – 12.0	21.3
SI–47–B5–B–2	11.2 – 12.0	22.5

LEGEND;

- PERMANENT MONITORING WELL
- 2002 DUE DILIGENCE SOIL SAMPLE
- 2002 DUE DILIGENCE SOIL & GW SAMPLES
- 2003 SI TEMPORARY MONITORING WELL
- 2003 SI SOIL BORING
- 2004 SI TEMPORARY MONITORING WELL
- 2004 SI SOIL BORING
- SOIL VAPOR SAMPLE
- APPROXIMATE EXTENT OF BURIED PIT

TAGM 4046 GUIDANCE	
UNRESTRICTED USE SCREENING VALUE	
CHROMIUM (mg/kg)	10

NOTES:

1. BASE MAPS PROVIDED BY AMEC EARTH & ENVIRONMENTAL, NEW YORK, NEW YORK, DATED APRIL 2004.
2. SAMPLE RESULTS SHOWN IN MG/KG.
3. J = ESTIMATED CONCENTRATION
4. ND = CONSTITUENT NOT DETECTED
5. NA = NOT ANALYZED

0 50' 100'
GRAPHIC SCALE

FORMER GENERAL MOTORS ASSEMBLY PLANT SITE
SLEEPY HOLLOW, NEW YORK
DRAFT REMEDIAL INVESTIGATION REPORT

CHROMIUM IN SOIL - PAOC 47

BBL
BLASLAND, BOUCK & LEE, INC.
engineers, scientists, economists

FIGURE
13C

X: 64462X00, X01.DWG
L: ON=*, OFF=REF
P: PAGESET/PLT-BL1
8/2/05 SYR-85-LJP
64462024/RMDLINV/64462C10.DWG

SI-47-B27		
SAMPLE ID	SI-47-B27-W1	SI-47-B27-W1 DISSOLVED
SAMPLE TYPE	Unfiltered	Filtered
DATE	10/5/2004	10/5/2004
TAL METALS (ug/L)		
CHROMIUM	391	466

SI-47-B14				
SAMPLE ID	SI-47-B14W-1	SI-47-B14W-1-F	SI-47-B14W-2	SI-47-B14W-2-F
SAMPLE TYPE	Unfiltered	Filtered	Unfiltered	Filtered
DATE	05/24/04	05/24/04	05/24/04	05/24/04
TAL METAL (ug/L)				
CHROMIUM	25.4	23.5	24.4	23

SI-47-B8				
SAMPLE ID	SI-47-B8W-1	SI-47-B8W-1 DISS	SI-47-B8W-1	SI-47-B8W-1-F
SAMPLE TYPE	Unfiltered	Filtered	Unfiltered	Filtered
DATE	05/04/04	05/04/04	05/24/04	05/24/04
TAL METAL (ug/L)				
CHROMIUM	1,380	1,660	4,550	3,640

SI-47-B28				
SAMPLE ID	SI-47-B28-W1	SI-47-B28-W1 DUPLICATE	SI-47-B28-W1	SI-47-B28-W1 DUPLICATE
SAMPLE TYPE	Unfiltered	Unfiltered	Filtered	Filtered
DATE	10/5/2004	10/5/2004	10/5/2004	10/5/2004
TAL METALS (ug/L)				
CHROMIUM	150	147	149	150

SI-47-B3		
SAMPLE ID	SI-47-B3W-1	SI-47-B3W-1
SAMPLE TYPE	Unfiltered	Filtered
DATE	05/04/04	05/04/04
TAL METAL (ug/L)		
CHROMIUM	1,910	1,950

OW-24				
SAMPLE ID	OW-24-1	OW-24-2	OW-24-1	OW-24-2
SAMPLE TYPE	Unfiltered	Unfiltered	Unfiltered	Unfiltered
DATE	10/30/2003	10/30/2003	05/03/04	05/03/04
TAL METALS (ug/L)				
CHROMIUM	538	554	195	197

SI-47-B13		
SAMPLE ID	SI-47-B13W-1	SI-47-B13W-1F
SAMPLE TYPE	Unfiltered	Filtered
DATE	7/29/04	7/29/04
TAL METAL (ug/L)		
CHROMIUM	130	130

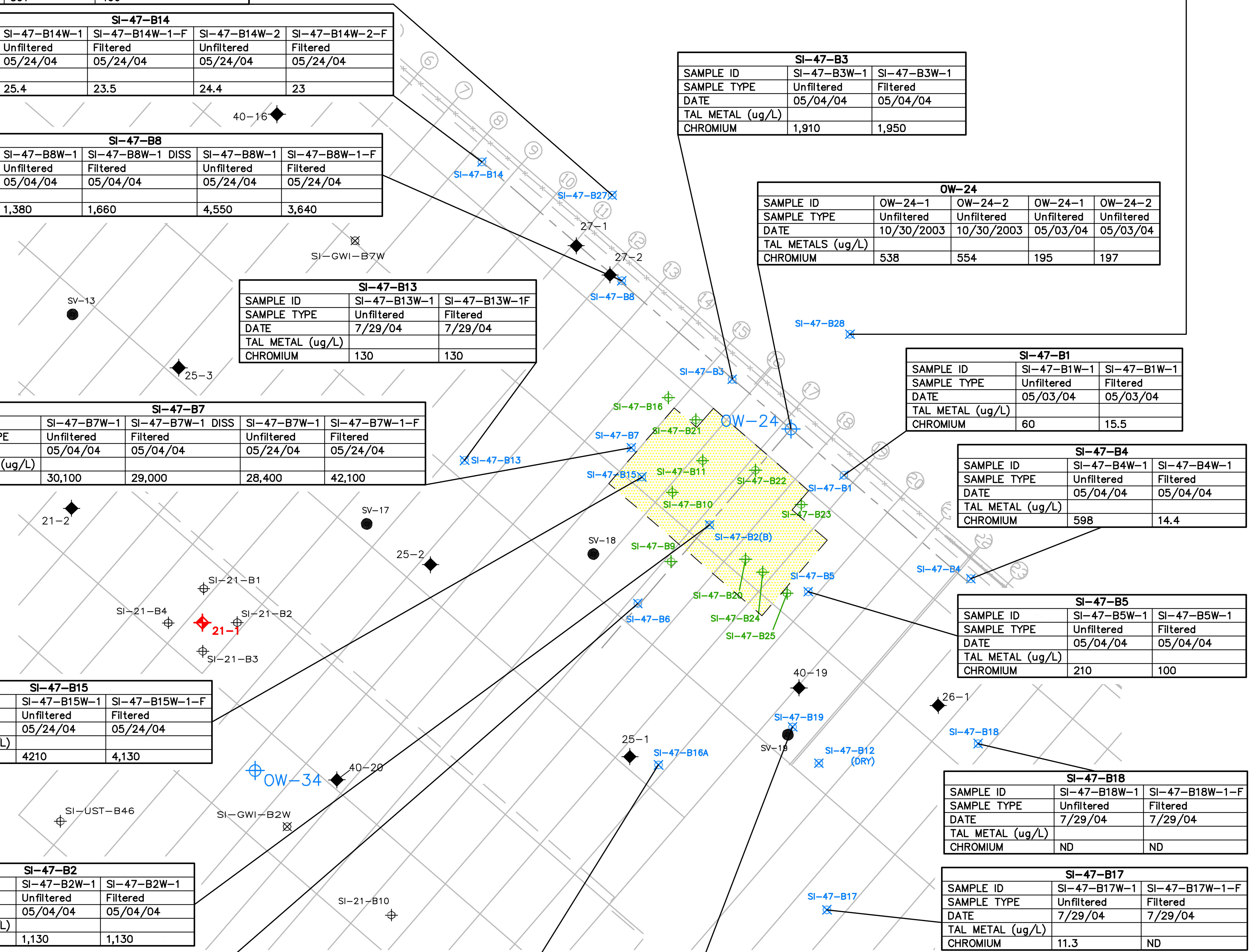
SI-47-B1		
SAMPLE ID	SI-47-B1W-1	SI-47-B1W-1
SAMPLE TYPE	Unfiltered	Filtered
DATE	05/03/04	05/03/04
TAL METAL (ug/L)		
CHROMIUM	60	15.5

SI-47-B7				
SAMPLE ID	SI-47-B7W-1	SI-47-B7W-1 DISS	SI-47-B7W-1	SI-47-B7W-1-F
SAMPLE TYPE	Unfiltered	Filtered	Unfiltered	Filtered
DATE	05/04/04	05/04/04	05/24/04	05/24/04
TAL METAL (ug/L)				
CHROMIUM	30,100	29,000	28,400	42,100

SI-47-B4		
SAMPLE ID	SI-47-B4W-1	SI-47-B4W-1
SAMPLE TYPE	Unfiltered	Filtered
DATE	05/04/04	05/04/04
TAL METAL (ug/L)		
CHROMIUM	598	14.4

SI-47-B5		
SAMPLE ID	SI-47-B5W-1	SI-47-B5W-1
SAMPLE TYPE	Unfiltered	Filtered
DATE	05/04/04	05/04/04
TAL METAL (ug/L)		
CHROMIUM	210	100

SI-47-B15		
SAMPLE ID	SI-47-B15W-1	SI-47-B15W-1-F
SAMPLE TYPE	Unfiltered	Filtered
DATE	05/24/04	05/24/04
TAL METAL (ug/L)		
CHROMIUM	4210	4,130



SI-47-B18		
SAMPLE ID	SI-47-B18W-1	SI-47-B18W-1-F
SAMPLE TYPE	Unfiltered	Filtered
DATE	7/29/04	7/29/04
TAL METAL (ug/L)		
CHROMIUM	ND	ND

SI-47-B2		
SAMPLE ID	SI-47-B2W-1	SI-47-B2W-1
SAMPLE TYPE	Unfiltered	Filtered
DATE	05/04/04	05/04/04
TAL METAL (ug/L)		
CHROMIUM	1,130	1,130

SI-47-B17		
SAMPLE ID	SI-47-B17W-1	SI-47-B17W-1-F
SAMPLE TYPE	Unfiltered	Filtered
DATE	7/29/04	7/29/04
TAL METAL (ug/L)		
CHROMIUM	11.3	ND

SI-47-B6		
SAMPLE ID	SI-47-B6W-1	SI-47-B6W-1
SAMPLE TYPE	Unfiltered	Filtered
DATE	05/04/04	05/04/04
TAL METAL (ug/L)		
CHROMIUM	40.4	31.1

SI-47-B16A		
SAMPLE ID	SI-47-B16W-1	SI-47-B16W-1-F
SAMPLE TYPE	Unfiltered	Filtered
DATE	7/29/04	7/29/04
TAL METAL (ug/L)		
CHROMIUM	ND	ND

SI-47-B19		
SAMPLE ID	SI-47-B19W-1	SI-47-B19W-1-F
SAMPLE TYPE	Unfiltered	Filtered
DATE	7/29/04	7/29/04
TAL METAL (ug/L)		
CHROMIUM	ND	ND

LEGEND;

- PERMANENT MONITORING WELL
- 2002 DUE DILIGENCE SOIL SAMPLE
- 2002 DUE DILIGENCE SOIL & GW SAMPLES
- 2003 SI TEMPORARY MONITORING WELL
- 2003 SI SOIL BORING
- 2004 SI TEMPORARY MONITORING WELL
- 2004 SI SOIL BORING
- SOIL VAPOR SAMPLE
- APPROXIMATE EXTENT OF BURIED PIT

CLASS GA GROUNDWATER STANDARDS AND GUIDANCE	
CHROMIUM (ug/L)	50

NOTES:

1. BASE MAPS PROVIDED BY AMEC EARTH & ENVIRONMENTAL, NEW YORK, NEW YORK, DATED APRIL 2004.
2. SAMPLE RESULTS SHOWN IN ug/L.
3. J = ESTIMATED CONCENTRATION
4. ND = CONSTITUENT NOT DETECTED
5. NA = NOT ANALYZED

0 50' 100'

GRAPHIC SCALE

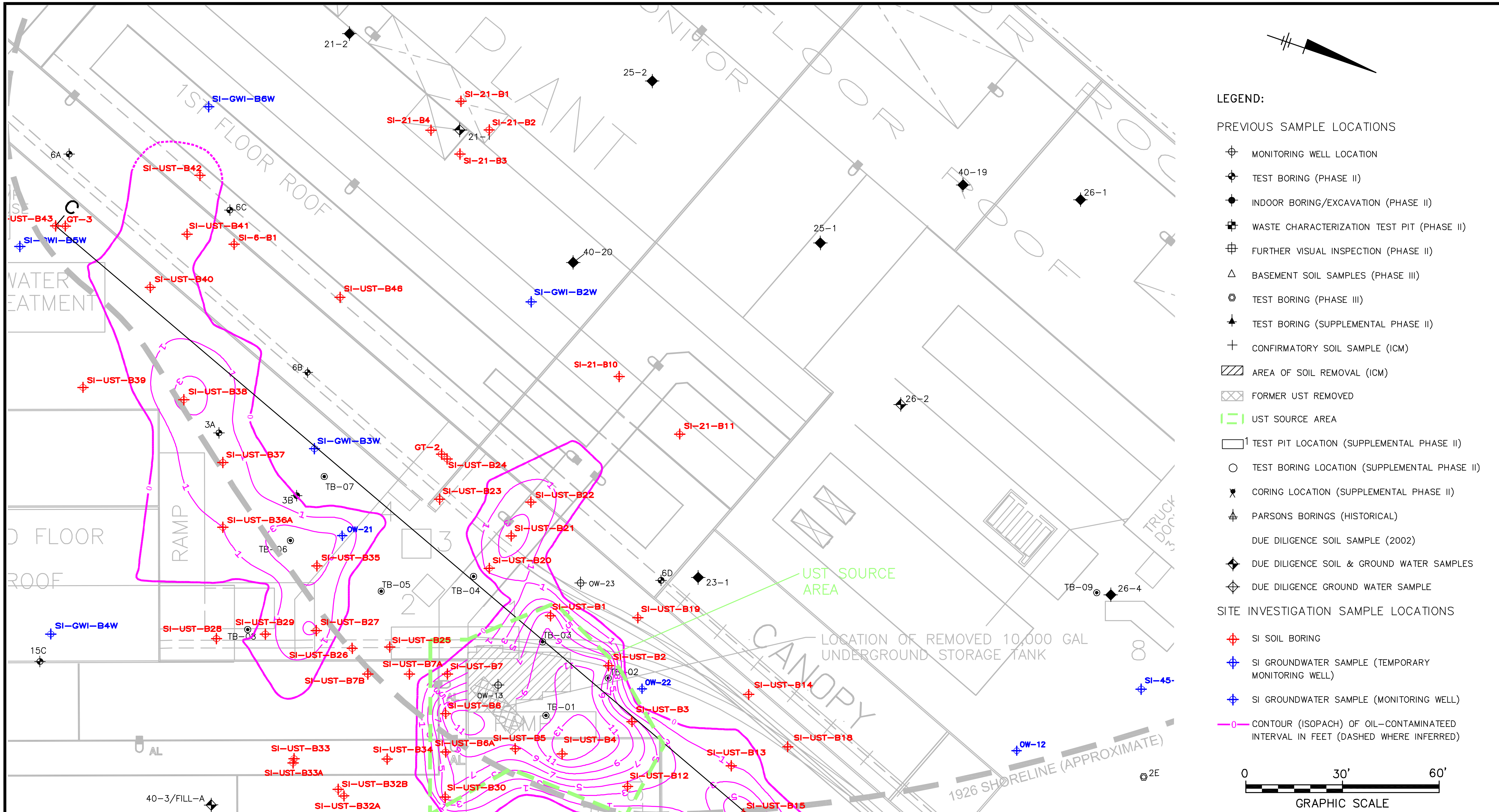
X: 64462X00, X01.DWG
L: ON=*, OFF=REF
P: PAGESET/PLT-BL1
8/2/04 SYR-85-LJP
64462024/RMDLINV/64462C11.DWG

FORMER GENERAL MOTORS ASSEMBLY PLANT SITE
SLEEPY HOLLOW, NEW YORK
DRAFT REMEDIAL INVESTIGATION REPORT

CHROMIUM IN GROUNDWATER - PAOC 47

BBL BLASLAND, BOUCK & LEE, INC. engineers, scientists, economists

FIGURE
13D



FORMER GENERAL MOTORS ASSEMBLY PLANT SITE
SLEEPY HOLLOW, NEW YORK
DRAFT SITE INVESTIGATION REPORT

EXTENT OF RESIDUAL OIL AREA - FORMER 10,000-GALLON UST

BBL
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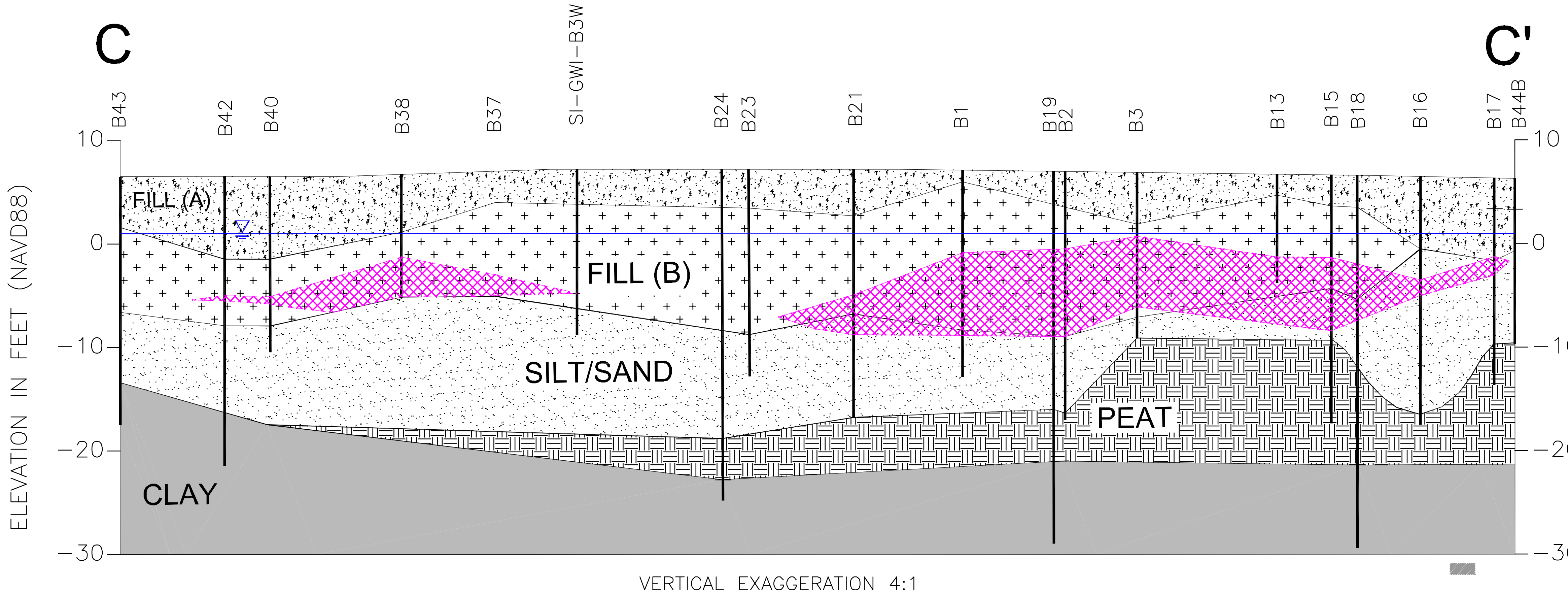
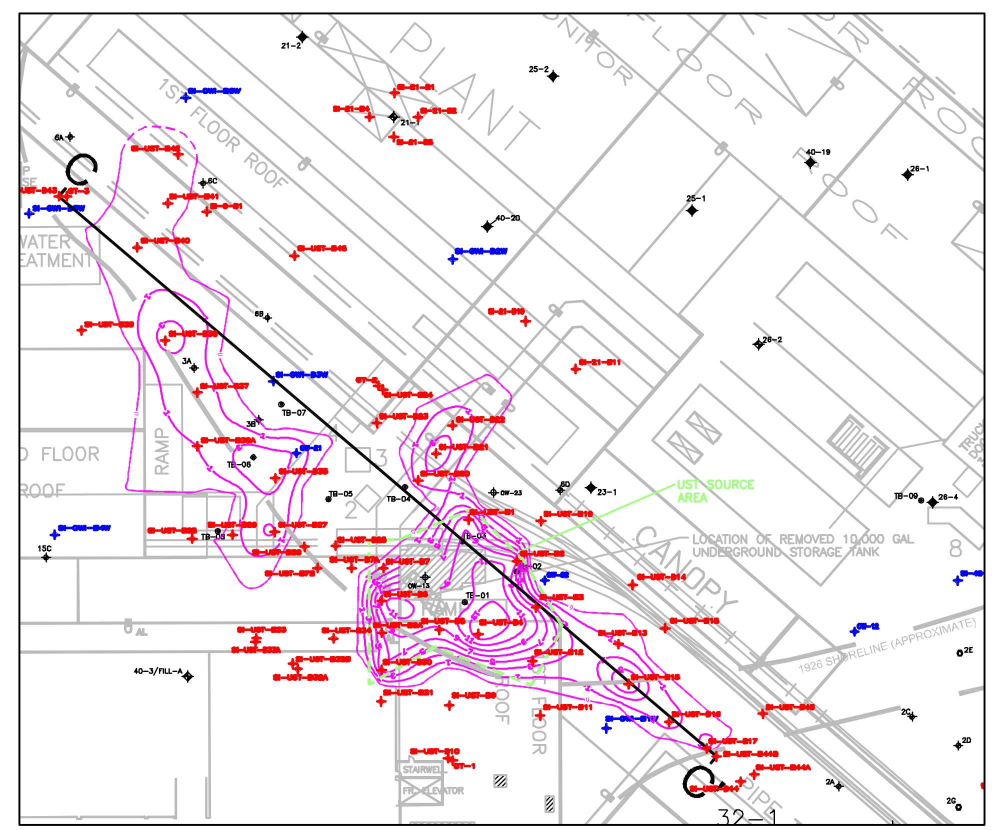
engineers, scientists, economists

FIGURE
14A



KEY TO UNITS:

FILL (A)	FILL consisting predominantly of hydraulic fill (f. brown SAND with traces of oyster shells) mixed with crushed stone, concrete, brick fragments, and traces of coal ash, compact.
FILL (B)	FILL consisting predominantly of coarse grained (i.e., gravelly textured)) coal ash (cinders), along with wood, brick fragments, concrete, metal debris, and glass.
SILT/SAND	Interbedded SILT, silty CLAY, and f-m-c SAND, loose, poorly compacted, stratified (floodplain and bay deposits); lower portion consists of poorly sorted m-f SAND.
SAND	Stratified f-c SAND, w./ gravelly horizons, loose, poorly sorted (possibly glacial outwash or deltaic deposits)
PEAT	PEAT (marsh deposits) containing up to 25% CLAY by volume, stiff, compact, stratified (undisturbed); contact with underlying clay unit may be gradational.
CLAY	Massive CLAY (marsh deposits), with up to 25% macroscopic organic matter and localized PEAT-rich horizons, stiff, compact, stratified (undisturbed).
	Evidence of oil contamination observed (e.g., staining, odor, sheen,PID readings >100 ppm).



