



JENNIFER L. GRANHOLM
GOVERNOR

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
LANSING



STEVEN E. CHESTER
DIRECTOR

April 7, 2004

CERTIFIED MAIL

Mr. Russell W. Maier, President and CEO
Michigan Seamless Tube LLC
400 McMunn Street
South Lyon, Michigan 48178

Dear Mr. Maier:

SUBJECT: Corrective Action Consent Order (Consent Order); Michigan Seamless Tube LLC (MST); MID 082 767 591

Enclosed please find a fully executed original of the Consent Order between MST and the Michigan Department of Environmental Quality (MDEQ). The Consent Order became effective on April 7, 2004, the date of the Chief of the Waste and Hazardous Materials Division's signature. Please be advised that the payment into the Trust Fund addressed in Paragraph 8.10.1.2 is due within thirty (30) days of the effective date of the Consent Order.

Sincerely,

John Craig, Chief
Enforcement Section
Waste and Hazardous Materials Division
517-373-7923

Enclosure

cc/enc: Mr. Paul J. Little, U.S. Environmental Protection Agency, Region 5
Ms. Kathleen L. Cavanaugh, Michigan Department of Attorney General
Dr. Benedict N. Okwumabua, MDEQ
Ms. Ronda Blayer, MDEQ
Ms. Patricia Slagell, MDEQ
Mr. Gary Tuma, MDEQ

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
WASTE AND HAZARDOUS MATERIALS DIVISION

In the matter of:

Michigan Seamless Tube LLC,
a limited liability company organized
under the laws of the State of Delaware,
with offices located at 400 McMunn Street,
County of Oakland, City of South Lyon,
State of Michigan

MID 082 767 591

WHMD Order No. 111-02-04

CORRECTIVE ACTION CONSENT ORDER

This Corrective Action Consent Order ("Consent Order") is being entered into between Michigan Seamless Tube LLC ("MST") and the Michigan Department of Environmental Quality ("MDEQ") pursuant to Section 324.11115a of Part 111, Hazardous Waste Management, of the Michigan Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, MCL 324.101 et seq. ("NREPA"), the rules promulgated under this part, and the authority vested in the MDEQ as an authorized state under the federal Resource Conservation and Recovery Act of 1976 ("RCRA").

I. STATEMENT OF PURPOSE

1.1 In entering this Consent Order, the mutual objectives of the parties are:

- a. For MST to conduct RCRA corrective action at all known Waste Management Units ("WMUs") and Areas of Concern ("AOCs") as set forth in Table 1 and newly discovered WMUs and AOCs, as

necessary, to protect public health, safety, welfare, and the environment.

- b. For MST to use the applicable cleanup criteria in Part 201, Environmental Remediation, of the NREPA for corrective action purposes at known WMUs and AOCs, as set forth in Table 1, and newly identified WMUs and AOCs for contaminants as defined in Paragraph 3.4 of this Consent Order and hazardous substances as defined in Part 201.
- c. For the MDEQ to act as the lead agency so that the WMUs and AOCs can be comprehensively addressed through entry of this Consent Order.
- d. To perform corrective action in accordance with the RCRA and make the corrective action Environmental Indicators demonstrations required by the U.S. Environmental Protection Agency ("U.S. EPA") under the Government Performance and Results Act for control of human exposures and migration of contaminated groundwater as set forth in Section VIII of this Consent Order.

II. JURISDICTION

- 2.1 Pursuant to its authority under Section 105 and Part 111 of the NREPA, the MDEQ has promulgated administrative rules pertinent to the identification, generation, treatment, storage, disposal, and transportation of hazardous wastes in Michigan. These rules are set forth in the Michigan Administrative Code, R 299.9101 – R 299.11107.

- 2.2 On October 30, 1986, the State of Michigan was granted final authorization by the Administrator of the U.S. EPA, pursuant to Section 3006(b) of the RCRA, Title 42 of the United States Code ("U.S.C."), Section 6926(b), to administer a hazardous waste program in Michigan in lieu of the federal program, Title 40 of the Code of Federal Regulations ("CFR"), Part 272, Subpart X, 51 Federal Register 36804 (October 16, 1986). This authorization is periodically updated to maintain authorization. Section 3008 of the RCRA, 42 U.S.C. Section 6928, provides that the U.S. EPA may enforce state regulations in those states authorized to administer a hazardous waste program.
- 2.3 This Consent Order is issued to MST, the current owner and operator of the facility, located at 400 McMunn Street, South Lyon, Oakland County, State of Michigan (the "Facility").
- 2.4 MST consents and agrees to the issuance and entry of this Consent Order and stipulates that the termination of this matter by a final order to be entered as a Consent Order is proper and acceptable. This Consent Order, thus, shall be considered a final order of the MDEQ and shall become effective on the date it is signed by the Chief of the Waste and Hazardous Materials Division ("WHMD"), delegee of the Director of the MDEQ.
- 2.5 MST further consents to and agrees not to contest the MDEQ's jurisdiction and authority to issue this Consent Order and to enforce its terms. In addition, MST will not contest the MDEQ's jurisdiction and authority to: compel compliance with this Consent Order in any subsequent enforcement proceedings, either administrative or judicial; require full or interim compliance by MST with the terms of this Consent Order; or impose sanctions for violations of this Consent Order.

- 2.6 MST and the MDEQ agree that the signing of this Consent Order is for settlement purposes only and does not constitute an admission by MST that any law has been violated nor is it an admission of any factual allegation or legal conclusion stated or implied in this Consent Order. Except as otherwise provided in this Consent Order, MST expressly reserves all rights they may have in law or in equity to maintain or defend against any claim brought by or against any person.

III. DEFINITIONS

- 3.1 Unless otherwise expressly provided herein, terms used in this Consent Order that are defined in Part 111 or the RCRA or the regulations promulgated under those statutes will have the definitions given to them in Part 111 or the RCRA or in such regulations.
- 3.2 WMU as used in this Consent Order means any discernible unit at which contaminants have been placed at any time, or at which contaminants have been released, or at which there is a threat of release regardless of the intended use of such unit, and which is subject to the corrective action requirements of Part 111, Sections 15a(1) and (2) and 15b, or R 299.9629. The term WMU includes the term "Solid Waste Management Unit" ("SWMU") as defined by the U.S. EPA in 61 Federal Register 19442 (May 1, 1996).
- 3.3 AOC as used in this Consent Order means those units that may not meet the definition of a WMU but which may have released contaminants to the environment on a nonroutine basis, which may present an unacceptable risk to public health, safety, welfare, or the environment and are subject to the corrective action requirements of Part 111.

- 3.4 The word "contaminant" as used in this Consent Order shall mean contaminant as defined in Part 111.

IV. PARTIES BOUND

- 4.1 The provisions of this Consent Order shall apply to and be binding upon MST, the MDEQ, and their successors and assigns.
- 4.2 No change in ownership or corporate or partnership status relating to the Facility will in any way alter the responsibility of MST under this Consent Order unless agreed to, in writing, between the MDEQ and MST. Any conveyance of title, easement, or other interest in the Facility, or a portion of the Facility, shall not affect the obligations of MST under this Consent Order. MST will be responsible and liable for any failure to carry out all activities required of MST by the terms and conditions of this Consent Order, regardless of use by MST of employees, agents, contractors, or consultants to perform any such tasks. This paragraph will not apply if the MDEQ and MST agree that this Consent Order has been terminated as to the Facility or any relevant portion of the Facility.
- 4.3 MST shall provide a copy of this Consent Order to all contractors, subcontractors, and consultants retained after the effective date of this Consent Order to conduct or monitor any portion of the work to be performed pursuant to this Consent Order within one (1) week after the effective date of this Consent Order, or within one (1) week after the date of retention of such person(s), whichever occurs later. Notwithstanding the terms of any such contract, MST is responsible for compliance with the terms of this Consent Order.
- 4.4 MST shall give notice of this Consent Order to any successor in interest prior to transfer of ownership or operation of the Facility and shall notify

the MDEQ, in writing, no later than ninety (90) days prior to such scheduled transfer. This written notice shall describe how MST has assured that, despite the transfer, all corrective measures that are or may be required for the Facility will be implemented and maintained.

V. FINDINGS OF FACT

- 5.1 MST is a person as defined by Section 324.301(g) of the NREPA and R 299.9106(i).
- 5.2 MST purchased the Facility on October 18, 2002, and is the current owner and operator of the Facility, located at 400 McMunn Street, South Lyon, Michigan. Hazardous waste was generated, treated, stored, and disposed of at the Facility prior to MST's purchase. MST is a generator of hazardous waste only. MST is a Delaware limited liability company authorized to do business in Michigan.
- 5.3 The Facility coordinates are 83 degrees, 39 minutes, 45 seconds west longitude and 42 degrees, 27 minutes, 21 seconds north latitude.
- 5.4 The Facility is located on the southwest side of South Lyon in Oakland County, Michigan. The Facility is bordered by Ten Mile Road on the north, McMunn Street on the east, the former Grand Trunk Western Railroad right-of-way on the south, and Dixboro Road on the west. The Facility covers approximately 53 acres. The Facility is located immediately to the north of the Yerkes Drain. Some swampy areas are present along the northern and western edges of the Facility. Inchwagh Lake and its surrounding wetlands are located one-half mile southwest of the Facility. Residential properties are located to the northeast, east, and southeast.

- 5.5 According to MST, Michigan Seamless Tube Company owned and operated the Facility from 1927 until 1977, at which time it changed its name to Quanex Corporation ("Quanex"). Quanex owned and operated the Facility from approximately 1977 until December 3, 1997. Michigan Specialty Tube, a division of Vision Metals, Inc. ("Vision Metals"), owned and operated the Facility from December 3, 1997 until October 18, 2002. The Facility has always manufactured seamless steel tubing by using hot and cold mill processes, and generated hazardous and nonhazardous wastes in the processes, including waste pickle liquor, acid cleaning rinse water, machine lubricating oils, steel and metal scrap, and commercial product residues in liners and containers. Process wastewaters were lime stabilized on-site.
- 5.6 In 1974, Quanex discovered evidence of a release of fuel oil from a below-grade transfer pipe. Fuel oil from this release was discovered in Yerkes Drain. The fuel oil release was the subject of ongoing response activity from 1974 until MST discontinued operation and maintenance of the passive recovery system, with the MDEQ's approval, on April 14, 2003.
- 5.7 On October 14, 1980, Quanex, then owner and operator of the Facility, filed a Notification of Hazardous Waste Activity Form with the U.S. EPA pursuant to Section 3010 of the RCRA. The Facility's U.S. EPA Identification No. is MID 082 767 591. In its notification, Quanex indicated that the Facility generated, treated, stored, and disposed of hazardous waste.
- 5.8 On November 19, 1980, Quanex submitted to the U.S. EPA, Part A of its RCRA permit application for the Facility.
- 5.9 Prior to November 1988, the lime stabilized waste was discharged into two (2) surface impoundments where lime-stabilized sludge settled out of

solution and effluent was discharged per a National Pollutant Discharge Elimination System permit to Yerkes Drain. Settled solids were dredged from the impoundments and placed in two (2) sludge drying beds from 1970 to 1987. The impoundments have since been replaced by a treatment plant with clarifiers and filter presses. Based on information currently available to the MDEQ, sludge produced after the 1988 installation of clarifiers has been disposed of off-site in a licensed Type II landfill. The two (2) surface impoundments presently contain lime-stabilized sludge from previous operations that has been further stabilized with fly ash.

- 5.10 On March 29, 1984, a U.S. EPA Consent Agreement and Final Order ("CAFO") was issued to Quanex regarding cessation of hazardous waste treatment, storage, or disposal except per 40 CFR, Part 265. The CAFO also ordered that compliance with Consolidated Permit Regulations in accordance with 40 CFR, Parts 124 and 270, should be maintained just as if timely submittal of a Notification of Hazardous Waste Activities and Part A Permit Application in 1980 had occurred. Quanex then pursued an extension in submitting a Part B application due to the delisting of lime-stabilized waste pickle liquor sludge from the hazardous waste list as of December 5, 1984.
- 5.11 On December 6, 1984, Quanex submitted to the U.S. EPA, Part B of its RCRA permit application for disposal of hazardous waste.
- 5.12 On February 5, 1986, Quanex petitioned the U.S. EPA to delist its pickle liquor wastes.
- 5.13 On October 28, 1986, the MDEQ directed Quanex to perform a remedial investigation ("RI") of its sludge drying beds to determine the extent of soil

and groundwater contamination. In response, Quanex submitted test data and a petition for Type III designation of the sludge.

- 5.14 On August 5, 1987, Quanex submitted a closure plan for the hazardous waste container storage area. The plan was approved on September 24, 1987, and the closure certification was approved on February 5, 1990.
- 5.15 On November 2, 1988, Quanex requested an extension for closure of the surface impoundments and submitted a petition for Type III designation of the surface impoundment sludge in July 1989.
- 5.16 On September 5, 1990, a Preliminary Assessment/Visual Site Inspection ("PA/VS") was conducted by Metcalf and Eddy, Inc., for the U.S. EPA. Ten (10) SWMUs (hereafter "WMUs") were identified at the Facility at that time. Table 1, attached as Attachment 1, sets forth the known WMUs and AOCs as currently identified at the Facility and provides a brief description of the regulatory status of each. A map identifying the approximate location of the known WMUs and AOCs at the Facility is attached as Attachment 2.
- 5.17 On April 18, 1995, Quanex submitted an investigation work plan for the Surface Impoundments, the Uncovered Berm Area (a debris pile associated with the surface impoundments), and the Sludge Drying Beds, all as identified in Attachment 1.
- 5.18 On March 7, 1996, the MDEQ approved the closure work plan and an Interim Measures Corrective Action Implementation Work Plan for the surface impoundments and the uncovered berm area. In 1998, Vision Metals placed an engineered clay cap over the southern portion of the two (2) surface impoundments.

- 5.19 On August 12, 1998, Vision Metals, a Delaware corporation, executed a Restrictive Covenant on the land pursuant to Section 11115a of Part 111, to ensure the care, maintenance, monitoring, and long-term integrity of the engineered cap placed on the surface impoundments pursuant to an Interim Measure Corrective Action Implementation Work Plan. The Restrictive Covenant was recorded on September 3, 1998, and is hereby incorporated into this Consent Order, by reference, and attached as Attachment 3.
- 5.20 On August 30, 1999, Vision Metals submitted to the MDEQ a Petition to Designate High-Volume, Low-Hazard Industrial Waste, seeking to have the material in the sludge drying beds designated a low-hazard industrial waste.
- 5.21 On September 24, 1998, the surface impoundments and the berm area were certified as closed by the MDEQ. Post-closure monitoring and maintenance are ongoing pursuant to an amended Sampling and Analysis Plan ("SAP") originally approved on August 29, 1996, and last amended on November 30, 2001.
- 5.22 On November 13, 2000, Vision Metals filed voluntary bankruptcy proceedings in the United States Bankruptcy Court for the District of Delaware, being case number 00-4205 (MFW) under Chapter 11 of the Bankruptcy Code.
- 5.23 On June 14, 2001, Vision Metals recorded a "Notice Regarding Statutory Obligations Applicable To Property" with the Oakland County Register of Deeds. (Attachment 4) .
- 5.24 On May 30, 2002, during soil and groundwater sampling, the presence of vinyl chloride was detected in Yerkes Drain. Elevated levels of metals

were also present in soil samples taken from certain other locations around the Facility.

- 5.25 On December 17, 2002, MST completed a Baseline Environmental Assessment ("BEA") of the Facility pursuant to Part 201 of the NREPA. The BEA was disclosed to the DEQ on April 16, 2003.
- 5.26 On May 30, 2003, MST posted financial assurance in the form of a Trust Fund, as set forth in the September Letter.
- 5.27 The Facility has been operated as a hazardous waste management facility subject to the requirement to have a permit under Sections 11118 and 11123 of Part 111, R 299.9601, R 299.9502, and Section 3004 of the RCRA, 42 U.S.C., Section 6924. Therefore, the Facility is subject to the regulations and environmental standards of Part 111 and the rules promulgated under that part and is subject to the corrective action requirements of Section 3004(u) of the RCRA, as amended by the Hazardous and Solid Waste Amendments of 1984, 42 U.S.C., Section 6924(u).
- 5.28 This Consent Order shall apply to all known WMUs and AOCs, as set forth in Table 1, and newly identified WMUs and AOCs identified during the implementation of work to be performed, as set forth in Section VIII of this Consent Order.
- 5.29 Certain wastes and waste constituents found at the Facility may be contaminants within the meaning of MCL 324.11103(3), R 299.9201 - R 299.9214, and R 299.9217 - R 299.9226.
- 5.30 There is, has been, or is a potential for a release of contaminants at or from the Facility.

- 5.31 MST has agreed to perform actions required by this Consent Order that are necessary to protect public health, safety, welfare, and the environment.
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VI. APPROVAL OF SUBMITTALS

- 6.1 For any work plan, proposal, or other document, excluding applications for permits or licenses, that are required by this Consent Order to be submitted by MST to the MDEQ for approval, the following process and terms of approval shall apply.
- 6.2 Any work plan, proposal, or other document required to be submitted by this Consent Order shall include all of the information required by the applicable statute and/or rule and all of the information required by the applicable paragraph(s) of this Consent Order.
- 6.3 The MDEQ may approve, disapprove, or approve with specific modifications, the required work plan, proposal, or other document. Upon MDEQ approval, or approval with modifications, of a work plan, proposal, or other document, such work plan, proposal, or other document shall be incorporated by reference into this Consent Order and shall be enforceable in accordance with the provisions of this Consent Order.
- 6.4 In the event the MDEQ disapproves a work plan, proposal, or other document, it shall notify MST, in writing, of the specific reasons for such disapproval. Subject to the availability of funds in the Trust Fund, as set forth in Paragraph 8.10 of this Consent Order, MST shall submit, within thirty (30) days of receipt of such disapproval, a revised work plan, proposal, or other document that adequately addresses the reasons for the MDEQ's disapproval.

- 6.5 In the event the MDEQ approves with specific modifications, a work plan, proposal, or other document, it shall notify MST, in writing, of the specific modifications required to be made to such work plan, proposal, or other document prior to its implementation and the specific reasons for such modifications. Subject to the availability of funds in the Trust Fund, as set forth in Paragraph 8.10 of this Consent Order, the MDEQ may require MST to submit, prior to implementation and within twenty (20) days of receipt of such approval with specific modifications, a revised work plan, proposal, or other document that adequately addresses such modifications. However, if necessary, MST may request an extension of time. Such request shall not be unreasonably denied.
- 6.6 Failure by MST to submit any work plan, proposal, or other plan on the date it was first due, pursuant to the schedules set forth in Section VIII or the schedules approved as part of a work plan, proposal, or other document, shall subject MST to stipulated penalties commencing on the date the work plan, proposal, or other document was due. Failure by MST to submit an approvable work plan, proposal, or other document within the applicable time period specified in Paragraphs 6.4 and 6.5 of this Consent Order shall subject MST to the enforcement provisions of this Consent Order including, but not limited to, the stipulated penalty provisions commencing on the date the revised work plan, proposal, or other document was due and accumulating until an approvable work plan, proposal, or other document is submitted.
- 6.7 Any delays caused by MST's failure to submit an approvable work plan, proposal, or other document when due shall in no way affect or alter MST's responsibility to comply with any other deadline(s) specified in this Consent Order.

- 6.8 No informal advice, guidance, suggestions, or comments by the MDEQ regarding reports, plans, specifications, schedules, or any other writing submitted by MST will be construed as relieving MST of the obligation to obtain written approval if and when required by this Consent Order.

VII. PROJECT COORDINATOR

- 7.1 Unless the MDEQ is otherwise notified in writing, the Project Coordinator for MST shall be Donald F. Comfort, P.E. The MDEQ Project Coordinator shall be Mr. Kevin Holdwick, Engineer, unless MST is notified otherwise in writing. The Project Coordinators shall be responsible for overseeing the implementation of this Consent Order. To the maximum extent practicable, all communications between MST and the MDEQ and all documents, reports, approvals, and other correspondence concerning the activities performed pursuant to this Consent Order shall be directed through the Project Coordinators.

