UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF:
SE-5J

July 14, 2020

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Friedland Industries, Inc.
c/o Lawrence Bass, Resident Agent
405 East Maple
Lansing, Michigan 48906

Re: Request for Information Pursuant to Section 104(e) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)
Motor Wheel Disposal Site (MWDS)
1401 Lake Lansing Road, Lansing, Ingham County, Michigan
Site/Spill Identifier (SSID): 05S5

Dear Mr. Bass:

This letter seeks the cooperation of the Friedland Industries, Inc. in providing information and documents relating to continued groundwater contamination at the Motor Wheel Disposal Site (the MWDS). The Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, 42 U.S.C. §§ 9601-9675, commonly known as "CERCLA" or "Superfund", gives the U.S. Environmental Protection Agency the authority to, among other things: (a) assess contaminated sites; (b) determine the threats to human health and the environment posed by each site; and (c) clean up those sites in the order of the relative threats posed by each.

The waste disposal area of the MWDS is a fenced 24-acre parcel located at 1401 Lake Lansing Road on the northeast edge of Lansing, Michigan. Contaminated soil left on-site is contained under a semipermeable cap. Groundwater contamination from, and adjacent to, the waste disposal area extends approximately 1.5 miles to the south.

The property was used by the Motor Wheel Corporation for the disposal of industrial waste from approximately 1938 until 1971. The refuse included solid waste, paint, solvents, acids, caustics, sludge, and other materials contained in tanks, barrels, seepage ponds, and open fill areas. An estimated 230,000 cubic yards of waste material is buried beneath the cap in the waste disposal

area. In addition to the Motor Wheel Corporation's own waste, the MWDS received material from other generators including W.R. Grace & Company, the Lansing Board of Water and Light (LBWL), Auto-Pallet-Boxes, Inc., and MSV/Schlegel. Between 1964 and 1986 Motor Wheel Corporation was a wholly owned subsidiary of the Goodyear Tire & Rubber Company. The Goodyear Tire & Rubber Company is a Respondent to the Motor Wheel Consent Order because of this ownership. The other Respondents to the 1994 Motor Wheel Consent Order include Motor Wheel Corporation, General Motors, LBWL, Textron Inc., and W.R. Grace. Goodyear assumed primary responsibility for the remedial actions at the MWDS in an agreement with the other Respondents to ensure a consistent and timely response.

In 1970, the Michigan Department of Natural Resources (MDNR)[1] required that the Motor Wheel Corporation remove all solid waste, paint sludge, and oil from seepage ponds for off-site disposal, and at least three corrective actions were initiated between 1970 and 1982 to remove the contaminated waste. Most of the excavated waste was disposed off-site and the former pond areas were backfilled.

The MWDS was placed on the National Priorities List (NPL) on June 10, 1986 (listed in the Federal Register as document 50 FR 41015), and on August 7, 1987 Motor Wheel Corporation, W.R. Grace & Co., and Goodyear Tire & Rubber Company signed an Administrative Order on Consent agreeing to conduct a Remedial Investigation (RI) and Feasibility Study (FS) at the MWDS.

The RI/FS determined that the MWDS has or could affect three groundwater units: (1) a shallow perched zone in glacial deposits underlying the waste disposal area, (2) a glacial aquifer in sands and gravels, and (3) the Saginaw Aquifer underlying the glacial deposits. The Saginaw Aquifer is the principal source of water for the City of Lansing and surrounding communities. The waste mass in the disposal area is one of the sources of groundwater contamination in the perched zone and glacial aquifer. Contaminated water within the shallow perched zone now appears contained within the waste disposal area, but the glacial aquifer has been affected beyond the boundaries of the waste disposal area by contaminants seeping from the perched zone above it. Volatile Organic Compounds (VOCs) and ammonia dissolved in groundwater have migrated to the south-southwest from the waste disposal area in the glacial aquifer, and have contaminated the Saginaw Aquifer where the glacial aquifer is in direct contact.

EPA selected a cleanup remedy for the MWDS in a Record of Decision (ROD) that required the following:

- Installation of a Michigan Act 64 cap covering the 11-acre waste disposal area.
- Back-filling to cover exposed fill areas and establish an acceptable slope in the excavated areas of installation of the cap.

---

1 MDNR became Michigan Department of Environmental Quality (MDEQ) from 1995 to April 22, 2019, until it reorganized and became Michigan Department of Energy, Great Lakes and the Environment (or EGLE). This document will use all three acronyms dependent on the date of each reference.

- Extraction and treatment of contaminated groundwater from the perched, glacial and Saginaw aquifers.
- Implementation of deed restrictions to limit land-use and prevent access to contaminated groundwater.
- Groundwater monitoring to ensure protectiveness, and to assess the status of the remedy.

Remedy construction was completed on December 18, 1997. Goodyear has been operating and optimizing the extraction and treatment of contaminated groundwater from all three aquifers. In 2019, Goodyear updated their extraction and treatment system. During the semi-annual meeting between the EPA, Michigan's environmental agency and Goodyear on December 3, 2019, Good Year indicated that there are upland contaminant sources that are adding contamination to the MWDS groundwater plumes.

The purpose of this request for information is to determine where additional upgradient source or sources of contamination are emanating. EPA has years of information indicating that there are upgradient (a term used to describe groundwater that is flowing toward the point of interest, here it would be the MWDS) sources to the MWDS as most recently indicated in the *Second Semiannual 2019 Groundwater Monitoring Report for the Motor Wheel Disposal Site, Lansing Michigan, Prepared by LATA on behalf of Goodyear Tire & Rubber Co., Dated February 2020.* EPA has included Enclosure E which contains excerpts from the above-mentioned report, specifically focusing on the upgradient monitoring well results showing contamination in upgradient wells, which are generally installed at Superfund Sites to show background levels of contaminants at sites. In this case, some of the upgradient wells have contaminants above EPA's Safe Drinking Water Act Maximum Contaminant Levels (MCLs), which serve as EPA's drinking water standards.

Under Section 104(e)(2) of CERCLA, 42 U.S.C. § 9604(e)(2), EPA has broad information gathering authority that allows EPA to require persons to furnish information or documents relating to:

(a) The identification, nature and quantity of materials which have been or are generated, treated, stored or disposed of at a vessel or facility or transported to a vessel or facility;

(b) The nature or extent of a release or threatened release of a hazardous substance or pollutant or contaminant at or from a vessel or facility; and

(c) Information relating to the ability of a person to pay for or to perform a cleanup.

While EPA seeks your cooperation in this investigation, compliance with the Information Request is required by law. Please note that false, fictitious or fraudulent statements or representations may subject you to civil or criminal penalties under federal law.

Some of the information EPA is requesting may be considered by you to be confidential. Please be aware that you may not withhold the information upon that basis. If you wish EPA to treat the information confidentially, you must advise EPA of that fact by following the procedures

outlined in (Enclosure A), including the requirement for supporting your claim for confidentiality.

If you have information about other parties who may have information that may assist the agency in its investigation of the MWDS or may be responsible for the contamination at the MWDS, that information should be submitted within the time frame noted above.

This Information Request is not subject to the approval requirements of the Paperwork Reduction Act of 1995, 44 U.S.C. § 3501 *et seq*.

Instructions on how to respond to the questions in (Enclosure C) to this document are described in (Enclosure A). We request that you provide a complete and truthful response to this Information Request and enclosed questions (Enclosure C) within thirty (30) calendar days of your receipt of this letter.

If you have specific questions about the Information Request or if you are unable to respond in a timely fashion because of impacts related to the COVID-19 pandemic, please contact Donald R. Schwer III, Enforcement Investigator, at (312) 353-8752 or at schwer.don@epa.gov, explaining the specific impacts on your ability to respond.

To the extent possible, you are strongly encouraged to use OneDrive or email to submit your response. If your response is too large to be submitted over email, please contact Donald R. Schwer III, Enforcement Investigator, to make additional arrangements for submitting your response. Your response to this Information Request should be addressed to the following:

Donald R. Schwer III, Enforcement Investigator
U.S. Environmental Protection Agency, Region 5
Superfund & Emergency Management Division
Enforcement Support Section, SE-5J
77 West Jackson Boulevard
Chicago, Illinois 60604-3590

If you have additional questions about the history of the MWDS, the nature of the environmental conditions at the MWDS or the status of cleanup activities, please contact Margaret Gielniewski, Remedial Project Manager at (312) 886-6244 or at gielniewski.margaret@epa.gov. If you have any legal questions, please contact Nola Hicks, Associate Regional Counsel, at (312) 886-7949 or at hicks.nola@epa.gov.

We appreciate and look forward to your prompt response to this Information Request.

Sincerely,

7/14/2020

X

Timothy Fischer, Chief
Remedial Response Branch 2
Signed by: TIMOTHY FISCHER

Enclosures
A. Instructions
B. Definitions
C. Questions
D. Declaration
E. *Excerpts from Second Semiannual 2019 Groundwater Monitoring Report*

Enclosure A
Information Request
Motor Wheel Disposal Site

INSTRUCTIONS

1. Answer Each Question Completely. You must provide a separate answer to each question and subpart set forth in this Information Request. Incomplete, evasive, or ambiguous answers shall constitute failure to respond to this Information Request and may subject you to the penalties set out in the cover letter.

2. Response Format and Copies. Provide the responses to this Information Request and copies of all requested documents either electronically or on paper (hard copy). Your submission, whether electronic or hard copy, must include an index that lists all the responsive documents provided, and that indicates where each document is referenced in the written response, and to which question or questions each document is responsive.

Any documents you determine to be Confidential Business Information (CBI) must be segregated out and submitted in a separate folder or on a separate compact disc (CD). These documents must be clearly marked as "Confidential Business Information".

If providing your response electronically, it must be submitted on a CD in Portable Document Format (PDF) and comply with the following requirements:

(a) CBI and personal privacy information (PII) should be provided on separate media (e.g., a separate CD) and marked as such to ensure information is appropriately handled.

(b) All documents originally smaller than 11 by 17 inches can be submitted electronically; any documents originally larger than 11 by 17 inches must be submitted in hard copy.

(c) Electronic PDF files must be text-searchable.

(d) The document index must clearly identify any single electronic document which has been separated into multiple electronic files (because of size limitation or otherwise) and each component file that comprises the full document.

3. Number Each Answer. Number each answer with the number of the question to which it corresponds.

4. Provide the Best Information Available. You must provide responses to the best of your ability, even if the information sought was never put down in writing or if the written documents are no longer available. You should seek out responsive information from current and former employees/agents. Submission of cursory responses when other responsive information is available to the Respondent will be considered noncompliance with this Information Request.

5. Identify Information Sources. For each question, identify all persons and documents you relied on for your answer.

6. Confidential Information. You must provide the information requested even though you may contend that it includes confidential information or trade secrets. You may assert a confidentiality claim covering part or all of the information requested, pursuant to 42 U.S.C. §§ 9604(e)(7)(E) and (F), and 40 C.F.R. § 2.203(b). All information claimed to be confidential should be contained on separate sheet(s) and should be clearly identified as "trade secret", "proprietary" or "company confidential". Your confidentiality claim should be supported by the submission of information consistent with 40 C.F.R. Part 2. Information covered by a confidentiality claim will be disclosed by EPA only to the extent, and only by means of the procedures, provided in 40 C.F.R. §§ 2.201-2.311. If no such claim accompanies the information received by EPA, it may be made available to the public by EPA without further notice to you.

You should also provide a redacted version of the same document that removes all CBI and PII from the document. This redacted version of the document should remove all information that you claim is CBI or PII. Since all the CBI and PII is removed, this redacted version is not subject to the procedures of 40 C.F.R. Part 2. EPA may make this redacted version available to the public without further notice to you.

7. Disclosure to the EPA Contractor. Information that you submit in response to this Information Request may be disclosed by EPA to authorized representatives of the United States, pursuant to 40 C.F.R. § 2.310(h), even if you assert that all or part of it is confidential business information. EPA may provide this information to its contractors for the purpose of organizing and/or analyzing the information contained in the responses to this Information Request. If you are submitting information that you assert is entitled to treatment as confidential business information, you may comment on this intended disclosure within twenty (20) business days of receiving this Information Request.

EPA may contract with one of the following independent contracting firms to review the documentation, including documents that you claim are confidential business information (CBI), which you submit in response to this Information Request depending on available agency resources. The contractor will be filing, organizing, analyzing and/or summarizing the information for agency personnel. EPA's contractors are: Booz-Allen & Hamilton, Inc.; (subcontractors to Booz-Allen & Hamilton, Inc. are: CDM-Federal Programs Corporation, Dynamac Corporation, PRC Environmental Management, Inc., CACI, Inc., Hydraulic & Water Resources Engineers, Inc., Investigative Consultant Services, Inc., Northeast Investigation and Tri-State Enterprises); CH2MHill; Black & Veatch Waste Science and Technology Corporation; TetraTech, Inc.; Ecology & Environment, Inc.; Halliburton NUS Corporation (formally known as Halliburton NUS Environmental Corporation); Environmental Technology, Inc.; Roy F. Weston, Inc.; and S.S. Papadapulos & Associates, Inc operating under contract numbers 68-W4-0010; 68-W8-0091; 68-W8-0092; 68-W8-0085; 68-W80037; 68-S2-3002; and 68-WO-0036, respectively. These contractors have signed a contract with EPA that contains a confidentiality clause with respect to CBI that they handle for EPA. Section 104 of the Superfund law, and EPA's regulations at 40 C.F.R. § 2.310 provide that EPA may share such

CBI with contractors. If you have any objections to disclosure by EPA of documents that you claim are CBI to any or all of these entities, then you must notify EPA at the time you submit such documents.