CROSS SECTION LOCATION MAP

SCALE: 1"=120'

X: 64462X00, X04.DWG
L: ON=*, OFF=REF
P: PAGESET/PLT-BL1
10/26/05 SYR-85-LJP TJR
64462024/RMDLINV/64462V02.DWG

FORMER GENERAL MOTORS ASSEMBLY PLANT SITE
SLEEPY HOLLOW, NEW YORK
DRAFT REMEDIAL INVESTIGATION REPORT

SUBSURFACE CROSS-SECTION AREA OF FORMER 10,000-GALLON UST

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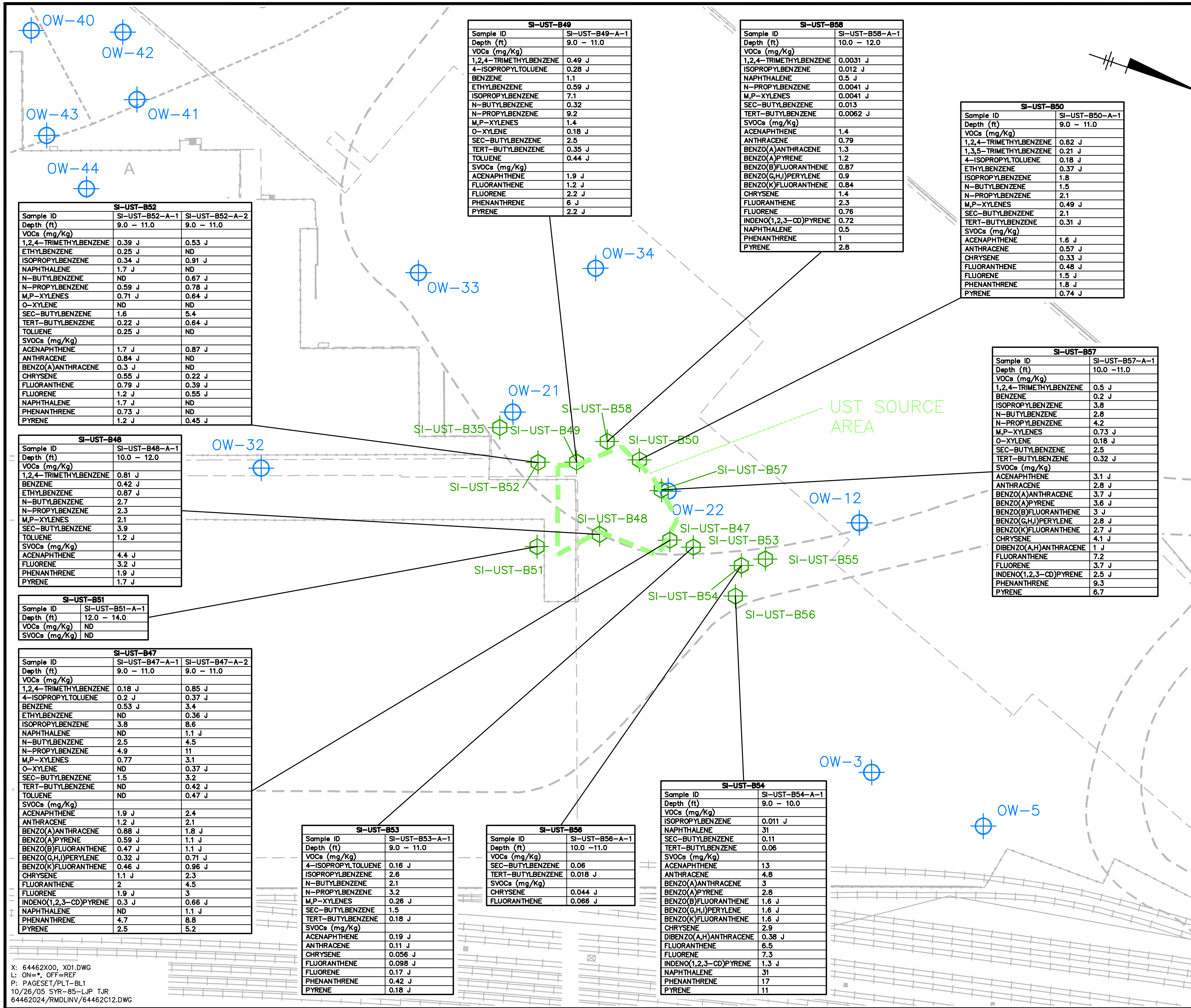
FIGURE
14B



SI-UST-B49

Sample ID	SI-UST-B49-A-1
Depth (ft)	9.0 – 11.0
VOCs (mg/Kg)	
1,2,4-TRIMETHYLBENZENE	0.49 J
4-ISOPROPYLTOLUENE	0.28 J
BENZENE	1.1
ETHYLBENZENE	0.59 J
ISOPROPYLBENZENE	7.1
N-BUTYLBENZENE	0.32
N-PROPYLBENZENE	9.2
M,P-XYLENES	1.4
O-XYLENE	0.18 J
SEC-BUTYLBENZENE	2.5
TERT-BUTYLBENZENE	0.35 J
TOLUENE	0.44 J
SVOCs (mg/Kg)	
ACENAPHTHENE	1.9 J
FLUORANTHENE	1.2 J
FLUORENE	2.2 J
PHENANTHRENE	6 J
PYRENE	2.2 J

SI-UST-B58

Sample ID	SI-UST-B58-A-1
Depth (ft)	10.0 – 12.0
VOCs (mg/Kg)	
1,2,4-TRIMETHYLBENZENE	0.0031 J
ISOPROPYLBENZENE	0.012 J
NAPHTHALENE	0.5 J
N-PROPYLBENZENE	0.0041 J
M,P-XYLENES	0.0041 J
SEC-BUTYLBENZENE	0.013
TERT-BUTYLBENZENE	0.0062 J
SVOCs (mg/Kg)	
ACENAPHTHENE	1.4
ANTHRACENE	0.79
BENZO(A)ANTHRACENE	1.3
BENZO(A)PYRENE	1.2
BENZO(B)FLUORANTHENE	0.87
BENZO(G,H,I)PERYLENE	0.9
BENZO(K)FLUORANTHENE	0.84
CHRYSENE	1.4
FLUORANTHENE	2.3
FLUORENE	0.76
INDENO(1,2,3-CD)PYRENE	0.72
NAPHTHALENE	0.5
PHENANTHRENE	1
PYRENE	2.8

SI-UST-B50

Sample ID	SI-UST-B50-A-1
Depth (ft)	9.0 – 11.0
VOCs (mg/Kg)	
1,2,4-TRIMETHYLBENZENE	0.62 J
1,3,5-TRIMETHYLBENZENE	0.21 J
4-ISOPROPYLTOLUENE	0.18 J
ETHYLBENZENE	0.37 J
ISOPROPYLBENZENE	1.8
N-BUTYLBENZENE	1.5
N-PROPYLBENZENE	2.1
M,P-XYLENES	0.49 J
SEC-BUTYLBENZENE	2.1
TERT-BUTYLBENZENE	0.31 J
SVOCs (mg/Kg)	
ACENAPHTHENE	1.6 J
ANTHRACENE	0.57 J
CHRYSENE	0.33 J
FLUORANTHENE	0.48 J
FLUORENE	1.5 J
PHENANTHRENE	1.8 J
PYRENE	0.74 J

SI-UST-B52

Sample ID	SI-UST-B52-A-1	SI-UST-B52-A-2
Depth (ft)	9.0 – 11.0	9.0 – 11.0
VOCs (mg/Kg)		
1,2,4-TRIMETHYLBENZENE	0.39 J	0.53 J
ETHYLBENZENE	0.25 J	ND
ISOPROPYLBENZENE	0.34 J	0.91 J
NAPHTHALENE	1.7 J	ND
N-BUTYLBENZENE	ND	0.67 J
N-PROPYLBENZENE	0.59 J	0.78 J
M,P-XYLENES	0.71 J	0.64 J
O-XYLENE	ND	ND
SEC-BUTYLBENZENE	1.6	5.4
TERT-BUTYLBENZENE	0.22 J	0.64 J
TOLUENE	0.25 J	ND
SVOCs (mg/Kg)		
ACENAPHTHENE	1.7 J	0.87 J
ANTHRACENE	0.84 J	ND
BENZO(A)ANTHRACENE	0.3 J	ND
CHRYSENE	0.55 J	0.22 J
FLUORANTHENE	0.79 J	0.39 J
FLUORENE	1.2 J	0.55 J
NAPHTHALENE	1.7 J	ND
PHENANTHRENE	0.73 J	ND
PYRENE	1.2 J	0.45 J

SI-UST-B48

Sample ID	SI-UST-B48-A-1
Depth (ft)	10.0 – 12.0
VOCs (mg/Kg)	
1,2,4-TRIMETHYLBENZENE	0.81 J
BENZENE	0.42 J
ETHYLBENZENE	0.87 J
N-BUTYLBENZENE	2.7
N-PROPYLBENZENE	2.3
M,P-XYLENES	2.1
SEC-BUTYLBENZENE	3.9
TOLUENE	1.2 J
SVOCs (mg/Kg)	
ACENAPHTHENE	4.4 J
FLUORENE	3.2 J
PHENANTHRENE	1.9 J
PYRENE	1.7 J

SI-UST-B51

Sample ID	SI-UST-B51-A-1
Depth (ft)	12.0 – 14.0
VOCs (mg/Kg)	ND
SVOCs (mg/Kg)	ND

SI-UST-B47

Sample ID	SI-UST-B47-A-1	SI-UST-B47-A-2
Depth (ft)	9.0 – 11.0	9.0 – 11.0
VOCs (mg/Kg)		
1,2,4-TRIMETHYLBENZENE	0.18 J	0.85 J
4-ISOPROPYLTOLUENE	0.2 J	0.37 J
BENZENE	0.53 J	3.4
ETHYLBENZENE	ND	0.36 J
ISOPROPYLBENZENE	3.8	8.6
NAPHTHALENE	ND	1.1 J
N-BUTYLBENZENE	2.5	4.5
N-PROPYLBENZENE	4.9	11
M,P-XYLENES	0.77	3.1
O-XYLENE	ND	0.37 J
SEC-BUTYLBENZENE	1.5	3.2
TERT-BUTYLBENZENE	ND	0.42 J
TOLUENE	ND	0.47 J
SVOCs (mg/Kg)		
ACENAPHTHENE	1.9 J	2.4
ANTHRACENE	1.2 J	2.1
BENZO(A)ANTHRACENE	0.88 J	1.8 J
BENZO(A)PYRENE	0.59 J	1.1 J
BENZO(B)FLUORANTHENE	0.47 J	1.1 J
BENZO(G,H,I)PERYLENE	0.32 J	0.71 J
BENZO(K)FLUORANTHENE	0.46 J	0.96 J
CHRYSENE	1.1 J	2.3
FLUORANTHENE	2	4.5
FLUORENE	1.9 J	3
INDENO(1,2,3-CD)PYRENE	0.3 J	0.66 J
NAPHTHALENE	ND	1.1 J
PHENANTHRENE	4.7	8.8
PYRENE	2.5	5.2

SI-UST-B53

Sample ID	SI-UST-B53-A-1
Depth (ft)	9.0 – 11.0
VOCs (mg/Kg)	
4-ISOPROPYLTOLUENE	0.16 J
ISOPROPYLBENZENE	2.6
N-BUTYLBENZENE	2.1
N-PROPYLBENZENE	3.2
M,P-XYLENES	0.26 J
SEC-BUTYLBENZENE	1.5
TERT-BUTYLBENZENE	0.18 J
SVOCs (mg/Kg)	
ACENAPHTHENE	0.19 J
ANTHRACENE	0.11 J
CHRYSENE	0.056 J
FLUORANTHENE	0.098 J
FLUORENE	0.17 J
PHENANTHRENE	0.42 J
PYRENE	0.18 J

SI-UST-B56

Sample ID	SI-UST-B56-A-1
Depth (ft)	10.0 – 11.0
VOCs (mg/Kg)	
SEC-BUTYLBENZENE	0.06
TERT-BUTYLBENZENE	0.018 J
SVOCs (mg/Kg)	
CHRYSENE	0.044 J
FLUORANTHENE	0.066 J

SI-UST-B54

Sample ID	SI-UST-B54-A-1
Depth (ft)	9.0 – 10.0
VOCs (mg/Kg)	
ISOPROPYLBENZENE	0.011 J
NAPHTHALENE	31
SEC-BUTYLBENZENE	0.11
TERT-BUTYLBENZENE	0.06
SVOCs (mg/Kg)	
ACENAPHTHENE	13
ANTHRACENE	4.8
BENZO(A)ANTHRACENE	3
BENZO(A)PYRENE	2.8
BENZO(B)FLUORANTHENE	1.6 J
BENZO(G,H,I)PERYLENE	1.6 J
BENZO(K)FLUORANTHENE	1.6 J
CHRYSENE	2.9
DIBENZO(A,H)ANTHRACENE	0.38 J
FLUORANTHENE	6.5
FLUORENE	7.3
INDENO(1,2,3-CD)PYRENE	1.3 J
NAPHTHALENE	31
PHENANTHRENE	17
PYRENE	11

SI-UST-B57

Sample ID	SI-UST-B57-A-1
Depth (ft)	10.0 – 11.0
VOCs (mg/Kg)	
1,2,4-TRIMETHYLBENZENE	0.5 J
BENZENE	0.2 J
ISOPROPYLBENZENE	3.8
N-BUTYLBENZENE	2.8
N-PROPYLBENZENE	4.2
M,P-XYLENES	0.73 J
O-XYLENE	0.18 J
SEC-BUTYLBENZENE	2.5
TERT-BUTYLBENZENE	0.32 J
SVOCs (mg/Kg)	
ACENAPHTHENE	3.1 J
ANTHRACENE	2.8 J
BENZO(A)ANTHRACENE	3.7 J
BENZO(A)PYRENE	3.6 J
BENZO(B)FLUORANTHENE	3 J
BENZO(G,H,I)PERYLENE	2.8 J
BENZO(K)FLUORANTHENE	2.7 J
CHRYSENE	4.1 J
DIBENZO(A,H)ANTHRACENE	1 J
FLUORANTHENE	7.2
FLUORENE	3.7 J
INDENO(1,2,3-CD)PYRENE	2.5 J
PHENANTHRENE	9.3
PYRENE	6.7

LEGEND:

- PERMANENT MONTIORING WELL
- 2004 SI SOIL BORING
- UST SOURCE AREA

TAGM 4046 GUIDANCE

UNRESTRICTED USE SCREENING VALUE	
VOCs (mg/Kg)	
1,2,4-TRIMETHYLBENZENE	10
BENZENE	0.06 or MDL
CHRYSENE	0.4
FLUORANTHENE	50
ISOPROPYLBENZENE	2.3
M,P-XYLENES	1.2
NAPHTHALENE	13
N-BUTYLBENZENE	50
N-PROPYLBENZENE	50
O-XYLENE	1.2
SEC-BUTYLBENZENE	50
TERT-BUTYLBENZENE	50
SVOCs (mg/Kg)	
ACENAPHTHENE	50
ANTHRACENE	41
BENZO(A)ANTHRACENE	0.224 or MDL
BENZO(A)PYRENE	0.61 or MDL
BENZO(B)FLUORANTHENE	0.220 or MDL
BENZO(G,H,I)PERYLENE	50
BENZO(K)FLUORANTHENE	0.220 or MDL
CHRYSENE	0.4
DIBENZO(A,H)ANTHRACENE	0.014 or MDL
FLUORANTHENE	50
FLUORENE	50
INDENO(1,2,3-CD)PYRENE	3.2
NAPHTHALENE	13
PHENANTHRENE	50
PYRENE	50
TOTAL C-PAHs	10
TOTAL SVOCs	500

NOTES:

1. BASE MAPS PROVIDED BY AMEC EARTH & ENVIRONMENTAL, NEW YORK, NEW YORK, DATED APRIL 2004.
2. SAMPLE RESULTS SHOWN IN MG/KG.
3. J = ESTIMATED CONCENTRATION
4. ND = CONSTITUENT NOT DETECTED
5. NA = NOT ANALYZED

0 100' 200'