VIII. WORK TO BE PERFORMED

- 8.1 MST agrees to, and is hereby ordered to, perform the acts specified in this Section VIII in the manner specified and by the dates specified herein, all subject to the availability of funds in the Trust Fund as set forth in Paragraph 8.10 of this Consent Order, unless otherwise explicitly stated in this Section VIII.
- 8.2 All work undertaken pursuant to this Consent Order shall be performed in a manner consistent with the following: Parts 111 and 201, the RCRA, and other applicable state and federal laws and their implementing regulations; all MDEQ-approved work plans, proposals, or other documents; and relevant MDEQ and U.S. EPA guidance documents. Such guidance includes, but is not limited to, the Documentation of

Environmental Indicator Determination Guidance, relevant portions of the Model Scopes of Work for RCRA Corrective Action, the U.S. EPA's risk assessment guidance, and applicable Part 201 cleanup standards.

- 8.2.1 MST agrees to address releases or threats of releases of hazardous waste, hazardous waste constituents, and hazardous substances at all known WMUs and AOCs, as set forth in Table 1, and newly discovered WMUs and AOCs.
- 8.2.2 All sampling and analysis conducted pursuant to this Consent Order shall be consistent with the Region 5 RCRA Quality Assurance Project Plan Policy (April 1998) as modified by the MDEQ and as appropriate for the site and be sufficient to identify and characterize the nature and extent of all releases as required by this Consent Order. The MDEQ reserves the right to audit laboratories selected by MST or require MST, as part of its response activities, to purchase and have analyzed any Performance Evaluation samples selected by the MDEQ that are compounds of concern.
- 8.2.3 MST agrees to comply with the provisions of Section 20107a of the NREPA. Nothing in this Consent Order, including Paragraph 8.10, shall be construed as limiting MST's obligations to comply with Section 20107a of the NREPA. Any funds expended to comply with Section 20107a shall not be eligible for reimbursement from the Trust Fund established pursuant to Paragraph 8.10.

8.3 Interim Response Activities/Interim Measures ("IRA/IM")

8.3.1 On and after the effective date of this Consent Order, MST shall continue to sample all required monitoring wells pursuant to the schedule contained in the approved SAP.

8.3.2 On September 8, 2003, the MDEQ approved an MST work plan dated August 26, 2003, entitled the "Revised IRA/IM Work Plan." The Revised IRA/IM Work Plan provides for the investigation of AOC "A", the Vinyl Chloride Contamination Area, and investigation of WMU No. 3, the Three Former Acid Pits. The Revised IRA/IM Work Plan, as approved, is incorporated into and enforceable under the terms of this Order.

8.3.3 MST shall immediately implement the approved Revised IRA/IM Work Plan, if it has not already, and submit a final report within sixty (60) days after the effective date of this Consent Order, or by April 15, 2004, whichever is sooner. The final report shall include a determination, subject to review and approval by the MDEQ, as to whether the vinyl chloride contamination originates from a WMU at the Facility. If the source of the vinyl chloride contamination in Yerkes Drain is from a WMU at the Facility, it shall be considered a newly identified WMU and MST shall comply with Paragraph 8.3.5. In the event that MST determines, and the MDEQ agrees, that the vinyl chloride contamination is not from a WMU at the Facility, MST shall be exempt from liability for the vinyl chloride contamination to the extent provided for in Section 20126(1)(c) of Part 201.

8.3.4 MST shall submit to the MDEQ for review and approval, the following work plans, including schedules for their implementation, to address the following IRA/IMs:

- a. an interim measures remedial investigation work plan to investigate AOC "C", the Sitewide Groundwater Metals Contamination in the groundwater, and undertake the work in accordance with the approved work plan;
- b. an interim measures work plan and perform interim measures to ensure compliance with Paragraph 8.5.
- c. a work plan for the closure of WMU No. 2, the Two Sludge Drying Beds, and closure of WMU No. 3, the Three Former Acid Pits, and undertake the work in accordance with the approved work plan; and
- d. a work plan to investigate AOC "B", the Sitewide Mill scale, and undertake the work in accordance with the approved work plan.

8.3.5 In regard to any newly identified WMUs or AOCs, beyond those as set forth in Table 1, MST shall immediately notify the MDEQ verbally within 24 hours, and in writing within fourteen (14) days summarizing the immediacy and magnitude of the potential threat to public health, safety, welfare, or the environment. Within thirty (30) days of notifying the MDEQ, MST shall propose a schedule to submit to the MDEQ, an amended work plan(s), for review and approval, that identifies additional IRA/IM, that mitigate this threat. The amended work plan(s) shall be developed and shall comply with the requirements of Paragraphs 8.3.6 - 8.3.7 of this Consent Order.

8.3.6 The IRA/IM work plan shall ensure that the IRA/IM is designed to mitigate any current or potential threat to public health, safety, welfare, and the environment and shall be consistent with and integrated into any Remedial Action/Corrective Measures ("RA/CM") at the Facility.

8.3.7 Within thirty (30) days of receipt of the MDEQ's written approval of the IRA/IM Work Plan, MST shall commence work and implement the approved work plan(s) in accordance with the approved schedule(s). MST shall continuously implement and maintain the IRA/IM as required by the approved Work Plan(s) and any associated Operation and Maintenance Plan ("O&M Plan") until the appropriate Part 201 cleanup standard has been achieved and cessation has been approved by the MDEQ or the IRA/IM is replaced by an MDEQ-approved Remedial Action Plan/Corrective Measures Implementation ("RAP/CMI").

8.4 RI/RCRA Facility Investigation ("RFI")

8.4.1 MST shall submit to the MDEQ for review and approval, a Current Conditions Report ("CCR") within one (1) year after entry of this Consent Order. The CCR shall support the corrective action approach used in this Consent Order and summarize the current conditions at the Facility. The CCR will include, but is not limited to, the following:

- a. a summary of the historic operations and physical setting of the Facility and a Facility map;
- b. a description of conditions at all Facility locations specified in the PA/VSF and any known past or present locations of treatment, storage, or disposal of hazardous waste, hazardous constituents, or hazardous substances for those WMUs and AOCs as set forth in Table 1 or newly discovered potential WMUs or AOCs; and

- c. a description of all IRA/IM currently being implemented under approved work plans and any recent sampling data.

8.4.2 Within sixty (60) days after MST's receipt of the MDEQ's approval of the CCR, MST shall submit to the MDEQ for review and approval, an RI/RFI Work Plan to identify the nature and extent of any releases of hazardous waste, hazardous constituents, and hazardous substances at or from those WMUs and AOCs as set forth in Table 1 or any newly identified WMU or AOC at the Facility that may pose an unacceptable risk to human health or the environment. The RI/RFI Work Plan shall include a schedule for its implementation and MST shall implement the RI/RFI Work Plan in accordance with the approved schedule.

8.4.3 The RI/RFI Work Plan shall:

- a. address all known WMUs and AOCs as set forth in Table 1 and any newly identified WMUs and AOCs at the Facility; and
- b. provide for the submission of an RI/RFI Report following completion of the RI/RFI Work Plan. The RI/RFI Report must include, but is not limited to, a description of the nature and extent of any releases of hazardous waste, hazardous constituents, or hazardous substances at or from the Facility.

8.4.4 The RI/RFI Report may be prepared in phases to provide timely support for the work required in Paragraph 8.5.

8.5 The federal Government Performance and Results Act of 1993, Section 1116, "Program Performance Reports," requires that each year the U.S. EPA submit to the President and the Congress a report on

program performance for the previous fiscal year. The U.S. EPA has established a performance plan that requires that certain Environmental Indicators ("EI") of corrective action progress be met. The following EI demonstrations shall be made by August 1, 2005.

8.5.1 MST will demonstrate, through submitting one (1) or more EI Report(s) and by performing any other necessary activities consistent with this section, that:

- a. all current human exposures to contamination at or from the Facility are under control. That is, for all media known or reasonably suspected to be contaminated with hazardous waste or hazardous waste constituents above risk-based levels, for which there are complete pathways between contamination and human receptors, significant or unacceptable exposures do not exist.
- b. migration of contaminated groundwater at or from the Facility is controlled. That is, the migration of all groundwater known or reasonably suspected to be contaminated with hazardous wastes or hazardous constituents or hazardous substances above acceptable levels is controlled to remain within any existing areas of contamination as defined by monitoring locations designated at the time of the demonstration. In addition, any discharge of groundwater to surface water is either insignificant or shown to be currently acceptable according to an appropriate interim assessment. Monitoring and measurement data must be collected in the future, as necessary, to verify that migration of any contaminated groundwater is controlled.

- c. MST will propose to the MDEQ, consistent with Paragraph 8.7, any actions necessary to protect public health, safety, welfare, and the environment from all current and future unacceptable risks due to releases of hazardous waste or hazardous waste constituents at or from those WMUs and AOCs as set forth in Table 1 or newly identified WMUs and AOCs at the Facility.

8.6 If the MDEQ determines, based on the results of the RI/RFI Report and other relevant information, that RA/CM are necessary, the MDEQ will notify MST, in writing, that a Feasibility Study ("FS")/Corrective Measures Study ("CMS") is required.

8.6.1 Within sixty (60) days after the MDEQ notifies MST that a FS/CMS is required, MST shall submit to the MDEQ for review and approval, a FS/CMS that addresses all WMUs and AOCs at the Facility, as set forth in the RI/RFI Report.

8.6.2 The MDEQ may request supplemental information from MST if it determines that the FS/CMS and supporting information do not provide an adequate basis for selection of final RAP/CM that will protect public health, safety, welfare, and the environment from the release of hazardous waste or hazardous constituents at or from the Facility. MST will provide such supplemental information in a timely manner as directed in writing by the MDEQ.

8.7 Within sixty (60) days of MST's receipt of the MDEQ's approval of any FS/CMS, MST shall submit to the MDEQ, for review and approval, a Part 201 RAP/CM Work Plan.

8.7.1 As part of the development of its RAP/CM Work Plan, MST must propose, in accordance with the standards set forth in Part 201,

appropriate risk screening criteria, cleanup objectives, and points of compliance under current and reasonably expected future land use scenarios and provide the basis and justification for these decisions.

8.7.2 The RAP/CMI Work Plan must include a detailed schedule for construction and implementation of the final RA/CM and for submittal of a Final RA/CM Construction Completion Report. This schedule will provide that as much of the initial construction work as practicable will be completed within one (1) year after the MDEQ approves the final RAP/CMI Work Plan and that all final RA/CM will be completed within a reasonable period.

8.7.3 The RAP/CMI Work Plan must include an O&M Plan for any planned ongoing monitoring and maintenance after construction of the selected final RA/CM.

8.7.4 The MDEQ will provide the public with an opportunity to review and comment on MST's proposed RAP/CMI Work Plan. Following the public comment period, the MDEQ will act upon the RAP/CMI Work Plan pursuant to Section VI, Approval of Submittals.

8.7.5 Upon approval of the RAP/CMI Work Plan by the MDEQ, MST will implement the approved Work Plan in accordance with the schedule therein and consistent with the cleanup criteria set forth in Part 201.

8.7.6 The RAP/CMI Work Plan must include a revised and updated Sampling and Analysis Plan.

- 8.8 In the event of any unplanned monitoring and maintenance required after construction of the selected final RA/CM, MST must revise and resubmit the RAP/CM Work Plan to include an O&M Plan by the due dates specified by the MDEQ. MST must implement the approved O&M Plan in accordance with the schedule and provisions contained therein.
- 8.9 The MDEQ and MST recognize that during the course of any RI/RFI or RAP/CM, WMUs, AOCs, or releases, in addition to those set forth in Table 1 of this Consent Order, may be identified. In the event that such areas or releases are identified, MST agrees that:
- a. Within thirty (30) days of discovery, MST shall provide written notification to the MDEQ. The written notification shall include all available information pertaining to the release.
 - b. Based on a review of all of the information, the MDEQ may require corrective action for the newly identified area or release.
 - c. MST shall submit a written RI/RFI Work Plan or RAP/CM Work Plan (depending on the stage of response activity) to the MDEQ within sixty (60) days after written notification by the MDEQ that corrective action for the release is required. The RI/RFI or RAP/CM Work Plan shall include a schedule for its implementation and MST shall implement the RI/RFI Work Plan in accordance with the approved schedule
- 8.10 The parties agree that the work performed pursuant to this Consent Order shall be funded from the then available funds in the Trust Fund established by MST, and attached to this Consent Order as Attachment 5. The work in Paragraphs 8.3, 8.4, 8.6, and 8.7 shall be done in the order listed and as soon as such funds are available in the Trust Fund. The priority of work may only be changed by written approval of the President

of MST and the Chief of the WHMD in accordance with Paragraph 15.3 of this Consent Order.

8.10.1 MST shall maintain financial assurance for corrective action and response activities at the Facility and shall be reimbursed for such corrective action and response activities as specified in this paragraph.

8.10.1.1 The Trust Fund dated June 6, 2003, or a replacement trust fund proposed by MST and acceptable to the Chief of the WHMD, shall be used to finance the corrective action and response activities at the Facility required under this Consent Order. The Trust Fund is hereby incorporated into and made an enforceable provision of this Consent Order. To the extent, however, that any funding provision of this Consent Order conflicts with any of the terms of the Trust Agreement, this Consent Order shall be binding.

8.10.1.2 Within thirty (30) days after the effective date of this Consent Order, MST shall make a payment into the Trust Fund of \$100,000. Thereafter, MST shall make annual payments into the Trust Fund, on or before each anniversary of the effective date of this Consent Order. The payment amount in 2005 shall be \$125,000. The annual amounts to be paid into the Trust Fund in subsequent years will be determined by the MDEQ based on the estimated annual costs of completing corrective action at the Facility provided, however, MST's required payments for subsequent years will not exceed \$150,000 per year.

8.10.1.3 In accordance with the terms of the Trust Fund, the MDEQ shall agree to disbursements from the then available funds in the Trust Fund for the actual costs for corrective action and response activities that have been conducted as required under this Consent Order. Requests for disbursements from the Trust Fund by MST shall be limited to two (2) per calendar year and shall include a completed Reimbursement Request Form (Attachment 6). The MDEQ shall, within one hundred and twenty (120) days of receiving such request for reimbursement, determine whether the expenditures are in accordance with the work plan and if so, promptly give notice to the trustee of the Trust Fund that the request for disbursement is approved and that the Trustee can make payment to MST from the Trust Fund.

8.10.2 The MDEQ shall agree to termination of the Trust Fund and to the distribution of all remaining trust assets, less final trust administrative expenses, to MST when the MDEQ determines that no further corrective action or response activities are required by MST at the Facility and has issued the Final Notice of Termination pursuant to Section XXI, Termination, of this Consent Order.

8.10.3 MST shall notify the MDEQ, by certified mail, of the commencement of a voluntary or involuntary proceeding under the bankruptcy provisions of Public Law 95-598, 11 U.S.C. 1 to 151302, naming MST as debtor, within ten (10) days after commencement of the proceeding.

8.10.4 MST shall be deemed to be without the required financial assurance in the event of bankruptcy of the trustee of the Trust

Fund. MST shall also be deemed to be without the required financial assurance in the event of a suspension or revocation of the authority of the trustee institution to act as trustee. MST shall establish other equivalent financial assurance within sixty (60) days after such an event.

8.11 Determination of No Further Action

8.11.1 After completion of and based on the results of the RI/RFI Report and other relevant information, MST may submit a written request to the MDEQ if MST wishes to terminate corrective action for a WMU or AOC identified in Section V of this Consent Order or identified during work performed pursuant to this Consent Order. MST must demonstrate that there have been no releases of hazardous waste, hazardous waste constituents, or hazardous substances from the WMU or AOC above applicable cleanup criteria of Part 201, or that a WMU or AOC has been remediated to applicable Part 201 generic cleanup standards and, therefore, poses no threat to public health, safety, welfare, or the environment.

8.11.2 If, based upon a review of MST's request, pursuant to Paragraph 8.11.1 of this Consent Order, the results of the completed RI/RFI Report, and other relevant information, the MDEQ determines that the releases or suspected releases of hazardous waste, hazardous waste constituents, or hazardous substances do not exist above the applicable Part 201 generic cleanup standards or that the WMU or AOC has been remediated to applicable generic cleanup standards, the MDEQ will approve the request to terminate corrective action.

8.11.3 A determination to terminate corrective action shall not preclude the MDEQ from requiring further corrective action at a later date, if new information or subsequent analysis indicates that a release or threat of a release of a hazardous waste or hazardous waste constituent at or from a WMU or a release of a hazardous substance from an AOC at the Facility may pose a threat to public health, safety, welfare, or the environment, or if there is a change in the use of any portion of the Facility such that the Part 201 generic cleanup criteria upon which the corrective action is based are no longer applicable.

8.12 Cost Estimate for Corrective Action

8.12.1 MST shall prepare a detailed written cost estimate for any RA/CM at the Facility in accordance with the requirements of R 299.9712.

8.12.2 MST shall submit the detailed written cost estimate for any RA/CM to the MDEQ for review and approval in conjunction with any RAP/CM Work Plan(s) required by this section.

8.12.3 The MDEQ shall approve the cost estimate for any RA/CM or provide a written Notice of Deficiency on the cost estimate for the RA/CM. MST shall modify the cost estimate for any RA/CM in accordance with the Notice of Deficiency and submit a new cost estimate for the RA/CM to the MDEQ for approval within thirty (30) days of receipt of the Notice of Deficiency. MST shall maintain financial assurance as provided in Paragraph 8.10.1, above. The Trust Fund established pursuant to Paragraph 8.10.1, above, becomes an enforceable provision of this Consent Order.

8.12.4 Until the MDEQ notifies MST, in writing, that MST is no longer required by R 299.9713 to maintain financial assurance for any RA/CM at the Facility, MST shall adjust any RA/CM cost estimate for inflation within sixty (60) days prior to the anniversary of the date of the establishment of the financial instrument(s) used to demonstrate financial assurance for the RA/CM.

8.12.5 MST shall recalculate any RA/CM cost estimate within thirty (30) days after the MDEQ has approved a modification of the RAP/CMI Work Plan. Until the MDEQ notifies MST, in writing, that they are no longer required to maintain financial assurance for any RA/CM, MST shall revise the RA/CM cost estimate whenever there is a change in the RAP/CMI Work Plan, if the change increases the cost of the RA/CM.

8.12.6 MST shall keep the latest RA/CM cost estimate(s) at the following location: 400 McMunn Street, South Lyon, Michigan.

8.13 Reporting and Other Requirements

8.13.1 MST will establish a publicly accessible repository for information regarding site activities.

8.13.2 Within ninety (90) days after the effective date of this Consent Order, MST must submit a Public Involvement/Communications Plan. MST must comply with the approved plan.

8.13.3 MST will provide semiannual progress reports to the MDEQ detailing work performed to date, data collected, problems encountered, project schedule, and percent of the project completed by the 15th day of January and July.

- 8.13.4 The parties will communicate frequently and cooperate in good faith to timely respond to submittals and to ensure successful completion of the requirements of this Consent Order and will meet on at least a semiannual basis to discuss the work proposed and performed under this Consent Order.
- 8.13.5 MST will provide a Final RA/CM Construction Completion Report documenting all work performed pursuant to the approved RAP/CM Work Plan, as required by Paragraph 8.7.2 and in accordance with the schedule in the approved Work Plan but in no case later than sixty (60) days following completion of work.
- 8.13.6 Any risk assessments conducted by MST must estimate human health and ecological risk under reasonable maximum exposure for both current and reasonably expected future land use scenarios. Risk assessments will be conducted in accordance with appropriate state and federal guidance. MST will utilize appropriate, conservative screening values when screening to determine whether further investigation is required.
- 8.13.7 MST will notify the MDEQ, in writing, at least fourteen (14) days prior to beginning each separate phase of field work performed under this Consent Order. At the request of the MDEQ, MST will provide or allow the MDEQ or its authorized representative to take split or duplicate samples of all samples collected by MST pursuant to this Consent Order.