8. Personal Privacy Information. Personnel and medical files, and similar files the disclosure of which to the general public may constitute an invasion of privacy, should be segregated from your responses, included on separate sheet(s), and marked as "Personal Privacy Information". You should note, however, that unless prohibited by law, EPA may disclose this information to the general public without further notice to you.

9. Objections. While you may object to certain questions in this Information Request, you must provide responsive information notwithstanding those objections. To object without providing responsive information may subject you to the penalties set out in the cover letter.

10. Privilege. If you claim that any document responsive to this Information Request is a communication for which you assert that a privilege exists for the entire document, identify (see Definitions) the document and provide the basis for asserting the privilege. For any document for which you assert that a privilege exists for a portion of it, provide the portion of the document for which you are not asserting a privilege, identify the portion of the document for which you are asserting the privilege, and provide the basis for such an assertion. Please note that regardless of the assertion of any privilege, any facts contained in the document that are responsive to the Information Request must be disclosed in your response.

11. Declaration. You must complete the enclosed declaration, in hard copy with an original signature, certifying the accuracy of all statements in your response.

Enclosure B
Information Request
Motor Wheel Disposal Site

DEFINITIONS

Terms not defined here shall have their ordinary meaning, unless such terms are defined in Section 101 of CERCLA, 42 U.S.C. § 9601, or Volume 40 of the Code of Federal Regulations, in which case such statutory or regulatory definitions shall apply.

The following definitions apply to the following words as they appear in this Information Request:

1. The term "you" or "Respondent" means the addressee of this Request, together with the addressee's agents, employees, and contractors.

2. The term "document" and "documents" means any method of recording, storing or transmitting information. "Document" includes, but is not limited to:

(a) writings of any kind, including, but not limited to, any of the following:

i. letters, memoranda, fax transmittals;
ii. meeting minutes, telephone records, notebooks;
iii. agreements and contracts;
iv. reports to shareholders, management, or government agencies;
v. transportation manifests;
vi. copies of any document;

(b) any film, photograph, or sound recording on any type of device;

(c) any blueprints or drawings; and

(d) attachments to, or enclosures with, any document.

3. The term "identify" means, with respect to a natural person, to set forth: (a) the person's full name; (b) present or last known business and home addresses and telephone numbers; and (c) present or last known employer (include full name and address) with job title, position or business.

4. The term "identify" means, with respect to a corporation, partnership, business trust or other entity, to set forth: (a) its full name; (b) complete street address; (c) legal form (e.g., corporation, partnership); (d) the state under whose laws the entity was organized; and (e) a brief description of its business.

5. The term “identify” means, with respect to a document, to provide: (a) its customary business description (e.g., letter, invoice); (b) its date; (c) its number if any (e.g., invoice or purchase order number); (d) the identity of the author, addressee, and/or recipient; and (e) a summary of the substance or the subject matter. Alternatively, Respondent may provide a complete copy of the document.

6. The term “material” or “materials” means any and all raw materials, commercial products, wastes, chemicals, substances or matter of any kind.

7. The “period being investigated” and “the relevant time period” means 1940 to present.

8. The term “property” means any interest in real or personal property whatsoever, including fee interests, leases, licenses, rental and mineral rights. Property shall mean the Friedland Industries, Inc or “Friedland” and any or all property or area formerly owned and described as: Tax Parcel Number: 33-01-01-03-327-011, 33-01-01-03-304-112.

9. The “Site” means the Motor Wheel Disposal Site.

10. The term “waste” or “wastes” means and includes, but is not limited to, trash, garbage, refuse, by-products, solid waste, hazardous waste, hazardous substances, and pollutants or contaminants, whether solid, liquid, or sludge.

11. The term “business activities” means all actions, endeavors, ventures, or financing arrangements related in any manner whatsoever to the use and development of the property, including surveying, sampling, grading, documentation, photography, demolition, construction, and waste disposal, and sales.
.

Enclosure C
Information Request
Motor Wheel Disposal Site

QUESTIONS

1. Identify all persons consulted in the preparation of the answers to these Information Requests.

2. Identify all documents consulted, examined or referred to in the preparation of the answers to these Requests, and provide copies of all such documents.

3. If you have reason to believe that there may be persons able to provide a more detailed or complete response to any Information Request or who may be able to provide additional responsive documents, identify such persons.

4. List the EPA Identification Numbers of the Respondent.

5. Identify the acts or omissions of any persons, other than your employees, contractors, or agents that may have caused the release or threat of release of hazardous substances, pollutants or contaminants and damages resulting therefrom.

6. Identify all persons having knowledge or information about the generation, transportation, treatment, disposal or other handling of hazardous substances by Friedland, Friedland's contractors or by prior owners and/or operators.

7. Did Friedland ever use, purchase, store, treat, dispose, transport or otherwise handle any hazardous substances or materials? If the answer to the preceding question is anything but an unqualified "no", identify:

(a) The chemical composition, characteristics, physical state (e.g., solid, liquid) of each hazardous substance;

(b) Who supplied Friedland with such hazardous substances;

(c) How such hazardous substances were used, purchased, generated, stored, treated, transported, disposed or otherwise handled by Friedland;

(d) When such hazardous substances were used, purchased, generated, stored, treated, transported, disposed or otherwise handled by Friedland;

(e) Where such hazardous substances were used, purchased, generated, stored, treated, transported, disposed or otherwise handled by Friedland; and

(f) The quantity of such hazardous substances used, purchased, generated, stored, treated, transported, disposed or otherwise handled by Friedland.

8. Has Friedland or any other person working with Friedland or on Friedland's behalf ever accepted hazardous waste materials for transportation to the Friedland property (to transshipment site) from any person? If the answer to this question is anything but an unequivocal no, identify:

(a) The persons from whom Friedland or such other persons accepted hazardous waste materials for transport to the Friedland property;

(b) Every date on which hazardous waste materials were so accepted or transported;

(c) For each transaction, the nature of the hazardous waste materials accepted or transported, including the chemical content, characteristics, physical state (e.g., solid, liquid) and the process for which the material was used or the process which generated the material;

(d) For each hazardous waste material, describe any warnings given to Friedland with respect to its handling;

(e) The owner of the hazardous materials so accepted or transported;

(f) The quantity of the hazardous material involved (weight or volume) in each transaction and the total quantity for all transactions;

(g) All tests or analyses and analytical results concerning each hazardous material; and

(h) The price charged for transport and/or disposal per drum, barrel, container, load (or whatever unit used) of hazardous waste materials brought to the Friedland property.

9. Identify all persons, including yourself, who may have arranged for disposal or treatment or arranged for transportation for disposal or treatment of hazardous waste materials at the Friedland property or to the Friedland property or (transshipment property). In addition, identify the following:

(a) The persons with whom Friedland or such other persons made such arrangements, including, but not limited to (provide list of transporters);

(b) Every date on which such arrangements took place;

(c) For each transaction, the nature of the waste material or hazardous substance, including the chemical content, characteristics, physical state (e.g., solid, liquid) and the process for which the substance was used or the process which generated the substance;

(d) The owner of the hazardous waste materials or hazardous substances so accepted or transported;

(e) The quantity of the hazardous waste materials or hazardous substances involved (weight or volume) in each transaction and the total quantity for all transactions;

(f) All tests, analyses and analytical results concerning the hazardous waste materials;

(g) The person(s) who selected the Friedland property (or transshipment property) as the place to which the hazardous waste materials or hazardous substances were to be transported;

(h) The amount paid in connection with each transaction, the method of payment and the identity of the person from whom payment was received;

(i) Where the person identified in g. above intended to have such hazardous substances or hazardous waste materials transported and all evidence of this intent;

(j) Whether the hazardous waste materials or hazardous substances involved in each transaction were transshipped through, or were stored or held at, any intermediate site prior to final treatment or disposal;

(k) What was actually done to the waste materials or hazardous substances once they were brought to the Friedland property;

(l) The final disposition of each of the hazardous waste materials or hazardous substances involved in such transactions;

(m) The measures taken by Friedland to determine the actual methods, means and site of treatment or disposal of the hazardous waste material and hazardous substances involved in each transaction;

(n) The type and number of containers in which the hazardous waste materials or hazardous substances were contained when they were accepted for transport, and subsequently until they were deposited at the Friedland property, and all markings on such containers;

(o) The price paid for (i) transport or (ii) disposal of (iii) or both, of each hazardous waste material and hazardous substance;

(p) All documents containing information responsive to (a)-(o) above, or in lieu of identification of all relevant documents, provide copies of all such documents; and

(q) All persons with knowledge, information or documents responsive to questions (a)-(o), above.

10. Describe the nature of Friedland's activities or business at the Friedland property, with respect to purchasing, receiving, processing, storing, treating, disposing or otherwise handling hazardous substances or materials at the Friedland property.

11. State the dates during which you owned, operated or leased the Friedland property and provide copies of all documents evidencing or relating to such ownership, operation or lease arrangement (e.g., deeds, leases).

12. Provide information about the Friedland property, including but not limited to the following:

(a) Property boundaries, including a written legal description;

(b) Location of underground utilities (telephone, electrical, sewer, water main, etc.);

(c) Surface structures (e.g., buildings, tanks);

(d) Ground water wells, including drilling log;

(e) Storm water drainage system, and sanitary sewer system, past and present, including septic tank(s), subsurface disposal field(s) and other underground structures; and where, when and how such systems are emptied;

(f) Any and all additions, demolitions or changes of any kind on, under or about the Friedland property, to its physical structures or to the property itself (e.g., excavation work); and any planned additions, demolitions or other changes to the Friedland property; and

(g) All maps and drawings of the Site in your possession.

13. Identify all past and present solid waste units (e.g., waste piles, landfills, surface impoundments, waste lagoons, waste ponds or pits, tanks, container storage areas) on the Friedland property (or your property). For each such solid waste unit identified, provide the following information:

(a) A map showing the unit's boundaries and the location of all known solid waste units whether currently in operation or not. This map should be drawn to scale, if possible, and clearly indicate the location and size of all past and present units;

(b) The type of unit (e.g., storage area, landfill, waste pile), and the dimensions of the unit;

(c) The dates that the unit was in use;

(d) The purpose and past usage (e.g., storage, spill containment);

(e) The quantity and types of materials (hazardous substances and any other chemicals) located in each unit;

(f) The construction (materials, composition), volume, size, dates of cleaning, and condition of each unit; and

(g) If unit is no longer in use, how was such unit closed and what actions were taken to prevent or address potential or actual releases of waste constituents from the unit.

14. Identify the prior owners of the Friedland property. For each prior owner, further identify:

(a) The dates of ownership;

(b) All evidence showing that they controlled access to the Friedland property; and

(c) All evidence that a hazardous substance, pollutant or, was released or threatened to be released at the Friedland property during the period that they owned the Friedland property.

15. Identify the prior operators, including lessors, of the Friedland property. For each such operator, further identify:

(a) The dates of operation;

(b) The nature of prior operations at the Friedland property;

(c) All evidence that they controlled access to the Friedland property; and

(d) All evidence that a hazardous substance, pollutant or contaminant was released or threatened to be released at or from the Friedland property and/or its solid waste units during the period that they were operating the Friedland property.

16. Provide copies of all local, state and federal environmental permits ever granted for the facility or any part thereof (e.g., RCRA permits, National Pollutant Discharge Elimination System permits).

17. Did the facility ever have "interim status" under RCRA? If so, and the facility does not currently have interim status; describe the circumstances under which the facility lost interim status.

18. Did the facility ever file a notification of hazardous waste activity under RCRA? If so, provide a copy of such notification.

19. Provide all reports, information or data related to soil, water (ground and surface) or air quality and geology/hydrogeology at and about the Friedland property. Provide copies of all

documents containing such data and information, including both past and current aerial photographs as well as documents containing analysis or interpretation of such data. Provide all reports and data generated related to environmental investigations at the Friedland property.

20. Are you or your consultants planning to perform any investigations of the soil, water (ground or surface), geology, hydrology or air quality on or about the Friedland property? If so, identify:

(a) What the nature and scope of these investigations will be;

(b) The contractors or other persons that will undertake these investigations;

(c) The purpose of the investigations;

(d) The dates that such investigations will take place and be completed; and

(e) Where on the Friedland property such investigations will take place.

21. Identify all leaks, spills or releases into the environment of any hazardous substances, pollutants or contaminants that have occurred at or from the Friedland property. In addition, identify:

(a) When such releases occurred;

(b) How the releases occurred;

(c) The amount of each hazardous substances, pollutants or contaminants so released;

(d) Where such releases occurred;

(e) Any and all activities undertaken in response to each such release or threatened release, including the notification of any agencies or governmental units about the release;

(f) Any and all investigations of the circumstances, nature, extent or location of each release or threatened release including, the results of any soil, water (ground and surface) or air testing undertaken; and

(g) All persons with information relating to these releases.

22. Did any leaks, spills, or releases of hazardous materials occur on the Friedland property when such materials were being:

(a) Delivered by a vendor;

(b) Stored (e.g., in any tanks, drums or barrels);

(c) Transported or transferred (e.g., to or from any tanks, drums, barrels or recovery units); and

(d) Treated.