GRAPHIC SCALE

FORMER GENERAL MOTORS ASSEMBLY PLANT SITE
SLEEPY HOLLOW, NEW YORK

DRAFT REMEDIAL INVESTIGATION REPORT

VOCs/SVOCs IN SOIL AROUND 10,000-GALLON UST AREA

BBL
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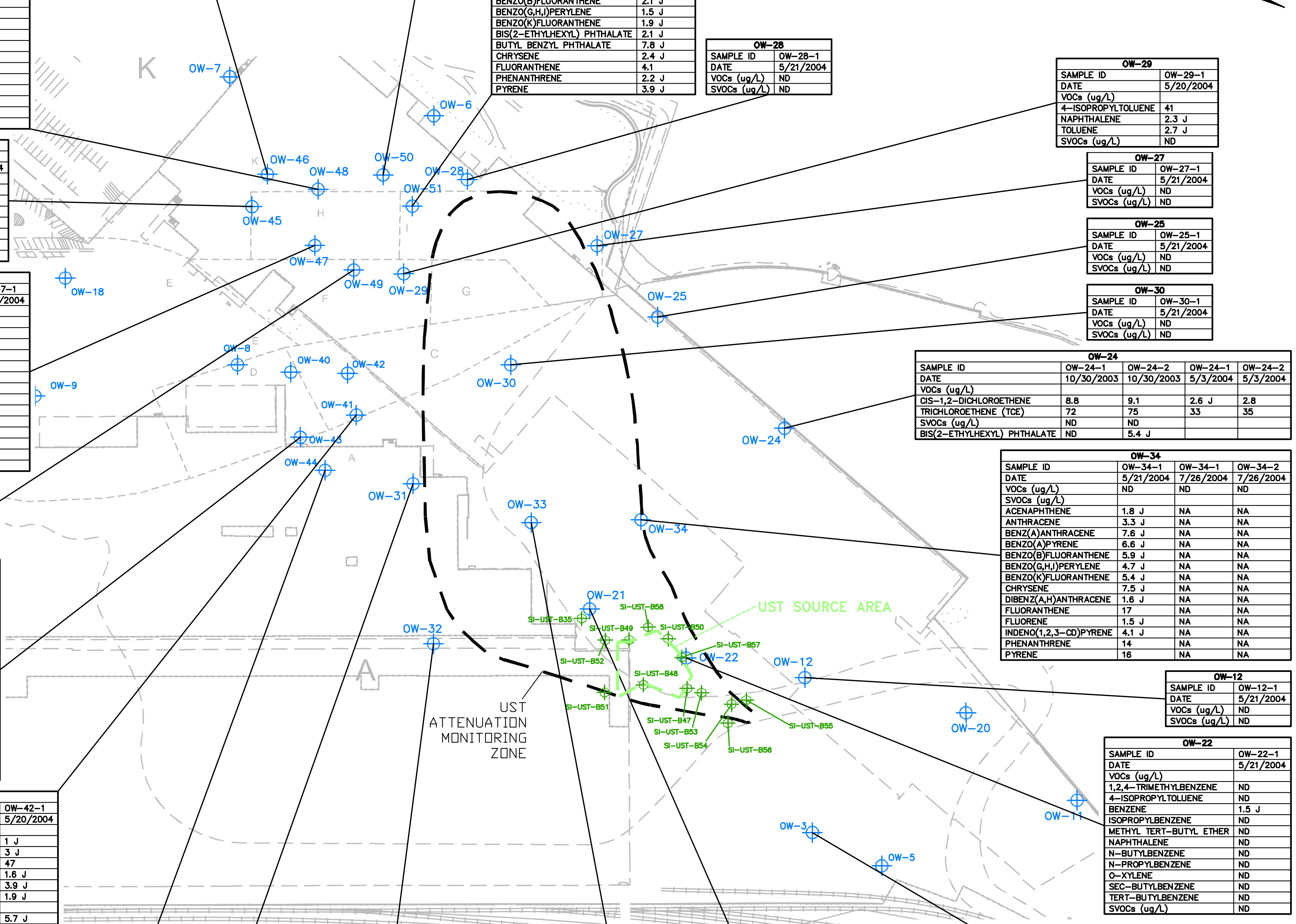
engineers, scientists, economists

FIGURE **14C**

X: 64462X00, X01.DWG
L: ON=*, OFF=REF
P: PAGESET/PLT-BL1
10/26/05 SYR-85-LJP TJR
64462024/RMDLINV/64462C12.DWG



LEGEND:

- PERMANENT MONTIORING WELL
- 2004 SI SOIL BORING
- UST ATTENUATION MONITORING ZONE
- UST SOURCE AREA

OW-48	
SAMPLE ID	OW-48-1
DATE	5/20/2004
VOCs (ug/L)	
ACETONE	7.5 J
BENZENE	1.1 J
ETHYLBENZENE	4.5 J
ISOPROPYLBENZENE	2.3 J
NAPHTHALENE	23
O-XYLENE	1.8 J
SVOCs (ug/L)	
ACENAPHTHENE	4.6 J
BIS(2-ETHYLHEXYL) PHTHALATE	4.2 J
BUTYL BENZYL PHTHALATE	8.3 J
DI-N-BUTYL PHTHALATE	1.9 J
FLUORANTHENE	1.9 J
FLUORENE	1.6 J
PYRENE	1.8 J

OW-46-1		
SAMPLE ID	OW-46-1	OW-46-2
DATE	5/20/2004	5/20/2004
VOCs (ug/L)	ND	ND
SVOCs (ug/L)		
2,4-DINITROPHENOL	ND	ND
BIS(2-ETHYLHEXYL) PHTHALATE	ND	1.4 J

OW-50	
SAMPLE ID	OW-50-1
DATE	5/20/2004
VOCs (ug/L)	ND
SVOCs (ug/L)	ND

OW-51	
SAMPLE ID	OW-51-1
DATE	5/20/2004
VOCs (ug/L)	
NAPHTHALENE	1.3 J
SVOCs (ug/L)	
BENZ(A)ANTHRACENE	2 J
BENZO(A)PYRENE	2.2
BENZO(B)FLUORANTHENE	2.1 J
BENZO(G,H,I)PERYLENE	1.5 J
BENZO(K)FLUORANTHENE	1.9 J
BIS(2-ETHYLHEXYL) PHTHALATE	2.1 J
BUTYL BENZYL PHTHALATE	7.8 J
CHRYSENE	2.4 J
FLUORANTHENE	4.1
PHENANTHRENE	2.2 J
PYRENE	3.9 J

OW-28	
SAMPLE ID	OW-28-1
DATE	5/21/2004
VOCs (ug/L)	ND
SVOCs (ug/L)	ND

OW-29	
SAMPLE ID	OW-29-1
DATE	5/20/2004
VOCs (ug/L)	
4-ISOPROPYLTOLUENE	41
NAPHTHALENE	2.3 J
TOLUENE	2.7 J
SVOCs (ug/L)	ND

OW-27	
SAMPLE ID	OW-27-1
DATE	5/21/2004
VOCs (ug/L)	ND
SVOCs (ug/L)	ND

OW-25	
SAMPLE ID	OW-25-1
DATE	5/21/2004
VOCs (ug/L)	ND
SVOCs (ug/L)	ND

OW-30	
SAMPLE ID	OW-30-1
DATE	5/21/2004
VOCs (ug/L)	ND
SVOCs (ug/L)	ND

OW-24				
SAMPLE ID	OW-24-1	OW-24-2	OW-24-1	OW-24-2
DATE	10/30/2003	10/30/2003	5/3/2004	5/3/2004
VOCs (ug/L)				
CIS-1,2-DICHLOROETHENE	8.8	9.1	2.6 J	2.8
TRICHLOROETHENE (TCE)	72	75	33	35
SVOCs (ug/L)	ND	ND		
BIS(2-ETHYLHEXYL) PHTHALATE	ND	5.4 J		

OW-34			
SAMPLE ID	OW-34-1	OW-34-1	OW-34-2
DATE	5/21/2004	7/26/2004	7/26/2004
VOCs (ug/L)	ND	ND	ND
SVOCs (ug/L)			
ACENAPHTHENE	1.8 J	NA	NA
ANTHRACENE	3.3 J	NA	NA
BENZ(A)ANTHRACENE	7.6 J	NA	NA
BENZO(A)PYRENE	6.6 J	NA	NA
BENZO(B)FLUORANTHENE	5.9 J	NA	NA
BENZO(G,H,I)PERYLENE	4.7 J	NA	NA
BENZO(K)FLUORANTHENE	5.4 J	NA	NA
CHRYSENE	7.5 J	NA	NA
DIBENZ(A,H)ANTHRACENE	1.6 J	NA	NA
FLUORANTHENE	17	NA	NA
FLUORENE	1.5 J	NA	NA
INDENO(1,2,3-CD)PYRENE	4.1 J	NA	NA
PHENANTHRENE	14	NA	NA
PYRENE	16	NA	NA

CLASS GA GROUNDWATER STANDARDS AND GUIDANCE	
VOCs (ug/L)	
1,2,4-TRIMETHYLBENZENE	5
4-ISOPROPYLTOLUENE	5
BENZENE	1
CIS-1,2-DICHLOROETHENE	5
ETHYLBENZENE	5
ISOPROPYLBENZENE	5
METHYL TERT-BUTYL ETHER	10
N-BUTYLBENZENE	5
N-PROPYLBENZENE	5
O-XYLENE	5
SEC-BUTYLBENZENE	5
TERT-BUTYLBENZENE	5
TOLUENE	5
TRICHLOROETHENE (TCE)	5
SVOCs (ug/L)	
2,4-DINITROPHENOL	5
ACENAPHTHENE	20
ANTHRACENE	50
BENZ(A)ANTHRACENE	0.002
BENZO(A)PYRENE	ND
BENZO(B)FLUORANTHENE	0.002
BENZO(G,H,I)PERYLENE	NA
BENZO(K)FLUORANTHENE	0.002
BIS(2-ETHYLHEXYL) PHTHALATE	5
BUTYL BENZYL PHTHALATE	50
CHRYSENE	0.002
DIBENZ(A,H)ANTHRACENE	NA
DI-N-BUTYL PHTHALATE	50
FLUORANTHENE	50
FLUORENE	50
INDENO(1,2,3-CD)PYRENE	0.002
NAPHTHALENE	10
PHENANTHRENE	50
PYRENE	50

OW-45	
SAMPLE ID	OW-45-1
DATE	5/20/2004
VOCs (ug/L)	
4-ISOPROPYLTOLUENE	1.1 J
ACETONE	6.2 J
NAPHTHALENE	1.2 J
SVOCs (ug/L)	
ACENAPHTHENE	5 J
BUTYL BENZYL PHTHALATE	1.7 J
FLUORANTHENE	1.1 J

OW-47	
SAMPLE ID	OW-47-1
DATE	5/20/2004
VOCs (ug/L)	
BENZENE	1.8 J
ISOPROPYLBENZENE	2.4 J
NAPHTHALENE	44
N-BUTYLBENZENE	1.2 J
N-PROPYLBENZENE	2.6 J
SEC-BUTYLBENZENE	1.5 J
SVOCs (ug/L)	
ANTHRACENE	2.4 J
BENZ(A)ANTHRACENE	1.1 J
BIS(2-ETHYLHEXYL) PHTHALATE	1.1 J
CHRYSENE	1.1 J
FLUORANTHENE	4 J
PHENANTHRENE	1.3 J
PYRENE	3.3 J

OW-49	
SAMPLE ID	OW-49-1
DATE	5/20/2004
VOCs (ug/L)	ND
SVOCs (ug/L)	
2,4-DINITROPHENOL	0.061 J

OW-43	
SAMPLE ID	OW-43-1
DATE	5/19/2004
VOCs (ug/L)	ND
SVOCs (ug/L)	
ACENAPHTHENE	1.6 J
ANTHRACENE	3.9 J
BENZ(A)ANTHRACENE	11
BENZO(A)PYRENE	11
BENZO(B)FLUORANTHENE	9.4 J
BENZO(G,H,I)PERYLENE	7.8 J
BENZO(K)FLUORANTHENE	8.6 J
CHRYSENE	14
DIBENZ(A,H)ANTHRACENE	2.4 J
FLUORANTHENE	20
FLUORENE	2.2 J
INDENO(1,2,3-CD)PYRENE	6.6 J
NAPHTHALENE	1.8 J
PHENANTHRENE	12
PYRENE	24

OW-41		
SAMPLE ID	OW-41-1	OW-42-1
DATE	5/19/2004	5/20/2004
VOCs (ug/L)		
ETHYLBENZENE	ND	1 J
ISOPROPYLBENZENE	ND	3 J
NAPHTHALENE	9.8 J	47
N-BUTYLBENZENE	ND	1.6 J
N-PROPYLBENZENE	ND	3.9 J
SEC-BUTYLBENZENE	ND	1.9 J
SVOCs (ug/L)		
ACENAPHTHENE	19	5.7 J
ANTHRACENE	18	5.4 J
BENZ(A)ANTHRACENE	36	12
BENZO(A)PYRENE	35	12
BENZO(B)FLUORANTHENE	30	8.6 J
BENZO(G,H,I)PERYLENE	24	7.5 J
BENZO(K)FLUORANTHENE	28	8.8 J
CHRYSENE	44	13
DIBENZ(A,H)ANTHRACENE	8.6 J	3.2 J
FLUORANTHENE	68 J	23
FLUORENE	24	3.3 J
INDENO(1,2,3-CD)PYRENE	20	6.6 J
NAPHTHALENE	4.8 J	1.5 J
PHENANTHRENE	64 J	14
PYRENE	62 J	21

OW-44	
SAMPLE ID	OW-44-1
DATE	5/21/2004
VOCs (ug/L)	ND
SVOCs (ug/L)	ND

OW-31	
SAMPLE ID	OW-31-1
DATE	5/21/2004
VOCs (ug/L)	ND
SVOCs (ug/L)	ND

OW-32		
SAMPLE ID	OW-32-1	OW-32-2
DATE	5/21/2004	5/21/2004
VOCs (ug/L)	ND	ND
SVOCs (ug/L)		
ANTHRACENE	ND	1.3 J
BENZ(A)ANTHRACENE	1.2 J	3.4 J
BENZO(A)PYRENE	ND	3.4 J
BENZO(B)FLUORANTHENE	ND	3.2 J
BENZO(G,H,I)PERYLENE	ND	2.1 J
BENZO(K)FLUORANTHENE	ND	3 J
CHRYSENE	1.4 J	4.4 J
DIBENZ(A,H)ANTHRACENE	ND	ND
FLUORANTHENE	2.6 J	7.1 J
INDENO(1,2,3-CD)PYRENE	ND	2 J
PHENANTHRENE	ND	2.6 J
PYRENE	2.8 J	7.9 J

OW-33	
SAMPLE ID	OW-33-1
DATE	5/21/2004
VOCs (ug/L)	ND
SVOCs (ug/L)	
BENZ(A)ANTHRACENE	1.8 J
BENZO(A)PYRENE	1.8 J
BENZO(B)FLUORANTHENE	1.6 J
BENZO(G,H,I)PERYLENE	1.5 J
BENZO(K)FLUORANTHENE	1.4 J
CHRYSENE	2.1 J
FLUORANTHENE	3.2 J
INDENO(1,2,3-CD)PYRENE	1.2 J
NAPHTHALENE	1.9 J
PHENANTHRENE	1.6 J
PYRENE	4 J

OW-21	
SAMPLE ID	OW-21-1
DATE	5/27/2004
VOCs (ug/L)	ND
SVOCs (ug/L)	
ACENAPHTHENE	2.1 J
PHENANTHRENE	1.2 J
PYRENE	1.1 J

OW-3		
SAMPLE ID	OW-3-1	OW-3-2
DATE	5/25/2004	5/25/2004
VOCs (ug/L)	ND	ND
SVOCs (ug/L)		
ACENAPHTHENE	ND	2.1 J
ANTHRACENE	2.1 J	4.6 J
BENZ(A)ANTHRACENE	9.7 J	21
BENZO(A)PYRENE	11	23
BENZO(B)FLUORANTHENE	9 J	21
BENZO(G,H,I)PERYLENE	9.7 J	20
BENZO(K)FLUORANTHENE	10 J	20
CHRYSENE	11	23
DIBENZ(A,H)ANTHRACENE	3.5 J	5.8 J
FLUORANTHENE	19	40
FLUORENE	ND	1.6 J
INDENO(1,2,3-CD)PYRENE	8.9 J	18
PHENANTHRENE	9.3 J	20
PYRENE	18	36

OW-12	
SAMPLE ID	OW-12-1
DATE	5/21/2004
VOCs (ug/L)	ND
SVOCs (ug/L)	ND

OW-22	
SAMPLE ID	OW-22-1
DATE	5/21/2004
VOCs (ug/L)	
1,2,4-TRIMETHYLBENZENE	ND
4-ISOPROPYLTOLUENE	ND
BENZENE	1.5 J
ISOPROPYLBENZENE	ND
METHYL TERT-BUTYL ETHER	ND
NAPHTHALENE	ND
N-BUTYLBENZENE	ND
N-PROPYLBENZENE	ND
O-XYLENE	ND
SEC-BUTYLBENZENE	ND
TERT-BUTYLBENZENE	ND
SVOCs (ug/L)	ND

NOTES:

1. BASE MAPS PROVIDED BY AMEC EARTH & ENVIRONMENTAL, NEW YORK, NEW YORK, DATED APRIL 2004.
2. SAMPLE RESULTS SHOWN IN ug/L.
3. J = ESTIMATED CONCENTRATION
4. ND = CONSTITUENT NOT DETECTED
5. NA = NOT ANALYZED

X: 64462X00, X01.DWG
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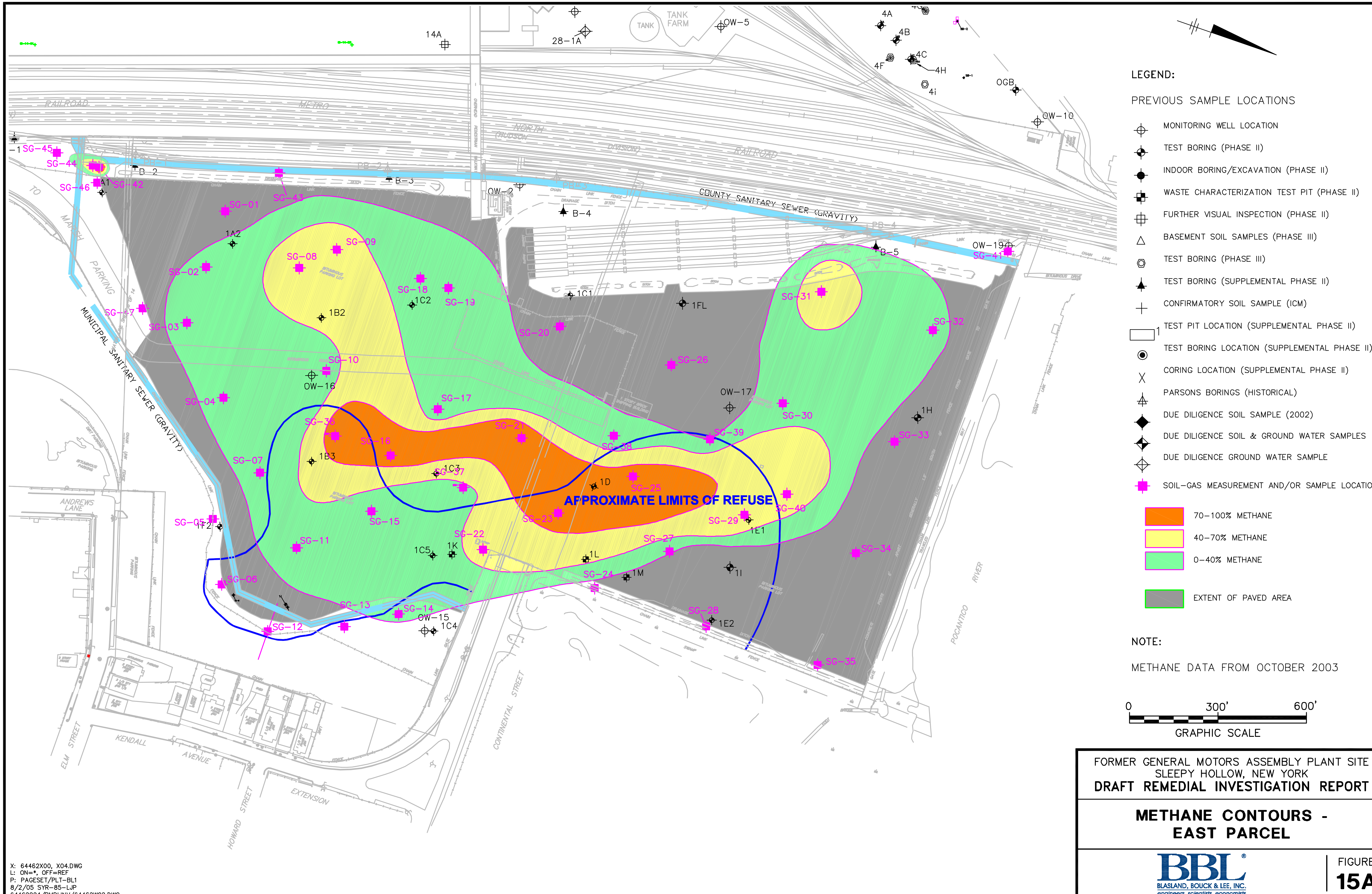
10/26/05 SYR-85-LJP TJR
64462024/RMDLINV/64462C13.DWG