IX. ON-SITE AND OFF-SITE ACCESS

- 9.1 The MDEQ and its agents, employees, and representatives are authorized to enter and freely move about all property at the Facility for the purposes of, but not limited to, interviewing MST's personnel and contractors; inspection of non-privileged records, operating logs, and contracts related to the Facility; reviewing the progress of MST in carrying out the terms of this Consent Order; conducting such tests, sampling, or monitoring as the MDEQ or its Project Coordinator deem necessary; using a camera, sound recording, or other documentary-type equipment; and verifying the reports and data submitted to the MDEQ by MST. MST shall permit such persons to inspect all non-privileged records, files, photographs, documents, and other writings, including all sampling and monitoring data, which pertain to work undertaken pursuant to this Consent Order and provide copies thereof if requested by the MDEQ. Health and safety protocols that are essential for the prevention of serious injury or death will be followed at all times.
- 9.2 To the extent that work being performed pursuant to this Consent Order must be done on property not owned or controlled by MST, MST will use its best efforts to obtain access agreements necessary to complete work required by this Consent Order from the present owner(s) or operators of such property within thirty (30) days of the date that the need for access becomes known to MST. Any such access agreement will provide for access by the MDEQ and its representatives. MST will ensure that the MDEQ's Project Coordinator has a copy of any access agreement(s). In the event that agreements for access are not obtained within thirty (30) days, MST will notify the MDEQ, in writing, within fourteen (14) days thereafter of both the efforts undertaken to obtain access and the failure to obtain access agreements. The MDEQ may, at its discretion, assist MST in obtaining access.

- 9.3 Nothing in this section limits or otherwise affects the MDEQ's right of access and entry pursuant to applicable law, including the NREPA and the RCRA.
- 9.4 Nothing in this section shall be construed to limit or otherwise affect MST's liability and obligation to perform corrective action, including corrective action beyond the Facility boundary, notwithstanding the lack of access.

X. RECORD PRESERVATION

- 10.1 MST agrees to preserve, during the life of this Consent Order and for five (5) years after termination of this Consent Order, unless a longer period is required by Part 111 or its rules: all records and documents in their possession or in the possession of their divisions, officers, employees, agents, contractors, successors, and assigns that relate in any way to this Consent Order or to hazardous waste management and/or disposal at the Facility. Upon request from the MDEQ, MST shall make such nonprivileged records available to the MDEQ for inspection or shall provide copies of any such records to the MDEQ. MST shall obtain permission from the MDEQ, in writing, prior to the destruction of any such records by MST and shall provide the MDEQ with the opportunity to take possession of any such records.

XI. REPORTING AND DOCUMENT CERTIFICATION

- 11.1 Unless otherwise specified, reports, correspondence, approvals, disapprovals, notices, or other submissions relating to or required under this Consent Order, shall be in writing and shall be distributed as follows:

- a. Three copies of all documents to be submitted to the MDEQ should be mailed to:

Attention: Ms. Ronda Blayer
Project Coordinator
Hazardous Waste and Radiological Protection Section
Waste and Hazardous Materials Division
Michigan Department of Environmental Quality
P.O. Box 30241
Lansing, Michigan 48909-7741

Hand-deliveries should be made to:

Hazardous Waste and Radiological Protection Section
Waste and Hazardous Materials Division
Michigan Department of Environmental Quality
Constitution Hall, Atrium North
525 West Allegan Street
Lansing, Michigan 48933
Telephone: 517-241-2108 Fax: 517-373-4797

- b. Documents to be submitted to MST should be sent to:

Attention: Russell W. Maier, President and CEO
Michigan Seamless Tube LLC
400 McMunn
South Lyon, Michigan 48178
Telephone: 248-486-0111 Fax: 248-434-9610

- 11.2 A Responsible Official, or designated Project Coordinator, if authorized in writing by a Responsible Official, shall sign each final document, certifications of compliance, and documents evidencing that compliance has been achieved pursuant to Section 324.11151(2) of Part 111. MST shall include an unsigned certification statement that meets the requirements specified below in all draft documents submitted to the MDEQ. The term "Responsible Official" means as follows: (a) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation; or (b) the manager of one or more manufacturing, production, or operation facilities

employing more than 250 persons, or having gross annual sales or expenditures exceeding \$35 million (in 1987 dollars when the Consumers Price Index was 345.3), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

- 11.3 The certification required by Paragraph 11.2 of this Consent Order shall be in the following form:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature: _____

Name: _____

Title: _____

Date: _____

XII. FINES, COSTS, AND STIPULATED PENALTIES

- 12.1 Except as provided in Sections XIII, Dispute Resolution, and XIV, Force Majeure, or unless there has been a written modification of a compliance date by the MDEQ pursuant to Section XV, Subsequent Modification, of this Consent Order, in the event MST fails to meet any requirement set forth in this Consent Order, the MDEQ may demand and MST shall pay upon such demand stipulated penalties as set forth below.

- 12.1.1 For failure to submit semiannual progress reports by the dates scheduled in Section VIII, Paragraph 8.13.3: \$500 per day for the first thirty (30) days and \$750 per day thereafter.
- 12.1.2 For failure to adequately demonstrate that current human exposures to contamination at or from the facility are under control on or before August 1, 2005, as required by Paragraph 8.5.1(a) of this Consent Order: \$1,000 per day for the first thirty (30) days and \$2,500 per day thereafter.
- 12.1.3 For failure to adequately demonstrate that groundwater migration is stabilized to remain within any existing areas of contamination by August 1, 2005, as required by Paragraph 8.5.1(b) of this Consent Order: \$1,000 per day for the first thirty (30) days and \$2,500 per day thereafter.
- 12.1.4 For failure to submit the FS/CMS required by Paragraph 8.6.1. of this Consent Order: \$1,000 per day for the first thirty (30) days and \$2,000 per day thereafter.
- 12.1.5 For failure to submit the RAP/CMI Work Plan as required by Paragraph 8.7 of this Consent Order within sixty (60) days after the MDEQ approves any FS/CMS: \$1,000 per day for the first thirty (30) days and \$2,000 per day thereafter.
- 12.1.6 For failure to implement in accordance with the approved schedule, the selected final RA/CM as required by Paragraph 8.7.2 of this Consent Order: \$1,000 per day for the first thirty (30) days and \$2,500 per day thereafter.

- 12.1.7 For failure to submit the Final RA/CM Construction Completion Report as required by Paragraph 8.7.2 in accordance with the approved schedule in the Final Remedy Construction Completion Report: \$1,000 per day for the first thirty (30) days and \$2,000 per day thereafter.
- 12.1.8 For failure to timely submit the Current Conditions Report as required by Paragraph 8.4.1 of this Consent Order: \$500 per day for the first thirty (30) days and \$1,000 per day thereafter.
- 12.1.9 For failure to submit any document or final report by the date such document or final report is first due as prescribed in this Consent Order or for any other failure to perform any other work or comply with any other provision(s) of this Consent Order: \$500 per day for the first thirty (30) days of delay; \$1,000 per day thereafter.
- 12.2 All penalties shall begin to accrue on the date that complete performance is due or a violation occurs and shall continue to accrue through the final day of correction of the noncompliance. Nothing herein shall prevent the simultaneous accrual of separate penalties for separate violations of this Consent Order.
- 12.3 All penalties owed to the MDEQ under this Section XII shall be due within thirty (30) days after receipt of a written demand from the MDEQ. Such demand shall describe the noncompliance and shall indicate the amount of penalties due.
- 12.4 MST shall reimburse the MDEQ for all future oversight costs incurred by the MDEQ in overseeing the activities conducted by MST pursuant to Section VIII of this Consent Order. As soon as possible after each

anniversary of the effective date of this Consent Order, the MDEQ will provide MST with a written demand of oversight costs incurred by the MDEQ. Any such demand shall state with reasonable specificity the nature of the costs incurred. MST may review the MDEQ's underlying cost documentation, which specifically details the basis for each cost. Annual billing of oversight costs shall not exceed \$10,000 per year. The State of Michigan may carry forward unreimbursed oversight costs into the subsequent billing periods if the annual costs exceed the invoice limit of \$10,000. MST shall reimburse the MDEQ for such costs within thirty (30) days of receipt of a written demand from the MDEQ or receipt of underlying documentation, whichever occurs later, unless MST challenges the oversight costs pursuant to the dispute resolution procedures set forth in Section XIII of this Consent Order. Any oversight costs paid by MST shall not be deemed to be stipulated penalties or monetary penalties under this Consent Order. Oversight costs shall not be reimbursed from the Trust Fund established pursuant to Paragraph 8.10.

- 12.5 To ensure timely payment of the above penalties and oversight of costs, MST shall pay an interest penalty to the General Fund of the State of Michigan each time it fails to make a complete or timely payment. This interest penalty shall be based on the rate set forth at MCL 600.6013(6), using the full increment of amount due as principal and shall accrue on the unpaid balance at the end of the thirty (30) day period after which the penalty became due until the delinquent payment is finally made in full.
- 12.6 MST shall pay the above stipulated penalties, interest, and oversight costs, by certified or cashier's check, made payable to the "State of Michigan" and mailed to the MDEQ, Revenue Control Unit, P.O. Box 30657, Lansing, Michigan 48909-8157, or hand-delivered to the MDEQ, Revenue Control Unit, 525 West Allegan Street, 5th Floor, South Tower, Lansing, Michigan 48933. To ensure proper credit, all payments

made pursuant to this Consent Order must include the Payment Identification Number furnished in the notice of noncompliance issued under Paragraph 12.3. All payments shall reference the name of the Facility, MST's name and address, and the Consent Order number. Copies of the transmittal of payment shall be sent simultaneously to the MDEQ Project Coordinator.

- 12.7 The payment of stipulated penalties shall not alter in any way MST's obligation to complete the performance required under this Consent Order.
- 12.8 MST agrees not to contest the legality of any stipulated penalties assessed pursuant to Paragraph 12.1, above, or the MDEQ's legal authority to impose such penalties, except as provided in Section XIII, but reserves the right to dispute the factual basis upon which a demand by the MDEQ for stipulated penalties is made.
- 12.9 The stipulated penalties set forth in this section do not preclude the MDEQ from pursuing any other remedies or sanctions that may be available to the MDEQ by reason of the failure of MST to comply with any of the requirements of this Consent Order. Notwithstanding the foregoing, the MDEQ and MST agree that any monetary penalties, including stipulated penalties that the MDEQ seeks for any single and discrete violation of this Consent Order, shall not exceed the statutory maximum penalty for such violation as provided in applicable Michigan law. Nothing herein shall prevent the MDEQ from seeking separate penalties for separate violations. MST reserves the right to contest and defend against the MDEQ's pursuit of any such remedies.

XIII. DISPUTE RESOLUTION

- 13.1 Unless otherwise provided in this Consent Order, the dispute resolution procedures of this section shall be the exclusive mechanism to resolve disputes arising under or with respect to this Consent Order and shall apply to all provisions of this Consent Order. However, the procedures set forth in this section shall not apply to actions by the State of Michigan to enforce obligations of MST that have not been disputed in accordance with this section. Engagement of a dispute resolution between the parties shall not be cause for MST to delay the performance of any compliance requirements or response activity.
- 13.2 Any dispute that arises under this Consent Order shall in the first instance be the subject of informal negotiations between the parties. The period of negotiations shall not exceed twenty (20) days from the date of written notice by any party that a dispute has arisen, unless the time period for negotiations is modified by written agreement between the parties. The dispute shall be considered to have arisen when one party sends the other party a written notice of dispute. If agreement cannot be reached on any issue within this twenty- (20-) day period, the MDEQ shall provide a written statement of its decision to MST and, in the absence of initiation of formal dispute resolution by MST under Paragraph 13.3, the MDEQ position, as outlined in its written statement of decision, shall be binding on the parties.
- 13.3 If MST and the MDEQ cannot informally resolve a dispute under Paragraph 13.2, MST may initiate formal dispute resolution by requesting review of the disputed issues by the Chief of the WHMD. This written request must be filed with the Chief of the WHMD within fifteen (15) days of MST's receipt of the MDEQ's statement of decision that is issued at the conclusion of the informal dispute resolution procedure set forth in

Paragraph 13.2. MST's request shall state the issues in dispute; the relevant facts upon which the dispute is based; any factual data, analysis, or opinion supporting its position; and all supporting documentation upon which MST bases its position. Within fourteen (14) days of the Chief of the WHMD's receipt of MST's request for a review of disputed issues, the Chief of the WHMD will provide a written statement of decision to MST that will include a statement of his/her understanding of the issues in dispute; the relevant facts upon which the dispute is based; any factual data, analysis, or opinion supporting her/his position; and all supporting documentation relied upon by the Chief of the WHMD's review of the disputed issues. The Chief of the WHMD's review of the disputed issues may be extended by written agreement of the parties.

- 13.4 The written statement of the Chief of the WHMD issued under Paragraph 13.3 shall be binding on the parties unless, within fifteen (15) days after receipt of the MDEQ's written statement of decision, MST files a petition for judicial review in a court of competent jurisdiction that shall set forth a description of the matter in dispute, the efforts made by the parties to resolve it, the relief requested, and the schedule, if any, within which the dispute must be resolved to ensure orderly implementation of this Consent Order. Nothing in this Consent Order affects the limitations on the timing of judicial review of the MDEQ decision regarding the selection, extent, or adequacy of any response activity as provided for in Part 201.
- 13.5 An administrative record of the dispute shall be maintained by the MDEQ. The administrative record shall include all of the information provided by MST pursuant to Paragraph 13.3, as well as any other documents relied upon by the MDEQ in making its final decision pursuant to Paragraph 13.3. Where appropriate, the MDEQ shall allow submission of supplemental statements of position by the parties to the dispute.

- 13.6 In proceeding on any dispute, MST shall have the burden of demonstrating on the administrative record that the position of the MDEQ is arbitrary and capricious or otherwise not in accordance with law. In proceedings on any dispute initiated by MST, MST shall bear the burden of persuasion on factual issues.
- 13.7 Notwithstanding the invocation of dispute resolution proceedings, stipulated penalties shall accrue from the first day of any failure or refusal to comply with any term or condition of this Consent Order, but payment shall be stayed pending resolution of the dispute. Stipulated penalties and oversight costs shall be paid within thirty (30) days after the resolution of the dispute. MST shall pay that portion of a demand for payment of stipulated penalties or oversight costs that is not subject to dispute resolution procedures in accordance with and in the manner provided in Section XII, Fines, Costs, and Stipulated Penalties.

XIV. FORCE MAJEURE

- 14.1 MST shall perform the requirements of this Consent Order within the time limits established herein, unless performance is prevented or delayed by events that constitute a "Force Majeure." Any delay in the performance attributable to a "Force Majeure" shall not be deemed a violation of obligations of MST under this Consent Order in accordance with this section.
- 14.2 For the purpose of this Consent Order, "Force Majeure" means an occurrence or nonoccurrence arising from causes beyond the control of and without the fault of MST, such as an Act of God, untimely review of permit applications or submissions by the MDEQ or other applicable authority, and acts or omissions of third parties that could not have been avoided or overcome by the diligence of MST and that delay the performance of an obligation under this Consent Order. "Force Majeure"

does not include, among other things, unanticipated or increased costs, changed financial circumstances, or failure to obtain a permit or license as a result of actions or omissions of MST.

- 14.3 MST shall notify the MDEQ by telephone within seventy-two (72) hours of discovering any event that causes a delay in its compliance with any provision of this Consent Order. Verbal notice shall be followed by written notice within ten (10) calendar days and shall describe, in detail, the anticipated length of delay, the cause or causes of delay, the measures taken by MST to prevent or minimize the delay, and the timetable by which those measures shall be implemented. MST shall use its best efforts to avoid or minimize any such delay.
- 14.4 Failure of MST to comply with the notice requirements of Paragraph 14.3, above, shall render this Section XIV void and of no force and effect as to the particular incident involved. The MDEQ may, at its sole discretion and in appropriate circumstances, waive the notice requirements of Paragraph 14.3.
- 14.5 If the parties agree that the delay or anticipated delay was beyond the control of MST, this may be so stipulated and the parties to this Consent Order may agree upon an appropriate modification of this Consent Order. If the parties to this Consent Order are unable to reach such agreement, the dispute shall be resolved in accordance with Section XIII, Dispute Resolution, of this Consent Order. The burden of proving that any delay was beyond the control of MST, and that all the requirements of this section have been met by MST, is on MST.
- 14.6 An extension of one compliance date based upon a particular incident does not necessarily mean that MST qualifies for an extension of a

subsequent compliance date without providing proof regarding each incremental step or other requirement for which an extension is sought.

XV. SUBSEQUENT MODIFICATION

- 15.1 This Consent Order may be amended only by mutual agreement of the MDEQ and MST. Such amendments shall be in writing, shall be signed by both parties, shall have as their effective date the date on which they are signed by the MDEQ, and shall be incorporated into this Consent Order.
- 15.2 Any reports, plans, specifications, schedules, and attachments required by this Consent Order are, upon written approval by the MDEQ, incorporated into this Consent Order and made an enforceable part hereof. Any noncompliance with the compliance dates and performance standards of MDEQ-approved reports, plans, specifications, schedules, and attachments shall be considered a violation of this Consent Order and shall subject MST to the stipulated penalty provisions included in Section XII of this Consent Order.
- 15.3 Excluding Paragraph 8.5, the Project Coordinators can agree, in writing, to extend any deadline contained in Section VIII, Work to be Performed. An extension of more than three (3) months or a change in the priorities set forth in Paragraph 8.10 must also be approved by the President of MST and the Chief of the WHMD, in accordance with this section of this Consent Order.
- 15.4 No informal advice, guidance, suggestions, or comments by the MDEQ regarding reports, plans, specifications, schedules, or any other writing submitted by MST will be construed as relieving MST of its obligation to obtain written approval, if and when required by this Consent Order.

XVI. RESERVATION OF RIGHTS

- 16.1 This Consent Order is not intended to be nor shall it be construed to be a permit. This Consent Order does not relieve MST of any obligation to obtain and comply with any local, state, or federal permits.
- 16.2 The MDEQ expressly reserves all rights and defenses that it may have, including the right to request that MST perform tasks in addition to those stated in the Consent Order.
- 16.3 The MDEQ reserves all of its statutory and regulatory powers, authorities, rights, and remedies, both legal and equitable, that may pertain to the failure of MST to comply with applicable law or this Consent Order including, without limitation, the assessment of penalties under Section 11151 of Part 111, MCL 324.11151. This Consent Order shall not be construed as a covenant not to sue, release, waiver, or limitation of any rights, remedies, powers, and/or authorities, civil or criminal, that the MDEQ has under Part 111 or any other statutory, regulatory, or common law enforcement authority of the State of Michigan with respect to the failure of MST to comply with applicable law or this Consent Order.
- 16.4 The MDEQ reserves the right to perform any portion of the work consented to herein or any additional site characterization, feasibility study, and response/corrective actions as it deems necessary to protect public health, safety, welfare, and/or the environment. If, after thirty (30) days written notice, MST fails to perform any work or action requested by the MDEQ, then the MDEQ may exercise its authority under any applicable state or federal law to undertake any remedial actions at any time. Nothing herein shall be construed to limit the MDEQ's right to take action in the case of an emergency or in any situation where there is an imminent and substantial hazard to the health of persons or to the natural

resources or in any situation endangering or causing damage to public health or the environment. The MDEQ reserves its right to seek reimbursement from MST for such additional costs incurred by the State of Michigan as may be provided under applicable law. Notwithstanding compliance with the terms of this Consent Order, MST is not released from liability, if any, for the costs of any response actions taken or authorized by the MDEQ.

- 16.5 The MDEQ reserves the right to pursue any other remedies to which it is entitled for any failure on the part of MST to comply with the requirements of Part 111, the RCRA, and the rules promulgated under these statutes.
- 16.7 Notwithstanding any other provision of this Consent Order, an enforcement action may be brought by the MDEQ pursuant to Part 111 or other statutory authority where the generation, storage, transportation, treatment, or disposal of hazardous waste at the Facility may present an imminent and substantial hazard to the health of persons or to the natural resources or is endangering or causing damage to public health or the environment.
- 16.8 MST consents to enforcement of this Consent Order in the same manner and by the same procedures for all final orders entered pursuant to Part 111, MCL 324.11101 - 324.11152.
- 16.9 This Consent Order in no way affects the responsibility of MST to comply with any other applicable state, federal, or local laws or regulations.
- 16.10 Nothing in this Consent Order is or shall be considered to affect any liability MST may have for natural resource damages caused by MST's ownership and/or operation of the Facility. The State of Michigan does not

waive any rights to bring an appropriate action to recover such damages to the natural resources.