23. Has soil ever been excavated or removed from the Friedland property? Unless the answer to the preceding question is anything besides an unequivocal "no," identify:

(a) Amount of soil excavated;

(b) Location of excavation;

(c) Manner and place of disposal and/or storage of excavated soil;

(d) Dates of soil excavation;

(e) Identity of persons who excavated or removed the soil;

(f) Reason for soil excavation;

(g) Whether the excavation or removed soil contained hazardous materials and why the soil contained such materials; and

(h) All analyses or tests and results of analyses of the soil that was removed from the Friedland property.

24. Provide a list of all transporters (names, addresses, and EPA Identification numbers) disposing of waste at the Friedland property by year. If the waste was or is being disposed of pursuant to a written contract, provide a copy of any contracts or agreements.

25. Provide a list of all industries (names, addresses, and EPA Identification numbers) disposing of waste at the Friedland property by year. If the waste was or is being disposed of pursuant to a written contract, provide a copy of any contracts or agreements.

26. Provide the names, addresses, and telephone numbers of all persons responsible for the financial recordkeeping for the Friedland property, past and present.

27. Identify all persons directly involved in overseeing activities at the Friedland property, including employees who have knowledge, information or documents about quarry or landfill operations.

28. Provide copies of boring logs, geologic reports, well logs, well locations, soil samples, and all sampling data including sampling locations of all such samples for the Friedland property.

29. If applicable, provide a description of the method of waste disposal (e.g. whether the waste was compacted or crushed prior to disposal), the thickness of waste deposited, and the amount of clean cover on top of the waste.

30. Provide narrative and documentary information as to any waste the Friedland property has ever had transported offsite, including but not limited to copies of:

(a) shipping manifests;

(b) shipping logs;

(c) receipts;

(d) weight tickets; and/or

(e) permits.

31. Has the Friedland property ever been closed or shut down for any period of time? If so, provide the dates and circumstances under which the landfill was closed.

Enclosure D
Information Request
Motor Wheel Disposal Site

DECLARATION

I declare under penalty of perjury that I am authorized to respond on behalf of the Respondent and that the foregoing is complete, true, and correct.

Executed on _____, 20_____

_____
Signature

_____
Type or Print Name

_____
Title

Enclosure E

Excerpts from Second Semiannual 2019 Groundwater Monitoring Report

Motor Wheel Disposal Site

SECOND SEMIANNUAL 2019 GROUNDWATER MONITORING REPORT

For the
MOTOR WHEEL DISPOSAL SITE
Lansing, MI

February 2020

Prepared by:

Los Alamos Technical Associates, Inc.
756 Park Meadow Road
Westerville, Ohio 43081

Second Semiannual 2019 Groundwater Monitoring Report

for the

Motor Wheel Disposal Site

Lansing, Michigan

EXECUTIVE SUMMARY

Objective

The Motor Wheel Disposal Site (MWDS) was listed on the National Priorities List (NPL) in 1986 and is presently managed under the Comprehensive Environmental Response and Compensation Liability Act (CERCLA). A Remedial Investigation (RI) to determine the nature and extent of contamination, and a Feasibility Study (FS) to determine the selected remedy for cleanup resulted in the issuance of a Record of Decision (ROD) for the site in 1991. In 1994, the MWDS Potentially Responsible Parties (PRP) Group and the U.S. Environmental Protection Agency (USEPA) entered into a Consent Decree for design and implementation of the cleanup remedy. The source control (landfill cap, maintenance cover, and perimeter fence) was implemented in 1997 along with the installation of the groundwater extraction and treatment system. The groundwater treatment system was expanded in 2003 to include additional extraction wells in the bedrock aquifer and in 2012 to include additional extraction wells in the Glacial aquifer to support the remedy.

At the conclusion of the response action, the USEPA developed an Amended Statement of Work (A-SOW, revised March 1, 2002) as required by the Consent Decree between the MWDS Potentially Responsible Parties (PRPs) and the Agency. The stated objective of the A-SOW is to, "*integrate the ongoing response actions and the required response action needed to clean-up the MWDS Saginaw aquifer contamination plume to the established CERCLA action levels and to performance criteria to protect human health and the environment*".

The overall scope of the A-SOW, as stated in Section 2.0 of the document, is the following:

1. Prevent further migration of MWDS Saginaw aquifer contamination plume, especially toward Lansing Board of Water and Light (BWL) production wells;

2. Reduce the available mass of the MWDS contaminant plume in the Saginaw aquifer;

3. Monitor the effectiveness of the remedial action and respond to indicators that the plume is continuing to migrate and/or BWL production wells are threatened; and

4. Provide for additional remedial actions for the MWDS Saginaw contamination plume if monitoring determines that on-going remedial actions are not effective.

Site-specific Glacial aquifer and Saginaw aquifer clean-up standards required by the USEPA are:

- Ammonia 34 milligrams per liter (mg/L)
- Fluoride 4 mg/L
- Vinyl Chloride 2 micrograms per liter (µg/L)

Following the promulgation of the original site aquifer cleanup standards in the ROD, an additional protectiveness/action limit was established for production wells completed in the Saginaw aquifer. This action limit requires that active pumping wells operated by the Lansing BWL and its water conditioning plant be protected from impacts by ammonia at concentrations greater than 1.2 mg/L. This requirement is not an aquifer cleanup standard, but rather a wellhead action limit. This action limit was memorialized in the 2002 Amended Consent Decree.

The remediation activities at MWDS will continue until long-term groundwater monitoring and the resultant analytical data demonstrates that potential risks that may impact human health and the environment are determined to be acceptable by the USEPA and the Michigan Department of Environment, Great Lakes and Energy (EGLE). The MWDS PRP Group retained Los Alamos Technical Associates, Inc. (LATA) to perform remedial activities to demonstrate the scope of the A-SOW is achieved. These remedial activities include operation and maintenance (O&M) of the treatment system and quarterly groundwater sampling from the Glacial and Saginaw aquifers in accordance with the *Long-term Groundwater Monitoring Plan* (amended January 2016). The results of the groundwater sampling events are presented twice a year both in a comprehensive semiannual groundwater monitoring report and in a formal presentation to the MWDS stakeholders.

This second semiannual report for 2019 demonstrates the continued hydraulic capture of the MWDS contaminant plumes and provides details regarding operation and continued protectiveness of the groundwater extraction and treatment system. The report includes a discussion and evaluation of groundwater and chemical data trends and a discussion of the ammonia and vinyl chloride plumes along with a report on the effectiveness and performance of the groundwater extraction and treatment system. Groundwater levels and analytical data collected during the Third and Fourth Quarter 2019 sampling events are included in the report.

Glacial Plumes

The cleanup standard for vinyl chloride in the Glacial aquifer is 2 µg/L. Based on the analytical data collected during the Third and Fourth Quarter sampling in 2019, the size and shape of the interpreted plume presented is similar to the interpreted plumes presented in the First Semiannual 2019 Groundwater Monitoring Report for MWDS.

The USEPA (federal) cleanup standard for ammonia within the Glacial aquifer is 34 mg/L. There are no groundwater wells sampled in the Glacial aquifer with ammonia concentrations above the federal cleanup standard. All the glacial wells sampled in the second semiannual period were at or below 10 mg/l with the exception of MW-85 and a Zone 1 source pumping well (Z1-P1).

Saginaw Plumes

The cleanup standard (federal and state) for vinyl chloride within the Saginaw aquifer is 2 µg/L and, like the Glacial aquifer, the extent of the Saginaw vinyl chloride groundwater plume is evaluated quarterly. MW-65 (20 µg/L), MW-68 (12 µg/L), and SEW-05 (7.9 µg/L) were the only wells with vinyl chloride concentrations above the cleanup standard during the Third and Fourth Quarters of 2019. The interpreted Saginaw aquifer vinyl chloride isoconcentration contours are generally stable when compared to the previously generated isoconcentration maps from the First and Second Quarters of 2019.

The federal cleanup standard for ammonia within the Saginaw aquifer is 34 mg/L. The interpreted Saginaw aquifer ammonia isoconcentration contours are generally stable when compared to the previously generated isoconcentration maps from the First and Second Quarters of 2019.

Remedy Effectiveness Assessment

The effectiveness of the remedy is assessed using multiple lines of evidence in which field-collected data is used to validate groundwater modeling predictions. Lines of evidence used to assess the effectiveness of the remedy include (1) groundwater modeling particle pathway simulations, (2) potentiometric surface contours, and (3) groundwater concentration trends and plume footprint changes.

The objectives of the remedy within the Glacial aquifer are to control the lateral migration of contaminated groundwater from the source area (Zone 1) and to complete mass removal from the Glacial aquifer plume to the south of the landfill (Zones 2 and 2a). The potentiometric mapping of the Glacial aquifer demonstrates that the remedy is controlling the lateral migration of the plume in the Glacial aquifer. The Glacial contaminant isoconcentration map from November 2019 demonstrates hydraulic control as well.

The objectives of the remedy within the Saginaw aquifer are to control the lateral migration of the groundwater plume, mass removal, and protection of the BWL water supply wells located downgradient of the groundwater plumes. The Saginaw potentiometric maps from August 14-15, 2019 and November 24-26, 2019 demonstrate hydraulic control of the ammonia plume at the aquifer cleanup standards. Groundwater isoconcentration contour maps indicate no downgradient migration of contamination during the second half of 2019. There is an area downgradient of the Saginaw ammonia plume, near MW-88, which continues to exhibit concentrations at or slightly above the wellhead protection limit of 1.2 mg/L, but below the EGLE Part 201 Residential Drinking Water Criteria of 10 mg/L. Based on the modeling presented in the 2019 annual modeling presentation (December 2019), the groundwater in this area is predicted to mix with other Saginaw groundwater and dissipate. Thus, multiple lines of evidence indicate hydraulic control was maintained within the Saginaw aquifer during the second semiannual period of 2019 and that the MWDS remedy remains protective.

Mass Removal

Cleanup of the ammonia plume in both aquifers continues to progress; 8,125 pounds of ammonia were removed over the Third and Fourth Quarter 2019 for a cumulative total of 820,675 pounds

(83% of 988,000 pounds estimated total mass). Similarly, 20.03 pounds of vinyl chloride were removed during this semiannual period for a cumulative total of 1095.65 pounds (88% of 1,250 pounds estimated total mass). This estimate of the percentage of mass removed does not account for residual mass remaining in the aquifer after the cleanup standards are met.

Second Semiannual 2019 Groundwater Monitoring Report
for the
Motor Wheel Disposal Site
Lansing, Michigan

TABLE OF CONTENTS

1.0 INTRODUCTION 1

2.0 REMEDIAL ACTIVITIES FOR THE CURRENT SEMIANNUAL PERIOD 1

2.1 OPERATION AND MAINTENANCE 1
2.2 SPECIFIC CAPACITY TESTING 2
2.3 LANDFILL INSPECTIONS 2
2.4 DAILY AMMONIA INFLUENT SAMPLING AT THE DYE WATER CONDITIONING PLANT 2
2.5 DEVIATIONS FROM PLANNED ACTIVITIES 3

3.0 PLUME EVALUATION 3

3.1 GROUNDWATER ELEVATION 3
3.1.1 Glacial 3
3.1.2 Saginaw 4
3.2 EVALUATION OF THE GLACIAL AQUIFER CONTAMINANT PLUMES 4
3.2.1 Zone 1 Trend Analysis 5
3.2.2 Zone 2 Trend Analysis 6
3.2.3 Zone 2a Trend Analysis 7
3.3 EVALUATION OF THE SAGINAW AQUIFER CONTAMINANT PLUMES 8
3.3.1 Saginaw Aquifer Trend Analysis 9
3.3.2 Protection of the BWL Production Wells 9

4.0 SUMMARY AND CONCLUSIONS 13

4.1 ZONE 1 SUMMARY 13
4.2 ZONE 2 SUMMARY 13
4.3 SAGINAW EXTRACTION WELLS SUMMARY 13
4.4 MASS REMOVAL 13
4.5 PROTECTION OF BWL PRODUCTION WELLS 14

5.0 PLANS FOR THE FIRST SEMIANNUAL 2020 14

6.0 REFERENCES 15

ATTACHMENTS

TABLES

Table 1 Specific Capacity Testing Results of Extraction Wells at the Motor Wheel Disposal Site, Lansing, Michigan Third Quarter 2018 – Fourth Quarter 2019

Table 2 Water Levels Recorded in August and November 2019 at the Motor Wheel Disposal Site, Lansing, Michigan

Table 3 Production Data and Mass Removal for the Semiannual Period July 2019 to December 2019

FIGURES

Figure 1 Specific Capacity Trends for Zone 1 Wells at MWDS

Figure 2 Specific Capacity Trends for Zone 2 Wells at MWDS

Figure 3 Specific Capacity Trends for Zone 2a Wells at MWDS

Figure 4 Specific Capacity Trends for Saginaw Wells 1 and 2 at MWDS

Figure 5 Specific Capacity Trends for Saginaw Wells 3, 4, and 5 at MWDS

Figure 6 Glacial Potentiometric Surface Map, Third Quarter 2019

Figure 7 Glacial Potentiometric Surface Map, Fourth Quarter 2019

Figure 8 Saginaw Potentiometric Surface Map, Third Quarter 2019

Figure 9 Saginaw Potentiometric Surface Map, Fourth Quarter 2019

Figure 10 Glacial Aquifer Ammonia Isoconcentration Map, Third Quarter 2019

Figure 11 Glacial Aquifer Vinyl Chloride Isoconcentration Map, Third Quarter 2019