FORMER GENERAL MOTORS ASSEMBLY PLANT SITE
SLEEPY HOLLOW, NEW YORK
DRAFT REMEDIAL INVESTIGATION REPORT

PETROLEUM VOCs/SVOCs IN GROUNDWATER IN 10,000-GALLON UST ATTENUATION ZONE

BBL
BLASLAND, BOUCK & LEE, INC.
engineers, scientists, economists

FIGURE
14D

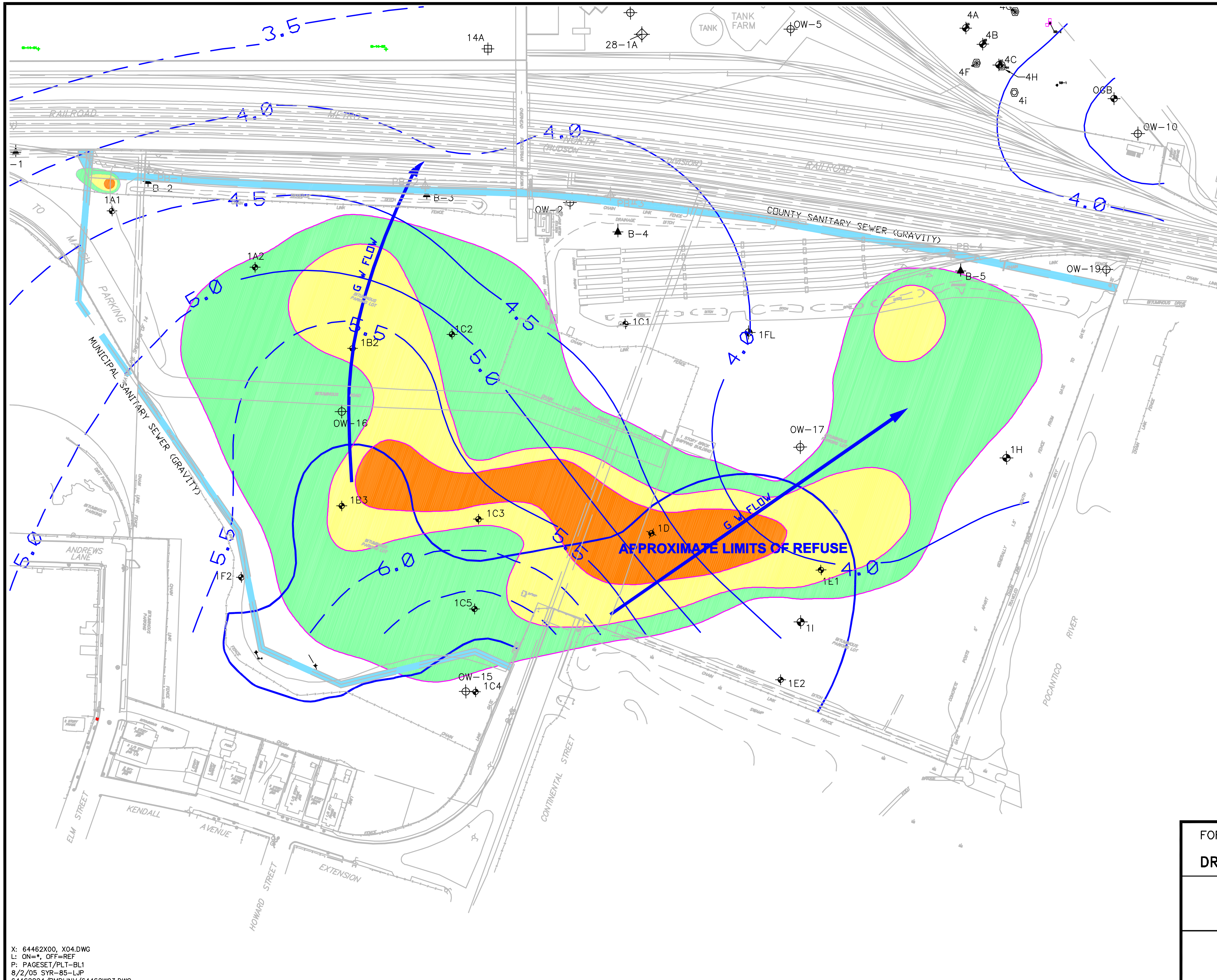


FORMER GENERAL MOTORS ASSEMBLY PLANT SITE
SLEEPY HOLLOW, NEW YORK
DRAFT REMEDIAL INVESTIGATION REPORT

METHANE CONTOURS - EAST PARCEL

BBL BLASLAND, BOUCK & LEE, INC. engineers, scientists, economists

FIGURE **15A**



LEGEND:

PREVIOUS SAMPLE LOCATIONS

- MONITORING WELL LOCATION
- TEST BORING (PHASE II)
- INDOOR BORING/EXCAVATION (PHASE II)
- WASTE CHARACTERIZATION TEST PIT (PHASE II)
- FURTHER VISUAL INSPECTION (PHASE II)
- BASEMENT SOIL SAMPLES (PHASE III)
- TEST BORING (PHASE III)
- TEST BORING (SUPPLEMENTAL PHASE II)
- CONFIRMATORY SOIL SAMPLE (ICM)
- 1 TEST PIT LOCATION (SUPPLEMENTAL PHASE II)
- TEST BORING LOCATION (SUPPLEMENTAL PHASE II)
- CORING LOCATION (SUPPLEMENTAL PHASE II)
- PARSONS BORINGS (HISTORICAL)
- DUE DILIGENCE SOIL SAMPLE (2002)
- DUE DILIGENCE SOIL & GROUND WATER SAMPLES
- DUE DILIGENCE GROUND WATER SAMPLE

3.5 GROUNDWATER ELEVATION CONTOUR

70–100% METHANE

40–70% METHANE

0–40% METHANE

NOTES:

1. GROUNDWATER ELEVATIONS FROM MAY 1997.
2. METHANE DATA FROM OCTOBER 2003.

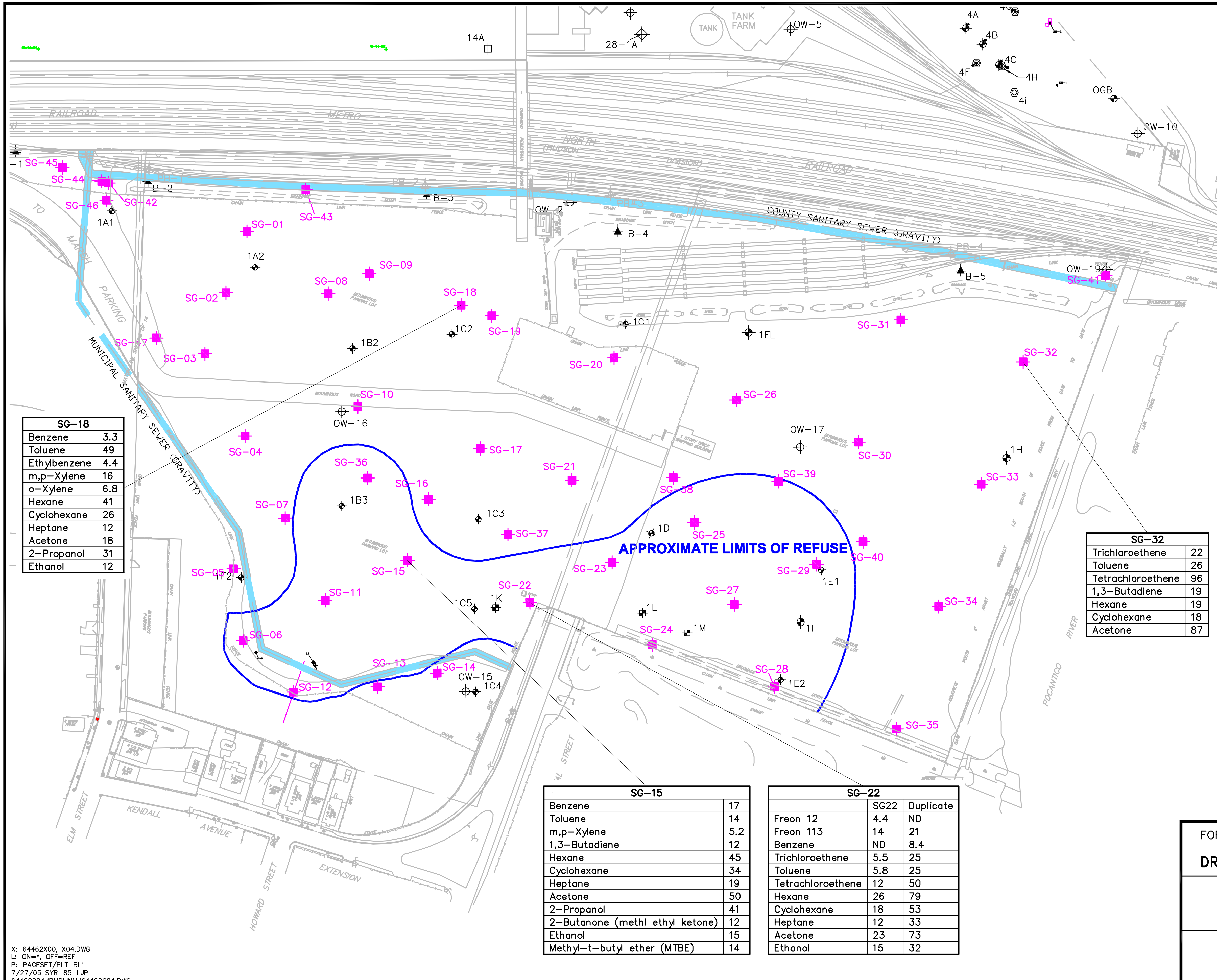
FORMER GENERAL MOTORS ASSEMBLY PLANT SITE
SLEEPY HOLLOW, NEW YORK
DRAFT REMEDIAL INVESTIGATION REPORT

METHANE CONTOURS WITH GROUNDWATER ELEVATION CONTOURS - EAST PARCEL

BBL BLASLAND, BOUCK & LEE, INC. engineers, scientists, economists

FIGURE **15B**

X: 64462X00, X04.DWG
L: ON=*, OFF=REF
P: PAGESET/PLT-BL1
8/2/05 SYR-85-LJP
64462024/RMDLINV/64462W03.DWG



SG–18	
Benzene	3.3
Toluene	49
Ethylbenzene	4.4
m,p–Xylene	16
o–Xylene	6.8
Hexane	41
Cyclohexane	26
Heptane	12
Acetone	18
2–Propanol	31
Ethanol	12

SG–32	
Trichloroethene	22
Toluene	26
Tetrachloroethene	96
1,3–Butadiene	19
Hexane	19
Cyclohexane	18
Acetone	87

SG–15	
Benzene	17
Toluene	14
m,p–Xylene	5.2
1,3–Butadiene	12
Hexane	45
Cyclohexane	34
Heptane	19
Acetone	50
2–Propanol	41
2–Butanone (methl ethyl ketone)	12
Ethanol	15
Methyl–t–butyl ether (MTBE)	14

SG–22		
	SG22	Duplicate
Freon 12	4.4	ND
Freon 113	14	21
Benzene	ND	8.4
Trichloroethene	5.5	25
Toluene	5.8	25
Tetrachloroethene	12	50
Hexane	26	79
Cyclohexane	18	53
Heptane	12	33
Acetone	23	73
Ethanol	15	32

LEGEND:

PREVIOUS SAMPLE LOCATIONS

- MONITORING WELL LOCATION
- TEST BORING (PHASE II)
- INDOOR BORING/EXCAVATION (PHASE II)
- WASTE CHARACTERIZATION TEST PIT (PHASE II)
- FURTHER VISUAL INSPECTION (PHASE II)
- BASEMENT SOIL SAMPLES (PHASE III)
- TEST BORING (PHASE III)
- TEST BORING (SUPPLEMENTAL PHASE II)
- CONFIRMATORY SOIL SAMPLE (ICM)
- 1 TEST PIT LOCATION (SUPPLEMENTAL PHASE II)
- TEST BORING LOCATION (SUPPLEMENTAL PHASE II)
- CORING LOCATION (SUPPLEMENTAL PHASE II)
- PARSONS BORINGS (HISTORICAL)
- DUE DILIGENCE SOIL SAMPLE (2002)
- DUE DILIGENCE SOIL & GROUND WATER SAMPLES
- DUE DILIGENCE GROUND WATER SAMPLE
- SOIL–GAS MEASUREMENT AND/OR SAMPLE LOCATION

NOTES:

1. BASE MAPS PROVIDED BY AMEC EARTH & ENVIRONMENTAL, NEW YORK, NEW YORK, DATED APRIL 2004.
2. SAMPLE RESULTS SHOWN IN UG/M³.
3. J = ESTIMATED CONCENTRATION
4. ND = CONSTITUENT NOT DETECTED
5. NA = NOT ANALYZED
6. VOC DATA FROM OCTOBER 2003

0 300' 600'

GRAPHIC SCALE

X: 64462X00, X04.DWG
L: ON=*, OFF=REF
P: PAGESET/PLT-BL1
7/27/05 SYR-85-LJP
64462024/RMDLINV/64462C24.DWG

FORMER GENERAL MOTORS ASSEMBLY PLANT SITE
SLEEPY HOLLOW, NEW YORK

DRAFT REMEDIAL INVESTIGATION REPORT

VOCs IN SOIL GAS - EAST PARCEL

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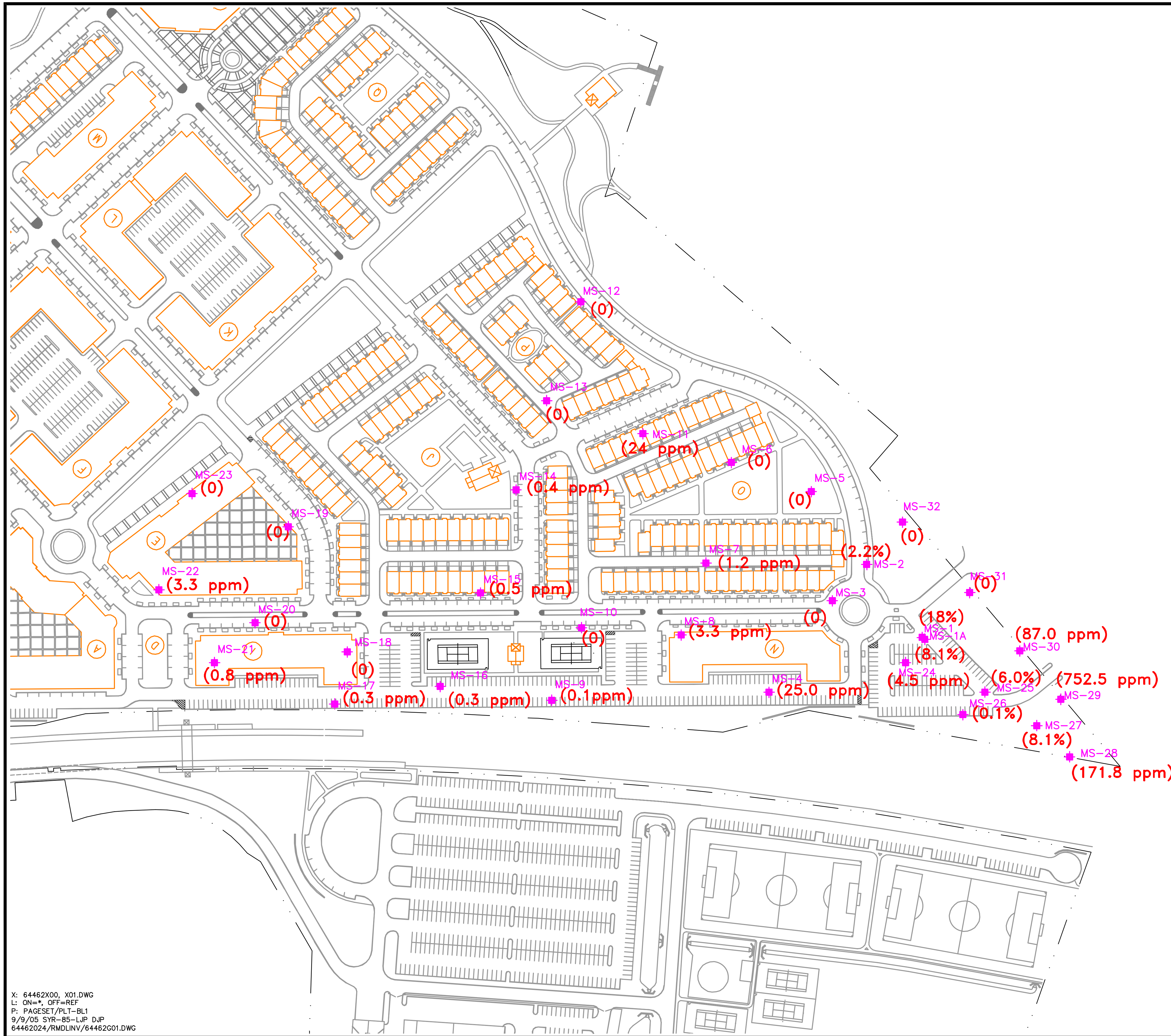
engineers, scientists, economists

FIGURE
16



LEGEND:

- ROSELAND CONCEPTUAL BUILDING LAYOUT
- FILL UNIT BOUNDARY
- METHANE SURVEY MEASUREMENT POINT
- (0.1%) METHANE SURVEY RESULT – MAXIMUM READING OF COMBUSTBLE GAS METER (%) OR FID (PPM)

NOTE:

1. BASE MAPS PROVIDED BY AMEC EARTH & ENVIRONMENTAL, NEW YORK, NEW YORK, DATED APRIL 2004.

0 200' 400'

GRAPHIC SCALE

FORMER GENERAL MOTORS ASSEMBLY PLANT SITE
SLEEPY HOLLOW, NEW YORK
DRAFT REMEDIAL INVESTIGATION REPORT

METHANE IN SOIL GAS - WEST PARCEL

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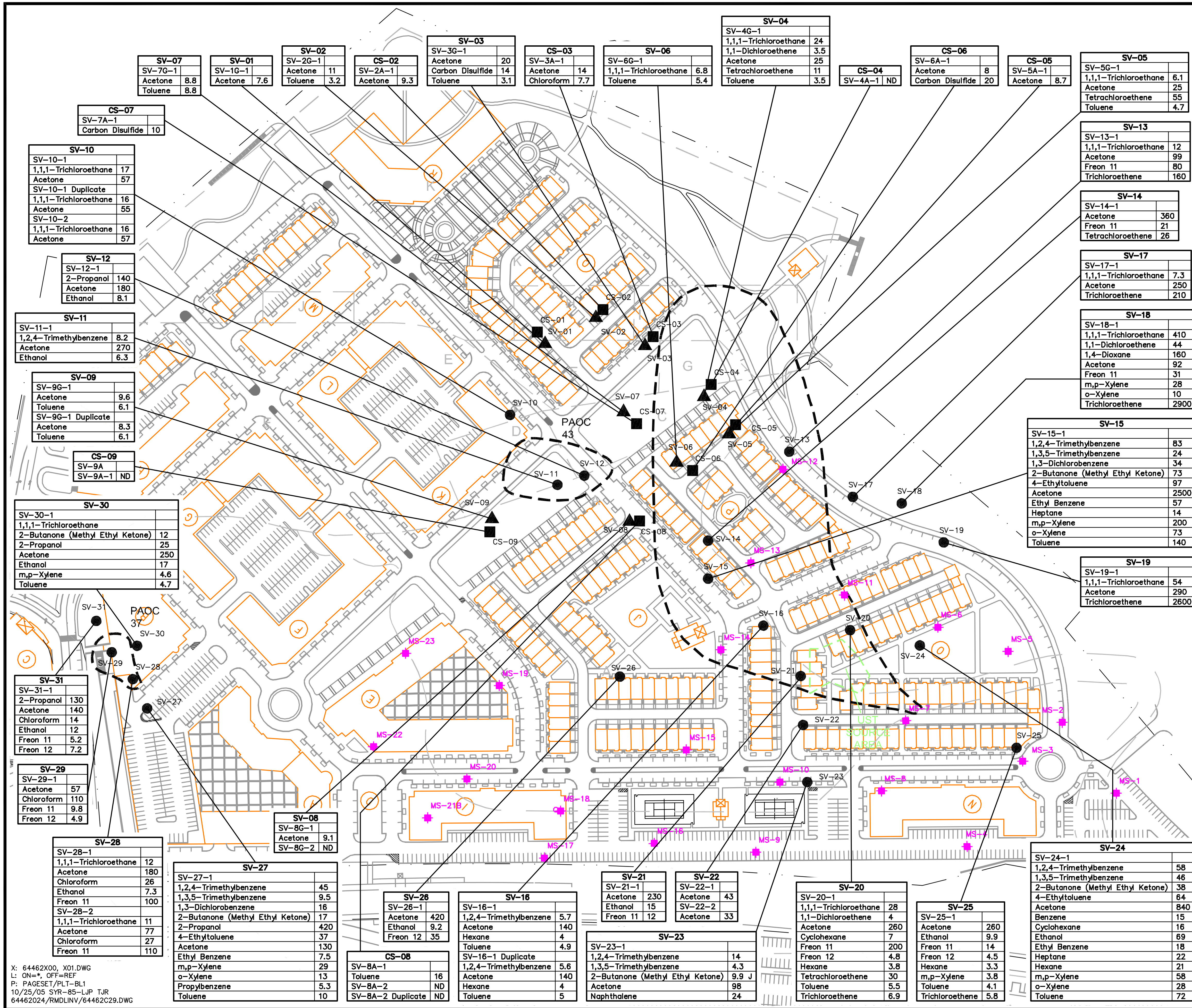
FIGURE
17