XVII. OTHER CLAIMS AND PARTIES

- 17.1 Nothing in this Consent Order shall constitute or be construed as a release from any claim, cause of action, or demand in law or equity against any person, firm, partnership, or corporation who is not a party to this Consent Order for any liability it may have arising out of, or relating in any way to, the generation, storage, treatment, handling, transportation, release, or disposal of any contaminants found at, taken to, or taken from the Facility.

XVIII. OTHER APPLICABLE LAWS

- 18.1 All action required to be taken by MST pursuant to this Consent Order shall be undertaken in accordance with the requirements of all applicable local, state, and federal laws and regulations.

XIX. INDEMNIFICATION OF THE MICHIGAN STATE GOVERNMENT

- 19.1 MST shall indemnify and save and hold harmless the State of Michigan and its departments, agencies, officials, agents, employees, contractors, and representatives for any and all claims or causes of action by third parties arising from or on account of acts or omissions of MST, its officers, employees, agents, and any persons acting on its behalf or under its control in carrying out work pursuant to this Consent Order. The State of Michigan shall not be held out as a party to any contract entered into by or on behalf of MST in carrying out actions pursuant to this Consent Order. Neither MST nor any contractor shall be considered an agent of the State of Michigan.

- 19.2 MST waives any and all claims or causes of action against the State of Michigan and its departments, agencies, officials, agents, employees, contractors, and representatives for damages, reimbursement, or set-off of any payments made or to be made to the State of Michigan that arise from or on account of any contract, agreement, or arrangement between MST and any person for performance of work at the Facility, pursuant to this Consent Order, including claims on account of construction delays.
- 19.3 MST shall indemnify and hold harmless the State of Michigan and its departments, agencies, officials, agents, employees, contractors, and representatives for any and all claims or causes of action for damages or reimbursement from the State of Michigan solely arising from or on account of any contract, agreement, or arrangement between MST and any third person for performance of work at the Facility, pursuant to this Consent Order, including claims on account of construction delays.
- 19.4 Notwithstanding the foregoing, any rights MST may have against the State of Michigan and its departments, agencies, officials, agents, employees, contractors, and representatives ("Personnel") for grossly negligent or willful acts of the State of Michigan and its Personnel which result in claims for personal injury or property damage are specifically preserved. The State does not waive any defenses to any such actions.

XX. SEVERABILITY

- 20.1 If any provision or authority of this Consent Order or the application of this Consent Order to any party or circumstances is held by any judicial or administrative authority to be invalid, the application of such provisions to other parties or circumstances and the remainder of the Consent Order shall remain in force and shall not be affected thereby.

XXI. TERMINATION

- 21.1 This Consent Order shall remain in full force and effect until expressly terminated by a written Notice of Termination issued by the Chief of the WHMD. MST may request that the Chief of the WHMD issue a written Notice of Termination at any time after achieving compliance with this Consent Order at the Facility or any relevant portion of the Facility. A request for termination shall not unreasonably be withheld. Such a request shall consist of a written certification that MST is in compliance with and has completed all obligations of MST under this Consent Order, including payment of any stipulated penalties required in this Consent Order. Specifically, this certification shall include:
- a. The completion date of all work required and the date any stipulated penalties and oversight costs were paid;
 - b. A statement that all required information has been reported to the Project Coordinator; and
 - c. Confirmation that all records required to be maintained pursuant to this Consent Order are being maintained at the designated location.
- 21.2 The Notice of Termination shall act as a determination that MST is in compliance with and has completed all obligations of MST under this Consent Order with respect to all known conditions at the Facility or any relevant portion of the Facility known or identified through the investigation undertaken pursuant to this Consent Order.

SIGNATORIES

The undersigned CERTIFY they are fully authorized by the party they represent to enter into this Consent Order to comply by consent and to EXECUTE and LEGALLY BIND that party to it.

Michigan Seamless Tube LLC

By: 

Title: President & CEO

Date: April 5, 2004

Michigan Department of Environmental Quality

Steven E. Chester
Director

By: 

George W. Bruchmann, Chief
Waste and Hazardous Materials Division

Date: 4-7-04

Approved As To Form:

Michael A. Cox
Attorney General



Kathleen L. Cavanaugh (P38006)
Assistant Attorney General
Environment, Natural Resources, and
Agriculture Division
Michigan Department of Attorney General
Constitution Hall, 5th Floor, South Tower
525 West Allegan Street
Lansing, Michigan 48933

Date: 4-1-04

ATTACHMENT 1

TABLE 1

**WASTE MANAGEMENT UNITS, AREAS OF CONCERN,
AND OTHER AREA**

Waste Management Unit	Description
1) Two Closed Hazardous Waste Surface Impoundments	Two surface impoundments used for on-site waste water treatment prior to construction of WWTP. Spent pickle liquor was placed in these impoundments and neutralized with lime. Units were closed in place as of 9/24/98. A portion of these units is covered with a Type III landfill cap; the remainder is covered with clean fill.
2) Two Sludge Drying Beds	Two sludge drying beds formerly used to store non-hazardous sludge from the surface impoundments. Operated from 1972 to 1987. MST may submit a petition to designate high-volume, low hazard industrial waste for closure of these beds.
3) Three Former Acid Pits	Surface impoundments used for on-site waste water treatment prior to construction of the WWTP. Spent pickle liquor was placed in these pits and neutralized with lime. These units were closed prior to the institution of the RCRA program. Historical sampling in the area of these acid pits has not revealed the presence of any relevant chemical compounds above applicable Part 201 criteria. The acid pits are being investigated as part of the MDEQ approved August 26, 2003 IRA/IM workplan.
4) Former Scrap Yard	This area was used as a boneyard for discarded equipment prior to 1979, then covered with sand, gravel, brick and mill scale.
5) Uncovered Berm Area	This area is a debris pile associated with the former surface impoundments. It was closed with the surface impoundments effective 9/24/98. This unit is covered with a Type III landfill cap.
6) Closed Former Hazardous Waste Container Storage Unit	Former hazardous waste container storage area. As this unit was clean closed in 1989, no further investigation is required with respect to the storage activities conducted there.
7) Closed Container Storage Area	Area formerly used for storage of waste zinc phosphate containers.
8) Neutralization Plant	Part of on-site WWTP where neutralization of process waste water occurs. All operations

	indoors and in tanks/piping. The MDEQ is not aware of any releases from this unit.
9) Filter Press	Part of on-site WWTP where water is removed from sludge generated in treatment of process waste water. All operations indoors. The MDEQ is not aware of any releases from this unit.
10) Former Vapor Degreaser	Former 400 gallon degreaser operated between 1957 and 1980.

AREAS OF CONCERN

Area of Concern	Description
A) Vinyl Chloride Contamination Area	Area on the south side of the facility displaying vinyl chloride concentrations in groundwater in excess of applicable Part 201 criteria. This area is being investigated by MST. Unless the source of the contaminant is determined to be from a WMU under paragraph 8.3.3 of the Consent Order, MST must only exercise due care with respect to this area.
B) Site Mill Scale	Waste Mill Scale material placed at or near the surface at various locations for use as road base and/or other uses
C) Site Metals Groundwater Contamination	Groundwater contamination, at multiple locations, by metals, predominantly iron and arsenic
D) Removed Gas and Oil Underground Storage Tanks	Two 1,000 gallon and one 10,000 gallon tanks used to store gas and diesel fuel removed in 1988. and one These tanks were closed in 1988 under then existing regulations. One 20,000 gallon heating oil tank closed in place in 1976 under then existing regulations. MST must only exercise due care with respect to this area.
E) Former Chromium Plating Line	Former batch chromium plating line operated between 1941 and 1980.

OTHER

Other Area	Description
A) Fuel Oil Release Area	Area impacted by fuel oil release discovered in 1974. MST must only exercise due care with respect to this area.

ATTACHMENT 2

For Orientation Purposes Only

73. Main Entrance

AOC-C-3 Site Metals Groundwater Contamination

OUTFALL 001



MICHIGAN
roomies tube
South Lyon, Michigan 48178

LAT 42° 27' 28.2"

LONG - 83° 39' 18.8"

Facility Site Map
Michigan Seamless Tube, LLC

400 McMu...

South Lyon, Michigan 48178

Oakland County

Revised 3/18/2004

ATTACHMENT 3

LIBER 18914 PC057

MFO 012 701371
SP - 3 98 254189

\$ 17.00 MISCELLANEOUS RECORDING
\$ 2.00 REMONUMENTATION
3 SEP 98 11:39 A.M. RECEIPT 1944
PAID RECORDED - OAKLAND COUNTY
ALLEN, CLERK/REGISTER DEEDS

DECLARATION OF RESTRICTIVE COVENANT

Vision Metals, Inc., a Delaware Corporation, is located at 24 Frank Lloyd Wright Drive, Ann Arbor, Michigan 48106. Vision Metals, Inc. is the record owner of land located in South Lyon, Oakland County, Michigan, specifically described in Exhibit A attached ("the land").

Whereas, Vision Metals, Inc. has submitted an Interim Measures Corrective Action Implementation Work Plan ("IMCAP") under provisions of Part 111, Hazardous Waste Management, of 1994 P.A. 451, MCLA 324.11115a et seq. as amended (Part 111), received Michigan Department of Environmental Quality approval of the IMCAP on August 29, 1996, and complies with the land use-based cleanup criteria provisions of Section 20120a(1)(i) of Part 201, Environmental Remediation, of 1994 P.A. 451, MCLA 324.20120a et seq. as amended (Part 201), for remediation of environmental contamination associated with the Property located in South Lyon, Oakland County. The land and the waste management unit located thereon are herein referred to as the "Property". The following restrictive covenants are executed by Vision Metals, Inc. as the sole owner of the Property pursuant to Section 11115a of Part 111 to ensure the care, maintenance, monitoring, and long term integrity of the Property for the protection of the health, safety, and welfare of the people of the State of Michigan and the natural resources and the environment of the State of Michigan.

1. Use of the Property (including use of the land and/or the Waste Management Unit), shall not disturb the final cover, liners, components of any containment system, or the function of the monitoring systems on or in the Property.
2. No one, including Vision Metals, Inc., any purchaser of the record owner of the Property, any purchaser of the Property, or any of their agents, employees, heirs, successors, lessees, or assignees, shall engage in any development, including any filling, grading, excavating, building, drilling, or mining on the Property following the completion of the remediations without obtaining prior written authorization from the Director of the Michigan Department of Environmental Quality.
3. Vision Metals, Inc., hereby grants to the Michigan Department of Environmental Quality and its designated representatives the right to enter the Property at reasonable times for the purposes of monitoring compliance with the IMCAP, including the right to take samples, inspect the operation and determine the effectiveness of the corrective action measures, and inspect records.

O.K. - ML

4. Vision Metals, Inc. shall require the installation of permanent markers that have been approved by the Michigan Department of Environmental Quality on each side of the Property which describe the restricted area and the nature of the prohibitions specified in the provisions of paragraph number two above.
5. Ownership of all or a portion of the Property shall not be conveyed without the owner of the Property sending written notices to the prospective purchasers(s) of the existence of these restrictive covenants. Such notice shall state:
 - (1) that there are restrictive covenants on the Property;
 - (2) that development on the Property is prohibited without prior written authorization from the Director of the Michigan Department of Environmental Quality;
 - (3) that the prospective purchaser(s) must comply with the restrictive covenants, Part 111, and the rules promulgated under Part 111; and
 - (4) that the prospective purchaser(s) cannot interfere with the containment or monitoring systems on or in the Property.

Such notice shall include a copy of these restrictive covenants and shall be sent to the prospective purchasers(s) by certified mail with a copy sent to the Director of the Michigan Department of Environmental Quality.

NOW THEREFORE Vision Metals, Inc., 24 Frank Lloyd Wright Drive, Ann Arbor, Michigan 48106, pursuant to Section 20120b(4) of Part 201 of 1994 P.A. 451, hereby imposes restrictions on the Property and covenants and agrees that:

1. The Owner shall restrict the uses of the Property to those uses compatible with the limited industrial criteria as defined in Section 20120a(1) of Part 201 of 1994 P.A. 451, as amended in June 1995, and the IMCAP, or other use that is consistent with the assumptions and basis for the cleanup criteria established pursuant to Section 20120a(1)(i) of Part 201 of 1994 P.A. 451.
2. The Owner shall restrict activities at the Property that may interfere with a

corrective action, operation and maintenance, monitoring, or other measures necessary to assure the effectiveness and integrity of the corrective action.

3. The Owner shall restrict activities at the Property that may result in exposures above the levels established in Section 20120a(1)(i) of Part 201 of 1994 P.A. 451. These activities include those specified in the provisions of paragraph number two on the first page of this Restrictive Covenant.
4. The Owner shall provide notice to the Michigan Department of Environmental Quality of the Owner's intent to convey any interest in the Property 14 days prior to consummating the conveyance. A conveyance of title, an easement, or other interest in the Property shall not be consummated by the Property owner without adequate and complete provision for compliance with the terms and conditions of this Restrictive Covenant.
5. The Owner shall install permanent markers that have been approved by the Michigan Department of Environmental Quality on each side of the Property which describe the restricted area and the nature of the prohibitions specified in the provisions of number two above and include the liber and page number of this Restrictive Covenant as recorded in the Oakland County Register of Deeds.

The state may enforce the restrictions set forth in this Restrictive Covenant by legal action in a court of appropriate jurisdiction.

The restrictions shall run with the Property and shall be binding upon all future owners, successors, lessees, or assigns and their authorized agents, employees, or persons acting under their direction and control, and shall continue until the Michigan Department of Environmental Quality or its successor approves modifications or rescission of this Restrictive Covenant. A copy of this Restrictive Covenant shall be provided to all future owners, heirs, successors, lessees, assigns, and transferees by the person transferring the interest.

If any provision of this Restrictive Covenant is held to be invalid by any court of competent jurisdiction, the invalidity of such provision shall not affect the validity of any other provisions hereof. All such other provisions shall continue unimpaired in full force and effect.

If any provision of this Restrictive Covenant is also the subject of any law or regulation established by any federal, state, or local government, the stricter of the two standards shall prevail.

The undersigned person executing this Restrictive Covenant is the Owner, or has the express written permission of the Owner, and represents and certifies that he or she is duly authorized and has been empowered to execute and deliver this Restrictive Covenant.

IN WITNESS WHEREOF, the said Owner of the above described Property has caused this Restrictive Covenant to be executed on this twelfth of August, 1998.



Tim L. Hostetler
Vice President and Chief Financial Officer
Vision Metals, Inc.
24 Frank Lloyd Wright Drive
Ann Arbor, Michigan 48106

Signed in the presence of:



James C. Hill
Witness



John L. Poszywak
Witness

STATE OF MICHIGAN
COUNTY OF WASHTENAW

The foregoing instrument was acknowledged before me this twelfth day of August 1998, by Tim L. Hostetler, Vice President and Chief Financial Officer of Vision Metals, Inc., a Delaware corporation, on behalf of the corporation.

Declaration

Vision Metals, Inc / MDEQ.



Lois E. Dershem
Notary Public
Livingston County, Michigan

My Commission Expires: January 31, 2000

Acting in Wadsworth

Prepared by: Tim L. Hostetler

Vice President and Chief Financial Officer
Vision Metals, Inc.

24 Frank Lloyd Wright Drive, P.O. Box 375
Ann Arbor, Michigan 48106

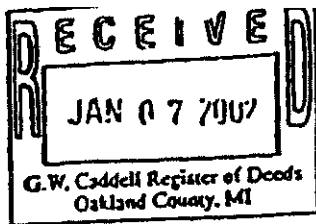
Q2

EXHIBIT A

A part of the Northeast $\frac{1}{4}$ and the Northwest $\frac{1}{4}$ of Section 30, Town 1 North, Range 7 East, Lyon Township, Oakland County, Michigan; being more particularly described as commencing at the North $\frac{1}{4}$ Corner of said Section 30; thence South $01^{\circ}28'00''$ East, 970.90 feet, along the North and South $\frac{1}{4}$ line of said Section 30, to a corner of the subject property; thence continuing South $01^{\circ}28'00''$ East, 32.11 feet, along the North and South $\frac{1}{4}$ line of said Section 30, to the point of beginning; thence North $64^{\circ}25'05''$ East, 129.55 feet; thence South $64^{\circ}29'28''$ East, 94.64 feet; thence South $36^{\circ}34'49''$ East, 100.12 feet; thence South $19^{\circ}34'59''$ West, 49.33 feet; thence South $77^{\circ}07'14''$ West, 82.93 feet; thence South $89^{\circ}37'09''$ West, 99.03 feet; thence North $65^{\circ}22'30''$ West, 75.04 feet; thence North $22^{\circ}50'49''$ West, 100.22 feet; thence North $80^{\circ}10'22''$ East, 42.22 feet, to the point of beginning. All of the above containing 0.890 Acres.

pt 21-30-205-001 - NE $\frac{1}{4}$
 pt 21-30-106-004 NW $\frac{1}{4}$

ATTACHMENT 4



8547
LIBER 24409 PAGE 152
\$9.00 NISC RECORDING
\$2.00 REINSTATEMENT
01/07/2002 01:03:55 P.M. RECEIPT: 1
PAID RECORDED - OAKLAND COUNTY
G.WILLIAM CADDELL, CLERK/REGISTER OF

NOTICE REGARDING STATUTORY OBLIGATIONS APPLICABLE TO PROPERTY

KNOW ALL MEN BY THESE PRESENTS: That Vision Metals, Inc., a Delaware corporation whose address is 24 Frank Lloyd Wright Drive, P.O. Box 375, Ann Arbor, Michigan 48106, hereby acknowledges that the premise commonly known as 400 McMunn situated in the City of South Lyon, County of Oakland, and State of Michigan, and legally described as specified on Exhibit A (the "Property") has been used to manage hazardous waste and is subject to corrective action requirements of Part 111 of the Natural Resources and Environmental Protection Act and Resource Conservation and Recovery Act, 42 U.S.C. §9601, et seq., as amended by the 1984 hazardous and solid waste amendments.

Dated this 14 day of June, 2001

Signed in the presence of:

Anthony A. Kull
Name Anthony A. Kull
Robert Bassman
Name Robert Bassman

Signed by:

VISION METALS, INC.

By: James C. Hill
James Hill
Its: President

STATE OF MICHIGAN)
COUNTY OF Livingston) ss.

THE FOREGOING INSTRUMENT WAS ACKNOWLEDGED BEFORE ME THIS 14 DAY OF JUNE, 2001, BY JAMES HILL, BEING THE PRESIDENT OF VISION METALS, INC.