Figure 12 Glacial Aquifer Vinyl Chloride Isoconcentration Map, Fourth Quarter 2019

Figure 13 Daily Average Flow Rates for the Glacial Aquifer Extraction Wells Zone 1, July 2019 - December 2019

Figure 14 Vinyl Chloride Concentration Trends in Selected Zone 1 Wells at MWDS

Figure 15 Daily Average Flow Rates for the Glacial Aquifer Extraction Wells Zone 2, July 2019 - December 2019

Figure 16 Vinyl Chloride Concentration Trends in Selected Zone 2 Wells at MWDS

Figure 17 Vinyl Chloride Concentration Trends in Zone 2a – Interior Wells

Figure 18 Saginaw Aquifer Vinyl Chloride Isoconcentration Map, Third Quarter 2019

Figure 19 Saginaw Aquifer Vinyl Chloride Isoconcentration Map, Fourth Quarter 2019

Figure 20 Saginaw Aquifer Ammonia Isoconcentration Map, Third Quarter 2019

Figure 21 Saginaw Aquifer Ammonia Isoconcentration Map, Fourth Quarter 2019

Figure 22 Ammonia Trends - BWL Wells Northwest and West of MWDS Plume Through Fourth Quarter 2019

Figure 23 Ammonia Trends – BWL Wells South of MWDS Plume Through Fourth Quarter 2019

Figure 24 Daily Average Flow Rates for the Saginaw Aquifer Extraction Wells, July 2019 - December 2019

Figure 25 Daily Uptime Flow Rates for the Individual Saginaw Aquifer Extraction Wells, July 2019 - December 2019

Figure 26 Vinyl Chloride Concentration Trends in Saginaw Wells MW-65, MW-68 and SEW-05 at MWDS

Figure 27 Ammonia Concentration Trends in Saginaw Plume Extraction and Downgradient Wells at MWDS

Figure 28 Ammonia Concentration Trends in Selected Saginaw Plume Interior Wells at MWDS

Figure 29 Ammonia Concentration Trends in FLUTe Well Completions in the Interbedded Series at MWDS

Figure 30 Ammonia Concentration Trends in FLUTe Well Completions in the Middle Sandstone at MWDS

Figure 31 Ammonia Concentration Trends in FLUTe Well Completions in the Lower Sandstone at MWDS

Figure 32 Monthly Ammonia Mass Removal vs. Time, Outfall 001 (Air stripper), July 2017 Through December 2019

Figure 33 Monthly Vinyl Chloride Mass Removal vs. Time, Outfall 001 (Air stripper) and SEW-05, July 2017 Through December 2019

Figure 34 Monthly Ammonia Mass Removal vs. Time, Outfall 003, July 2017 Through December 2019

Figure 35 Saginaw Aquifer Ammonia Wellhead Protection Standard Isoconcentration Map, Fourth Quarter 2019

APPENDICES (**Included on CD)**

A MWDS Landfill Inspection Form

B Dye Water Conditioning Plant Influent Ammonia Concentration vs. Time

C Quarterly Groundwater Chemical Data Summary through Fourth Quarter 2019

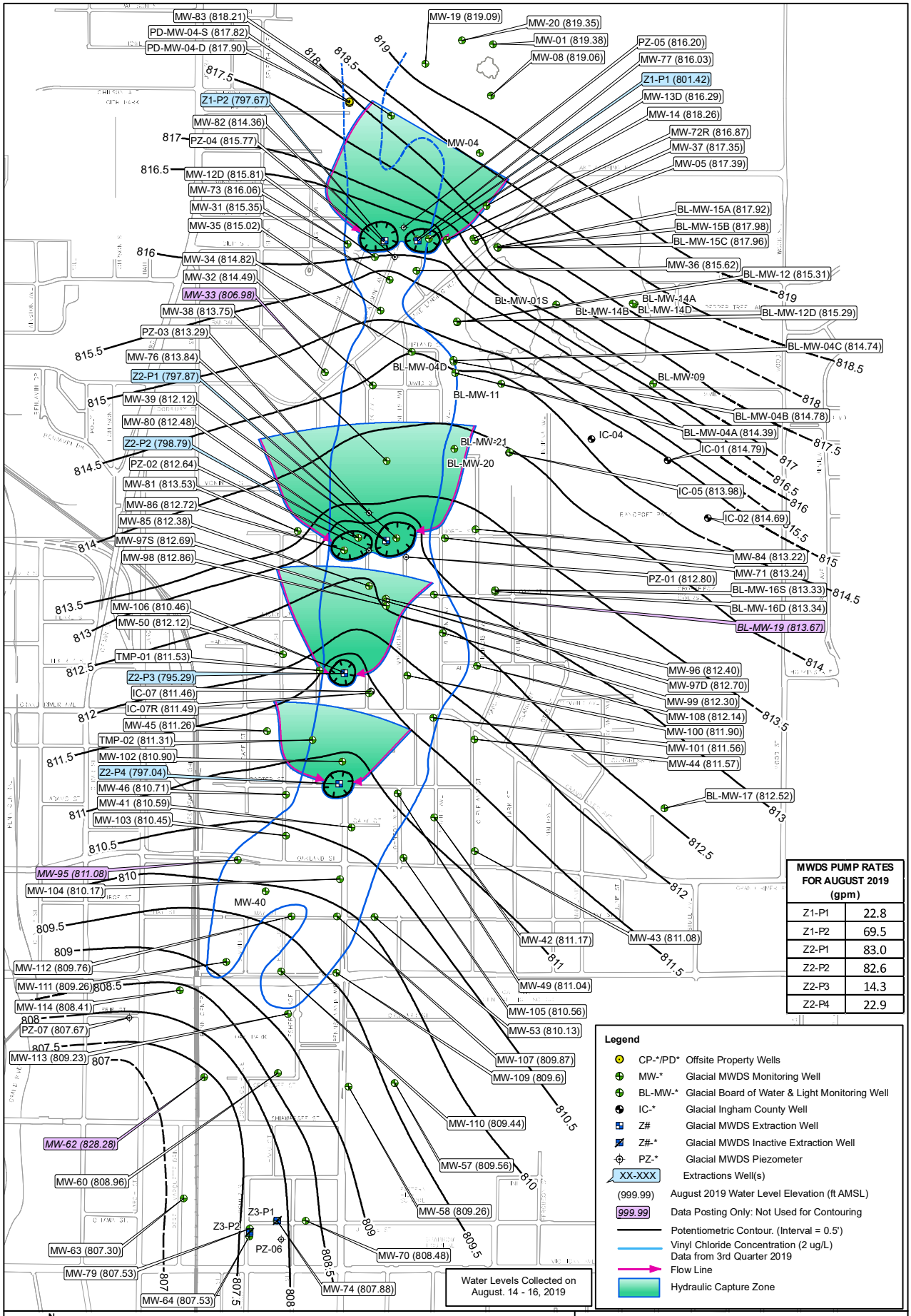
D Monitoring Well Construction Details

E Five- Year Groundwater Elevation Summary and Hydrograph by Well

F Field Sample Data Sheets, Third and Fourth Quarter 2019

G Mann-Kendall Analyses for Select MWDS Monitoring Wells

H MWDS Regional Model Evaluation



MWDS PUMP RATES FOR AUGUST 2019 (gpm)	
Z1-P1	22.8
Z1-P2	69.5
Z2-P1	83.0
Z2-P2	82.6
Z2-P3	14.3
Z2-P4	22.9

MOTOR WHEEL DISPOSAL SITE
Lansing, Michigan

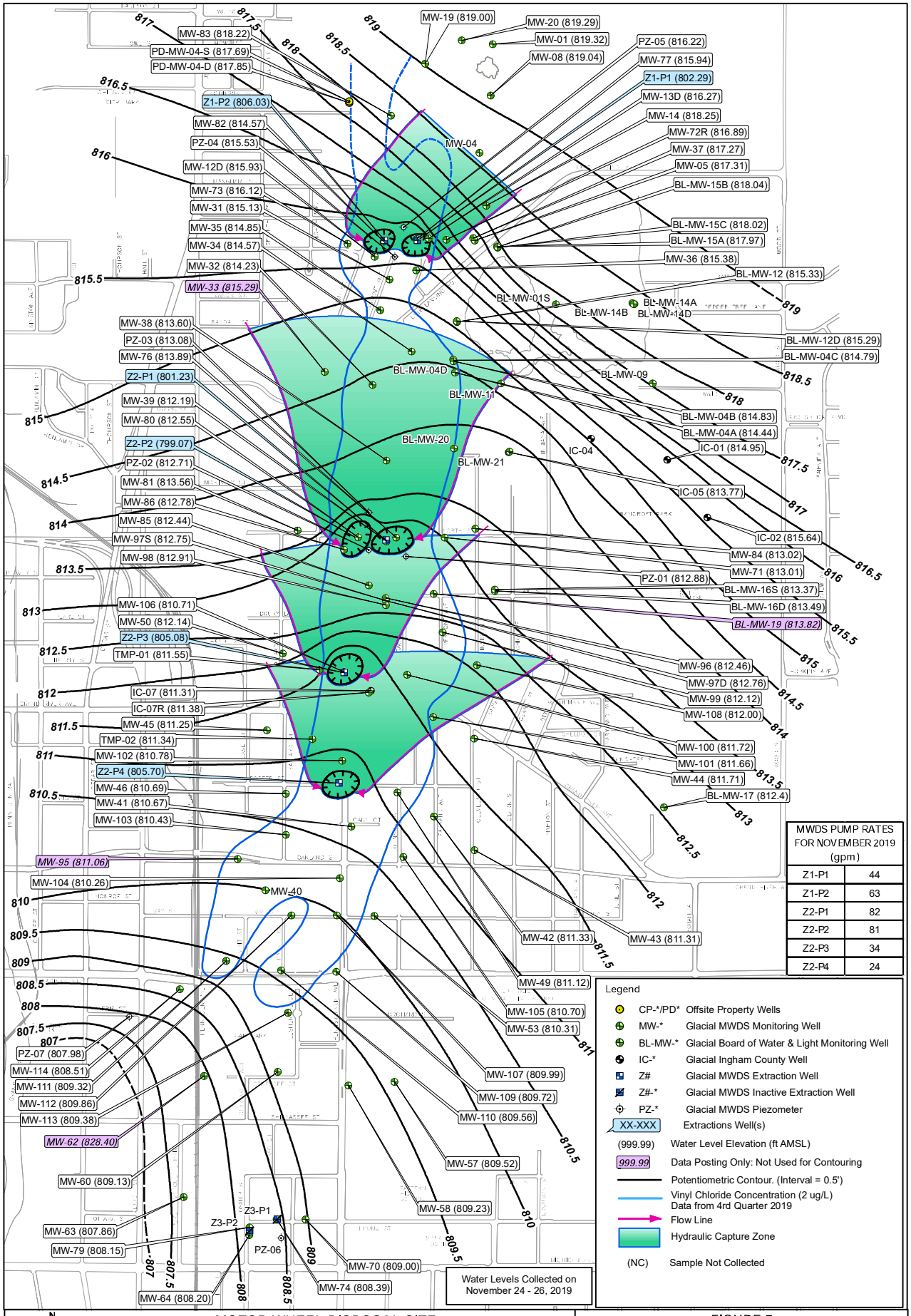
FIGURE 6

Glacial Potentiometric Surface Map
Third Quarter 2019

Date: 1/10/2020 Project Number: 11168.034.01.01

File Name: P:\Goodyear\MWDS\5104 Motor Wheel\Drafting-GIS\GIS\02-Quarterly Maps\2019_Q4\2019_Q3_FIG-6_WL_Gla.mxd Revision : 0

Los Alamos Technical Associates, Inc.