X: 64462X00, X01.DWG
L: ON=*, OFF=REF
P: PAGESET/PLT-BL1
9/9/05 SYR-85-LJP DJP
64462024/RMDLINV/64462G01.DWG



SV-07	
SV-7G-1	
Acetone	8.8
Toluene	8.8

SV-01	
SV-1G-1	
Acetone	7.6

SV-02	
SV-2G-1	
Acetone	11
Toluene	3.2

CS-02	
SV-2A-1	
Acetone	9.3

SV-03	
SV-3G-1	
Acetone	20
Carbon Disulfide	14
Toluene	3.1

CS-03	
SV-3A-1	
Acetone	14
Chloroform	7.7

SV-06	
SV-6G-1	
1,1,1-Trichloroethane	6.8
Toluene	5.4

SV-04	
SV-4G-1	
1,1,1-Trichloroethane	24
1,1-Dichloroethene	3.5
Acetone	25
Tetrachloroethene	11
Toluene	3.5

CS-04	
SV-4A-1	ND

CS-06	
SV-6A-1	
Acetone	8
Carbon Disulfide	20

CS-05	
SV-5A-1	
Acetone	8.7

SV-05	
SV-5G-1	
1,1,1-Trichloroethane	6.1
Acetone	25
Tetrachloroethene	55
Toluene	4.7

CS-07	
SV-7A-1	
Carbon Disulfide	10

SV-10	
SV-10-1	
1,1,1-Trichloroethane	17
Acetone	57
SV-10-1 Duplicate	
1,1,1-Trichloroethane	16
Acetone	55
SV-10-2	
1,1,1-Trichloroethane	16
Acetone	57

SV-12	
SV-12-1	
2-Propanol	140
Acetone	180
Ethanol	8.1

SV-11	
SV-11-1	
1,2,4-Trimethylbenzene	8.2
Acetone	270
Ethanol	6.3

SV-09	
SV-9G-1	
Acetone	9.6
Toluene	6.1
SV-9G-1 Duplicate	
Acetone	8.3
Toluene	6.1

CS-09	
SV-9A	
SV-9A-1	ND

SV-30	
SV-30-1	
1,1,1-Trichloroethane	
2-Butanone (Methyl Ethyl Ketone)	12
2-Propanol	25
Acetone	250
Ethanol	17
m,p-Xylene	4.6
Toluene	4.7

SV-31	
SV-31-1	
2-Propanol	130
Acetone	140
Chloroform	14
Ethanol	12
Freon 11	5.2
Freon 12	7.2

SV-29	
SV-29-1	
Acetone	57
Chloroform	110
Freon 11	9.8
Freon 12	4.9

SV-28	
SV-28-1	
1,1,1-Trichloroethane	12
Acetone	180
Chloroform	26
Ethanol	7.3
Freon 11	100
SV-28-2	
1,1,1-Trichloroethane	11
Acetone	77
Chloroform	27
Freon 11	110

SV-27	
SV-27-1	
1,2,4-Trimethylbenzene	45
1,3,5-Trimethylbenzene	9.5
1,3-Dichlorobenzene	16
2-Butanone (Methyl Ethyl Ketone)	17
2-Propanol	420
4-Ethyltoluene	37
Acetone	130
Ethyl Benzene	7.5
m,p-Xylene	29
o-Xylene	13
Propylbenzene	5.3
Toluene	10

SV-08	
SV-8G-1	
Acetone	9.1
SV-8G-2	ND

CS-08	
SV-8A-1	
Toluene	16
SV-8A-2	ND
SV-8A-2 Duplicate	ND

SV-26	
SV-26-1	
Acetone	420
Ethanol	9.2
Freon 12	35

SV-16	
SV-16-1	
1,2,4-Trimethylbenzene	5.7
Acetone	140
Hexane	4
Toluene	4.9
SV-16-1 Duplicate	
1,2,4-Trimethylbenzene	5.6
Acetone	140
Hexane	4
Toluene	5

SV-21	
SV-21-1	
Acetone	230
Ethanol	15
Freon 11	12

SV-22	
SV-22-1	
Acetone	43
SV-22-2	
Acetone	33

SV-23	
SV-23-1	
1,2,4-Trimethylbenzene	14
1,3,5-Trimethylbenzene	4.3
2-Butanone (Methyl Ethyl Ketone)	9.9 J
Acetone	98
Naphthalene	24

SV-20	
SV-20-1	
1,1,1-Trichloroethane	28
1,1-Dichloroethene	4
Acetone	260
Cyclohexane	7
Freon 11	200
Freon 12	4.8
Hexane	3.8
Tetrachloroethene	30
Toluene	5.5
Trichloroethene	6.9

SV-25	
SV-25-1	
Acetone	260
Ethanol	9.9
Freon 11	14
Freon 12	4.5
Hexane	3.3
m,p-Xylene	3.8
Toluene	4.1
Trichloroethene	5.8

SV-24	
SV-24-1	
1,2,4-Trimethylbenzene	58
1,3,5-Trimethylbenzene	46
2-Butanone (Methyl Ethyl Ketone)	38
4-Ethyltoluene	64
Acetone	840
Benzene	15
Cyclohexane	16
Ethanol	69
Ethyl Benzene	18
Heptane	22
Hexane	21
m,p-Xylene	58
o-Xylene	28
Toluene	72

SV-13	
SV-13-1	
1,1,1-Trichloroethane	12
Acetone	99
Freon 11	80
Trichloroethene	160

SV-14	
SV-14-1	
Acetone	360
Freon 11	21
Tetrachloroethene	26

SV-17	
SV-17-1	
1,1,1-Trichloroethane	7.3
Acetone	250
Trichloroethene	210

SV-18	
SV-18-1	
1,1,1-Trichloroethane	410
1,1-Dichloroethene	44
1,4-Dioxane	160
Acetone	92
Freon 11	31
m,p-Xylene	28
o-Xylene	10
Trichloroethene	2900

SV-15	
SV-15-1	
1,2,4-Trimethylbenzene	83
1,3,5-Trimethylbenzene	24
1,3-Dichlorobenzene	34
2-Butanone (Methyl Ethyl Ketone)	73
4-Ethyltoluene	97
Acetone	2500
Ethyl Benzene	57
Heptane	14
m,p-Xylene	200
o-Xylene	73
Toluene	140

SV-19	
SV-19-1	
1,1,1-Trichloroethane	54
Acetone	290
Trichloroethene	2600

LEGEND:

- GROUNDWATER MONITORING/ ATTENUATION ZONES
- PROPOSED NEW BUILDING OUTLINE
- UST SOURCE AREA
- FILL UNIT BOUNDARIES
- SUBSURFACE SOIL-VAPOR SAMPLE (COVERED BY SLAB OR PAVEMENT)
- SUBSURFACE SOIL-VAPOR SAMPLE (UNCOVERED SOIL SURFACE)
- CRAWLSPACE AIR SAMPLE
- METHANE SURVEY MEASUREMENT POINT

NOTES:

1. BASE MAPS PROVIDED BY AMEC EARTH & ENVIRONMENTAL, NEW YORK, NEW YORK, DATED APRIL 2004.
2. SAMPLE RESULTS SHOWN IN UG/M^3.
3. J = ESTIMATED CONCENTRATION.
4. ND = CONSTITUENT NOT DETECTED
5. NA = NOT ANALYZED

REVISION NO. 1 (10/26/05)

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10/25/05 SYR-85-LJP TJR
64462024/RMDLINV/64462C29.DWG

FORMER GENERAL MOTORS ASSEMBLY PLANT SITE
SLEEPY HOLLOW, NEW YORK
DRAFT REMEDIAL INVESTIGATION REPORT

VOCs IN SOIL GAS - WEST PARCEL

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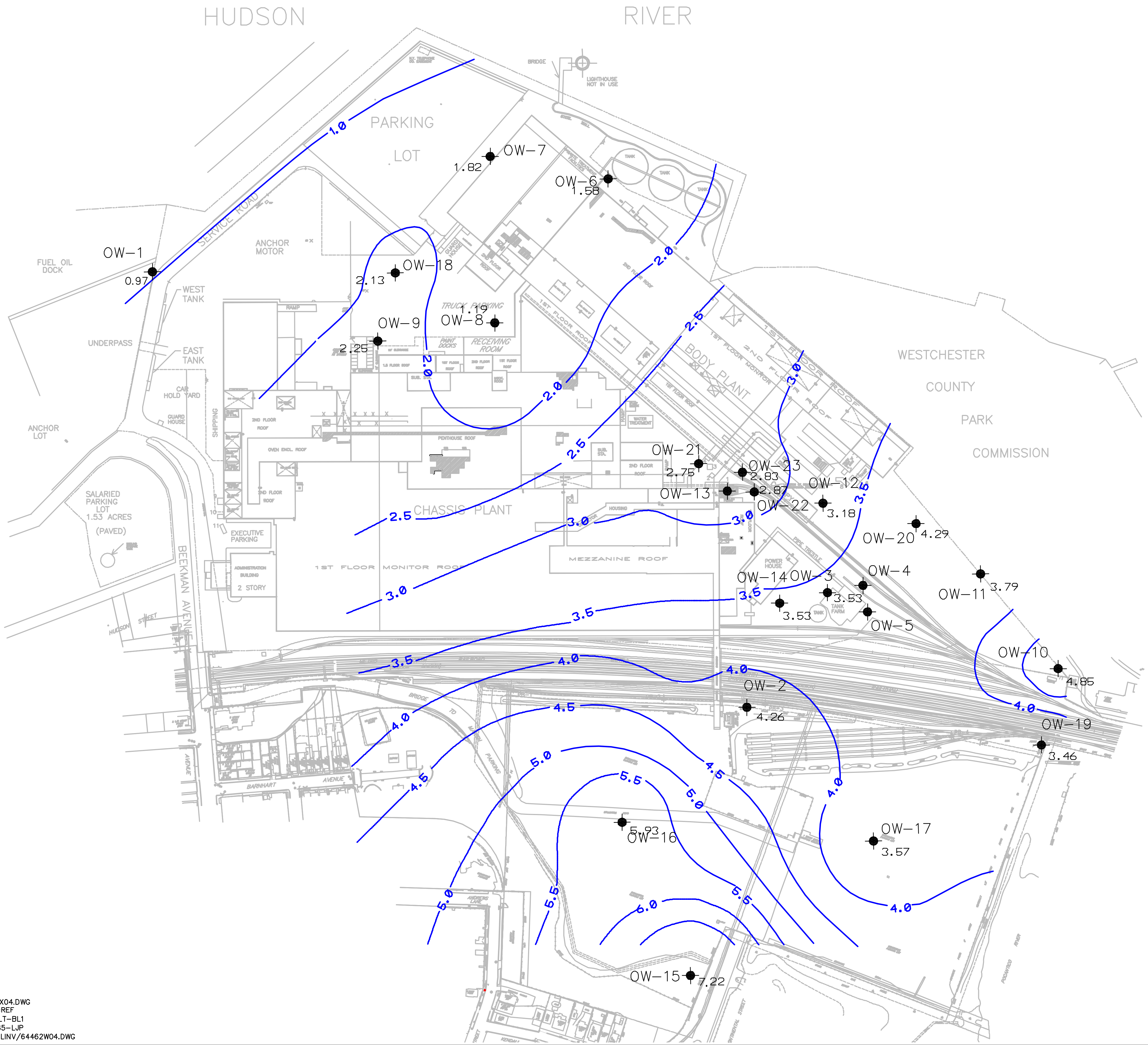
FIGURE
18



LEGEND:

- EMCON MONITORING WELL (PHASE II & III INVESTIGATIONS)
- 3.0 — GROUND WATER ELEVATION CONTOUR IN FEET (DASHED WHERE INFERRED)

NOTE:

1. BASE MAPS PROVIDED BY AMEC EARTH & ENVIRONMENTAL, NEW YORK, NEW YORK, DATED APRIL 2004.

0 300' 600'
GRAPHIC SCALE

FORMER GENERAL MOTORS ASSEMBLY PLANT SITE
SLEEPY HOLLOW, NEW YORK
DRAFT REMEDIAL INVESTIGATION REPORT

GROUNDWATER ELEVATION CONTOURS (MAY 1997)

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FIGURE
19

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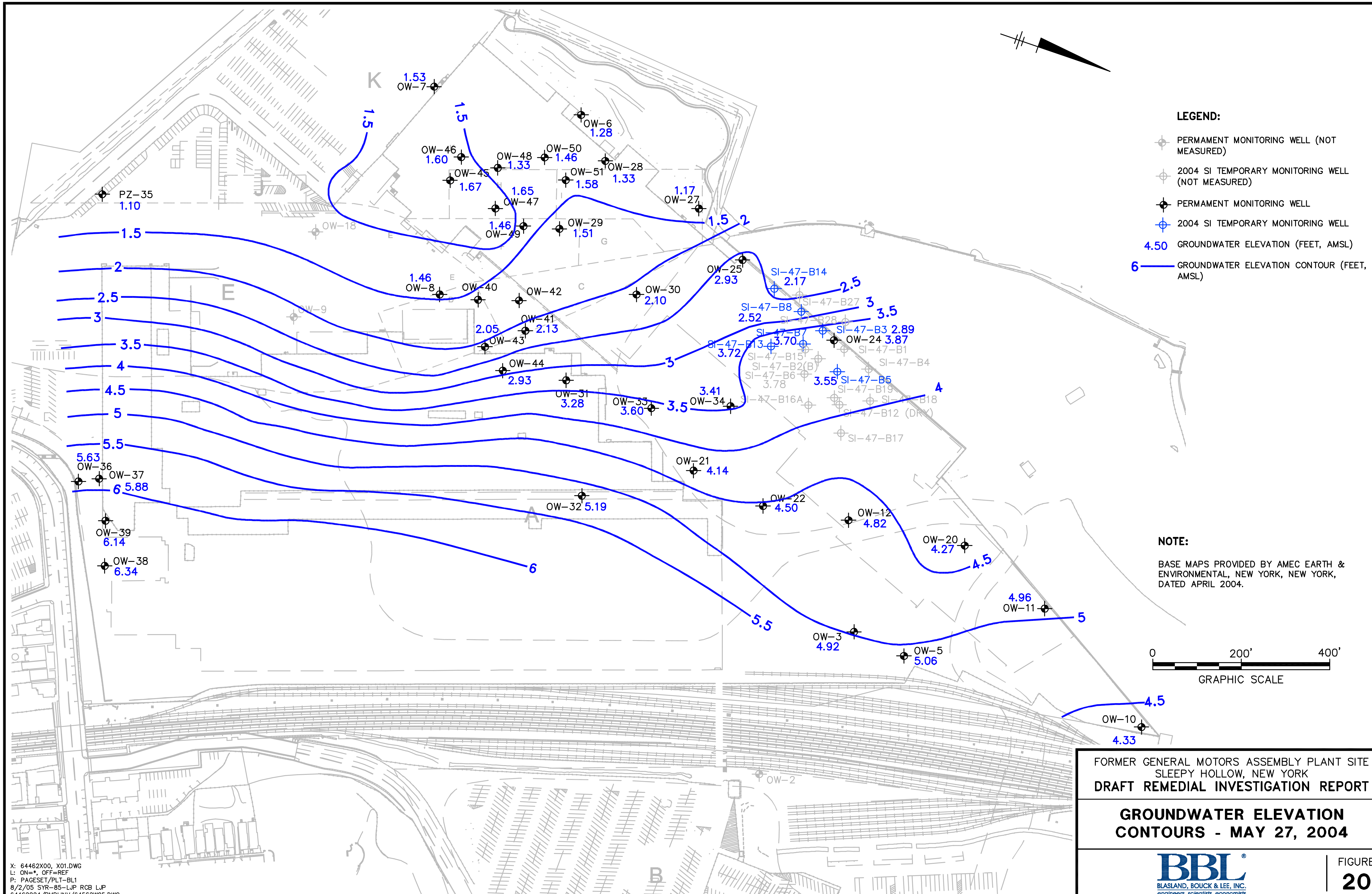

FORMER GENERAL MOTORS ASSEMBLY PLANT SITE
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GROUNDWATER ELEVATION CONTOURS - MAY 27, 2004

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FIGURE 20

LEGEND

- DITCH/ ARTIFICIAL INTERMITTENT STREAM
- ESTUARINE RIPRAP/ ARTIFICIAL SHORE
- RAILROAD
- BRACKISH TIDAL MARSH
- MOWED LAWN
- MOWED LAWN WITH TREES
- OAK-TULIP TREE FOREST
- RED MAPLE-HARDWOOD SWAMP
- RESIDENTIAL/ INDUSTRIAL/ COMMERCIAL
- TIDAL RIVER
- URBAN VACANT LOT

0 650 1,300 Feet

GRAPHIC SCALE

7/29/05 SYR-85 MTK KEW
General Motors (64462.003)
Q:\GeneralMotors\Tarrytown\RI\mxd\CovertypeMap.mxd