Lori E. Dershem
Notary Public Livingston County, Michigan
My Commission expires: January 31, 2004

Drafted By and When Recorded Return To:

Daljit S. Doogal, Esq.
Foley & Lardner
150 W. Jefferson Avenue, Suite 1000
Detroit, Michigan 48226

LORE E. DERSHEM
NOTARY PUBLIC LIVINGSTON CO., MI
MY COMMISSION EXPIRES Jan 31, 2004

Tax Parcel # _____
Recording Fee: \$ _____

EXHIBIT A

Situated in the City of South Lyon, Oakland County, Michigan, described as:

PARCEL I:

Part of the Northeast $\frac{1}{4}$ of Section 30 and part of the Southeast $\frac{1}{4}$ of Section 19, Town 1 North Range 7 East, City of South Lyon, Oakland County, Michigan, and more particularly described as follows: Beginning at the North $\frac{1}{4}$ corner of Section 30; thence North 01 degree 13 minutes 00 seconds East 62.41 feet; thence South 81 degrees 47 minutes 25 seconds East, 276.04 feet; thence South 0 degrees 34 minutes 45 seconds East, 332.54 feet; thence North 39 degrees 25 minutes 30 seconds East 43.50 feet; thence South 01 degree 10 minutes 45 seconds East, 424.41 feet; thence Easterly 352.42 feet; thence North 198 feet; thence East along South line of "Kingsley Calkins Addition", 642.73 feet; thence South along West line of West Street 910.25 feet; thence Westerly along Northerly line of Grand Trunk Railroad right of way 1251.25 feet to North and South $\frac{1}{4}$ line; thence North 01 degree 28 minutes 0 seconds West, 1550.52 feet to the point of beginning. Parcel Identification No.: 21-30-205-001

PARCEL II:

Part of the Northwest fractional $\frac{1}{4}$ of Section 30, Town 1 North, Range 7 East, City of South Lyon, Oakland County, Michigan, and more particularly described as follows: Beginning at a point distant South 01 degree 28 minutes 00 seconds East, 970.90 feet from the North $\frac{1}{4}$ corner, thence South 01 degree 23 minutes 00 seconds East, 580.65 feet; thence South 84 degrees 48 minutes 30 seconds West along Northerly line of Grand Trunk Western Railroad right of way 1482.30 feet; thence North 0 degrees 32 minutes 00 seconds West, 636.20 feet; thence North 66 degrees 53 minutes 30 seconds East, 1470.00 feet to the point of beginning. Parcel Identification No.: (21-30-128-004)

PARCEL III:

Lots 6 to 15, inclusive, also the South $\frac{1}{2}$ of vacated Liberty Street adjacent to same, also the West 24.75 feet of Vacated Hagadorn adjacent to same, also all of vacated Lenox Street adjacent to same, C. HELMUTH'S ADDITION, according to the plat thereof as recorded in liber 4, page 3, of Plats, Oakland County Records. Parcel Identification No. 21-30-203-003

PARCEL IV

Lots 1 to 10, inclusive, Block 9, also all of vacated Lewis Street adjacent to same, also that part of "Outlot 3", lying North of Michigan Air Line Railroad right of way, according to the plat thereof as recorded in liber 3, page 48, of Plats, Oakland County Records. Parcel Identification No.: 21-30-233-003

More commonly known as 400 McMunn Street.

ATTACHMENT 5

HAZARDOUS WASTE MANAGEMENT TRUST AGREEMENT

TRUST AGREEMENT

This Trust Agreement (the "Agreement") entered into as of 6-3-2003 by and between Michigan Seamless Tube LLC, a Delaware Limited Liability Company (the "Grantor"), Comerica Bank, a Michigan banking corporation having its principal place of business at 411 W. Lafayette, Detroit, Michigan 48226 (the "Trustee") and the Director, Michigan Department of Environmental Quality (the "Director") as beneficiary.

RECITALS

Whereas, the Grantor owns property located at 400 McMunn Street in the City of South Lyon, Oakland County, Michigan (the "Property") that is governed by the provisions of Part 111, Hazardous Waste Management, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, and the administrative rules promulgated thereunder (the "Act");

Whereas, the Director, the licensing authority, has promulgated administrative rules applicable to the Grantor, requiring that the owner or operator of a hazardous waste management facility must provide financial assurance that funds will be available when needed for the cost of proper corrective action of the facility;

Whereas, the Grantor has elected to establish this Trust Fund to provide all or part of such financial assurance for the facility identified herein;

Whereas, the Grantor, acting through its duly authorized officers, has selected the Trustee to be the trustee under this Agreement;

Whereas, the trust operations of the Trustee are regulated and examined by a state or federal agency and the Trustee has authority to act as trustee; and

Whereas, the Trustee is willing to act as trustee;

Now, therefore, the Grantor, Trustee, and Director agree as follows:

Section 1. Definitions. As used in this Agreement:

(a) The term "Director" means the duly appointed and acting Director of the Department of Environmental Quality or any successor department or agency or his authorized representative.

(b) The term "Fiduciary" means any person who exercises any power of control, management, or disposition, or renders investment advice for a fee or other compensation, direct or indirect, with respect to any moneys or other property of this

Trust Fund, or has any authority or responsibility to do so, or who has any authority or responsibility in the administration of this Trust Fund.

(c) The term "Grantor" means the owner or operator who enters into this Agreement and any successors or assigns of the Grantor.

(d) The term "Trustee" means the Trustee who enters into this Agreement and any successor Trustee.

Section 2. Identification of Facilities.

This Agreement pertains to the following facility owned and operated by the Grantor. The current corrective action cost estimate, or portions thereof, for the facility covered by this Trust Fund is shown separately:

Michigan Seamless Tube	\$75,000.00
400 McMunn Street	
South Lyon, Michigan 48178	
MID082767591	

This cost estimate will be revised from time to time by the Grantor as required by the Act.

Section 3. Establishment of Fund.

The Grantor and the Trustee hereby establish a trust fund (the "Trust Fund") for the exclusive use and benefit of the Director as beneficiary, and intend that no other party shall have access to said Trust Fund without the express written approval and direction of the Director.

The Trust Fund is established initially as consisting of the cash, which is acceptable to the Trustee, described in attached Exhibit A. Such property and all other property subsequently conveyed by the Grantor to the Trustee is collectively referred to as the Trust Fund, together with all earnings and profits thereon, less any payments or distributions made by the Trustee pursuant to this Agreement. The Trust Fund shall be held by the Trustee, in trust, as hereinafter provided.

Section 4. Payments from the Trust Fund

The Trustee shall make payments from the Trust Fund to the Director, the Grantor, or other persons, as instructed in writing by the Director. The Grantor and Director shall comply with the provisions of R 299.9704 of the Michigan Administrative Code for payments from the Trust Fund. The Trustee shall not make any payments from the Trust Fund without the prior written approval from the Director.

The Trust Fund so established shall be used solely to provide for the payment of the costs of corrective action at the facility covered by this Agreement; to reimburse the Grantor for legitimate expenses in carrying out corrective action activities as approved by the Director; or to disburse to the Grantor excess funds as determined by the Director not required to be part of this Trust Fund.

If the Director issues a notice of violation or other order to the Grantor alleging violation of the corrective action requirements, the Director may, after providing the Grantor 7 days' notice and opportunity for hearing, access the funds in the Trust Fund to correct the violations, complete corrective action, and maintain the facility in accordance with the approved plans.

Section 5. Contributions to the Trust Fund.

Contributions to the Trust Fund by the Grantor shall consist of cash, certified check, and/or direct obligations of the United States of America or the State of Michigan, or obligations the principal and interest of which are unconditionally guaranteed by the United States of America or the State of Michigan, or certificates of deposit of any financial institution to the extent insured by an agency of the United States of America which certificates of deposit shall mature not later than one year from the date of deposit.

The Trustee undertakes no responsibility for the amount or adequacy of, nor any duty to collect from the Grantor, any contributions required to be made by Grantor to the Trust Fund or for contributions required of the Grantor to discharge any liabilities of the Grantor as required by the Act or any condition of a license issued pursuant to the Act.

The Trustee shall notify the Director in writing of contributions made to the Trust Fund by the Grantor.

Section 6. Trustee Management.

The Trustee shall invest and reinvest the principle and income of the Trust Fund, in accordance with general investment policies and guidelines which the Grantor shall communicate in writing to the Trustee from time to time, subject, however, to the provisions of this Agreement. In investing, reinvesting, exchanging, selling, and managing the Trust Fund, the Trustee or any other Fiduciary shall discharge his duties with respect to the Trust Fund solely in the best interests of the Director and with the care, skill, prudence, and diligence under the circumstances then prevailing which persons of prudence, acting in a like capacity and familiar with such matters, would use in the conduct of an enterprise of a like character and with like aims, provided that:

(a) Securities or other obligations of the Grantor or any other owner or operator of the facility, or any of their affiliates as defined in the Investment Company Act of 1940, as amended, 15 U.S.C. 80a-2(a), shall not be acquired or held on behalf of the

Trust Fund, unless they are securities or other obligations of the United States of America or the State of Michigan;

(b) The Trustee is authorized to invest the Trust Fund in time or demand deposits of the Trustee, to the extent insured by an agency of the United States of America or the State of Michigan; and

(c) The Trustee is authorized to hold cash while awaiting investment or distribution uninvested for a reasonable time and without liability for the payment of interest thereon.

Section 7. Commingling and Investment.

The Trustee is expressly authorized in its discretion and in accordance with the investment policies and guidelines transmitted to the Trustee by the Grantor pursuant to Section 6 hereof:

(a) To transfer from time to time any or all of the assets of the Trust Fund to any common, commingled, or collective trust created by the Trustee in which the Trust Fund is eligible to participate, subject to all of the provisions thereof, to be commingled with the assets of other trusts participating therein so long as such management does not conflict with the requirements of this Trust Fund; and

(b) To purchase, on behalf of the Trust Fund, shares in any investment company registered under the Investment Company Act of 1940, 15 U.S.C. 80a-1 et seq., including one which may be created, managed, underwritten, or to which investment advice is rendered or the shares of which are sold by the Trustee or its affiliate. The Trustee may vote such shares in its discretion.

Section 8. Express Powers of Trustee.

Without in any way limiting the powers and discretion conferred upon the Trustee by the other provisions of this Agreement or by law, the Trustee is expressly authorized and empowered:

(a) To sell, exchange, convey, transfer, or otherwise dispose of any property held on behalf of the Trust Fund, by public or private sale. No person dealing with the Trustee shall be bound to see to the application of the purchase money or to inquire into the validity or expediency of any such sale or other disposition;

(b) To make, execute, acknowledge, and deliver any and all documents of transfer and conveyance and any and all other instruments that may be necessary or appropriate to carry out the powers herein granted;

(c) To register any securities held on behalf of the Trust Fund in its own name or in the name of a nominee and to hold any security in bearer form or in book entry, or to

combine certificates representing such securities with certificates of the same issue held by the Trustee in other fiduciary capacities, or to deposit or arrange for the deposit of such securities in a qualified central depository even though, when so deposited, such securities may be merged and held in bulk in the name of the nominee of such depository with other securities deposited therein by another person, or to deposit or arrange for the deposit of any securities issued by the United States of America, or any agency of instrumentality thereof, with a Federal Reserve Bank, but the books and records of the Trustee shall at all times show that all such securities are held on behalf of the Trust Fund;

(d) To deposit any cash in the Trust Fund in interest-bearing accounts maintained or savings certificates issued by the Trustee, in its separate corporate capacity, or in any other banking institution affiliated with the Trustee, to the extent insured by an agency of the United States of America or the State of Michigan; and

(e) To compromise or otherwise adjust all claims in favor of or against the Trust Fund.

Section 9. Taxes and Expenses.

All taxes of any kind that may be assessed or levied against or in respect of the Trust Fund and all brokerage commissions incurred by the Trust Fund shall be paid from the Trust Fund. All other expenses incurred by the Trustee in connection with the administration of the Trust Fund, including fees for legal services rendered to the Trustee, the compensation of the Trustee (to the extent not paid directly by Grantor), and all other proper charges and disbursements to the Trustee shall be paid from the Trust Fund.

Notwithstanding the foregoing, it is the express obligation of the Grantor and the Grantor agrees to pay directly to the Trustee for the benefit of the Trust Fund, on demand, any and all expenses, costs, and fees (other than taxes and disbursements pursuant to Section 4 of this Agreement) occasioned by virtue of the Trust Fund so as to maintain the level, amount, and value of the Trust Fund exclusively available for the purposes for which the Trust Fund has been created; provided further, that should the Trustee utilize any portion of the Trust Fund for costs, expenses and fees (other than taxes and disbursements pursuant to Section 4 of this Agreement), the Grantor shall forthwith add to the Trust Fund an amount equal to the portion of the Trust Fund so utilized.

Section 10. Annual Valuations.

The Trustee shall annually, at least 30 days prior to the anniversary date of the establishment of the Trust Fund, furnish to the Grantor and to the Director a written statement of the current value of the Trust Fund. Any securities in the Trust Fund shall be valued at market value as of no more than 60 days prior to the anniversary date of establishment of the Trust Fund.

Section 11. Advice of Counsel.

The Trustee may from time to time consult with counsel, who may be counsel to the Grantor, with respect to any question arising as to the construction of this Agreement or any action to be taken hereunder. The Trustee shall be fully protected, to the extent permitted by law, in acting upon the advice of counsel.

Section 12. Trustee Compensation.

The Trustee shall be entitled to reasonable compensation for its services as agreed upon in writing from time to time with the Grantor.

Section 13. Successor Trustee.

The Trustee may resign by written notice to all parties, or Grantor may replace the Trustee by written notice to all parties. Such resignation or replacement shall not be effective until Grantor has appointed a successor trustee and the successor trustee accepts the appointment. If for any reason the Grantor cannot or does not act in the event of the resignation of the Trustee, the Trustee may apply to a court of competent jurisdiction for the appointment of a successor trustee or for instructions. The successor trustee shall have the same powers and duties as those conferred upon the Trustee hereunder. Upon the successor trustee's acceptance of the appointment, the Trustee shall assign, transfer, and pay over to the successor trustee the funds and properties then held on behalf of the Trust Fund. The successor trustee shall specify the date on which it will assume administration of the Trust Fund in writing sent to the Director, Grantor, and the present Trustee by certified mail 10 days before such change becomes effective. Any expenses incurred by the Trustee as a result of any of the acts contemplated by this Section shall be paid as provided in Section 9.

Section 14. Instructions to the Trustee.

All orders, requests, and instructions to the Trustee by the Director shall be in writing and signed by the Director. All orders, requests, and instructions to the Trustee by the Grantor shall be in writing and signed by the Grantor. So long as such orders, requests, and instructions are consistent with the provisions of this agreement, the Trustee shall act in accordance with such orders, requests, and instructions, and in so acting will be fully protected to the extent permitted by law. The Trustee shall have the right to assume, in the absence of written notice to the contrary, that no event constituting a change or a termination of the authority of any person to act on behalf of the Grantor or the Director hereunder has occurred. The Trustee shall have no duty to act in the absence of such orders, requests, and instructions from the Grantor and/or the Director, except as otherwise provided for herein.

Section 15. Amendment of Agreement.

This Agreement may be amended by an instrument in writing executed by the Grantor, the Trustee, and the Director, or by the Trustee and the Director if the Grantor ceases to exist.

Section 16. Irrevocability and Termination.

Subject to the right of the parties to amend this Agreement as provided in Section 15, this Trust Fund shall be irrevocable and shall continue until terminated at the written agreement of the Grantor, the Trustee, and the Director, or by the Trustee and the Director, if the Grantor ceases to exist. Upon termination of the Trust Fund, all remaining trust property, less final trust administration expenses, shall be paid to the Grantor, or if the Grantor ceases to exist, to the Director.

The parties agree that the purpose of this Trust Fund, which is to fund the corrective action activities in order to control, minimize, or eliminate, to the extent necessary to protect human health and the environment, the escape of hazardous waste or hazardous constituents to the ground or surface waters or to the atmosphere, is beneficial to the public as a whole. Accordingly, the parties agree that this Trust Fund is for public welfare purposes and comes within the statutory exception to the rule against perpetuities set forth in Michigan Compiled Laws §554.381 (Mich. Stat. Annot. §26.1201).

Section 17. Immunity and Indemnification.

The Trustee shall not incur personal liability of any nature in connection with any act or omission, made in good faith, in the administration of the Trust Fund, or in carrying out any directions by the Grantor and/or the Director issued in accordance with this Agreement. The Trustee shall be indemnified and saved harmless by the Grantor or from the Trust Fund, or both, from and against any personal liability to which the Trustee may be subjected by reason of any act or conduct in its capacity as trustee of the Trust Fund, including all expenses reasonably incurred in its defense against related litigation.

Section 18. Choice of Law.

This Agreement shall be administered, construed, and enforced according to the laws of the State of Michigan.

Section 19. Interpretation.

As used in this Agreement, words in the singular include the plural and words in the plural include the singular. The descriptive headings for each Section of this Agreement shall not affect the interpretation of this Agreement.

In Witness Whereof the parties have caused this Agreement to be executed by their respective officers duly authorized and their corporate seals to be hereunto affixed and attested as of the date first above written. The parties below certify that the wording of this Agreement is identical to the wording specified by the Michigan Department of Environmental Quality as of the date first above written.

FOR THE GRANTOR

By: Michigan Seamless Tube LLC

Date: 5/30/03

Name: Russell Maier

Russell Maier

Title: President and CEO,
Michigan Seamless Tube LLC.

FOR THE TRUSTEE

By: Comerica Bank

Date: May 30, 2003

Name: Felecia Relief

Felecia Relief

Title: Trust Officer,
Institutional Trust/Client Administration

FOR THE DIRECTOR

By: George Bruckman

Date: 6-3-03

Name: George Bruckman

Title: Chief - WHARD

STATE OF Michigan)
COUNTY OF Oakland) SS.

The foregoing instrument was acknowledged before me this 30 day of May, 2003, by Russell Maier, the President and CEO of Michigan Seamless Tube LLC, a Delaware Limited Liability Company on behalf of Michigan Seamless Tube LLC, the Grantor named in the foregoing instrument.

Donna M. Morke
Notary Public
Oakland County, Michigan
My Commission Expires: 12-24-2004

STATE OF _____)
COUNTY OF _____) SS.

The foregoing instrument was acknowledged before me this 30th day of May, 2003, by Felecia Relief, a Trust Officer of Comerica Bank, a Michigan banking corporation, on behalf of the corporation, the Trustee named in the foregoing instrument.

Karen L. Moncrieff
Notary Public
County, Michigan
My Commission Expires: _____
KAREN L. MONCRIEFF
Notary Public, Oakland County, MI.
My Commission Expires Dec. 2, 2006

STATE OF Michigan)
COUNTY OF Ingham) SS.

The foregoing instrument was acknowledged before me this 3rd day of June, 2003, by George Bruchman, the Chief (with MD) of the Michigan Department of Environmental Quality, on behalf of the Director named in the foregoing instrument.

Sueann Marie Murphy
Notary Public
Acting in Ingham County, Michigan
My Commission Expires: 3/5/07

SUEANN MARIE MURPHY
Notary Public, Isabella County, MI
Acting in Ingham County, Michigan
My Comm. Expires March 5, 2007

EXHIBIT A

Trust Assets

The Trust Fund is established initially as consisting of the following:

\$75,000.00 cash

By their signatures below, the parties agree that this Exhibit A is incorporated into and made part of the Trust Agreement dated 6-3-2003.

By: Michigan Seamless Tube LLC

Date: 5/30/03

Name:

Russell Maier

Title: President and CEO,
Michigan Seamless Tube LLC.

FOR THE TRUSTEE

By: Comerica Bank

Date: May 30, 2003

Name:

Patricia B. Dinksa

Falecia Relief

Title: Trust Officer,
Institutional Trust/Client Administration

FOR THE DIRECTOR

By:

Name:

Title:

Robert Bruchmann
1. Chief - WHMD

Date: 6-3-03

ATTACHMENT 6

**Hazardous Waste Management Trust Fund
Reimbursement Request
Michigan Seamless Tube LLC**

Pursuant to the Trust Agreement dated June 6, 2003, Michigan Seamless Tube LLC, as Grantor, hereby requests the Department of Environmental Quality, as Beneficiary, to authorize Comerica Bank, the Trustee, to reimburse Michigan Seamless Tube LLC for the following itemized costs incurred for the corrective action and remediation of Michigan Seamless Tube LLC facility located at 400 McMunn Street, South Lyon, Michigan, from Trust Fund Account Number 02 01 100 0722793:

Start Date	End Date	Unit or Area No.(s)	Activity completed during applicable scheduled funding period (reference attachments if necessary)	Cost, \$
			Total during this period	

Relevant invoices and information to document the above costs are attached.

I hereby certify under the penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

For Michigan Seamless Tube LLC:

Independent Registered Professional Engineer:

Signature and date

Signature and date

Name and title

Name
Seal:

ORDINANCE _____

AN ORDINANCE TO AMEND ARTICLE II OF DIVISION II BEING SECTION 94 OF THE CODE OF ORDINANCES OF THE CITY OF SOUTH LYON DEALING WITH WATER SERVICE WITHIN THE CITY OF SOUTH LYON.

THE CITY OF SOUTH LYON ORDAINS:

Section 1.

The following Sections are hereby adopted, added to Section 94-68 of the Code of Ordinances of the City of South Lyon and shall read as follows:

Section 94-68. Prohibition on Use of Groundwater.