MWDS PUMP RATES FOR NOVEMBER 2019 (gpm)	
Z1-P1	44
Z1-P2	63
Z2-P1	82
Z2-P2	81
Z2-P3	34
Z2-P4	24

MOTOR WHEEL DISPOSAL SITE
Lansing, Michigan

1 inch = 800 feet

800 400 0 800 Feet

FIGURE 7

Glacial Potentiometric Surface Map
Fourth Quarter 2019

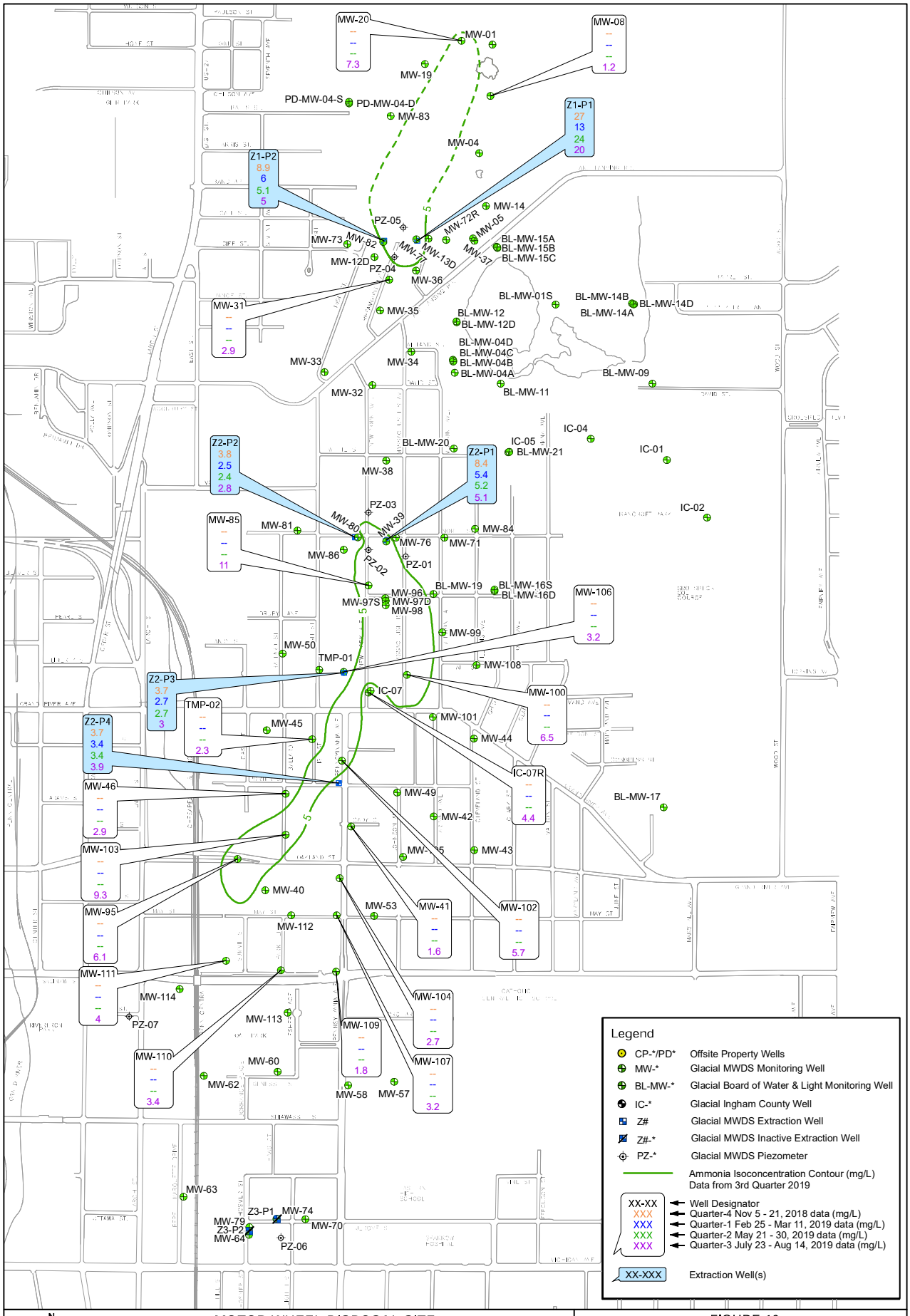
Date: 1/10/2020

Project Number: 11168.034.01.01

File Name: P:\Goodyear\MWDS\5104 Motor Wheel\Drafting-GIS\GIS\02-Quarterly Maps\2019_Q4\2019_Q4_FIG-7_Gla_Potent.mxd

Revision : 0

Los Alamos Technical Associates, Inc.

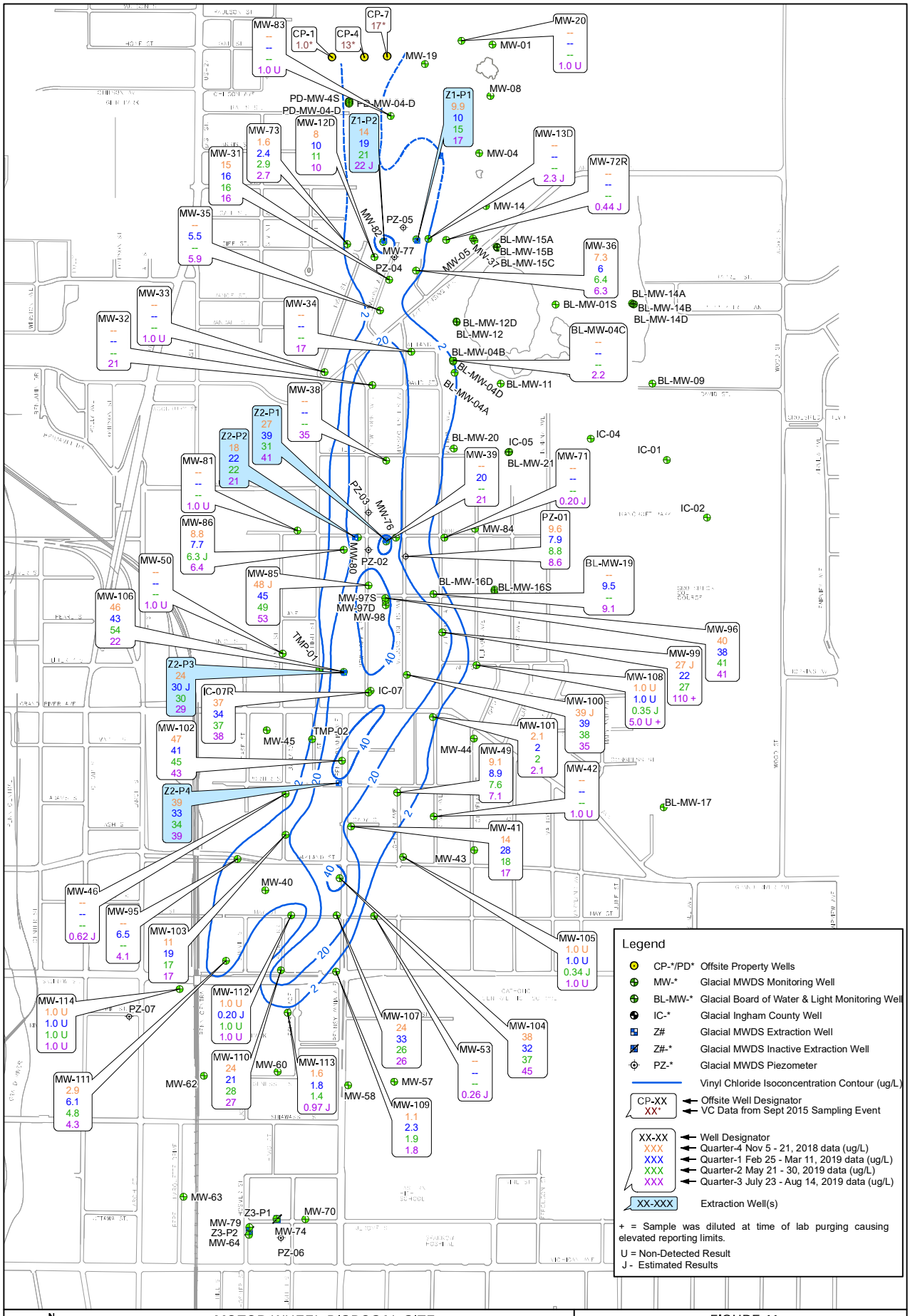


MOTOR WHEEL DISPOSAL SITE
Lansing, Michigan

FIGURE 10
Glacial Aquifer Ammonia Isoconcentration Map
Third Quarter 2019

Date: 1/10/2020
Project Number: 11168.034.01.01
File Name: P:\Goodyear\MWDS\5104 Motor Wheel\Drafting-GIS\GIS\02-Quarterly Maps\2019_Q4\2019_Q3_FIG-10_Amm_Gla.mxd
Revision : 0

Los Alamos Technical Associates, Inc.

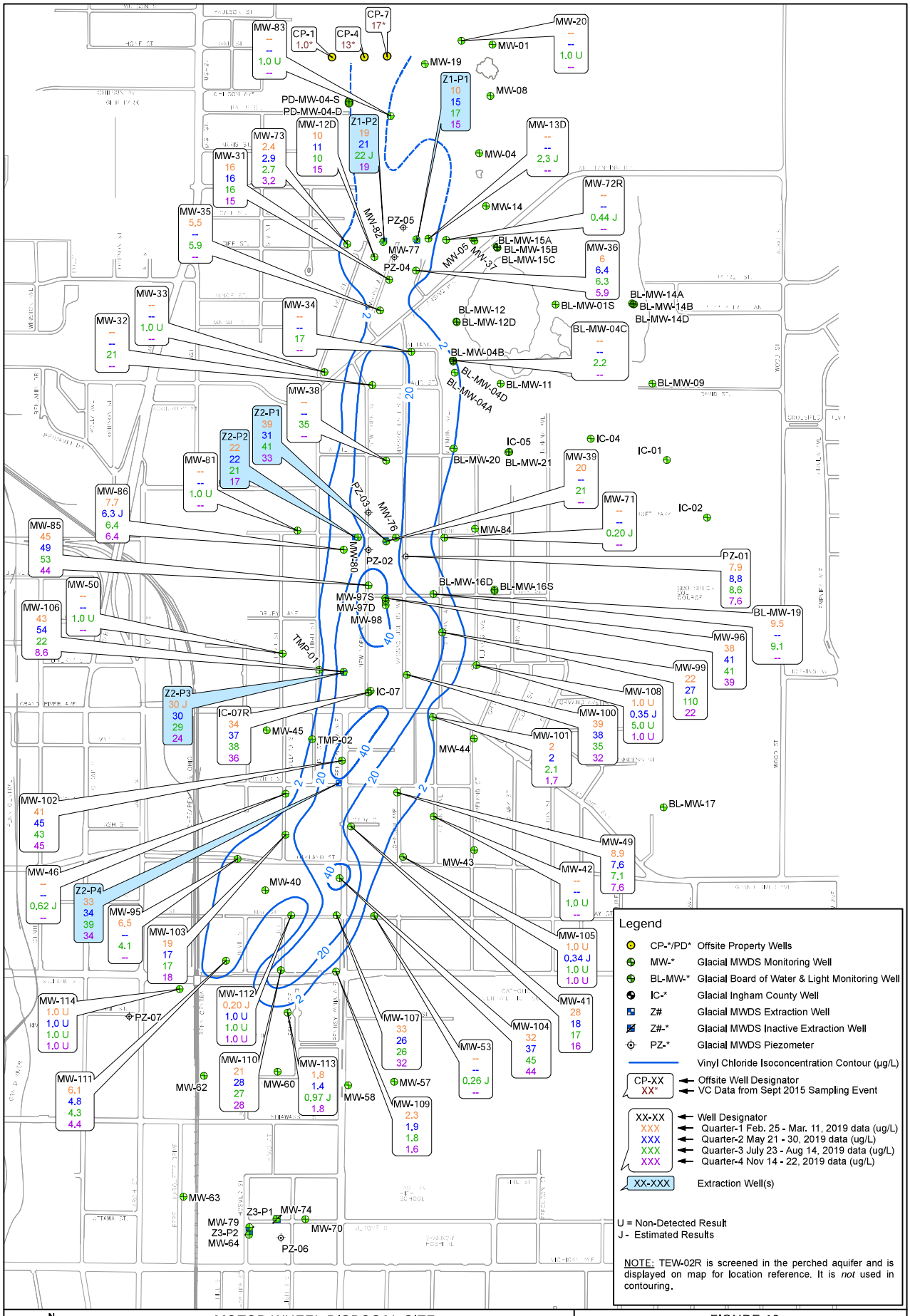


MOTOR WHEEL DISPOSAL SITE
Lansing, Michigan

FIGURE 11
Glacial Aquifer Vinyl Chloride Isoconcentration Map
Third Quarter 2019

Date: 1/10/2020
Project Number: 11168.034.01.01
File Name: P:\Goodyear\MWDS\5104 Motor Wheel\Drafting-GIS\GIS\02-Quarterly Maps\2019_Q4\2019_Q3_FIG-11_VC_Gla.mxd
Revision : 0

Los Alamos Technical Associates, Inc.



MOTOR WHEEL DISPOSAL SITE
Lansing, Michigan

1 inch = 800 feet

800 400 0 800 Feet

FIGURE 12
Glacial Aquifer Vinyl Chloride Isoconcentration Map
Fourth Quarter 2019

Date: 1/10/2020
Project Number: 11168.034.01.01
File Name: P:\Goodyear\MWDS\5104 Motor Wheel\Drafting-GIS\GIS\02-Quarterly Maps\2019_Q4\2019_Q4_FIG-12_Gla_VC.mxd
Revision : 0

Los Alamos Technical Associates, Inc.