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PRIVILEGED AND CONFIDENTIAL

FORMER GENERAL MOTORS ASSEMBLY PLANT SITE
SLEEPY HOLLOW, NEW YORK
DRAFT REMEDIAL INVESTIGATION REPORT

COVERTYPE MAP

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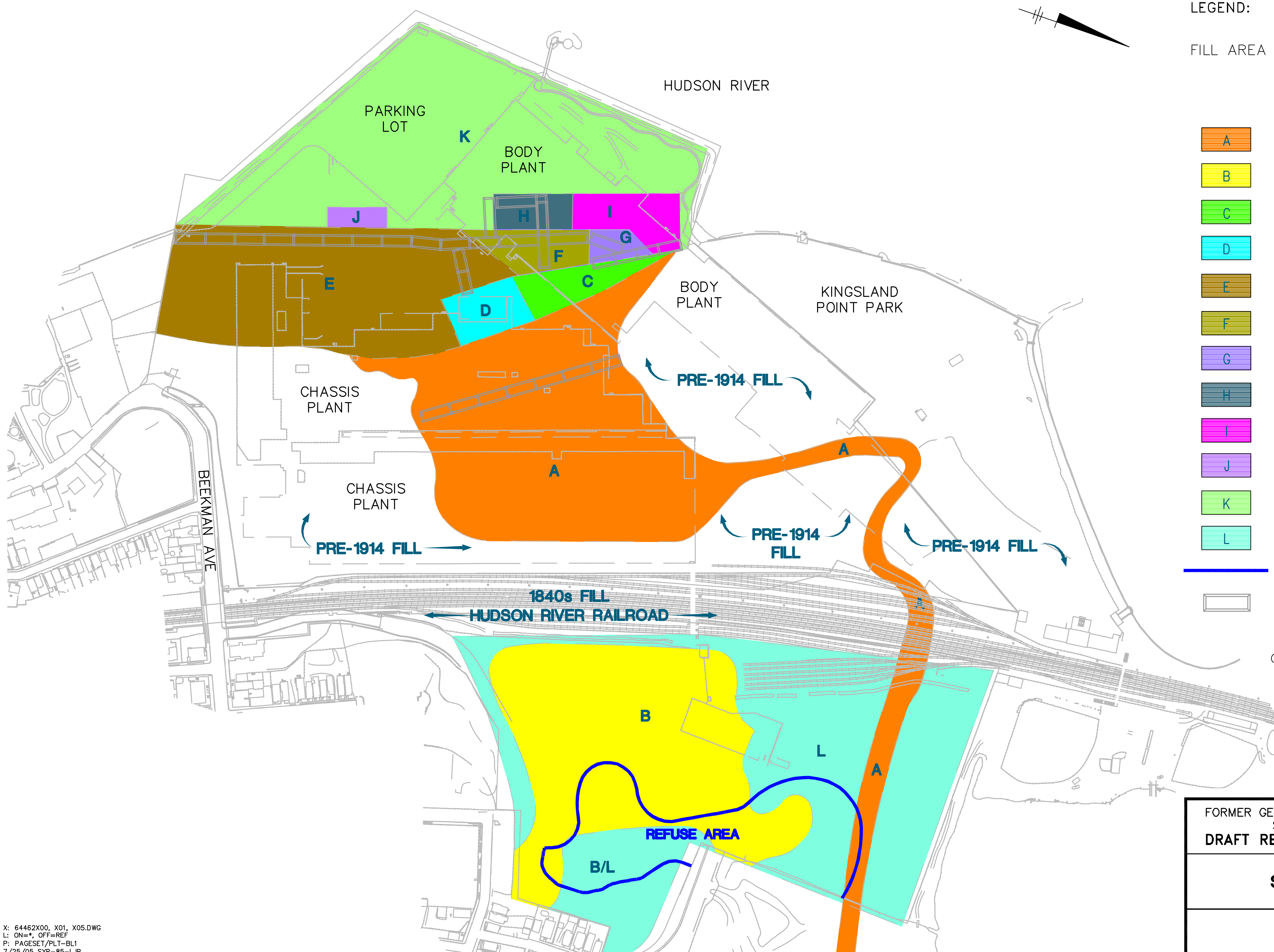
FIGURE 21

DRAWINGS



LEGEND:

FILL AREA	APPROXIMATE PERIOD OF FILL PLACEMENT SINCE GM ARRIVED (1914)
A	1926 – 1933
B	1926 – 1933
C	LATE 1930'S
D	1940
E	MID 1940'S
F	1947 – 1953
G	1951
H	1955
I	1958
J	1959
K	1960
L	1960

APPROXIMATE LIMITS OF REFUSE

APPROXIMATE BARGE BULKHEAD LOCATION (SUBSURFACE)

0 300' 600'

GRAPHIC SCALE

X: 64462X00, X01, X05.DWG
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P: PAGESET/PLT-BL1
7/25/05 SYR-85-LJP
64462024/RMDLINV/64462B06.DWG

FORMER GENERAL MOTORS ASSEMBLY PLANT SITE
SLEEPY HOLLOW, NEW YORK
DRAFT REMEDIAL INVESTIGATION REPORT

SITE FILL HISTORY

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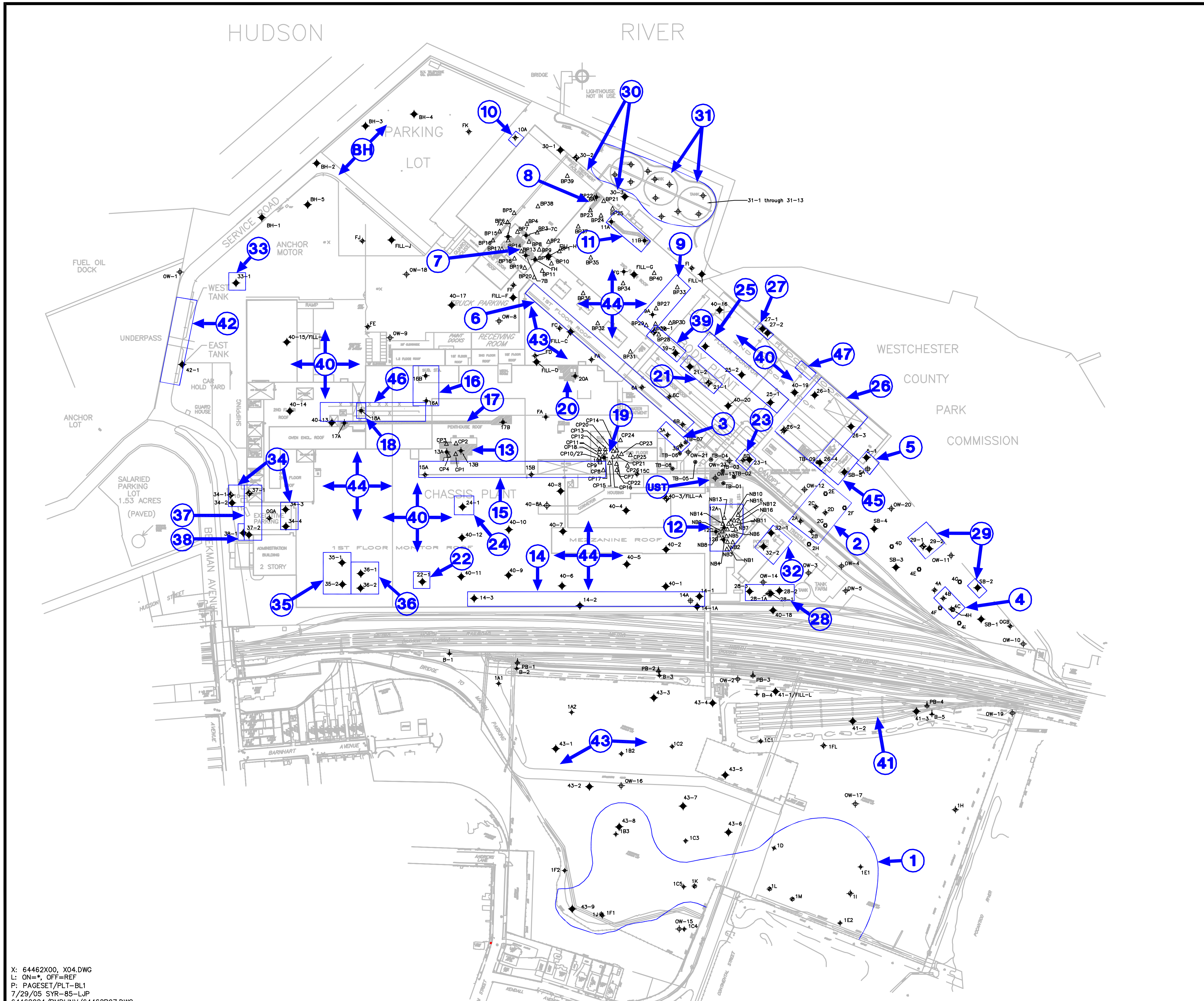
DRAWING
1



LEGEND:

PREVIOUS SAMPLE LOCATIONS

- MONITORING WELL LOCATION
- TEST BORING (PHASE II)
- INDOOR BORING/EXCAVATION (PHASE II)
- WASTE CHARACTERIZATION TEST PIT (PHASE II)
- FURTHER VISUAL INSPECTION (PHASE II)
- BASEMENT SOIL SAMPLES (PHASE III)
- TEST BORING (PHASE III)
- TEST BORING (SUPPLEMENTAL PHASE II)
- CONFIRMATORY SOIL SAMPLE (ICM)
- AREA OF SOIL REMOVAL (ICM)
- TEST PIT LOCATION (SUPPLEMENTAL PHASE II)
- TEST BORING LOCATION (SUPPLEMENTAL PHASE II)
- CORING LOCATION (SUPPLEMENTAL PHASE II)
- PARSONS BORINGS (HISTORICAL)
- DUE DILIGENCE SOIL SAMPLE (2002)
- DUE DILIGENCE SOIL & GROUND WATER SAMPLES
- DUE DILIGENCE GROUND WATER SAMPLE
- 4 POTENTIAL AREA OF CONCERN (PAOC)

0 300' 600'

GRAPHIC SCALE

FORMER GENERAL MOTORS ASSEMBLY PLANT SITE
SLEEPY HOLLOW, NEW YORK

DRAFT REMEDIAL INVESTIGATION REPORT

POTENTIAL AREAS OF CONCERN AND PREVIOUS SAMPLING LOCATIONS

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DRAWING **2**

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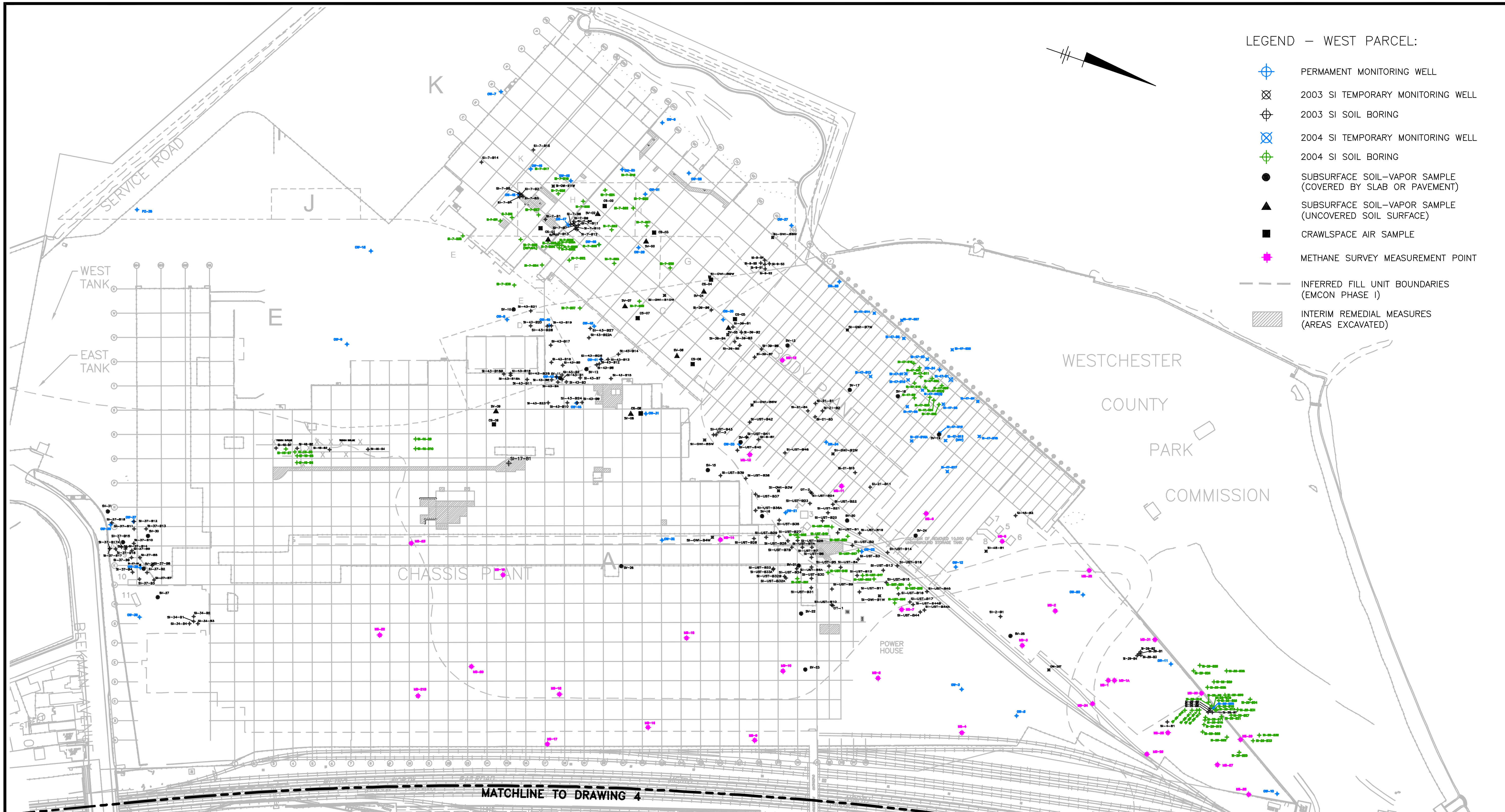

0 200' 400'
GRAPHIC SCALE

FORMER GENERAL MOTORS ASSEMBLY PLANT SITE
SLEEPY HOLLOW, NEW YORK
DRAFT REMEDIAL INVESTIGATION REPORT

REMEDIAL INVESTIGATION SOIL AND GROUNDWATER SAMPLING LOCATIONS - WEST PARCEL

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DRAWING
3

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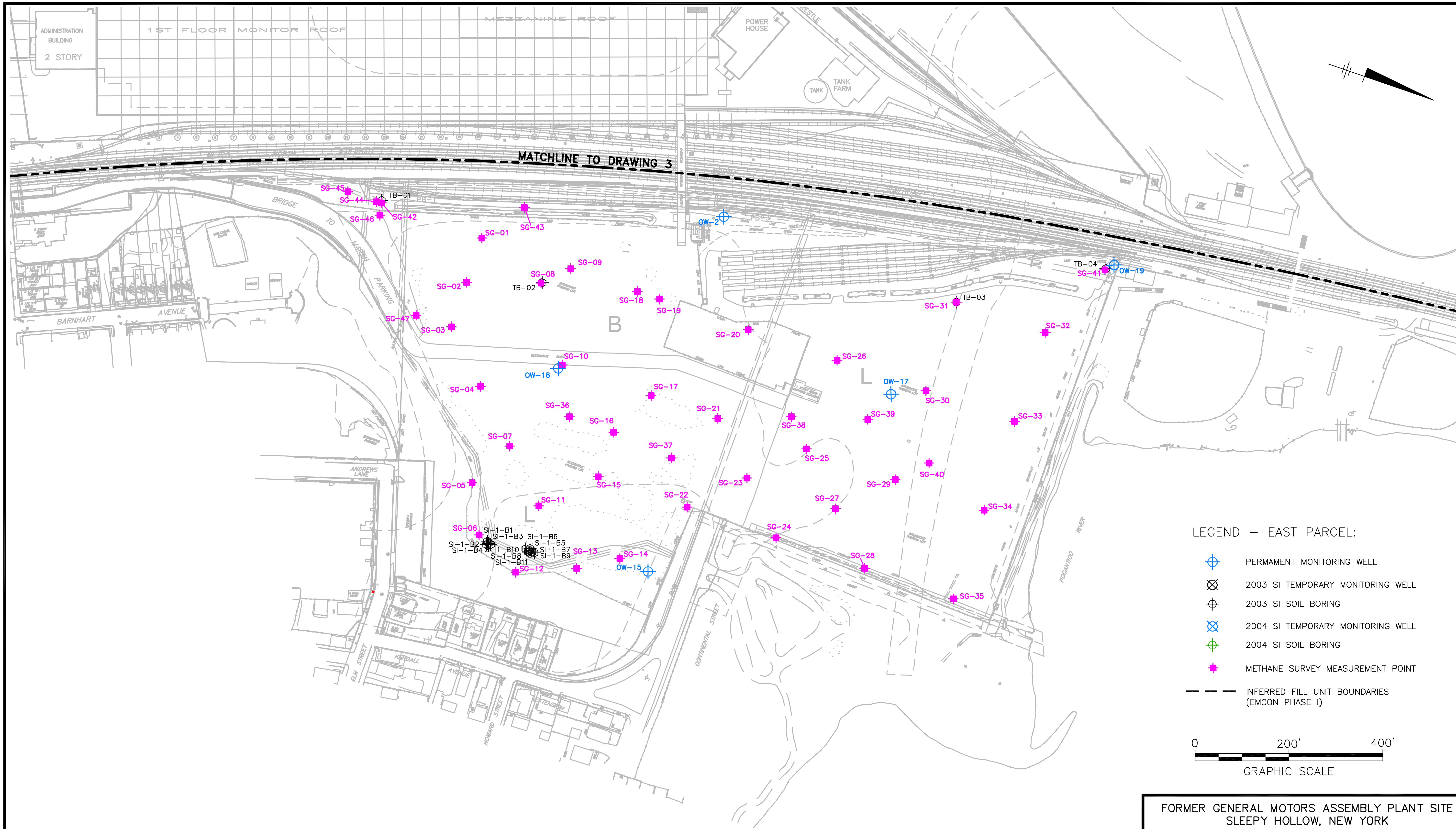

LEGEND – EAST PARCEL:

- PERMAMENT MONITORING WELL
- 2003 SI TEMPORARY MONITORING WELL
- 2003 SI SOIL BORING
- 2004 SI TEMPORARY MONITORING WELL
- 2004 SI SOIL BORING
- METHANE SURVEY MEASUREMENT POINT
- INFERRED FILL UNIT BOUNDARIES (EMCON PHASE I)

0 200' 400'

GRAPHIC SCALE

FORMER GENERAL MOTORS ASSEMBLY PLANT SITE
SLEEPY HOLLOW, NEW YORK
DRAFT REMEDIAL INVESTIGATION REPORT

REMEDIAL INVESTIGATION SOIL AND GROUNDWATER SAMPLING LOCATION - EAST PARCEL

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4

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IV. APPENDICES
3.C Glossary of Terms

GLOSSARY OF TERMS

BCA – Brownfield Cleanup Agreement

BCP – Brownfield Cleanup Program

BMPs – best management practices

CAMP – Community Air Monitoring Plan

CFR – Code of Federal Regulations

HASP – Health and Safety Plan

IC/EC – institutional and/or engineering controls

IRM – Interim Remedial Measure

NYCRR – New York State Codes, Rules and Regulations

NYSDEC – New York State Department of Environmental Conservation

NYSDOH – New York State Department of Health

OSHA – Occupational Safety and Health Administration

PAOC – potential area of concern

PAHs – polynuclear or polycyclic aromatic hydrocarbons

PCBs – polychlorinated biphenyls

ppm – parts per million

RAO – remedial action objective

RAWP – Remedial Action Work Plan

RWP – Remedial Work Plan

RSCO – Recommended Soil Cleanup Objective

SMP – Site Management Plan

SPLP – Synthetic Precipitation Leaching Procedure

SVOC – semivolatile organic compound

SWPPP – Storm Water Pollution Prevention Plan

TAGM – Technical and Administrative Guidance Memorandum

TCE – trichloroethene

TCL – Target Compound List

TCLP – toxicity characteristic leaching potential

US EPA – United States Environmental Protection Agency

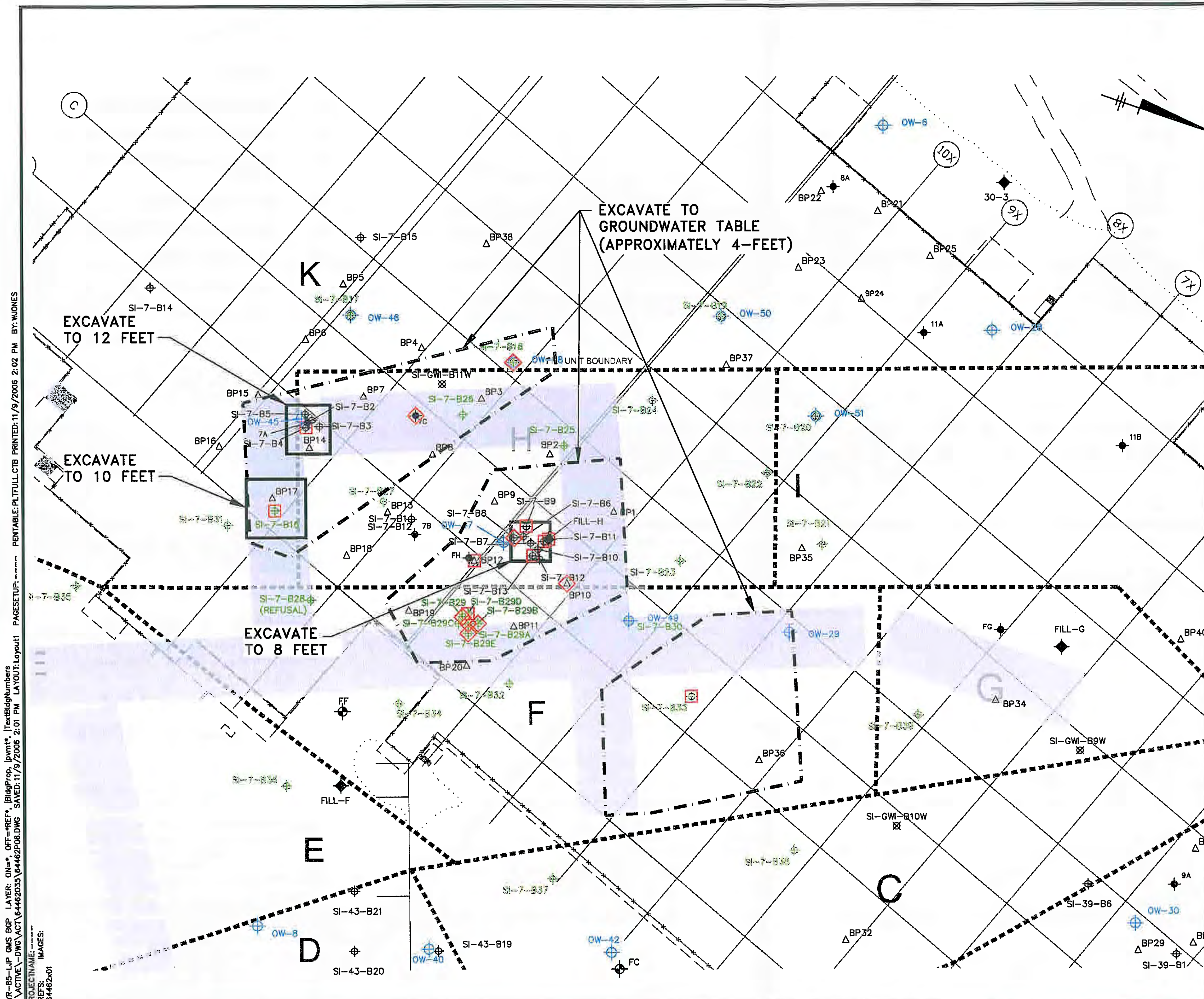
UST – underground storage tank

VCA – Voluntary Cleanup Agreement

VCP – Voluntary Cleanup Program

VOC – volatile organic compound

IV. APPENDICES
3.D Proposed Interim Remedial Measures



LEGEND:

- PERMANENT MONITORING WELL
- 2002 DUE DILIGENCE SOIL SAMPLE
- 2002 DUE DILIGENCE SOIL & GW SAMPLES
- 2003 SI TEMPORARY MONITORING WELL
- 2003 SI SOIL BORING
- 2004 SI TEMPORARY MONITORING WELL
- 2004 SI SOIL BORING
- BASEMENT SOIL SAMPLE (PHASE II)
- INDOOR BORING/EXCAVATION (PHASE II)
- SOIL LEAD RESULT >10,000 PPM ABOVE THE GROUNDWATER TABLE
- SOIL LEAD RESULT >5,000 PPM TO <10,000 PPM ABOVE THE GROUND WATER TABLE
- INFERRED FILL UNIT BOUNDARIES (EMCON PHASE I)
- APPROXIMATE BARGE BULKHEAD LOCATION (SUBSURFACE)

NOTES:

1. BASE MAPS PROVIDED BY AMEC EARTH & ENVIRONMENTAL, NEW YORK, NEW YORK, DATED APRIL 2004.
2. ALL LOCATIONS ARE APPROXIMATE.
3. BOUNDARIES OF SPECIFIED LEAD CONCENTRATIONS ARE PROJECTIONS BASED ON DATA PROVIDED IN THE DRAFT REMEDIAL INVESTIGATION REPORT PREPARED BY BBL, OCTOBER 2005.

DRAFT

WORK IN PROGRESS

0 50' 100'

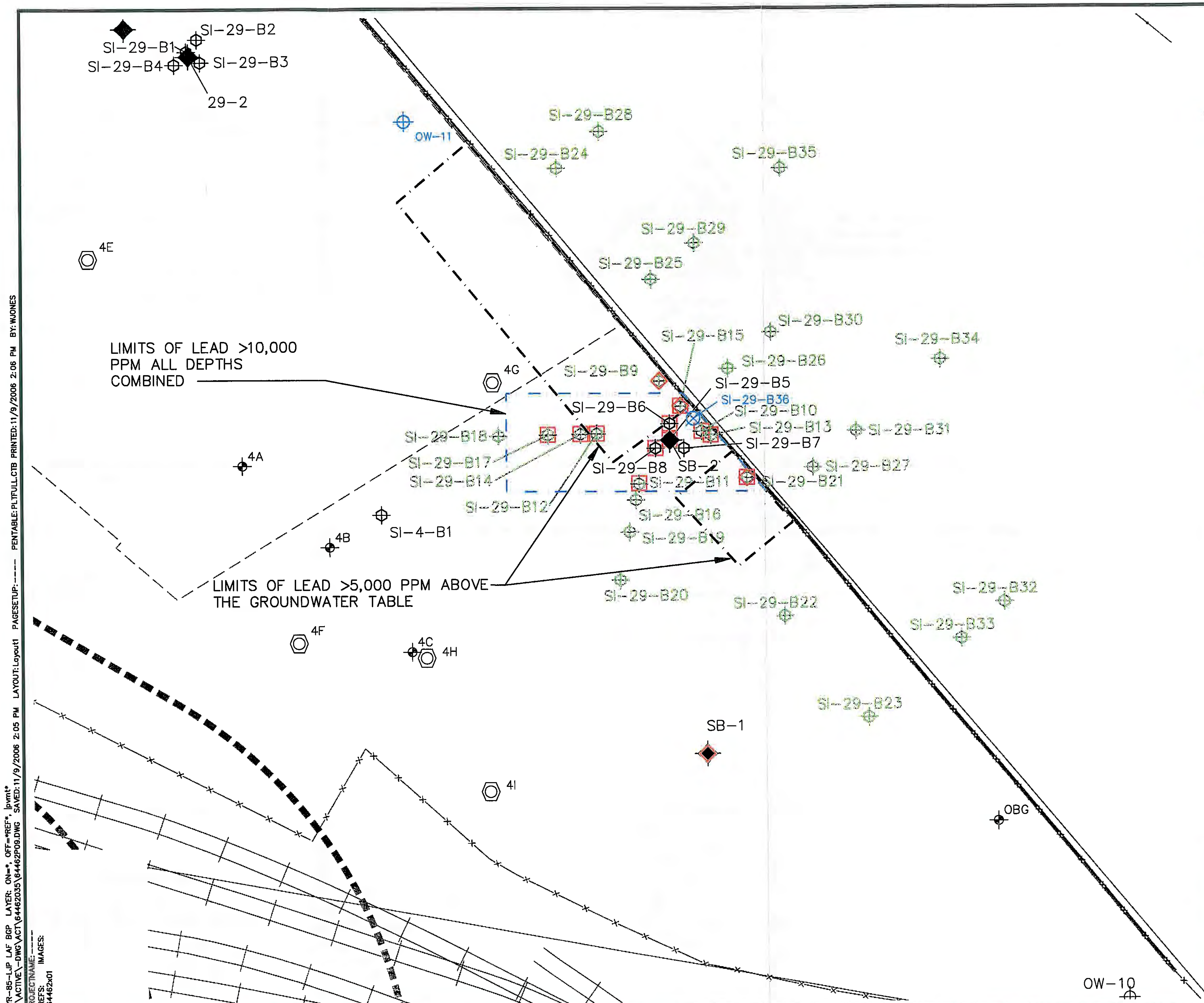
GRAPHIC SCALE

FORMER GENERAL MOTORS ASSEMBLY PLANT SITE
SLEEPY HOLLOW, NEW YORK
PROPOSED IRM'S

PAOC 7
PROPOSED IRM BOUNDARY (ALTERNATIVE D)

BBL an ARCADIS company

FIGURE **4A**



LEGEND:

- PERMANENT MONITORING WELL
- 2002 DUE DILIGENCE SOIL SAMPLE
- 2002 DUE DILIGENCE SOIL & GW SAMPLES
- 2003 SI SOIL BORING
- 2004 SI TEMPORARY MONITORING WELL
- 2004 SI SOIL BORING
- TEST BORING (PHASE II)
- TEST BORING (PHASE III)
- SOIL LEAD RESULT >10,000 PPM
- SOIL LEAD RESULT >5,000 PPM TO <10,000 PPM ABOVE THE GROUNDWATER TABLE

NOTES:

1. BASE MAPS PROVIDED BY AMEC EARTH & ENVIRONMENTAL, NEW YORK, NEW YORK, DATED APRIL 2004.
2. ALL LOCATIONS ARE APPROXIMATE.
3. BOUNDARIES OF SPECIFIED LEAD CONCENTRATIONS ARE PROJECTIONS BASED ON DATA PROVIDED IN THE DRAFT REMEDIAL INVESTIGATION REPORT PREPARED BY BBL, OCTOBER 2005.

DRAFT

WORK IN PROGRESS

0 30' 60'

GRAPHIC SCALE

FORMER GENERAL MOTORS ASSEMBLY PLANT SITE
SLEEPY HOLLOW, NEW YORK
PROPOSED IRM'S

PAOC 29
PROPOSED IRM BOUNDARY
(ALTERNATIVE D)

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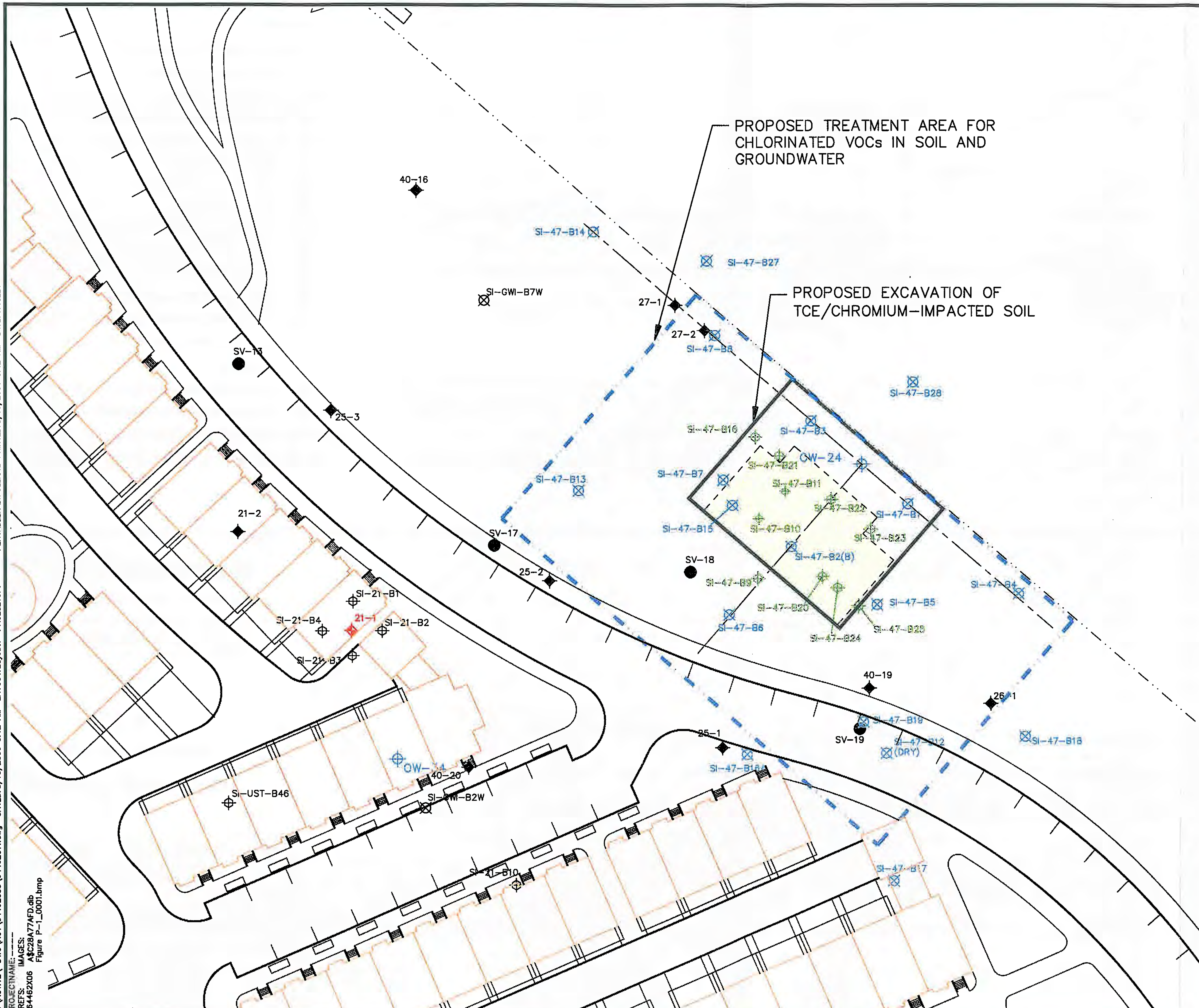
FIGURE
5A



LEGEND;

- PERMANENT MONITORING WELL
- 2002 DUE DILIGENCE SOIL SAMPLE
- 2002 DUE DILIGENCE SOIL & GW SAMPLES
- 2003 SI TEMPORARY MONITORING WELL
- 2003 SI SOIL BORING
- 2004 SI TEMPORARY MONITORING WELL
- 2004 SI SOIL BORING
- SOIL VAPOR SAMPLE
- APPROXIMATE EXTENT OF BURIED PIT
- ROSELAND CONCEPTUAL BUILDING LAYOUT
- EXTENT OF TCE CONTAMINATION IN ONSITE GROUNDWATER
- EXTENT OF CHROMIUM AND TCE ASSOCIATED WITH FORMER PIT

NOTES:

1. BASE MAPS PROVIDED BY AMEC EARTH & ENVIRONMENTAL, NEW YORK, NEW YORK, DATED APRIL 2004.
2. ALL LOCATIONS ARE APPROXIMATE.
3. BOUNDARIES OF CONTAMINATED SOIL AND GROUNDWATER ON SITE ARE PROJECTIONS BASED ON DATA PROVIDED IN THE DRAFT REMEDIAL INVESTIGATION REPORT PREPARED BY BBL, OCTOBER 2005.

0 50' 100'
GRAPHIC SCALE

FORMER GENERAL MOTORS ASSEMBLY PLANT SITE
SLEEPY HOLLOW, NEW YORK
PROPOSED IRMs

PAOC 47
PROPOSED IRM BOUNDARY

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FIGURE
11

SYR-85-LJP GHS BGP LAYER: ON=*, OFF=*REF* |PROP BUILDINGS, |BUILDING-TEXT PENTABLE:PLTFULL.CTB PRINTED:8/10/2006 9:12 AM BY: BPITTSLEY
F:\ACTIVE\~DWG\ACT\64462035\64462G11.dwg SAVED:8/10/2006 9:12 AM LAYOUT:Layout1 PAGESETUP:----
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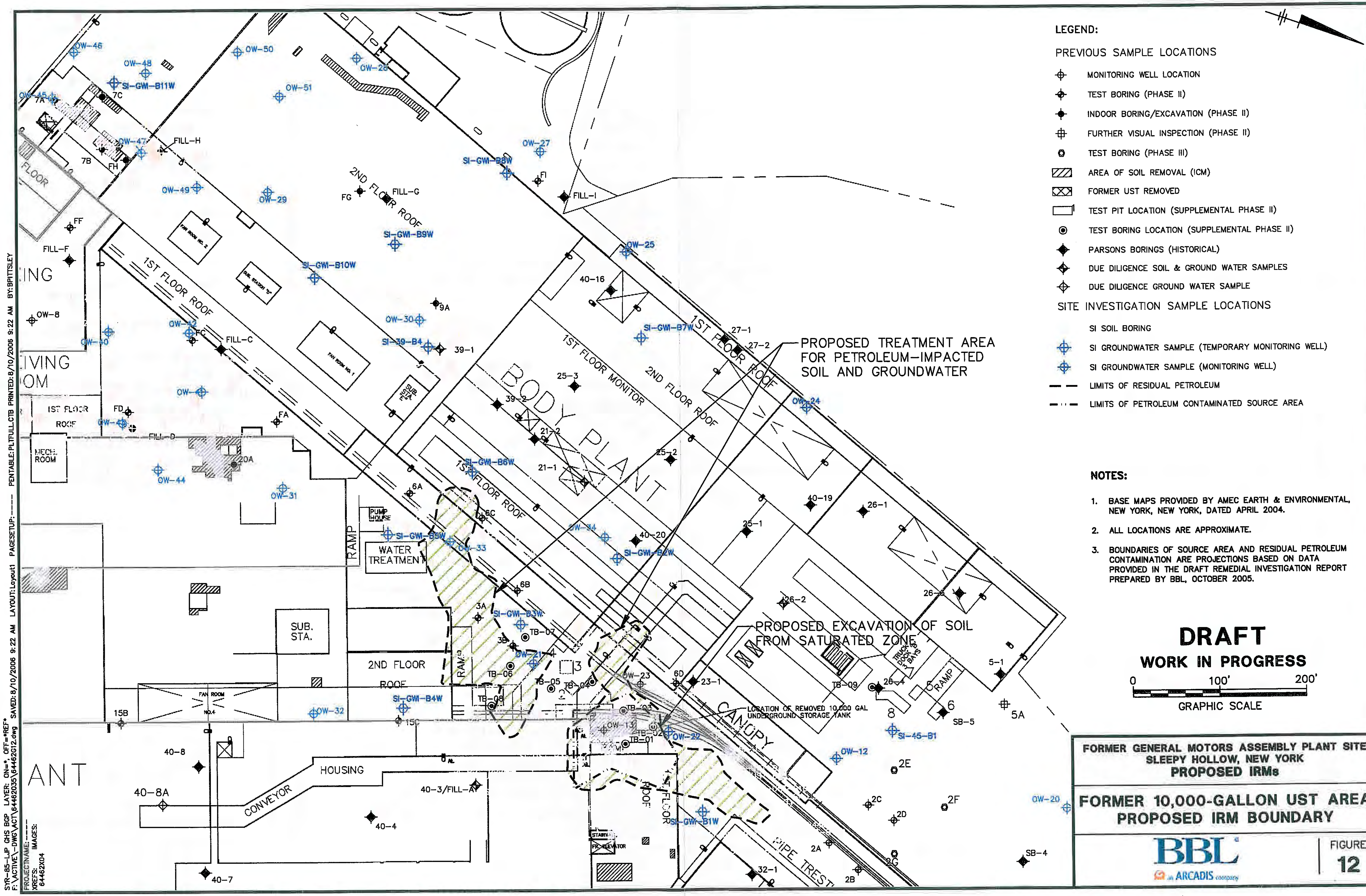

LEGEND:
PREVIOUS SAMPLE LOCATIONS
MONITORING WELL LOCATION
TEST BORING (PHASE II)
INDOOR BORING/EXCAVATION (PHASE II)
FURTHER VISUAL INSPECTION (PHASE II)
TEST BORING (PHASE III)
AREA OF SOIL REMOVAL (ICM)
FORMER UST REMOVED
TEST PIT LOCATION (SUPPLEMENTAL PHASE II)
TEST BORING LOCATION (SUPPLEMENTAL PHASE II)
PARSONS BORINGS (HISTORICAL)
DUE DILIGENCE SOIL & GROUND WATER SAMPLES
DUE DILIGENCE GROUND WATER SAMPLE
SITE INVESTIGATION SAMPLE LOCATIONS
SI SOIL BORING
SI GROUNDWATER SAMPLE (TEMPORARY MONITORING WELL)
SI GROUNDWATER SAMPLE (MONITORING WELL)
LIMITS OF RESIDUAL PETROLEUM
LIMITS OF PETROLEUM CONTAMINATED SOURCE AREA
NOTES:
1. BASE MAPS PROVIDED BY AMEC EARTH & ENVIRONMENTAL, NEW YORK, NEW YORK, DATED APRIL 2004.
2. ALL LOCATIONS ARE APPROXIMATE.
3. BOUNDARIES OF SOURCE AREA AND RESIDUAL PETROLEUM CONTAMINATION ARE PROJECTIONS BASED ON DATA PROVIDED IN THE DRAFT REMEDIAL INVESTIGATION REPORT PREPARED BY BBL, OCTOBER 2005.
DRAFT
WORK IN PROGRESS
0
100'
200'
GRAPHIC SCALE
PROPOSED TREATMENT AREA FOR PETROLEUM-IMPACTED SOIL AND GROUNDWATER
PROPOSED EXCAVATION OF SOIL FROM SATURATED ZONE
LOCATION OF REMOVED 10,000 GAL UNDERGROUND STORAGE TANK
BODY PLANT
1ST FLOOR ROOF
2ND FLOOR ROOF
1ST FLOOR MONITOR
WATER TREATMENT
PUMP HOUSE
SUB. STA.
2ND FLOOR ROOF
MECH. ROOM
HOUSING
CONVEYOR
CANOPY
PIPE TREST
RAMP
ANT
FORMER GENERAL MOTORS ASSEMBLY PLANT SITE
SLEEPY HOLLOW, NEW YORK
PROPOSED IRMs
FORMER 10,000-GALLON UST AREA
PROPOSED IRM BOUNDARY
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FIGURE
12

IV. APPENDICES
3.E Roux Associates Memorandum Dated 12/19/06

ENVIRONMENTAL CONSULTING & MANAGEMENT
ROUX ASSOCIATES INC

209 Shafter Street
Islandia, New York 11749
TEL 631-232-2600 FAX 631-232-9898

ROUX MEMORANDUM

TO: Joel Sachs, Esq., Keane & Beane, P.C.