A. *Purpose.* The City Council finds that the use of wells for water for human consumption and the use of wells that may influence the movement of contaminated groundwater constitute a potential public health risk. This section is intended to protect the public health, safety and welfare. This section is intended to address, in part, the presence of contaminated groundwater within impacted areas of the City. This Ordinance requires all water users within the impacted areas, as depicted in Exhibit "A", to use the municipal city water service as their sole source of water, requires the City of South Lyon to notify the Michigan Department of Environmental Quality ("MDEQ") at least 30 days prior to amending and/or repealing this Ordinance, requires the City of South Lyon to file this Ordinance with the Oakland County Register of Deeds, and provides enforcement mechanisms for violations of this Ordinance.

B. *Definitions.* For purposes of this section, the following definitions shall apply:

1. "Contaminated groundwater" means groundwater having concentrations of chemical compounds that exceed the residential drinking water criteria established by the MDEQ by rule or operational memoranda pursuant to Part 201 of Michigan's Natural Resources and Environmental Protection Act, 1994 P.A. 451, as amended.
2. "WRD" means the Water Resources Division of the MDEQ, or its successor agency.
3. "Groundwater" means underground water within the zone of saturation.
4. "MDEQ" means the Michigan Department of Environmental Quality, or its successor agency.
5. "Well" means an opening in the surface of the earth for the purpose of removing water through non-mechanical or mechanical means for any purpose.

6. A reference to any City official shall be deemed a reference to the individual duly appointed to such position and that individual's designee.

C. *Prohibition.* Except as provided in subsection (D), no person shall install or utilize, or allow, or permit, or provide for the installation or utilization of, a well in the areas of the City of South Lyon as described on Exhibit "A".

D. *Exceptions.* A person may install or utilize, or allow, permit, or provide for the installation or utilization of, a well within the areas described on Exhibit "A" if any of the following exceptions applies and the requirements of the exceptions are complied with (note that the person requesting such exception is responsible for developing and providing all of the information necessary for the City and the MDEQ to consider the request for exception, which may include but is not limited to a groundwater flow study or chemical analytical data):

1. *Proof of No Influence.* A well determined by MDEQ to not be influenced or potentially influenced by contaminated groundwater and further determined that the use of that well will remain permanently unaffected by contaminated groundwater or the future migration of contaminated groundwater. Proof of such determinations must be delivered to the City, and Notice of the waiver shall be provided to the person seeking the waiver, the Oakland County Health Department, and the MDEQ. The City Mayor then may execute a waiver allowing the use of the well.
2. *Groundwater Monitoring.* A well used for groundwater monitoring and/or remediation as part of response activity approved by the MDEQ or the United States Environmental Protection Agency, or as part of an emergency response action.
3. *Construction De-watering.* A well used for construction de-watering, if the following conditions are satisfied: (i) the use of the de-watering well will not result in unacceptable exposure to contaminated groundwater, possible cross-contamination between saturated zones, or hydrogeological effects on contaminated groundwater plumes and (ii) the water generated by that activity is properly handled and disposed of in compliance with all applicable laws, rules, regulations, permit and license requirements, and orders and directives of any governmental entity or agency of competent jurisdiction. Any exacerbation caused by the use of the well under this exception shall be the responsibility of the person operating the de-watering well, as provided in Part 201 of the Natural Resources and Environmental protection Act, being MCL 324.20101 to 324.20142.
4. *Processing Activities.* A well for non-contact heating, cooling or processing activities that is determined by the MDEQ will not cause unacceptable exposures or the future migration of contaminated groundwater. Proof of that determination must be delivered to the City and the City Mayor then may execute a waiver allowing the use of the

well for the permitted purposes subject to any terms and conditions that the MDEQ requires. Notice of the waiver shall be provided to the person seeking the waiver, the Oakland County Health Department, and the MDEQ.

E. *Sources of Water Supplied for Human Consumption.* Except as provided in subsection D.1., water supply for human consumption in the areas described in Exhibit "A" shall be delivered only from the City Water System or by the use of bottled water delivered or purchased in containers under conditions approved by the WRD or other appropriate agency. For the purposes of this subsection, the term "human consumption" means use in food or drink intended for human ingestion, use in food preparation or food service, use in the interior of a dwelling or dwelling unit for household purposes, use in any building for personal washing or ingestion by irrigation.

F. *Wells Affecting Contaminated Groundwater.* No well may be used or installed at any place in the City if the use, operation or placement of the well will have the effect of causing the migration of contaminated groundwater located within the areas described in Exhibit "A" to previously unimpacted groundwater, or adversely impacting any groundwater treatment system, unless the well is part of an MDEQ or United States Environmental Protection Agency approved groundwater monitoring or remediation system.

G. *Non-Conforming Wells.* Any existing well, the use of which is prohibited by subsection C, shall be plugged or abandoned in conformance with all applicable laws, rules, regulations, permit and license requirements, orders and directives of any governmental entity or agency of competent jurisdiction, or, in the absence of an applicable law, rule, regulation, requirement, order, directive, in conformance with the protocol developed consistent with the American Standards for Testing and Materials standard #D5299-92.

H. *Enforcement.* The City Mayor or the City Engineer, or the designee of either, shall be responsible for the enforcement of this section. The MDEQ and Oakland County Health Department may also enforce this section.

I. *Penalty, Permit Denial, Remedies.*

1. *Misdemeanor.* Any violation of this section shall be a misdemeanor punishable by a fine not to exceed Five Hundred Dollars (\$500.00) and costs of prosecution or by imprisonment in the county jail for not to exceed ninety (90) days, or by both such fine and imprisonment in the discretion of the court. Each act of violation and each day upon which such violation shall occur or shall continue shall constitute a separate offense.
2. *Building or Improvement Permit.* No permit for building, alteration, or other required permit for a premises or improvement thereon shall be issued by the City for any premises found in violation of this section, or where it is proposed to install or use a well in violation of this section. In

the event of a split or conveyance of property located within the area described in Exhibit "A", no occupancy or building permit shall be issued without the use of the City Water System.

3. *Injunctive Relief.* The City, the MDEQ and Oakland County Health Department may further enforce this section by action seeking injunctive relief. ~~Any well in violation of this section shall be deemed a nuisance subject to abatement.~~

J. *Miscellaneous.*

1. *Modification or Repeal.* At least thirty (30) days prior to any amendment or repeal in whole or in part of this section, the City shall notify the MDEQ of its intent to so act. Notification shall be sent by registered mail to the Director of the MDEQ.
2. *Severability.* If any subsection, sentence, clause, phrase, or portion of this section is held invalid or unconstitutional by any court of competent jurisdiction, such portion shall be deemed a separate, distinct, and independent provision and such holding shall not affect the validity of the remaining portions of this section. The City shall promptly notify the MDEQ upon the occurrence of any event described in this paragraph.
3. *Notice to Oakland County and Filing with the Register of Deeds.* The City of South Lyon shall notify the Oakland County Health Department of the area covered by this ordinance as described in Exhibit "A", by delivery of a copy of this ordinance, with attachments and all amendments, to the said Department. The City of South Lyon also shall file a copy of this ordinance with the Oakland County Register of Deeds as an Ordinance affecting multiple properties no more than thirty (30) days after it becomes effective.

Section 2. *Repealer.*

This Ordinance hereby repeals any ordinances in conflict herewith.

Section 3. *Savings Clause.*

That nothing in this Ordinance hereby adopted be construed to affect any just or legal right or remedy of any character nor shall any just or legal right or remedy of any character be lost, impaired or affected by this Ordinance.

Section 4. *Severability.*

The various parts, sections and clauses of this Ordinance are declared to be severable. If any part, sentence, paragraph, section or clause is adjudged unconstitutional or invalid by a court of competent jurisdiction, the remainder of the Ordinance shall not be affected.

Section 5. Adoption and Effective Date.

This Ordinance is hereby declared to have been adopted by the City of South Lyon City Council at a meeting thereof duly called and held on the _____ day of _____, and ordered to be given effect as mandated by Charter and statute.

_____, Mayor

_____, City Clerk

Introduction:

Adoption:

Published:

Effective Date:

DRAFT

EXHIBIT A - RESTRICTED AREA

CERTIFICATION OF CLERK

I hereby certify that the foregoing is a true and complete copy of an Ordinance adopted by the City Council on _____, 2017 which was a regular meeting.

I further certify that at said meeting there were present the following Council members:

I further certify that the adoption of said Ordinance was moved by Council member _____ and supported by the following Council members: _____

I further certify that the following Council members:

voted for the adoption of said Ordinance and that the following Council members voted against the adoption of said Ordinance: _____

I further certify that the following Council member(s): _____

abstained from voting.

I hereby certify that said Ordinance has been recorded in the Ordinance Book in said City and that such recording has been authorized by the signature of the Mayor of the City and City Clerk.

_____, City Clerk

EXHIBIT A

Property 1 (Property Tax ID Number 21-30-205-002):

That part of the 100 foot wide abandoned Grand Trunk Western Railroad Company right-of-way lying in the West $\frac{1}{2}$ of Section 30, Township 1 North, Range 7 East, City of South Lyon, Oakland County, Michigan.

Property 2 (Property Tax ID Number 21-30-205-002):

That part of the 100 foot wide abandoned Grand Trunk Western Railroad Company right-of-way in the West 300 feet of the East $\frac{1}{2}$ of Section 30, Township 1 North, Range 7 East, City of South Lyon, Oakland County, Michigan.

ALSO DESCRIBED AS:

Part of the North $\frac{1}{2}$ of Section 30, Town 1 North, Range 7 East, City of South Lyon, Oakland County, Michigan, being property previously owned by the Grand Trunk Western Railroad Company, being more particularly described as follows:

The Westerly 300.00 feet in the West $\frac{1}{2}$ of the Northeast $\frac{1}{4}$ of the following parcel: Commencing at the Northwest corner of said Section 30; thence South 02 degrees 50 minutes 23 seconds East, along the West line of said Section and the centerline of Dixboro Road (66 foot wide right of way), 1657.06 feet to the point of beginning; thence North 82 degrees 39 minutes 00 seconds East, 2802.63 feet to the centerline of McMunn Street (66 foot wide right of way); thence South 03 degrees 39 minutes 33 seconds East, along said centerline, 100.21 feet; thence South 82 degrees 39 minutes 00 seconds West, 2804.07 feet to the West line of said Section and the centerline of Dixboro Road; thence North 02 degrees 50 minutes 23 seconds West, along said centerline and Section line, 100.31 feet to the point of beginning.

Property 3 (Property Tax ID Number 21-30-205-003):

That part of the 100 foot wide abandoned Grand Trunk Western Railroad Company right-of-way in the East 348.25 feet of the West $\frac{1}{2}$ of the West $\frac{1}{2}$ of Northeast $\frac{1}{4}$ of Section 30, Town 1 North, Range 7 East, City of South Lyon, Oakland County, Michigan.

ALSO DESCRIBED AS:

Part of the North $\frac{1}{2}$ of Section 30, Town 1 North, Range 7 East, City of South Lyon, Oakland County, Michigan, being property previously owned by the Grand Trunk Western Railroad Company, being more particularly described as follows: The Easterly 348.25 feet in the West $\frac{1}{2}$ of West $\frac{1}{2}$ of the Northeast $\frac{1}{4}$ of the following parcel: Commencing at the Northwest corner of said Section 30; thence South 02 degrees 50 minutes 23 seconds East, along the West line of said Section and the centerline of Dixboro Road (66 foot wide right of way), 1657.06 feet to the point of beginning; thence North 82 degrees 39 minutes 00 seconds East, 2802.63 feet to the centerline of McMunn Street (66 foot wide right of way);

thence South 03 degrees 39 minutes 33 seconds East, along said centerline, 100.21 feet; thence South 82 degrees 39 minutes 00 seconds West, 2804.07 feet to the West line of said Section and the centerline of Dixboro Road; thence North 02 degrees 50 minutes 23 seconds West, along said centerline and Section line, 100.31 feet to the point of beginning.

Property 4 (Property Tax ID Number 21-30-205-004):

That part of the 100 foot wide abandoned Grand Trunk Western Railroad Company right-of-way lying in the East ½ of the West ½ of the NE ¼ of Section 30, Township 1 North, Range 7 East, City of South Lyon, Oakland County, Michigan.

Property 5 (Property Tax ID Number 21-30-176-001):

T1N, R7E, SEC 30 PART OF NW FRC 1/4 BEG AT W 1/4 COR, TH N 02-45-17 W 887.35 FT, TH N 82-43-18 E 1484.79 FT, TH S 03-35-00 E 1008.94 FT, TH S 87-24-47 W 1494.77 FT TO BEG. 32.38 A.

Property 6 (Property Tax ID Number 21-30-251-011):

PARCEL 1:

Commencing at the center of Section 30, Town 1 North, Range 7 East, Lyon Township, Oakland County, Michigan; thence North 0 degrees 07 minutes 10 seconds East 694.1 feet along the North and South ¼ line of said Section for a place of beginning; thence continuing along said North and South 1/4 line North 0 degrees 07 minutes 10 seconds East 315.0 feet; thence North 86 degrees 45 minutes 50 seconds East 305.85 feet along the South line of the Grand Trunk and Western Railroad right of way; thence South 0 degrees 32 minutes 20 seconds West 335.3 feet; thence North 88 degrees 50 minutes 30 seconds West 1.84 feet; thence North 0 degrees 32 minutes 20 seconds East 20.3 feet; thence South 86 degrees 42 minutes 30 seconds West 301.71 feet to the place of beginning, being a part of the Northeast 1/4 of said Section 30.

PARCEL 2:

A parcel of land in the West 1/2 of the West 1/2 of the Northeast 1/4 of Section 30, Town 1 North, Range 7 East, City of South Lyon, Oakland County, Michigan, more particularly described as: Beginning at a point located by measuring East from the center of said Section 30 along the East and West 1/4 line a distance of 640.3 feet; thence due North along the West line of Lovewell Park Subdivision 693.1 feet and which point is at the intersection of said West line of Lovewell Park Subdivision with the the South line of Ada Street produced Westerly; thence from the point of beginning due North 362.1 feet; thence South 85 degrees 45 minutes West 348.25 feet; thence due South 335.3 feet; thence South 89 degrees 50 minutes East 347.3 feet to the point of beginning.

DESCRIBED ON THE TAX ROLLS AS:

Part of the Northeast 1/4 of Section 30, Town 1 North, Range 7 East, beginning at a point North 00 degrees 07 minutes 10 seconds East 694.10 feet from the center of Section; thence North 00 degrees 07

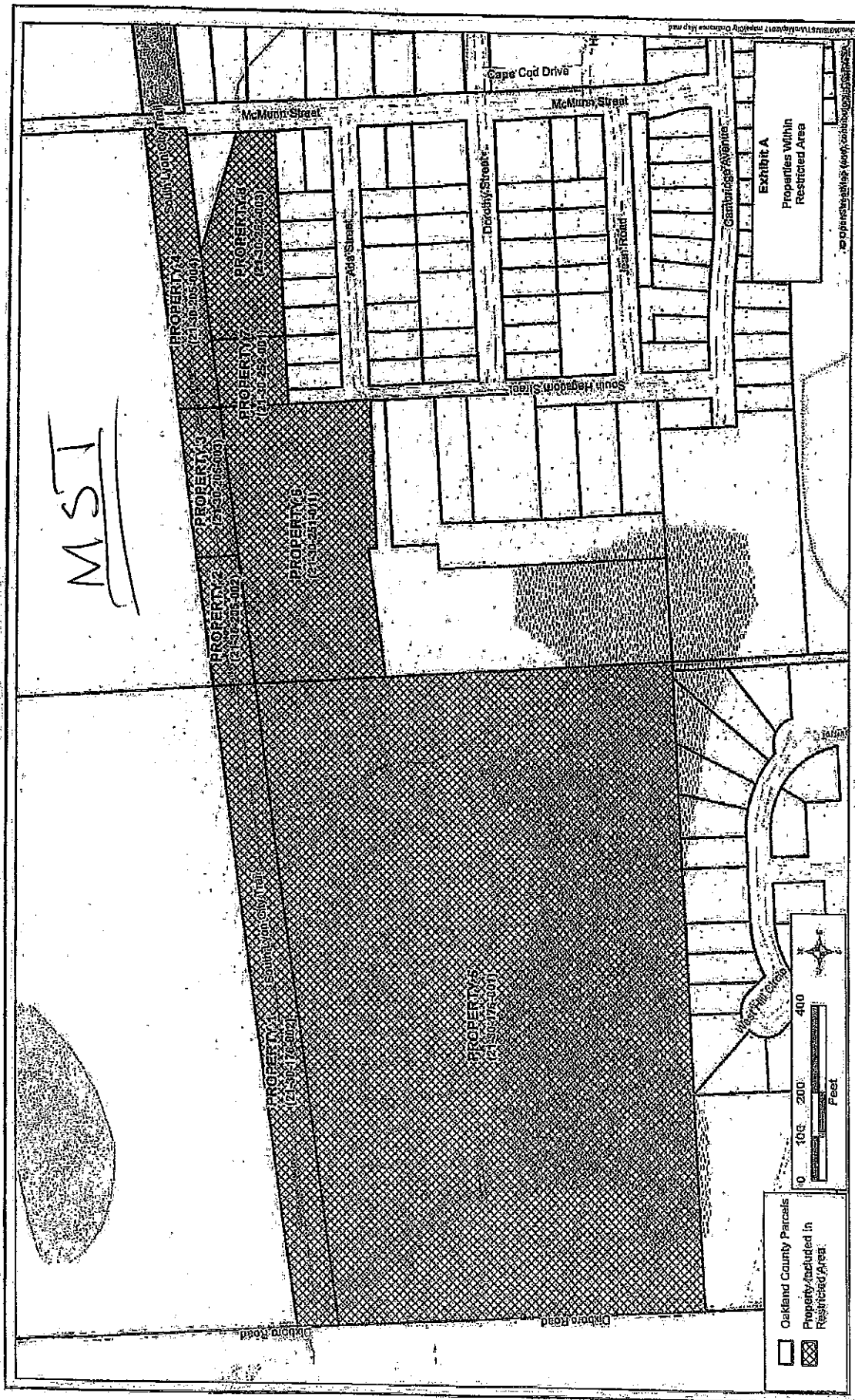
minutes 10 seconds East 315.00 feet; thence North 86 degrees 45 minutes 50 seconds East 305.85 feet; thence North 86 degrees 12 minutes 00 seconds East 348.25 feet; thence South 00 degrees 27 minutes 00 seconds West 362.10 feet; thence North 89 degrees 23 minutes 00 seconds West 347.3 feet; thence North 88 degrees 50 minutes 30 seconds West 1.84 feet; thence North 00 degrees 32 minutes 20 seconds East 20.03 feet; thence South 86 degrees 42 minutes 30 seconds West 301.71 feet to the point of beginning.