Motor Wheel Disposal Site

Water Quality Records for:

MW-01

Subunit: Glacial

Field Data						Inorganic Laboratory Analysis Results		Organic Laboratory Analysis Results						
Sample Date	pH	Temp F	Cond uS/cm	TURB NTU	DO mg/l	Ammonia mg/l	Fluoride mg/l	VC µg/l	TCE µg/l	T12DCE µg/l	C-1,2-DCE µg/l	1,1-DCE µg/l	FLAG	Lab Report Number
2/12/1999	6.77	52.09	952		2.05	1.94	.633	< 1	< 1	< 1	< 1	< 1		1874
5/17/1999	6.92	56.13	1261		7.41	2.38	.375	< 1	< 1	< 1	< 1	< 1		2778
8/13/1999	6.67	55.62	1223		6.68	2.52	.346	< 1	< 1	< 1	< 1	< 1		3661
11/10/1999	6.95	54.4	1120		5.6	6.1	.33	< 1	< 1	< 1	< 1	< 1		4726
2/17/2000	6.72	52.42	1171		6.52	3.49	.347	< 1	< 1	< 1	< 1	< 1		5795
5/10/2000	6.91	51.66	1181		6.8	5.22	.332	< 1	< 1	< 1	< 1	< 1		6710
8/25/2000	6.97	55.01	1288		7.2	2.35	.309	< 1	< 1	< 1	< 1	< 1		7803
11/10/2000	7.05	54.22	1342		7.85	2.06	.398	< 1	< 1	< 1	< 1	< 1		8597
1/23/2001	6.75	52.55	980		5.4	1.9	.383	< 1	< 1	< 1	< 1	< 1		9043
4/17/2001	7.17	54.25	1430		7.1	2.54	.279	< 1	< 1	< 1	< 1	< 1		9561
7/24/2001	7.11	55.9	1272		7.12	2.14	.32	< 1	< 1	< 1	< 1	< 1		10224
10/26/2001	7.1	54.5	1295		7.02	4.16	.36	< 1	< 1	< 1	< 1	< 1		10653
1/22/2002	6.9	53.25	733		5.31	1.51	.317	< 1	< 1	< 1	< 1	< 1		11158
4/16/2002	3.91	59.08	1480		0	6.41	.287	< 1	< 1	< 1	< 1	< 1		11667
7/17/2002	5.98	58.64	842			2.3	.37	< 1	< 1	< 1	< 1	< 1		L17903-58
10/29/2002	6.56	52.72	1241		3.9	1.4	.38	< 1	< 1	< 1	< 1	< 1		L18811-31
1/23/2003	5.85	51.56	1000		4.13	2.2	.46	< 1	< 1	< 1	< 1	< 1		L19447-29
8/4/2003	8.1	58.94	671		4.43	2.1	.34	< 1	< 1	< 1	< 1	< 1		L21145-30
8/2/2004	6.5	56.66	1340		6.64	2.4		< 1	< 1	< 1	< 1	< 1		A4H060434003
7/7/2005	6.95	54.5	1340		8.07	1.6		< 1	< 1	< 1	< 1	< 1		A5G090154011

"D" field duplicate sample.
"R" designates that the well was replaced.
"X" designates that the well was abandoned.

Prepared by: **Los Alamos Technical Associates (LATA), Inc.**
756 Park Meadow Rd.
Westerville, Ohio 43081
614-508-1200

Motor Wheel Disposal Site

Water Quality Records for:

MW-01

Subunit: Glacial

	Field Data					Inorganic Laboratory Analysis Results		Organic Laboratory Analysis Results						
Sample Date	pH	Temp F	Cond uS/cm	TURB NTU	DO mg/l	Ammonia mg/l	Fluoride mg/l	VC µg/l	TCE µg/l	T12DCE µg/l	C-1,2-DCE µg/l	1,1-DCE µg/l	FLAG	Lab Report Number
7/24/2006	6.97	59.1	1184	391	8.19	2.4		< 1	< 1	< 1	< 1	< 1		A6G290160002
3/4/2009	6.82	12.1	1266	168	2.21	7.4		< 1	< 1	< 1	< 1	< 1		A9C070144010
5/11/2009	6.98	13.3	1026	109	4.33	2.7		< 1	< 1	< 1	< 1	< 1		A9E160120004
8/21/2009	6.95	14.1	1089	573	2.81	2.4		.79	< 1	2.1	35	< 1		A9H220164040
11/9/2009	6.98	12.4	923	150	4.29	1.5		< 1	< 1	< 1	< 1	< 1		A9K140480003
2/25/2010	7.15	11.4	999	102	5.43	2.1		< 1	< 1	< 1	< 1	< 1		A0B270433012
4/23/2010	6.91	13.5	1089	112	2.18	3		< 1	< 1	< 1	< 1	< 1		A0D240446040
8/10/2010	6.82	16.1	1206	95.9	3.28	4.3		< 1	< 1	< 1	< 1	< 1		A0H120515007
12/6/2010	6.81	10.62	1090	64.2	7.32	3.7		< 1	< 1	< 1	< 1	< 1		A0L130409003
2/24/2011	6.8	10.2	1113	45.2	1.8	3.9		< 1	< 1	< 1	< 1	< 1		A1B280477009
5/2/2011	6.92	12.1	983	37.4	2.26	4		< 1	< 1	< 1	< 1	< 1		A1E090489003
8/5/2011	6.93	14.7	1004	62.1	2.08	3		< 1	< 1	< 1	< 1	< 1		240-2636-22
11/21/2011	6.75	11.2	1071	74.4	2	2.8		< 1	< 1	< 1	< 1	< 1		240-6240-6
3/7/2012	6.91	11.5	1203	36.5	1.88	2.2		< 1	< 1	< 1	< 1	< 1		240-9147-9
5/23/2012	6.88	13.2	1059	78.7	1.8	2.1		< 1	< 1	< 1	< 1	< 1		240-11662-19
9/6/2012	6.94	13.8	1020	85.7	2.66	1.8		< 1	< 1	< 1	< 1	< 1		240-14932-22
11/27/2012	6.64	11.4	1001			2		< 1	< 1	< 1	< 1	< 1		240-18208-3
3/8/2013	6.75	11.74	960			4.1		< 1	< 1	< 1	< 1	< 1		240-21824-35
5/3/2013	7.13	14.4	1110	59.8	2.52	6.3		< 1	< 1	< 1	< 1	< 1		240-24006-22
7/19/2013	6.93	13.5	1320	146	2.08	5.3		< 1	< 1	< 1	< 1	< 1		240-27088-4

"D" field duplicate sample.
"R" designates that the well was replaced.
"X" designates that the well was abandoned.

Prepared by: **Los Alamos Technical Associates (LATA), Inc.**
756 Park Meadow Rd.
Westerville, Ohio 43081
614-508-1200

Motor Wheel Disposal Site

Water Quality Records for:

MW-01

Subunit: Glacial

Field Data						Inorganic Laboratory Analysis Results		Organic Laboratory Analysis Results						
Sample Date	pH	Temp F	Cond uS/cm	TURB NTU	DO mg/l	Ammonia mg/l	Fluoride mg/l	VC µg/l	TCE µg/l	T12DCE µg/l	C-1,2-DCE µg/l	1,1-DCE µg/l	FLAG	Lab Report Number
10/14/2013	7.26	12.23	838	78.1	1.72	6.6		< 1	< 1	< 1	< 1	< 1		240-30273-4

"D" field duplicate sample.
"R" designates that the well was replaced.
"X" designates that the well was abandoned.

Prepared by: **Los Alamos Technical Associates (LATA), Inc.**
756 Park Meadow Rd.
Westerville, Ohio 43081
614-508-1200

Motor Wheel Disposal Site

Water Quality Records for:

MW-04

Subunit: Glacial

	Field Data					Inorganic Laboratory Analysis Results		Organic Laboratory Analysis Results						
Sample Date	pH	Temp F	Cond uS/cm	TURB NTU	DO mg/l	Ammonia mg/l	Fluoride mg/l	VC µg/l	TCE µg/l	T12DCE µg/l	C-1,2-DCE µg/l	1,1-DCE µg/l	FLAG	Lab Report Number
7/19/1993						1.3	.97	.4	4.3	.1	1.5	< .5		
8/14/1997	6.9	57.3				1.7	.64	< .5	5	< .5	5	< .5		9708G361004
2/16/1998	6.81	47.5	888			1.64	.015	< 1	4	< 1	< 5	< 1		M3021926
5/10/1998	6.51	51.51			5.57	3.4	.624	< 1	3	< 1	4	< 1		M3052027
11/23/1998	6.85	53.86	1049		4.48	.82	.61	< 1	4	< 1	6	< 1		1218
2/13/1999	6.89	49.6	1051		3.67	1.17	1.1	< 1	4	< 1	6	< 1		1877
5/17/1999	6.77	53.09	953		7.98	1.1	.732	< 1	5	< 1	5	< 1		2786
8/16/1999	6.82	54.08	1061		6.39	.99	.647	< 1	4	< 1	6	< 1		3771
11/10/1999	7.07	55.72	890		4.89	1.95	.62	< 1	3	< 1	10	< 1		4724
2/17/2000	6.72	50.51	1201		7.69	1.42	.221	< 1	4	< 1	8	< 1		5791
8/25/2000	7.12	52.4	1225		7.56	1.19	.601	< 1	5	< 1	8	< 1		7805
1/25/2001	6.73	49.22	1270		4.75	.67	.648	< 1	1	< 1	6	< 1		9055
7/24/2001	6.76	56.73	1285		8.11	.83	.54	< 1	< 1	< 1	9	< 1		10225
1/22/2002	7.13	51.93	452		7.17	< .15	.302	< 1	3	< 1	< 1	< 1		11157
7/17/2002	5.77	53.78	901			.23	.56	< 1	< 1	< 1	< 1	< 1		L17903-56
7/17/2002	5.77	53.78	901			.23	.56	< 1	1.1	< 1	< 1	< 1	D	L17903-57
7/31/2003	6.69	51.05	1311		4.99	1.3	.35	< 1	5	< 1	9.6	< 1		L21145-25
7/23/2004	6.43	52.16	1250			.6		< 1	5.1	.32	8.2	< 1		A4G240192013
7/6/2005	7.21	51.08	1258		1.76	.5		< 1	4.7	.24	6.6	< 1		A5G090154009
7/28/2006	6.82	57.2	1119	104	6.43	.6		< 1	2.7	.17	5.7	< 1		A6G290160016

"D" field duplicate sample.
"R" designates that the well was replaced.
"X" designates that the well was abandoned.

Prepared by: **Los Alamos Technical Associates (LATA), Inc.**
756 Park Meadow Rd.
Westerville, Ohio 43081
614-508-1200

Motor Wheel Disposal Site

Water Quality Records for:

MW-08

Subunit: Glacial

	Field Data					Inorganic Laboratory Analysis Results		Organic Laboratory Analysis Results						
Sample Date	pH	Temp F	Cond uS/cm	TURB NTU	DO mg/l	Ammonia mg/l	Fluoride mg/l	VC µg/l	TCE µg/l	T12DCE µg/l	C-1,2-DCE µg/l	1,1-DCE µg/l	FLAG	Lab Report Number
7/19/1993						2.4	.26	< 1	.2	< .3	< 1	< .5		
8/16/1997	7	53.9				4.2	.31	< .5	< .5	< .5	< .5	< .5		9708G410005
2/25/1998	9.63	51.17	1115		5.51	13.6	.033	< 1	< 1	< 1	< 1	< 1		M3030205
5/5/1998	7.18	52.12	2042		4.16	2.66	.211	< 1	< 1	< 1	< 1	< 1		M3051328
8/12/1998	5.55	53.4	1006		1.45	2.68	.197	< 1	< 1	< 1	< 1	< 1		376
11/12/1998	7.29	49.88	1046		2.91	3.17	.327	< 1	< 1	< 1	< 1	< 1		1088
2/12/1999	7.06	44.85	901		2.06	2.47	.555	< 1	< 1	< 1	< 1	< 1		1873
5/17/1999	7.09	58.43	1214		6.9	1.81	.368	< 1	< 1	< 1	< 1	< 1		2777
8/13/1999	7.17	69.55	1347		5.55	2.36	.331	< 1	< 1	< 1	< 1	< 1		3660
11/10/1999	7.1	59.54	1143		3.18	2.83	.318	< 1	< 1	< 1	1	< 1		4725
2/17/2000	6.94	43.61	1089		3.29	2.75	.35	< 1	< 1	< 1	< 1	< 1		5792
1/26/2001	6.96	47.09	1303		1	4.39	.384	< 1	< 1	< 1	< 1	< 1		9059
1/21/2002	7.15	42.79	1207		3.41	3.91	.306	< 1	< 1	< 1	< 1	< 1		11150
7/29/2003	7.7	61.31	1985		3.72	23	.3	< 1	< 1	< 1	< 1	< 1		L21145-9
7/29/2004	5.89	60.8	1880		5.2	28		< 1	< 1	< 1	< 1	< 1		A4G310169018
8/1/2006	7.18	63.1	1409	58.7	13.14	37		< 1	< 1	< 1	< 1	< 1		A6H020289004
8/13/2007	7.13	60.6	1452	112	8.67	35		< 1	< 1	< 1	< 1	< 1		A7H180219001
8/14/2008	7.62	57.4	1372	74.8	10.29	89		< 1	< 1	< 1	< 1	< 1		A8H160180026
3/11/2009	7.32	8.5	1008	54.4	6.55	17		< 1	< 1	< 1	< 1	< 1		A9C140132002
5/6/2009	7.39	13	933	103	8.59	11		< 1	< 1	< 1	< 1	< 1		A9E090117012

"D" field duplicate sample.
"R" designates that the well was replaced.
"X" designates that the well was abandoned.