FROM: Craig Werle, Roux Associates, Inc.

DATE: December 19, 2006

RE: Summary of Remedial Investigation/Planned Interim Remedial Measures
Former General Motors Assembly Plant
Village of Sleepy Hollow, New York

Introduction

This memorandum provides a summary overview of the completed environmental investigations and the remedial plans for the former General Motors North Tarrytown Assembly Plant facility (the Site) in the Village of Sleepy Hollow, New York. The investigation and remediation of the Site is in preparation for the development of the property by General Motors Corporation (GM) and Roseland/Sleepy Hollow LLC (Roseland).

Presented below is a brief description of the GM Site followed by a summary of the environmental investigations that were conducted by GM and Roseland's consultants prior to NYSDEC oversight. A chronological overview of the regulatory status of the project and the investigations conducted under the supervision of the New York State Department of Environmental Conservation (NYSDEC) is then presented. The findings of the Remedial Investigation Report (RIR) are summarized for selected areas that are the focus of Interim Remedial Measures (IRMs) proposed by GM and Roseland.

Site Description

The 96.2-acre Site is located on the eastern bank of the Hudson River. The property is divided into two parcels by the Metro North Rail Road tracks. The GM Assembly Plant was located on the 66.2-acre western parcel. Acquired by GM in 1914, the size and configuration of the western parcel has evolved over the course of the 20th Century as urban fill materials were used to progressively fill and extend the shoreline into Pocantico Bay and the Hudson River. GM purchased the 28.3-acre eastern parcel in 1960. This property was previously used by the Village of North Tarrytown as a landfill for disposal of municipal refuse and ash during the 1920s and 1930s. The 1.7-acre South Parcel was previously residential property prior to its use by GM as a salaried employee parking lot.

Previous Investigations

GM's auto assembly operations ended in the summer of 1996. Prior to this time, no environmental investigations had been conducted at the Site. As part of the orderly decommissioning and closure of the facility, GM initiated a series of environmental investigations. This included a 1996 Phase I Environmental Site Assessment (ESA) by EMCON that surveyed historic plant operations and identified potential areas of concern (PAOCs). A total of 20 PAOCs associated with former operations and spills on the west parcel and municipal refuse disposal on the east parcel were initially identified by GM during this process. A 1997

Phase II included the initial collection of soil and groundwater samples from these PAOCs to evaluate the potential existence of environmental contamination. Samples collected during the Phase II investigation were analyzed for the complete USEPA Target Compound List (TCL) and Target Analyte List (TAL) to allow for screening for the widest possible range of contaminants. EMCON then conducted a Phase III Extent of Contamination Study that was aimed at delineating the extent of the contamination identified during the Phase II. This study was completed in 2001. EMCON also conducted a Hudson River Sediment Investigation that was completed in 1999.

GM conducted the first round of environmental remediation at the site between 1997 and 1998. Known as the Interim Corrective Measures (ICM) Project, this effort included the excavation of soil containing petroleum, hydraulic fluid and metals found in crawl spaces beneath the former Chassis and Body Assembly Plants. A total of 2000 cubic yards of soil were removed from 9 PAOCs. Two underground fuel storage tanks (USTs) were also removed prior to building demolition as part of this project. A 1,000-gallon UST was removed including all associated contaminated soil and the spill case was closed by the NYSDEC. A 10,000-gallon fuel tank was also removed, however, some residual contaminated soil could not be excavated and this spill case remained open for future investigation and cleanup.

Roseland also conducted a soil and groundwater sampling program in 2002 (EcolSciences, 2002) as part of their environmental due diligence prior to teaming with GM. Roseland identified an additional 24 PAOCs that were the focus of their investigation. The results of the Roseland study were consistent with the sampling results from GM's investigations. Metals, primarily lead, and polynuclear aromatic hydrocarbons (PAHs), heavy hydrocarbon compounds found in fuel oil and lubricating oil, were identified as the primary contaminants of concern at the Site. These contaminants are generally widespread in soils from urban areas throughout the northeast United States and are characteristic of the fill materials that were used to expand this Site and many other filled sites along the Hudson River.

Ground water sampling by GM and Roseland from 23 permanent monitoring wells and additional temporary wells were either analyzed for TAL/TCL compounds or USEPA priority pollutants. It was determined that no toxic metals were found in solution in groundwater onsite. Unfiltered samples routinely contained metals found in the fill material showing the impact of suspended sediment in the samples. The monitoring well sample results were definitive in demonstrating that the elevated lead concentrations found in soil in several PAOCs were not producing any groundwater impacts. Sampling in the vicinity of the 10,000-gallon fuel UST found petroleum contamination and occasional sheen and odor in groundwater although these impacts were shown to attenuate within a limited distance.

Regulatory Status

In 2002, GM and Roseland entered the New York State Department of Environmental Conservation (NYSDEC) Voluntary Cleanup Program (VCP). They signed a Voluntary Cleanup Agreement (VCA) in November 2002 that applied to the entire Site including the Hudson River. Participation in the VCP as volunteers enabled GM and Roseland to remediate the Site under the supervision of NYSDEC.

The first step in the VCP process was preparation of an Investigation Work Plan (IWP) that specified in detail the additional environmental sampling that was necessary to complete the investigation of the site. The 2003 IWP was based on the findings of the previous investigations conducted by GM and Roseland and it included the 44 PAOCs previously identified, as well as PAOCs 45 and 46 that were identified by GM during supplemental testing conducted in 2000. PAOC 47 was subsequently identified during sampling. Implementation of the IWP was intended to result in the completion of a Remedial Investigation Report for the Site as required under the VCP.

The investigation described in the IWP was conducted in October and November 2003. The scope of the investigation was expanded during its implementation based on the results of the sampling. In 2003, Addendum 1 to the IWP was prepared and conducted to evaluate the presence, concentration and extent of methane on the East Parcel.

Additional phases of the remedial investigation ("RI") were conducted May through October 2004 to delineate extent of contamination in six areas to be considered for location-specific remediation, and to determine the extent of methane and VOCs in soil gas on the West Parcel.

In 2004, GM and Roseland transitioned from the VCP into the newly created Brownfields Cleanup Program (BCP). General Motors entered the BCP as a "participant" because it is responsible for the creation of the contamination at the Site. Roseland's status in the BCP is as a "volunteer." Separate Brownfield Cleanup Agreements (BCAs) were signed by the parties in May 2005 for the East and West parcels. The East Parcel BCA is intended to facilitate the donation of 24.5 acres to the Village of Sleepy Hollow. The West Parcel BCA includes the small South Parcel as well as the Hudson River.

Conceptual Remedial Action Work Plan

In March 2004, GM's consultant submitted to NYSDEC a Draft Conceptual Remedial Action Work Plan (RAWP). This document outlined both site wide and PAOC-specific remedial actions based on the results of the first phase of the RI and the previous investigations. The conceptual RAWP was reviewed and conditionally approved by NYSDEC. The components of the conceptual RAWP were as follows:

- The removal of residual petroleum contaminated-soils from area around the former 10,000-gallon UST.

- The removal of soils from "hot spots" containing lead concentrations that are significantly elevated above the generally low to moderate lead concentrations that are broadly found across the Site. A concentration of 10,000 ppm total lead was proposed based on both a statistical evaluation of lead concentrations (referred to as a "knee of the curve" analysis by GM) and remedial feasibility. The removal of soils from PAOC 7/Fill Areas F, G and H and PAOC 29 were proposed in the conceptual RAWP.

- Implementation of a groundwater monitoring program to verify the absence of any groundwater impacts.

- The use of site wide engineering controls (EC) including geotextile fabrics, earthen caps two or more feet thick, and asphalt/concrete to encapsulate and eliminate the opportunity for contact with remaining soils that exceed NYSDEC residential soil guidelines.

- Institutional controls (IC) including deed restrictions, environmental easements and a long term Site Management Plan.

The conceptual RAWP envisioned that modifications would most likely be necessary based on the subsequent phases of the RI. Data requirements associated with the conceptual RAWP were incorporated into the 2004 Addendum No. 2 to the IWP. This expanded the scope of the investigation to confirm the boundaries of PAOCs that were proposed for hot spot removal and increased the scope of the evaluation of VOCs in soil, groundwater and soil vapor in PAOC 47 and methane in the East Parcel. An evaluation of Hudson River sediments impacts has been pursued on a parallel but separate track. Sediment sampling was conducted in 2005 and 2006. The 2006 results are still being reviewed.

The conceptual RAWP was expanded, based on the findings of the RI, to include the following components:

- Removal of soils in and around a buried concrete vault in PAOC 47 that contain chromium and the chlorinated solvent, trichloroethylene (TCE). TCE-contaminated groundwater will be treated using *in situ* chemical oxidation.

- The concrete milling stockpile will be re-used as structural fill based on sample results that document PCB concentrations below the appropriate Recommended Soil Cleanup Objective set forth in NYSDEC's Technical and Administrative Guidance Memorandum # 4046 of 10 ppm.

The conceptual RAWP will be superseded in the BCP process by the preparation of an IRM Scope of Work based on the RIR results and a final Remedial Work Plan (RWP).

RI Results/Proposed IRMs

The RI was completed in two phases in 2003 and 2004. The RIR incorporates comments from NYSDEC on a Draft Site Investigation Report submitted in March 2005 under the VCP. The RI included soil sampling at 19 of the 47 PAOCs as well as a site wide evaluation of groundwater. Presented below is a summary of the RI findings at the key PAOCs where IRM cleanup activities are proposed. The rationale that has been reviewed and accepted by NYSDEC for each IRM is also discussed.

The proposed IRMs have been developed consistent with the BCP Program Guide. The goal of the BCP remedy selection process is the identification of a remedy that is fully protective of the public health and environment taking into account the current, intended, and reasonably anticipated future land use. The BCP establishes a hierarchy of criteria to be considered during the selection process that favors removal and/or treatment of contaminant source material followed by containment of source material remaining after removal/treatment. Elimination of exposure to any remaining source material is the third criterion followed finally by treatment of the source at the point of exposure. The BCP established four Cleanup Tracks that range from

Track 1 (unrestricted use) to Track 4 (site-specific use). The IRMs at the Site have been developed based on a Track 4 use-based approach. NYSDEC reviewed and approved this approach during both the VCA and BCA application process, which was based on an assumption that an unrestricted use cleanup was not feasible at the Site.

- **Former 10,000-Gallon No. 6 Oil UST**

Approximately 700 cubic yards of oil- contaminated fill were removed from around this former UST in 1998; however, inaccessible residual contamination remained in place around the foundation of the Chassis Plant. During the RI, a series of ten soil borings were used to delineate the extent of the contamination in fill around the perimeter and bottom of the former UST excavation. The remaining stained and contaminated soil was found below the water table from 7 to 21 feet below grade. Seven of nine borings were found to contain petroleum concentrations above TAGM soil cleanup criteria with relatively low levels of hydrocarbons around the outer edges of the proposed source remediation area.

The conceptual RAWP recommended removal of the residual source material and the results of the RI confirmed that this is an appropriate remedy for the residual petroleum contaminated soils, however, several additional remedial measures are being included in the IRM for this area. Approximately 5,100 cubic yards of contaminated soil will be excavated as part of the IRM in this area. This will include removal of all grossly contaminated soils to depth of 21 feet below grade. A second component of the IRM will be the injection of chemical oxidants to complete the remediation of residual petroleum contamination that could generate odors or vapors. Although the potential for vapor generation and migration is low, all enclosed buildings on the Site will have measures to eliminate the potential for vapor migration. All townhouses will be constructed with passive subslab depressurization systems and other buildings will have ventilated garages, which will serve as ventilation systems in the basement or lower level. Groundwater monitoring will also be conducted downgradient from the former UST for a period of five years to verify the effectiveness of the IRM. Finally, the combination of the site-wide EC (2 feet of soil cover or an impervious surface) and the need to raise the grade of this area for development will require the addition of 2 to 10 feet of additional fill to bring the area up to finished grade. The details of the planned excavation and the design of the *in situ* oxidation program will be presented in the IRM Work Plan.

- **Lead-Impacted Areas- PAOC 7/Fill Areas F, G and H and PAOC 29**

Previous studies had identified these areas as containing the most extensive and concentrated lead contamination on the Site. During the RI, a total of 271 soil samples were analyzed to successfully delineate the three dimensional distribution of lead in fill material that was used to extend the Site into the Hudson River (PAOC 7) and increase the grade beneath the former Maintenance Building (PAOC 29). An evaluation of the total lead concentrations in soil in PAOC 7 showed over 50% of the samples were under 400 ppm (NYSDOH guidance value for unrestricted use) and only 8% exceeded 10,000 ppm. In PAOC 29, 14% of the soil samples had lead concentrations above 10,000 ppm. The conceptual RAWP had previously cited 10,000 ppm as the functional definition of "grossly contaminated" at the Site based on 3% of the pre-RI samples exceeding 10,000 ppm.

Based on the results of the RI sampling and the distribution of elevated lead concentrations in these two areas, the planned IRM excavation of will remove all soils above the water table with more than 5,000 ppm of total lead. This will involve the removal of the upper 4 feet of soil in PAOC 7 and 5 feet in PAOC 29. It is estimated that a total of 4,400 cubic yards of soil will be removed from PAOC 7 and 940 cubic yards will be removed form PAOC 29. In PAOC 7 the excavation will be extended below the water table in three locations to approximately 8 feet to 12 feet below grade where it is logistically feasible to remove additional fill with lead over 10,000 ppm. In PAOC 29, the excavation will be extended below the water table to remove all soil over 10,000 ppm.

The excavations in both PAOCs will have a demarcation barrier (a permeable geotextile fabric) installed to permanently identify the contact between the underlying soil that contains lead above TAGMs and newly placed fill. Backfill will include structural fill to bring the site to grade followed by two feet of clean fill. This will result in a final separation of 6 feet to 9 feet in PAOC 29, which when the development is complete, will be within the open space corridor between Kingsland Point Park and the residential buildings. PAOC 7, which will ultimately be a mixture of open space and townhouses, will have a separation of 12 feet between the demarcation barrier and final grade. Additionally, utilities installed for the development will all be buried in clean fill, eliminating the possibility of workers coming in contact with residual lead contamination in the future. Institutional controls will include a Site Management Plan that governs Site use, cap maintenance and disturbance, and an environmental easement that prohibits the use of groundwater.

- **PAOC 47**

Sampling conducted during the RI identified the existence of a former concrete pit that contains elevated concentrations of chromium. The concrete floor was found to be saturated with chromium, apparently from a wet process activity that took place in the pit. Delineation sampling identified the chromium source area as soil within the pit and in the immediate surrounding area. The chromium was found to have leached into groundwater flowing into Kingsland Point Park. The extent of this chromium plume was also defined during the RI.

TCE at relatively low concentrations in soil and groundwater was also found in and around the concrete pit. The maximum TCE concentration detected in soil was 0.045 ppm, which is below the TAGM value of 0.7 ppm. Fifteen temporary wells were installed to delineate the extent of TCE in groundwater. TCE contamination was found to be localized around the pit, although it does extend across the site boundary into Kingsland Point Park at low concentrations. The highest concentration found in groundwater immediately adjacent to the concrete pit was 0.075 ppm compared to a NYSDEC groundwater standard of 0.005 ppm. Soil vapor sampling conducted in PAOC 47 documented TCE in soil vapor in an area that is broader than the groundwater plume.

The remediation planned for PAOC 47 includes the excavation of all soils with chromium above site background concentration of 50 ppm. This is estimated to be approximately 3,600 cubic yards of soil to a depth of 13 feet. This excavation will remove the majority of the TCE-contaminated soils as well. A detailed soil sampling program will conducted as first step in the IRM to accurately determine the boundary of the excavation. The excavation will extend below the water table and sheeting and shoring will most likely be required in addition to construction dewatering. Post excavation sampling will be conducted to verify that all cleanup goals have been achieved and that this component of the IRM effort has been completed.

To fully remediate residual TCE in soil and TCE in groundwater that may be a potential source of soil vapor, a second component of the PAOC 47 IRM is *in situ* chemical oxidation. The FEIS Alternative Plan calls for this area to be open space and roadway so no structures will directly overlie the former pit or the surrounding area but protection of nearby residences is an important remedial objective. The IRM Work Plan will detail the bench scale treatability studies and field scale pilot studies that will be conducted to support oxidant selection and dosage. Using injection wells chemical oxidants will be delivered into the area of impacted groundwater where TCE exceeds Class GA groundwater standards. Multiple injections will take place until all groundwater meets appropriate NYSDEC standards or asymptotic are reached (i.e., equilibrium) and NYSDEC approves the cessation of injections. A long term groundwater monitoring program will also be conducted to verify the effectiveness of the remediation.

- **East Parcel Methane Mitigation**

RI sampling documented that elevated levels of methane were found beneath the parking lot on the East Parcel. Methane concentrations were shown to dissipate quickly immediately beyond the edge of the parking lot. To enable the methane being generated from the historic municipal landfill deposits to passively vent, the asphalt parking lot will be scarified by having trenches dug in its surface. Although not part of the conceptual RAWP or proposed IRMs, the scarification process will be conducted concurrent with the planned construction of the new Village Department of Public Works (DPW) building. A section of the DPW building will consist of enclosed offices so a passive subslab depressurization system will be installed under the foundation. The environmental easement will include a requirement that any additional enclosed structures built in methane-prone areas would have to include methane mitigation measures.

- **Re-use of the Concrete Millings**

The existing milling stockpile and additional millings generated through the crushing of the current concrete slab are intended for use onsite as structural fill to bring the site up to development grade. To ensure that any millings re-used meet the TAGM guidance value of 10 ppm, routine sampling of millings will be conducted.

- **Hudson River Sediments**

Previous sampling of Hudson River sediments indicated elevated metal concentrations in the immediate vicinity of the main plant outfall, OF-1. Concentrations were also found to decrease in samples collected further offshore. Additional sediment sampling conducted in 2006 is currently being evaluated. The need for remediation and the extent of any potential dredging of sediments will be determined based on the outcome of the date review. If NYSDEC determines that sediment remediation is necessary, the design of a remedial program will be prepared independent of the onshore construction.

Planned Regulatory Review

GM and Roseland are expected to submit the IRM Scope of Work to NYSDEC for review in early 2007. NYSDEC is planning to place the final IRM Scope of Work and a Decision Document prepared by the Department in the document repository for public review. NYSDEC will then schedule a public meeting to present the IRM Scope of Work to all interested parties and receive comments and feedback on the plan. A final NYSDEC Decision Document will be issued that responds to comments received during the public comment period and meeting. At this point, the IRMs will then be designed and implemented. Following completion of the IRMs a report documenting all activities conducted as part of the IRMs will be prepared and submitted to NYSDEC. As part of the BCP process, an Alternatives Analysis Report (AAR) will be prepared for NYSDEC review followed by the Remedial Work Plan (RWP). It is anticipated that the IRMs will have addressed most of the onsite environmental issues and that the RWP will address the primary offsite issue, Hudson River sediment. Engineering controls/institutional controls are anticipated to be the only remedies that are presented in the RWP for onsite issues.