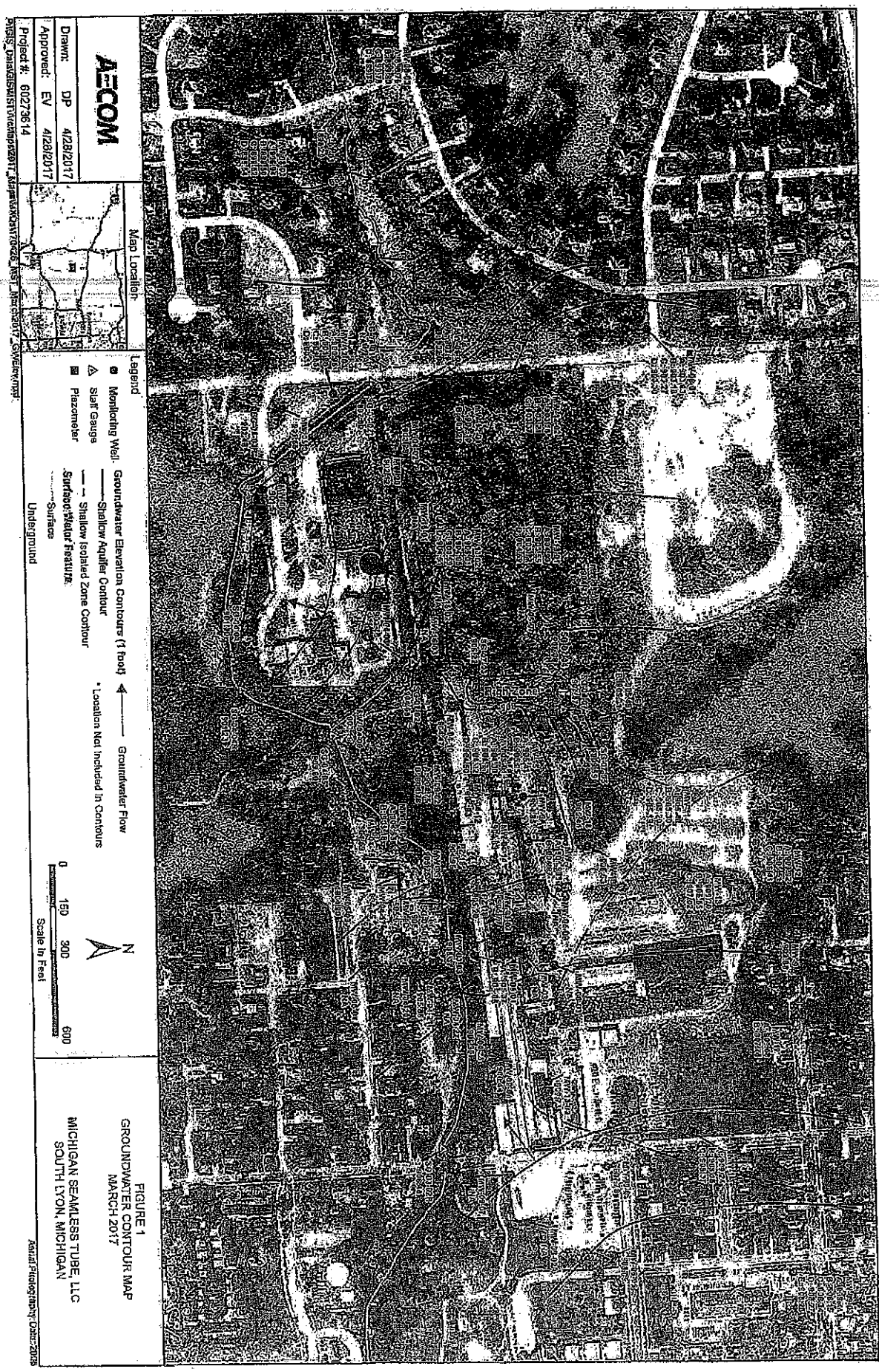
Property 7 (Property Tax ID Number 21-30-252-001):

T1N, R7E, SEC 30 PART OF NE 1/4 BEG AT NE COR LOT 8 OF 'LOVEWELL PARK' TH N 00-02-40 E 175.30 FT, TH S 86-14-30 W 157.04 FT, TH S 00-27-00 W 163.40 FT, TH E 158 FT TO BEG 0.61 A C J13C.

Property 8 (Property Tax ID Number 21-30-252-003):

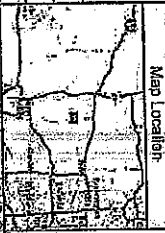
T1N, R7E, SEC 30 PART OF NE 1/4 BEG AT PT ON SLY LINE GTRR R/W DIST S 86-14-30 W 275 FT FROM W LINE OF WEST ST, TH S 86-14-30 W 205.26 FT, TH S 00-02-40 W 175.30 FT TO NE COR LOT 8 OF 'LOVEWELL PARK', TH E 478.50 FT, TH N 00-02-40 E 91.10 FT, TH NWLY 285.





AECOM

Drawn: DP 4/28/2017
 Approved: EV 4/28/2017
 Project #: 60273614



Map Location

- Legend**
- Monitoring Well
 - Staff Gauge
 - Piezometer
 - Groundwater Elevation Contours (1 foot)
 - Shallow Aquifer Contour
 - Shallow Isolated Zone Contour
 - Surface
 - Underground
 - Groundwater Flow
 - Location Not Included in Contours

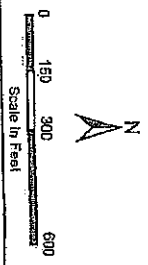


FIGURE 1
 GROUNDWATER CONTOUR MAP
 MARCH 2017
 MICHIGAN SEAMLESS TUBE, LLC
 SOUTH LYON, MICHIGAN
 Aerial Photography Date: 2015

LIST OF LAND OR RESOURCE USE RESTRICTIONS TO LIMIT OR PROHIBIT THE USE OF GROUNDWATER

The following is a list of land or resource use restrictions (LRURs) used as part of a remedial or corrective action to limit or prohibit the use of groundwater by restricting the installation of drinking and non-drinking water wells. The list includes: city, township and county ordinances, county health codes, court orders, and contracts, which may be used as a LRUR under Section 20121(8) or (9) of Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act (NREPA), as amended, (Part 201) or Section 21310a(3)(a) of Part of Part 213, Leaking Underground Storage Tanks, of the NREPA, as amended (Part 213).

Persons seeking to use LRURs that are identified in Section 20121(8) and (9) of Part 201 or Section 21310a(3)(a) of Part 213 to limit or prohibit the use of groundwater should begin, as soon as practical, to evaluate the necessity and appropriateness of the various LRURs that will address the site-specific exposure risks associated with the contamination. Since the use of certain LRURs involves the acceptance and approval of local and state agencies, it is imperative to involve these agencies early in the selection and drafting process. This collaborative approach will help to determine which LRURs are appropriate for the site-specific exposure risks and the likelihood that the LRUR can be successfully and reliably implemented.

Please note, alternative instruments identified in Section 20121(9) of Part 201 require approval of the department prior to implementation. Although some LRURs may be self-implemented without the department's approval, a person may request department review and approval of draft LRURs by submitting a Response Activity Plan under Section 20114b of Part 201 or a Final Assessment Report under Section 21311a of Part 213. LRURs submitted with a No Further Action Report under Section 20114d Part 201 or a Closure Report under Section 21310a of Part 213 should be fully executed, implemented, or recorded. Any submittal, including reliance on an existing LRUR, under Section 20121(8) and (9) of Part 201 and Section 21310a(3)(a) will be reviewed by the District staff and the Institutional Control Technical and Program Support Team (IC TAPS Team) for review and recommendation. Upon receipt of the recommendation from the IC TAPS Team, the District's Field Manager will make the final approval decision.

The older LRURs represent older versions and may not contain all the provisions necessary due to statutory amendments. The most recent LRURs are the most representative of the statutes that exists today and should be referred to when drafting new LRURs. Use of an existing LRURs for remedial action or corrective action will be reviewed on a case by case basis and often requires an amendment of the existing LRUR before it can be used.

Land and Resource Use Restrictions to Limit or Prohibit the Use of Groundwater

MUNICIPALITY (County)	ORDINANCE NO.	DATE ADOPTED OR MOST RECENT AMENDED	AUTHORITY	COMMENT
Bedford Township (Calhoun)	10/8/98/34 of 1998	10/08/1998	Township Board	
Cedar Creek Township (Wexford)	Unknown	09/10/2007	Township Board	Both Part 201 and Part 213 Used for Part 115 Facility (Wexford Sanitary LE)
Central Lake Township (Antrim)	99-1	08/27/1999	Township Board	
Charter Township of Brighton (Livingston)	261 of 2014	10/06/2014	Planning Department	Both Part 201 and Part 213
City of Alpena (Alpena)	2015-429	04/20/2015	City Council City Manager	Part 213 Only
City of Battle Creek (Calhoun)	02-01	2/20/2007	City of Battle Creek	Enacted for multiple restricted areas.
City of Buchanan (Benzie)	Article IV, Section 10.90 et seq.	09/23/2002	City Commission	
City of Charlevoix (Charlevoix)	732 of 2008	07/21/2008	City Council	Both Part 201 and Part 213.
City of Clare (Clare)	014-049	06/02/2014	City Commission	Both Part 201 and Part 213.
City of Dowagiac (Cass)	Sec 2.28	01/25/2016	City Council City Manager	Both Part 201 and Part 213. Used for Part 111 facility.
City of East Tawas (Iosco)	308	09/20/2004	City Council	Both Part 201 and Part 213 releases.
City of Evart (Osceola)	2011-4	12/19/2011	City Council	Both Part 201 and Part 213 releases.
City of Frankfort (Benzie)	Ord. D, Article 12 of Chapter 5	04/15/2002	City Council	Addresses a Part 213 release only.

MUNICIPALITY (County)	ORDINANCE NO.	DATE ADOPTED OR MOST RECENTLY AMENDED	AUTHORITY	COMMENTS
City of Grand Haven (Ottawa)	01-12	11/19/2001	City Council	Both Part 201 and Part 213.
City of Grand Rapids (Kent)	2002-28	05/21/2002	City Commission	
City of Hamtramck (Wayne)	453	05/11/1995	City Council	
City of Ionia (Ionia)	513	07/01/2014	City Council	Both Part 201 and Part 213
City of Iron Mountain (Dickinson)	Article II, Chapter 66	03/17/1997	City Council	Addresses Part 213 release only
City of Ludington (Mason)	202-09	10/26/2009	City Council	Part 201 only
City of Montague (Muskegon)	2015-09	09/21/2015	City Council	Both Part 201 and Part 213
City of Muskegon (Muskegon)	2007-139	12/11/2007	City Council	Both part 201 and Part 213
City of (Oakland)	Order No. 23-12	08/16/2012	City Council	Both Part 201 and Part 213
City of Rochester (Oakland)	2002-08	08/11/2002	City Council	Part 201 only
City of Roseville (Macomb)	1093	04/01/1997	City Council	
City of Scottville (Mason)	09-110	08/17/2009	City Council	Addresses a Part 213 release only.
City of St. Joseph (Berrien)	2000-45 Section 30-24	9/11/2000	City Commission	
City of Traverse City (Grand Traverse)	465	08/13/1998	City Commission	Addresses a Part 213 release only and was layered with other documentation to be acceptable.
City of Tecumseh (Lenawee)	2-14	09/02/2014	City Council	Both Part 201 and Part 213. Used for Part 111 facility.

MUNICIPALITY (County)	ORDINANCE NO.	DATE ADOPTED OR MOST RECENT AMENDED	AUTHORITY	COMMENTS
City of Ypsilanti (Washtenaw)	1171	05/01/2012	City Council	
Maple Ridge Township (Delta)	PWSO-1	09/29/1998	Township Board	
Ottawa County	09-1	03/01/2009	County Board of Commissioners	Southwest Ottawa County Landfill (County Owned Property?)
Township of AuSable (Iosco)	109	04/02/2012	Township Board	Both Part 201 and Part 213
Township of Home (Montcalm)	1	07/21/1997	Township Board	
Township of Richmond (Osceola)	06-16	06/16/2015	Township Board	Both Part 201 and Part 213
Township of Sturgis (St. Joseph)	2014-1	01/17/2014	Township Board	Ordinance includes a Cooperation Agreement and a Well Installation Program with Special Drilling Instructions
Village of Bellaire (Antrim)		1997	Village Council	Addresses a Part 213 release only.
Village of Chatham (Alger)	Amend. 1 to 1991 to the Wellhead Protection Ord. of 1991	10/14/1999	Village Council	Addresses a Part 213 release only.
Village of Dexter (Washtenaw)	5-2004; Sec. 58-76	2004	Village Council	Addresses a Part 213 release only.
Village of Kalkaska (Kalkaska)	2015-01	09/14/2015	Village Council	May be used for Part 201 and Part 213 releases.
Village of L'Anse (Baraga)	203; Amend. to Ord. No. 177	08/09/1999	Village Council	Part 201 only.
Village of Roscommon (Roscommon)	44	01/28/1999	Village Council	Addresses a Part 213 release only.
Village of Schoolcraft (Kalamazoo)	180	02/18/2002	Village Council	Addresses a Part 213 release only.

MUNICIPALITY (County)	ORDINANCE NO.	DATE ADOPTED OR MOST RECENT AMENDED	AUTHORITY	COMMENTS
Village of Spring Lake (Ottawa)	291	07/17/2006	Village Council	Part 201 and Part 213 releases.
Village of Tekonsha (Calhoun)	01-02	10/08/2001	Village Council	Part 201 only.
Kalamazoo County Health Department	Health Code	02/18/2012	Board of Commissioners Health Officer	Health Code provisions for establishing groundwater use restricted zones
Lenawee County Health Department	Health Code	July 10, 2013	Board of Commissioners Health Officer	Health Code provisions for establishing groundwater use restricted zones
Genesee County	Declaration	1989	Board of Commissioners Health Officer	Determination of Impacted Aquifer [Section 1.104 and Chapter IV Section 62D] – Richfield Landfill (Part 115)
Midland County Health Department	Agreement	09/20/2010	Board of Commissioners Health Officer	Agreement – Harold Alexander, Inc. Site
Circuit Court for the County of Washtenaw	File No. 20-34734-01	05/14/2005	Circuit Court	Court Order





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June 5, 2015

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**Subject: MID 082 767 591
2015 Summary Report
Michigan Seamless Tube, LLC. Site
400 McMunn Street
South Lyon, Michigan 48178**

Dear Ms. Blayer:

On behalf of Michigan Seamless Tube, LLC (MST), AECOM is pleased to submit three copies of the 2015 Summary Report for the Michigan Seamless Tube, LLC Site.

If you have any questions or concerns, please do not hesitate to contact Brad Hoare at (616) 940-4364/brad.hoare@aecom.com or Kristopher Nolan at (616) 940-4272/kris.nolan@aecom.com.

Sincerely,

Brad Hoare, PG
Project Manager

Kristopher J. Nolan, CPG
Project Director

c: Les Whitver, Michigan Seamless Tube, LLC
Matt Bell, Michigan Seamless Tube, LLC
Tom Wilczak, Pepper Hamilton, LLP
File #60273614



Environment

Submitted to
Michigan Seamless Tube, LLC.
400 McMunn Street
South Lyon, MI 48178

Submitted by
AECOM
5555 Glenwood Hills Pkwy,
Suite 300
Grand Rapids, Michigan 49512
June 2015

2015 Summary Report for Michigan Seamless Tube, LLC Site

MID 082 767 591
Project No.: 60273614

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List of Acronyms

AOCs	Areas of Concern
AST	Above Ground Storage Tank
BEA	Baseline Environmental Site Assessment
bgs	Below ground surface
CACO	Corrective Action Consent Order
CMS/CMI	Corrective Measures Study / Corrective Measures Implementation
COC	Constituent(s) of Concern
DGPS	Differential Global Positioning System
DNAPL	Dense nonaqueous phase liquid
FSBL	Facility Specific Background Level
GSIP	Ground water Surface Water Interface Protection Criteria
HASP	Health and Safety Plan
IDW	Investigation derived waste
IRA/IM	Interim Response Action/ Interim Measure
MDEQ	Michigan Department of Environmental Quality
MIOSHA	Michigan Occupational Safety and Health Administration
MST	Michigan Seamless Tube, LLC
mV	milliVolts
NRDC	Nonresidential Direct Contact
NTU	Nephelometric Turbidity Units
ORP	Oxidation-Reduction Potential
PID	Photoionization Detector
PVC	Polyvinyl Chloride
SPLP	Synthetic Precipitation Leaching Procedure
SSO	Site Safety Officer
RDC	Residential Direct Contact criteria
RDW	Residential Drinking Water criteria
TCLP	Toxicity Characteristic Leaching Procedure
TPH	Total Petroleum Hydrocarbons
USEPA	U.S. Environmental Protection Agency
USCS	Unified Soil Classification System
UST	Underground Storage Tank
VAS	Vertical aquifer sampling
VOCs	Volatile organic compounds
WMD	Waste Management Division
WMUs	Waste Management Units

Executive Summary

Michigan Seamless Tube, LLC (MST) manufactures steel tubing at an industrial site located at 400 McMunn Street in South Lyon, Michigan (the Site). The property was used for the manufacture of seamless steel tubing for over 50 years prior to MST's asset purchase in 2002. Releases occurred at the Site due to historical waste management practices conducted prior to the purchase by MST. Prior and current manufacturing processes include hot and cold mill operations, annealing, acid pickling, tube lubrication, alkaline cleaning, applying rust inhibitor, and rinsing.

MST and the Michigan Department of Environmental Quality (MDEQ) entered into a Corrective Action Consent Order (CACO) on April 7, 2004. The mutual objectives of MST and the MDEQ that are defined in the CACO include conducting corrective actions at waste management units (WMUs) and areas of concern (AOCs) using the applicable cleanup criteria in Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act (1994 PA 451, as amended) and to make the corrective action Environmental Indicators demonstration required by the U.S. Environmental Protection Agency (USEPA). Funding for corrective actions in the CACO is covered under a trust fund set up with the MDEQ. MST has made the corrective action Environmental Indicators demonstration and continues to make progress on corrective actions at the Site through ongoing Site characterization activities.

1 Introduction

MST manufactures seamless steel tubing at an industrial site located at 400 McMunn Street in South Lyon, Michigan. The Site consists of four parcels comprising a total of 58.65 acres located in the northwest ¼ of the northeast ¼ of Section 30, Township 1 North, Range 7 West. The Site is generally bounded by West Lake Street to the north, McMunn Street to the east, Dixboro Road to the west and Yerkes Drain to the south. A Site location map is presented as **Figure 1**.

MST entered into the CACO agreement with the MDEQ Waste Management Division (WMD) on April 7, 2004 (WHMD Order No. 111-02-04). The mutual objectives of MST and the MDEQ, as defined in the CACO, include conducting corrective actions at WMUs and AOCs using the applicable cleanup criteria in Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act (NREPA) (1994 PA 451, as amended) and to make the corrective action Environmental Indicators demonstration required by the USEPA. Funding for corrective actions in the CACO is covered under a trust fund set up with the MDEQ. MST has made the corrective action Environmental Indicators demonstration and continues to make progress on corrective actions at the Site through ongoing site characterization activities.

As part of the CACO, ten (10) WMUs, five (5) AOCs and one (1) Other Area were identified as having the potential to release contamination into the environment (**Figure 2**). This report summarizes information derived from previous investigations regarding each of these units.

1.1 Site Background

The property has been used for the manufacture of seamless steel tubing for over 50 years prior to MST's asset purchase in 2002. Prior and current manufacturing processes included hot and cold mill operations, annealing, acid pickling, tube lubrication, alkaline cleaning, applying rust inhibitor and rinsing.

The presence of volatile organic compounds (VOCs), primarily chlorinated compounds, and metals in groundwater were reported in the Baseline Environmental Assessment (BEA) conducted on behalf of MST (Horizon Environmental, 2002). Additional investigations regarding VOCs in groundwater are reported in the Interim Response Action/Interim Measure (IRA/IM) Investigation Report (Earth Tech, 2004); the Interim Measures Remedial Investigation Report (Earth Tech, 2005); the Summary Report for 2007 (Earth Tech, April 2008) and the 2013-2014 Investigation Report for Michigan Seamless Tube, LLC Site (AECOM, 2014). Investigations regarding metals are reported in the Investigation Report for Fall 2005 (Earth Tech, 2006); the Investigation Report for Fall 2006 (Earth Tech, 2007); Summary Report and 2008 Work Plan (Earth Tech, April 2008); Investigation Report for Fall 2008 (AECOM, 2009b); the Investigation Report for 2009 (AECOM, 2009a); the 2011-2012 Investigation Report (AECOM, 2012) and the 2013-2014 Investigation Report for Michigan Seamless Tube, LLC Site (AECOM, 2014).

1.2 Objectives

The objective of this report is to provide a summary of conditions derived from previous investigations for each of the WMU's and AOC's as defined in the CACO. Each Unit summary includes the following:

- Name of Unit or AOC;
- Period of Operation;
- Wastes or materials managed therein;
- Time period investigation conducted;
- Outline of work conducted as part of investigation (type and number of samples for each media);
- Analytical results;
- Criteria to which the analytical results were compared;
- Summary of criteria exceedances/determination as to whether or not corrective action is required; and
- Document(s) providing detailed information regarding Units investigation.