Prepared by: **Los Alamos Technical Associates (LATA), Inc.**
756 Park Meadow Rd.
Westerville, Ohio 43081
614-508-1200

Motor Wheel Disposal Site

Water Quality Records for:

MW-08

Subunit: Glacial

	Field Data					Inorganic Laboratory Analysis Results		Organic Laboratory Analysis Results						
Sample Date	pH	Temp F	Cond uS/cm	TURB NTU	DO mg/l	Ammonia mg/l	Fluoride mg/l	VC µg/l	TCE µg/l	T12DCE µg/l	C-1,2-DCE µg/l	1,1-DCE µg/l	FLAG	Lab Report Number
8/18/2009	7.62	14	927	113	2.36	8.7		< 1	< 1	< 1	< 1	< 1		A9H220164015
11/6/2009	7.39	10.2		34.1	5.3	11		< 1	< 1	< 1	< 1	< 1		A9K070450035
11/6/2009	7.39	10.2		34.1	5.3	11		< 1	< 1	< 1	< 1	< 1	D	A9K070450037
2/25/2010	7.56	7.4	926	20.3	7.54	8.8		< 1	< 1	< 1	< 1	< 1	D	A0B270433016
2/25/2010	7.56	7.4	926	20.3	7.54	13		< 1	< 1	< 1	< 1	< 1		A0B270433013
4/21/2010	7	12.1	930	43	1.85	14		< 1	< 1	< 1	< 1	< 1		A0D240446022
8/3/2010	7.12	13.2	918	29.6	1	14		< 1	< 1	< 1	< 1	< 1		A0H070439005
8/3/2010	7.12	13.2	918	29.6	1	13		< 1	< 1	< 1	< 1	< 1	D	A0H070439007
12/9/2010	6.7	7.7	861	37.9	1.59	5.1		< 1	< 1	< 1	< 1	< 1		A0L130409015
5/21/2012	7.06	13.2	851	29.1	1.98	2.5		< 1	< 1	< 1	< 1	< 1		240-11662-5
9/6/2012	6.74	13.8	969	15.3	1.17	17		< 1	< 1	< 1	< 1	< 1		240-14932-19
12/5/2012	6.82	8	900	26.1	1.21	12		< 1	< 1	< 1	< 1	< 1		240-18478-10
5/6/2013	7.41	11.57	731	87.9	.19	1.8		< 1	< 1	< 1	< 1	< 1		240-24161-9
7/19/2013	6.87	14.27	858	25.2	.92	1.6		< 1	< 1	< 1	< 1	< 1	D	240-27088-9
7/19/2013	6.87	14.27	858	25.2	.92	1.7		< 1	< 1	< 1	< 1	< 1		240-27088-5
10/7/2013	7.2	12.38	849	2.02	.57	1.7		< 1	< 1	< 1	< 1	< 1	D	240-30110-10
10/7/2013	7.2	12.38	849	2.02	.57	1.5		< 1	< 1	< 1	< 1	< 1		240-30110-8
8/4/2014	6.5	12.72	685	37.4	1.33	4.7								240-40358-6
8/6/2015	7.14	12.6	815	32.8	.31	2.8								240-54163-31
8/11/2016	7.04	14.1	1080	1.3	.57	2.1								240-68311-13

"D" field duplicate sample.
"R" designates that the well was replaced.
"X" designates that the well was abandoned.

Prepared by: **Los Alamos Technical Associates (LATA), Inc.**
756 Park Meadow Rd.
Westerville, Ohio 43081
614-508-1200

Motor Wheel Disposal Site

Water Quality Records for:

MW-08

Subunit: Glacial

	Field Data					Inorganic Laboratory Analysis Results		Organic Laboratory Analysis Results						
Sample Date	pH	Temp F	Cond uS/cm	TURB NTU	DO mg/l	Ammonia mg/l	Fluoride mg/l	VC µg/l	TCE µg/l	T12DCE µg/l	C-1,2-DCE µg/l	1,1-DCE µg/l	FLAG	Lab Report Number
7/31/2017	7.07	12.9	812	1.2	.94	1.3								240-83315-4
8/7/2018	7.22	12.5	838	0	.8									
8/7/2018						1.2								240-99795-9
8/14/2019	7.77		1850	38.6	1.8									
8/14/2019						1.2								240-117493-19

"D" field duplicate sample.
"R" designates that the well was replaced.
"X" designates that the well was abandoned.

Prepared by: **Los Alamos Technical Associates (LATA), Inc.**
756 Park Meadow Rd.
Westerville, Ohio 43081
614-508-1200

Motor Wheel Disposal Site

Water Quality Records for:

MW-14

Subunit: Glacial

Field Data						Inorganic Laboratory Analysis Results		Organic Laboratory Analysis Results						
Sample Date	pH	Temp F	Cond uS/cm	TURB NTU	DO mg/l	Ammonia mg/l	Fluoride mg/l	VC µg/l	TCE µg/l	T12DCE µg/l	C-1,2-DCE µg/l	1,1-DCE µg/l	FLAG	Lab Report Number
7/15/1993						.35	< .1	.1	2.1	< .3	.5	< .5		
8/14/1997	6.9	59.8				.57	< .1	< .5	1	< .5	.8	< .5		9708G361003
2/16/1998	7.04	47.4	1125			.35	.721	< 1	< 1	< 1	< 1	< 1		M3021932
5/6/1998	6.66	52.74			1.43	.85	.047	< 1	1	< 1	< 1	< 1		M3051823
8/18/1998	6.92	53.5			4.73	3.06	.773	< 1	< 1	< 1	< 1	< 1		512
11/17/1998	6.95	51.21	992		4.85	.29	.159	< 1	1	< 1	< 1	< 1		1128
11/17/1998	6.95	51.21	992		4.85	.37	.146	< 1	1	< 1	< 1	< 1	D	1129
2/13/1999	6.85	49.84	1044		4.06	.33	.298	< 1	1	< 1	< 1	< 1		1879
5/17/1999	6.67	53.76	1207		7.4	.32	.169	< 1	1	< 1	< 1	< 1		2783
8/16/1999	6.76	53.28	1090		7.06	.67	.15	< 1	2	< 1	1	< 1		3769
11/10/1999	6.95	52.15	1009		9.4	.78	.137	< 1	3	< 1	2	< 1		4723
2/17/2000	6.96	50.43	1090		10.51	.91	.212	< 1	2	< 1	2	< 1		5790
1/25/2001	7.06	51.16	1165		5.91	.35	.173	< 1	< 1	< 1	2	< 1		9054
1/22/2002						.45	.103	< 1	< 1	< 1	1	< 1		11156
7/30/2003						.53	< .1	< 1	< 1	< 1	< 1	< 1		L21145-23
7/28/2004	8.57	54.68	1157		3.08	.3		< 1	< 1	< 1	.82	< 1		A4G290371008
7/8/2005	7.39	56.66	1228		3.24	.2		< 1	< 1	< 1	.73	< 1		A5G090154022
7/12/2006	6.77	60.6	1237	15.9	3.01	.2		< 1	< 1	< 1	.31	< 1		A6G150165026

"D" field duplicate sample.
"R" designates that the well was replaced.
"X" designates that the well was abandoned.

Prepared by: **Los Alamos Technical Associates (LATA), Inc.**
756 Park Meadow Rd.
Westerville, Ohio 43081
614-508-1200

Motor Wheel Disposal Site

Water Quality Records for:

MW-19

Subunit: Glacial

	Field Data					Inorganic Laboratory Analysis Results		Organic Laboratory Analysis Results						
Sample Date	pH	Temp F	Cond uS/cm	TURB NTU	DO mg/l	Ammonia mg/l	Fluoride mg/l	VC µg/l	TCE µg/l	T12DCE µg/l	C-1,2-DCE µg/l	1,1-DCE µg/l	FLAG	Lab Report Number
7/19/1993						.12	< .1	1.2	11.3	.1	.6	< .5		
8/16/1997	7	58.8				.25	< .1	< .5	28	2	15	< .5		9708G410007
2/25/1998						< 1	.014	< 1	26	4	19	< 1		M3030208
5/5/1998	7.51	52.61			8.86	1.43	.057	< 1	24	2	18	< 1		M3051327
8/12/1998						1.12	.031	< 1	22	3	24	< 1		374
11/12/1998	7.26	51.33	833		5.53	2.23	.148	< 1	22	2	19	< 1		1087
2/12/1999	7.09	50.79	792		5.03	.35	.365	< 1	22	4	24	< 1		1876
5/17/1999	7.03	53.46	990		9.51	.45	.177	< 1	25	4	30	< 1		2779
8/13/1999	6.74	53.12	982		4.92	.75	.172	< 1	19	3	22	< 1		3663
11/10/1999	6.97	52.22	883		4.29	.75	.123	< 1	31	6	30	< 1		4728
11/10/1999	6.97	52.22	883		4.29	2.06	.127	< 1	29	5	27	< 1	D	4729
2/17/2000	6.94	50.85	1022		10.14	.95	.638	< 1	23	4	25	< 1		5794
8/25/2000	7.17	52.74	1116		7.52	.76	.14	< 1	18	3	19	< 1		7804
1/23/2001	7.42	52.25	1201		6.1	.55	.22	< 1	22	4	25	< 1		9040
1/23/2001	7.42	52.25	1201		6.1	.56	.204	< 1	21	4	23	< 1	D	9041
7/24/2001	7.2	54.8	1125		7.8	.58	.16	< 1	17	3	20	< 1		10223
1/22/2002	7.19	52.52	875		4.19	.76	.189	< 1	25	5	24	< 1		11160
7/17/2002	5.35	54.49	1129			.8	.21	< 1	20	3.8	23	< 1		L17903-59
1/23/2003	6.49	50.75	668		6.12	.59	.27	< 1	19	2.7	19	< 1		L19447-30
8/4/2003	7.68	53.89	1142		3.32	1.7	.25	< 1	19	2.9	20	< 1		L21145-28

"D" field duplicate sample.
"R" designates that the well was replaced.
"X" designates that the well was abandoned.

Prepared by: **Los Alamos Technical Associates (LATA), Inc.**
756 Park Meadow Rd.
Westerville, Ohio 43081
614-508-1200

Motor Wheel Disposal Site

Water Quality Records for:

MW-19

Subunit: Glacial

Field Data						Inorganic Laboratory Analysis Results		Organic Laboratory Analysis Results						
Sample Date	pH	Temp F	Cond uS/cm	TURB NTU	DO mg/l	Ammonia mg/l	Fluoride mg/l	VC µg/l	TCE µg/l	T12DCE µg/l	C-1,2-DCE µg/l	1,1-DCE µg/l	FLAG	Lab Report Number
8/2/2004	6.4	56.66	1300		6.79	.7		< 1	20	2	16	< 1		A4H060434001
7/7/2005	6.83	53.24	1212		4.31	.4		< 1	15	1.9	18	< 1		A5G090154010
12/14/2005								< 1	18	1.7	13	< 1		A5L170159002
7/24/2006	6.99	56.2	1178	151	6.21	.5		< 1	9	1.2	14	< 1		A6G290160003
3/4/2009	6.88	11.2	1178	87.9	1.99	.5		< 1	9.5	.93	11	< 1		A9C070144008
5/11/2009	6.89	12.6	1425	89.6	2.64	.2		< 1	10	.88	14	< 1		A9E160120002
8/21/2009	6.71	12.3	1434	62.2	2.24	.4		< 1	18	1.1	13	< 1		A9H220164038
11/9/2009	6.76	11.9	1289	68.7	3.38	.3		< 1	14	.96	12	< 1		A9K140480001
2/25/2010	6.73	10.1	1200	89.6	2.24	< .2		< 1	10	1	13	< 1		A0B270433010
4/23/2010	6.81	10.9	1312	101	2.48	.6		< 1	10	.84	15	< 1		A0D240446038
8/10/2010	6.73	12.7	1436	68.2	1.73	.4		< 1	8.1	.68	15	< 1		A0H120515005
12/6/2010	6.68	10.22	1400	98.5	3.09	.8		< 1	13	.85	15	< 1		A0L130409001
2/24/2011	6.69	10.5	1412	32.1	1.15	.5		.23	20	.99	14	< 1		A1B280477007
5/2/2011	7.03	12.5	1191	50.1	2.9	< .5		< 1	16	.74	11	< 1		A1E090489001
8/5/2011	6.72	12.5	1405	106	1.95	.96		< 1	12	.85	13	< 1		240-2636-20
11/21/2011	6.61	10.8	1332	67.5	1.95	.4		< 1	11	.77	13	< 1		240-6240-4
3/7/2012	6.75	10.8	1550	156	2.12	.3		< 1	11	.71	13	< 1		240-9147-7
5/23/2012	6.82	12.7	1372	112	3.04	.25		< 1	18	.85	13	< 1		240-11662-17
9/6/2012	6.69	12	1370	138	2	.21		< 1	11	.7	17	< 1		240-14932-20
11/27/2012	6.58	10.9	1258			.18		< 1	18	.76	12	< 1		240-18208-1

"D" field duplicate sample.
"R" designates that the well was replaced.
"X" designates that the well was abandoned.

Prepared by: **Los Alamos Technical Associates (LATA), Inc.**
756 Park Meadow Rd.
Westerville, Ohio 43081
614-508-1200

Motor Wheel Disposal Site

Water Quality Records for:

MW-19

Subunit: Glacial

	Field Data					Inorganic Laboratory Analysis Results		Organic Laboratory Analysis Results						
Sample Date	pH	Temp F	Cond uS/cm	TURB NTU	DO mg/l	Ammonia mg/l	Fluoride mg/l	VC µg/l	TCE µg/l	T12DCE µg/l	C-1,2-DCE µg/l	1,1-DCE µg/l	FLAG	Lab Report Number
3/8/2013	6.9	12.17	1282			.16		< 1	12	.64	14	< 1		240-21824-37
5/3/2013	6.92	14.1	1462	138	1.75	.34		< 1	12	.79	15	< 1		240-24006-24
7/19/2013	7.01	13.5	1410	270	2.37	.33		< 1	15	.66	13	< 1		240-27088-6
10/14/2013	7.31	11.32	1129	81	1.63	< .2		< 1	15	.63	13	< 1		240-30273-9

"D" field duplicate sample.
"R" designates that the well was replaced.
"X" designates that the well was abandoned.

Prepared by: **Los Alamos Technical Associates (LATA), Inc.**
756 Park Meadow Rd.
Westerville, Ohio 43081
614-508-1200

Motor Wheel Disposal Site

Water Quality Records for:

MW-20

Subunit: Glacial

	Field Data					Inorganic Laboratory Analysis Results		Organic Laboratory Analysis Results						
Sample Date	pH	Temp F	Cond uS/cm	TURB NTU	DO mg/l	Ammonia mg/l	Fluoride mg/l	VC µg/l	TCE µg/l	T12DCE µg/l	C-1,2-DCE µg/l	1,1-DCE µg/l	FLAG	Lab Report Number
7/19/1993						2.9	.32	1.2	.3	< .3	< 1	< .5		
8/16/1997	7	60.4				4.6	.34	< .5	< .5	< .5	< .5	< .5		9708G410006
2/25/1998						< 1	.035	< 1	< 1	< 1	< 1	< 1		M3030209
5/5/1998	7.66	54.51			6.48	3.34	.341	< 1	< 1	< 1	< 1	< 1		M3051326
8/12/1998						2.83	.247	< 1	< 1	< 1	< 1	< 1		375
11/12/1998	864	52.52	682		2.56	3.31	.463	< 1	< 1	< 1	< 1	< 1		1084
2/12/1999	7.03	50.02	821		6.25	2.82	.826	< 1	< 1	< 1	< 1	< 1		1875
5/17/1999	7	55.21	899		7.29	2.23	.485	< 1	< 1	< 1	< 1	< 1		2780
8/13/1999	6.9	54.56	967		6.39	2.84	.467	< 1	< 1	< 1	< 1	< 1		3662
11/10/1999	7.11	54.16	845		5.56	3.1	.443	< 1	< 1	< 1	< 1	< 1		4727
2/17/2000	7.01	53.3	969		7.18	2.88	.219	< 1	< 1	< 1	< 1	< 1		5793
1/23/2001	7.21	53.35	1289		5.1	3.03	.415	< 1	< 1	< 1	< 1	< 1		9042
1/22/2002	7.04	53.2	1103		5.79	3.56	.41	< 1	< 1	< 1	< 1	< 1		11159
8/4/2003	7.64	55.95	1070		3.41	2.5	.4	< 1	< 1	< 1	< 1	< 1		L21145-29
8/2/2004	6.48	57.02	1420			3.4		< 1	.48	< 1	< 1	< 1		A4H060434002
3/4/2009	6.9	11.7	1302	249	1.19	5.9		.32	.59	< 1	< 1	< 1		A9C070144009
5/11/2009	6.9	12.9	1481	180	1.94	2.6		.28	.69	< 1	< 1	< 1		A9E160120003
8/21/2009	6.77	12.4	1520	101	1.66	4.9		.29	.73	< 1	< 1	< 1		A9H220164039
11/9/2009	6.69	12.2	1420	72.8	2.21	4.7		1	.74	< 1	< 1	< 1		A9K140480002
2/25/2010	6.84	10.4	1413	99.1	1.96	4.5		.93	.72	< 1	< 1	< 1		A0B270433011

"D" field duplicate sample.
"R" designates that the well was replaced.
"X" designates that the well was abandoned.

Prepared by: **Los Alamos Technical Associates (LATA), Inc.**
756 Park Meadow Rd.
Westerville, Ohio 43081
614-508-1200

Motor Wheel Disposal Site

Water Quality Records for:

MW-20

Subunit: Glacial

	Field Data					Inorganic Laboratory Analysis Results		Organic Laboratory Analysis Results						
Sample Date	pH	Temp F	Cond uS/cm	TURB NTU	DO mg/l	Ammonia mg/l	Fluoride mg/l	VC µg/l	TCE µg/l	T12DCE µg/l	C-1,2-DCE µg/l	1,1-DCE µg/l	FLAG	Lab Report Number
4/23/2010	6.85	11.3	1480	138	2.8	7		1	.83	< 1	< 1	< 1		A0D240446039
8/10/2010	6.9	12.89	1475	172	1.85	7.3		< 1	.63	< 1	< 1	< 1		A0H120515006
12/6/2010	6.95	10.5	1290	169	2.88	4.3		< 1	.73	< 1	< 1	< 1		A0L130409002
2/24/2011	6.97	10.4	1249	186	1.33	2.9		.26	.7	< 1	< 1	< 1		A1B280477008
5/2/2011	7.09	12.3	1008	193	3.99	2.3		< 1	.66	< 1	< 1	< 1		A1E090489002
8/5/2011	6.94	12.9	1224	134	1.63	2.1		< 1	.62	< 1	< 1	< 1		240-2636-21
11/21/2011	6.83	11.3	1179	289	1.6	2.1		< 1	.63	< 1	< 1	< 1		240-6240-5
3/7/2012	6.99	11.1	1253	212	1.82	2.2		< 1	.63	< 1	< 1	< 1		240-9147-8
5/23/2012	6.98	13.9	1158	117	1.55	2.5		< 1	.67	< 1	< 1	< 1		240-11662-18
9/6/2012	6.91	12.8	1276	193	1.72	2.9		< 1	.55	< 1	< 1	< 1		240-14932-21
11/27/2012	6.8	11	1161			2.5		< 1	.73	< 1	< 1	< 1		240-18208-2
3/8/2013						1.7		< 1	.31	< 1	< 1	< 1		240-21824-36
5/3/2013	6.89	14.5	1228	268	1.61	1.1		< 1	.5	< 1	< 1	< 1		240-24006-23
7/19/2013	7.03	13.47	1158	363	2.61	1.2		< 1	.56	< 1	< 1	< 1		240-27088-7
10/14/2013	7.38	11.99	943	200	1.69	1.4		< 1	.48	< 1	< 1	< 1		240-30273-2
8/5/2014	6.75	12.6	895	30.4	2.55	.69		< 1	.43	< 1	< 1	< 1		240-40358-18
8/6/2015	6.87	12.3	1094	184	1.74	1.1		< 1	.46	< 1	< 1	< 1		240-54163-30
8/11/2016	6.88	13.7	1201	159	1.71	2.4		< 1	.58	< 1	< 1	< 1		240-68311-12
8/2/2017	6.79	13	1310	118	3.12	6.9		< 1	.48	< 1	< 1	< 1		240-83315-11
8/8/2018	7.06	13.1	1265	103	2.45									

"D" field duplicate sample.
"R" designates that the well was replaced.
"X" designates that the well was abandoned.

Prepared by: **Los Alamos Technical Associates (LATA), Inc.**
756 Park Meadow Rd.
Westerville, Ohio 43081
614-508-1200

Motor Wheel Disposal Site

Water Quality Records for:

MW-20

Subunit: Glacial

	Field Data					Inorganic Laboratory Analysis Results		Organic Laboratory Analysis Results						
Sample Date	pH	Temp F	Cond uS/cm	TURB NTU	DO mg/l	Ammonia mg/l	Fluoride mg/l	VC µg/l	TCE µg/l	T12DCE µg/l	C-1,2-DCE µg/l	1,1-DCE µg/l	FLAG	Lab Report Number
8/8/2018						8.6		1	.5	1	1	1		240-99795-11
8/14/2019	7.65	12.7	1414	135	1.88									
8/14/2019						7.3		< 1	< 1	< 1	< 1	< 1		240-117493-18

"D" field duplicate sample.
"R" designates that the well was replaced.
"X" designates that the well was abandoned.

Prepared by: **Los Alamos Technical Associates (LATA), Inc.**
756 Park Meadow Rd.
Westerville, Ohio 43081
614-508-1200

Motor Wheel Disposal Site

Water Quality Records for:

MW-83

Subunit: Glacial

	Field Data					Inorganic Laboratory Analysis Results		Organic Laboratory Analysis Results						
Sample Date	pH	Temp F	Cond uS/cm	TURB NTU	DO mg/l	Ammonia mg/l	Fluoride mg/l	VC µg/l	TCE µg/l	T12DCE µg/l	C-1,2-DCE µg/l	1,1-DCE µg/l	FLAG	Lab Report Number
7/8/1999	7.01	61.9	920			3.02		2	< 1	4	51	< 1		3219
8/18/1999	6.7	53.92	1000		2.99	3.47	.341	2	< 1	4	42	< 1		3778
11/10/1999	6.91	52.02	985		.37	4.42	.239	2	< 1	3	34	< 1		4721
2/15/2000	6.74	49.18	1122		.73	3.73	.294	2	< 1	1	31	< 1		5764
8/25/2000	6.9	53.72	1364		2.38	3.66	.314	1	< 1	2	32	< 1		7806
1/25/2001	6.67	49.74	1317		.73	2.51	.348	2	< 1	2	29	< 1		9056
7/24/2001	6.68	54.84	1277		-1.15	2.65	.32	1	< 1	2	31	< 1		10222
1/21/2002	6.52	50.51	1148		.46	2.81	.344	2	< 1	2	35	< 1		11154
7/16/2002	5.46	58.67	1101		2.91	3	.4	1.3	< 1	4.1	34	< 1		L17903-49
1/24/2003	6.3	50.39	1145		7.85	2.4	.42	< 1	< 1	1.8	39	< 1		L19447-35
7/23/2003	8.14	55.19	1194		10	2.8	< 1	1.4	< 1	2.7	38	< 1		L21024-29
8/2/2004	6.43	52.7	1350		4.32	2.3		.89	< 1.7	1.6	32	< 1.7		A4H060434006
8/8/2005	6.99	54.32	1275		6.45	1.6		1	< 1.2	2.1	31	< 1.2		A5H130172002
7/24/2006	6.78	54.2	1354	8	.26	2.7		.73	< 1	1.8	35	< 1		A6G290160001
8/1/2007	6.67	58.4	1409	36.7	4.55	2.9		.6	< 1	1.6	31	< 1		A7H040179011
8/19/2008	6.91	52.3	1352	.7	.8	4.4		1.1	< 1	1.8	32	< 1		A8H230147007
8/20/2009	6.77	11.2	1385	7	.78	3.6		< 1.4	< 1.4	< 1.4	< 1.4	< 1.4		A9H220164035
8/3/2010	6.77	11.6	1457	6.3	2.14	5.1		.6	< 1	1.8	30	< 1		A0H070439006
8/4/2011	6.81	11	1380	.4	.97	4.6		.32	< 1	2	31	< 1		240-2636-18
8/4/2011	6.81	11	1380	.4	.97	4.8		.48	< 1	1.9	32	< 1	D	240-2636-19

"D" field duplicate sample.
"R" designates that the well was replaced.
"X" designates that the well was abandoned.

Prepared by: **Los Alamos Technical Associates (LATA), Inc.**
756 Park Meadow Rd.
Westerville, Ohio 43081
614-508-1200

Motor Wheel Disposal Site

Water Quality Records for:

MW-83

Subunit: Glacial

	Field Data					Inorganic Laboratory Analysis Results		Organic Laboratory Analysis Results						
Sample Date	pH	Temp F	Cond uS/cm	TURB NTU	DO mg/l	Ammonia mg/l	Fluoride mg/l	VC µg/l	TCE µg/l	T12DCE µg/l	C-1,2-DCE µg/l	1,1-DCE µg/l	FLAG	Lab Report Number
8/30/2012	6.67	11.8	1334	0	.49	4.3		.76	< 1	2	33	< 1		240-14761-22
8/30/2012	6.67	11.8	1334	0	.49	4.3		.7	< 1	2	34	< 1	D	240-14761-23
7/19/2013	6.66	12.2	1263	8.04	.5	5.6		.58	< 1	1.9	33	< 1		240-27088-2
7/19/2013	6.66	12.2	1263	8.04	.5	5.6		.4	< 1	2.1	31	< 1	D	240-27088-3
8/4/2014	6.8	11.92	1426	4.9	.07			.38	< 1	2	36	< 1		240-40358-9
8/5/2015	6.9	11.7	1261	45.2	.17			.43	< 1	1.9	32	< 1		240-54163-28
8/17/2016	6.82	12.1	1238	2.9	.55			< 1.3	< 1.3	1.6	28	< 1.3		240-68574-14
8/3/2017	6.86	11.2	1269	2.1	1.3			.48	< 1	2	37	< 1		240-83315-26
8/2/2018	6.77	9.4	1459	0	.93									
8/2/2018								.47	< 1	1.8	33	< 1		240-99460-32
8/14/2019								< 1	< 1	1.5	29	< 1		240-117493-17
8/14/2019	7.53	10.6	1437	0	1.15									

"D" field duplicate sample.
"R" designates that the well was replaced.
"X" designates that the well was abandoned.

Prepared by: **Los Alamos Technical Associates (LATA), Inc.**
756 Park Meadow Rd.
Westerville, Ohio 43081
614-508-1200