2 Waste Management Unit/Area of Concern Summaries

2.1 Two Closed Hazardous Waste Surface Impoundments

The Two Closed Hazardous Waste Surface Impoundments were used for on-Site wastewater treatment before the construction of the wastewater treatment plant (**Figure 2**). They were each 550 feet long and tapered from 125 feet wide to the north to 50 feet wide to the south with a depth that was uncertain but was estimated to be 3 feet in the western impoundment and 7 to 14 feet in the eastern impoundment. During their operation, spent pickle liquor was placed in these impoundments and neutralized with lime. Sludge was allowed to separate out of solution and was moved to the Sludge Drying Beds while the effluent was discharged to Yerkes Drain per a National Pollutants Discharge Elimination System permit.

2.1.1 Period of Operation

The Hazardous Waste Impoundments were operated from 1970 to 1988.

2.1.2 Wastes or Materials Managed

Non-Hazardous spent pickle liquor stabilized with lime and fly ash.

2.1.3 Time Period of Investigation

Two investigations of the Waste Surface Impoundments were conducted in 1987 and 1995 (see Section 2.1.8).

2.1.4 Source Information

- "Interim Final Report for RCRA Facility Assessment (RFA) at Qualex Corporation- Michigan Seamless Tube (MST) Division" (Metcalf and Eddy, 1993);
- "Characterization of the Impoundments, Berm and Sludge Drying Beds" (BLDI, 1995); and
- "Baseline Environmental Assessment for Michigan Seamless Tube" (Horizon, 2002).

2.1.5 Work Conducted

In 1987, three sludge samples were collected from the Surface Impoundments and tested for VOCs, cadmium, copper, lead, nickel, silver, zinc, and leachate extraction procedure (EP) toxicity. In 1995, seven additional soil borings were drilled at each impoundment to determine the leaching potential of the stabilized minerals to groundwater as part of the post-closure monitoring. Twenty-two samples were collected from these borings at various depths for analysis. The leachate samples were laboratory tested for arsenic, barium, cadmium, chromium, copper, lead, selenium, silver, and zinc.

2.1.6 Criteria to Which Results Were Compared

The 1995 investigation used the then-current Generic Residential Health-Based Drinking Water Criteria taken from "MERA Draft Interim Operational Memo #8, Revision 4"; MDEQ, June 5, 1995.

2.1.7 Analytical Results

2.1.7.1 Soil

VOC scans from 1987 found toluene present at concentrations between 0.09 and 0.14 mg/kg. No metals were detected above then-current criteria. In 1995, three of the 22 samples collected exceeded the then-current criteria for lead (22 mg/kg). The samples exceeding the lead criteria were collected along the southern end of the Surface Impoundments.

2.1.8 Summary of Exceedances/Action Required

Past investigations have indicated that lead, nickel, and selenium potentially could leach from the Surface Impoundments in concentrations above Part 201 Residential Drinking Water (RDW) criteria. Arsenic and lead historically have exceeded Part 201 Residential Direct Contact (RDC) criteria for soil.

In September 1998, this unit was closed in place and a portion of the Impoundments was covered with a Type III landfill cap. The remaining portions of this unit were covered with clean fill. In August 1998, a Restrictive Covenant was recorded on the property requiring that 1) the use of the property be restricted to limited industrial criteria, 2) restrict activities at the Property that may interfere with a corrective action, operation and Maintenance, monitoring or other measures necessary to assure the effectiveness and integrity of the corrective action, 3) activities are restricted that may result in exposures above established criteria, 4) the owner shall provide the MDEQ of the owner's intent to convey any interest in the property 14 days prior to consummating the conveyance and 5) the owner shall install permanent markers on each side of the property which describes the restricted area and nature of the prohibitions specified in. This unit is a closed Hazardous Waste Impoundment under the Resource Conservation and Recovery Act (RCRA) and is being monitored under a post-closure plan approved by MDEQ. No further investigation is required for the Two Closed Hazardous Waste Impoundments.

2.2 Sludge Drying Beds

The Two Sludge Drying Beds are located in the southwest corner of the Site (**Figure 2**). The North bed measures approximately 500 feet east to west, 160 feet north to south, and is approximately 9 to 14 feet deep. The South bed measures 325 feet east to west and 225 feet north to south, with a depth of 7 to 10 feet. During their operation, these units were used to store non-hazardous, lime-stabilized sludge that was dredged from the Former Surface Impoundments as part of the on-Site wastewater treatment system. Approximately 100,000 cubic yards of sludge was deposited in the Sludge Drying Beds and is still in place. According to the BEA, and interviews with Site personnel, no new materials have been added to the Sludge Drying Beds since their closure in 1989.

2.2.1 Period of Operation

The Sludge Drying Beds were operated from approximately 1970 to 1987.

2.2.2 Wastes or Materials Managed

Non-hazardous sludge from spent pickle liquor, stabilized with lime and fly ash.

2.2.3 Time Period of Investigation

Four investigations at the Sludge Drying Beds were conducted in 1982, 1987, 1995, and 1997.

2.2.4 Source Information

- "Quanex Corporation, Michigan Seamless Tube Division, South Lyon, Michigan- Sludge Drying Beds. Letter to the MDNR" (EDI, 1987);
- "Interim Final Report for RCRA Facility Assessment (RFA) at Quanex Corporation- Michigan Seamless Tube (MST) Division" (Metcalf and Eddy, 1993);
- "Characterization of the Impoundments, Berm and Sludge Drying Beds" (BLDI, 1995);
- "Petition to Designate High-Volume, Low-Hazard Industrial Waste" (BLDI, 1999);

The following reports summarized investigations of other WMUs and AOC, but also incidentally produced information pertaining to the Sludge Drying Beds:

- "Investigation Report for Fall 2005" (Earth Tech, 2006) (referenced historical data);
- "Data Package for 2012 Work Plan Field Investigation" (AECOM, 2012b) (referenced historical data); and
- "2013-2014 Investigation Report for Michigan Seamless Tube, LLC Site" (AECOM, 2014) (referenced historical data).

2.2.5 Work Conducted

In 1982, Hydro Research Service completed quadrant sampling from both beds and analyzed those samples for chromium, lead, nickel and cyanide. The quadrant samples for each of the beds also were composited and analyzed for total solids, pH and EP toxicity procedure for arsenic, barium, cadmium, chromium, lead, mercury, selenium, silver, copper, zinc, nickel and cyanide.

In 1987, EDI collected 27 samples (surface and subsurface) from 11 borings within both beds. The leachate from these sludge samples was analyzed for arsenic, barium, cadmium, chromium, lead, mercury, selenium, silver, copper, iron, manganese, zinc and nitrogen-nitrate.

During the 1995 BLDI investigation of the Sludge Drying Beds, nine soil samples were collected and analyzed for total metals. The sludge samples were analyzed for arsenic, barium, cadmium, chromium, copper, lead, selenium, silver, and zinc. The samples were collected at the surface of the Sludge Drying Beds from 0-0.5 feet below grade. In addition to surface soil samples, 18 samples were collected from intervals ranging between 2-10 feet below grade, and the leachate from the samples was analyzed for the metals listed above.

In 1997, BLDI collected an additional eight sludge samples to evaluate the leaching potential for manganese, molybdenum and sulfate. These samples were analyzed for total metals, and were analyzed using synthetic precipitation leaching procedure (SPLP) and toxicity characteristic leaching procedure (TCLP) for the metals listed above.

During the 2005 Investigation, one monitoring well (MW-05-05) was installed down-gradient of the Sludge Drying Beds to monitor down-gradient groundwater conditions.

In 2006, an additional two monitoring wells (MW-06-A/B) were installed down-gradient of the Sludge Drying Bed since the one well installed in 2005 was destroyed.

In 2012, five additional monitoring wells (MW-12-01 A/B and MW-12-02 A/B/C) were installed down-gradient of the Sludge Drying Beds to more fully investigate groundwater conditions across the entire shallow aquifer.

In July 2013, two monitoring well clusters (MW-13-01A/B/C/D and MW-13-02A/B/C/D) were installed to the east of the Sludge Drying Beds for future monitoring of this WMU.

2.2.6 Criteria to Which Results Were Compared

Soil analytical results were compared to the then-current Michigan Part 201 NRDWP and GSIP criteria.

2.2.7 Analytical Results

2.2.7.1 Soil

The soil samples collected from the Sludge Drying Beds during these investigations indicate that the sludge contains varying concentrations of metals. Some of these metals have the potential to leach into the groundwater. Analytical results indicated that some of the metals exceed the then-current Non-residential Drinking Water Protection criteria (NRDWP) and the Groundwater Surface Water Interface Protection criteria (GSIP).

2.2.8 Summary of Exceedances/Action Required

The Constituents of Concern (COCs) for this WMU are arsenic, chromium, iron, lead, manganese, molybdenum, nickel, and zinc. No further investigation is required for the Sludge Drying Beds. This unit is now in the CMS/CMU phase of the Corrective Action process. Future monitoring will be covered under the Site Metals Groundwater Contamination AOC.

2.3 Former Acid Pits

The Three Former Acid Pits each measured approximately 80 feet long by 80 feet wide and approximately 6 feet deep. They were used for on-Site wastewater treatment before the construction of the current wastewater treatment plant (Figure 2). Spent pickle liquor was placed in these pits and neutralized with lime. All three of the acid pits are currently covered with various construction elements, including buildings, pavement, or clean fill. As discussed in the "Interim Final Report for RCRA Facility Assessment", the Former Acid Pits "are inactive and underwent closure prior to existence of formal closure regulations. In an April 1986 Loss of Interim Status Report – Checklist, prepared by a consultant to the USEPA, these areas were given a status described as having completed closure in a manner acceptable to the responsible agency and in accordance with the closure plan. Closure of the units at that time was reported to the MDNR and USEPA" (Metcalf & Eddy, 1993).

2.3.1 Period of Operation

The Acid Pits were operated from 1935 to 1969.

2.3.2 Wastes or Materials Managed

Spent pickle liquor sludge stabilized with lime.

2.3.3 Time Period of Investigation

Four investigations for the Acid Pits were conducted in 1986, 1989, 2004, 2005 and 2014.

2.3.4 Source Information

- "Interim Final Report for RCRA Facility Assessment (RFA) at Quanex Corporation- Michigan Seamless Tube (MST) Division" (Metcalf and Eddy, 1993);
- "Baseline Environmental Assessment for Michigan Seamless Tube, LLC" (Horizon, 2002);
- "IRA/IM Investigation Report for Michigan Seamless Tube, LLC, South Lyon, Michigan" (Earth Tech, 2004);
- "Interim Measures Remedial Investigation Report for 2005 at the Michigan Seamless Tube, LLC Site" (Earth Tech, 2005); and
- "2013-2014 Investigation Report" (AECOM, 2014).

2.3.5 Work Conducted

The "Interim Final Report for RCRA Facility Assessment (RFA) at Quanex Corporation- Michigan Seamless Tube Division" summarizes a 1986 Groundwater Quality Assessment Program. Historical data from monitoring wells near two of the Former Acid Pits detected "sodium, barium, chromium, fluoride, chloride, manganese, and phenols in reportedly acceptable levels per 40 CFR 26 Appendix III; iron, arsenic and sulfate in slightly higher concentrations; and methylene chloride in very high concentrations." These were explained to be "background levels, due to unfiltered samples, typical in near surface groundwater or due to error in analytical technique" (Metcalf & Eddy, 1993).

Acid pit #2 was investigated in 1989 to evaluate soils in connection with designing the foundation for the acid recovery building. Four soil borings were installed in the area of acid pit #2 and the soil samples were analyzed for VOCs and EP toxicity for metals.

Acid pits #1 and #2 were evaluated as part of the "Interim Response Action/ Interim Measures (IRA/IM) Investigation" (Earth Tech, 2004) and the "Interim Measures Remedial Investigation" (Earth Tech, 2005). SB-03-01/MW-03-02 is located at the site of acid pit #1 (it is also located within the Vinyl Chloride Contamination Area) and SB-03-03 is located at the site of acid pit #2.

As part of the 2013-2014 investigation, acid pits #2 and #3 were investigated. Two soil borings were completed in the acid pit #3 area (SB-13-05 and SB-13-06) and a groundwater sample was collected from SB-13-05 to

evaluate potential metal and VOC groundwater impacts. One soil boring (SB-13-07) was completed in the acid pit #2 area to evaluate a historical methylene chloride exceedance and SPLP for zinc (equivalent to EP toxicity analysis).

2.3.6 Criteria to Which Results Were Compared

The 2004 study used the then-current MDEQ Part 201 Rules Generic Cleanup Criteria, updated December, 2003. The 2005 study used the then-current Part 201 Criteria updated February 2005. The 2013 samples used the then-current Part 201 Generic Cleanup Criteria and Screening Levels/Part 213 Risk-Based Screening Levels revised December 30, 2013.

2.3.7 Analytical Results

2.3.7.1 Acid Pit #1

2.3.7.1.1 Soil

The results of the 1989 EP toxicity analyses indicated that only zinc exceeds the current NRDW criteria. Soil analytical results indicate that methylene chloride exceeds current NRDWP criteria. The 2004 and 2005 investigations confirmed that the acid pits did not contain elevated concentrations of chlorinated organic compounds and the chlorinated ethenes detected at the Site are not attributable to a release from acid pits #1 and #2.

Testing in 2003 from SB-03-01 indicated acid pit #1 contained soil exceedances of arsenic and iron for drinking water protection criteria; chromium, copper, and lead for GSIP criteria; and zinc for both criteria.

2.3.7.1.2 Groundwater

The groundwater samples from acid pit #1 contained exceedances in iron and selenium.

2.3.7.2 Acid Pit #2

2.3.7.2.1 Soil

The 2003 soil samples from SB-03-03 in acid pit #2 contained exceedances in iron and zinc for drinking water protection and GSIP criteria, respectively. The soil sample from acid pit #2 (SB-13-07) did not contain detectable concentrations of methylene chloride or SPLP zinc.

2.3.7.2.2 Groundwater

Groundwater samples contained exceedances of arsenic and iron for drinking water criteria as well as barium and selenium for GSI criteria. Groundwater samples from MW-04-09 at acid pit #2 indicate that it may be a source of some metals detected in groundwater. Concentrations of iron (77 mg/L), manganese (1.6 mg/L) and molybdenum (120 ug/L) in groundwater at acid pit #2 generally were elevated compared to other sample locations.

2.3.7.3 Acid Pit #3

2.3.7.3.1 Soil

Soil data from 2013 from acid pit #3 indicate that mercury and silver exceed GSIP; arsenic and molybdenum exceed their calculated Facility Specific Background Levels (FSBL) and both the GSIP and NRDWP; iron and manganese exceeded their respective FSBL and the NRDWP criteria; and lead exceeds the NRDWP criterion and the Non-residential direct contact (NRDC) criterion.

2.3.7.3.2 Groundwater

The groundwater sample collected from SB-13-05 indicated that iron, lead, manganese and molybdenum exceed the FSBLs and the NRDW criteria.

2.3.8 Summary of Exceedances/Action Required

Historical investigations indicate that the Three Former Acid Pits WMU is a potential source of metals in soil and groundwater. No further investigation is required for the Three Former Acid Pits. This unit is now in the CMS/CMI phase of the Corrective Action process. Future monitoring will be covered under the Site Metals Groundwater Contamination AOC.

2.4 Former Scrap Yard

The Former Scrap Yard was used as a bone yard for discarded equipment and encompasses an area of approximately 41,000 square feet (Figure 2). Subsequent to 1979, the area was covered with sand, gravel, brick and mill scale.

2.4.1 Period of Operation

The exact date the Former Scrap Yard came into existence is unknown. However, use of this unit was discontinued in 1979.

2.4.2 Wastes or Materials Managed

Discarded equipment and mill scale.

2.4.3 Time Period of Investigation

The Former Scrap Yard was investigated during 2005 to 2006.

2.4.4 Source Information

- "Investigation Report for Fall 2005 at the Michigan Seamless Tube, LLC Site" (Earth Tech, 2006); and
- "Investigation Report for Fall 2006 at the Michigan Seamless Tube, LLC Site" (Earth Tech, 2007).

2.4.5 Work Conducted

During the 2005 investigation, shallow soil samples, 0-2 feet below ground surface (bgs), were taken in the Former Scrap Yard (HA-05-08 and HA-05-26 through HA-05-31) using a hand auger. All of the samples were from biased locations that were visually impacted, except for HA-05-26 and HA-05-31. Two monitoring wells were installed down gradient (MW-05-06 and MW-05-07) of the Former Scrap Yard near HA-05-30 and tested for VOCs. In 2006, a total of 29 shallow soil samples were analyzed for mercury, as well as the two monitoring wells.

2.4.6 Criteria to Which Results Were Compared

Samples were compared to then-current Part 201 cleanup criteria table 2, Part 201 Residential and Commercial I Generic Cleanup Criteria and Screening Levels, from Operational Memoranda #1, February 2005 and January 2006, and FSBLs.

2.4.7 Analytical Results

2.4.7.1 Soil

During the 2005 investigation, VOCs were detected in two soil samples collected from within the Former Scrap Yard. Styrene was detected at 89 ug/kg in sample HA-05-30, while 1, 1, 1-trichloroethane and trichloroethene (TCE) were detected at 110 ug/kg and 1,100 ug/kg, respectively, in sample HA-05-32. Mercury was detected in soil samples HA-05-27 (550 ug/Kg and 480 ug/Kg in a duplicate sample) and HA-05-28 (640 ug/Kg). Subsurface soil samples collected in 2006 also exceeded cleanup criteria for metals, with HA-06-27 showing manganese at a concentration of 6,600 mg/kg, but there were no exceedances for VOCs. The 2006 study conducted analysis for mercury concentrations. No mercury exceedances were identified in the soil in the Former Scrap Yard and the groundwater study concluded that further investigation is not recommended.

2.4.7.2 Groundwater

Groundwater samples did not contain any detectable chlorinated ethenes, including TCE, and did not contain any chlorinated compounds that exceeded Part 201 criteria.

2.4.8 Summary of Exceedances/Action Required

The exceedances in the soil are attributed to the mill scale located in the Former Scrap Yard. No further investigation is required for the Former Scrap Yard. This unit is now in the CMS/CMI phase of the Corrective Action process.

The mill scale found in this location is addressed under the Site Mill Scale AOC and future monitoring will be covered under the Site Metals Groundwater Contamination AOC.

2.5 Uncovered Berm Area

The Uncovered Berm Area is a debris pile associated with the Former Surface Impoundments (**Figure 2**). It was closed with the Surface Impoundments in 1998 and covered with a Type III landfill cap. This area also is covered under the 1998 restrictive covenant.

2.5.1 Period of Operation

It is unknown when the Uncovered Berm Area was in use but it was closed in 1998.

2.5.2 Wastes or Materials Managed

Solid wastes, including steel scrap and drum remnants, associated with the Former Surface Impoundments WMU.

2.5.3 Time Period of Investigation

Two investigations of the Uncovered Berm area were conducted in 1987 and 1995.

2.5.4 Source Information

- "Interim Final Report for RCRA Facility Assessment (RFA) at Quanex Corporation- Michigan Seamless Tube (MST) Division" (Metcalf and Eddy, 1993);
- "Characterization of the Impoundments, Berm and Sludge Drying Beds" (BLDI, 1995).

2.5.5 Work Conducted

In 1987, eight berm soil samples, three stabilized impoundment-sludge samples, and one groundwater sample were taken from this area and tested for VOCs and total and trace metals.

In 1995, eight soil borings were drilled at the Uncovered Berm Area and were used to determine the leaching potential to groundwater of the stabilized materials within the impoundments to use for post-closure monitoring. Within these borings, 14 samples were analyzed at varying depths. The leachate samples were laboratory tested for arsenic, barium, cadmium, chromium, copper, lead, selenium, silver, and zinc.

2.5.6 Criteria to Which Results Were Compared

The 1987 data used the then-current EP Toxicity Allowable Levels.

The 1995 study used the then-current Generic Residential Health-Based Drinking Water Criteria taken from "MERA Draft Interim Operational Memo #8, Revision 4"; MDEQ, June 5, 1995.

2.5.7 Analytical Results

2.5.7.1 Soil

The 1987 samples found toluene, 1,1,1-trichloroethane, chromium, and lead in the soil and dried sludge but none of the levels exceeded EP toxicity allowable levels.

Eleven of the samples collected in 1995 contained exceedances for lead, with two samples (SB-20 and SB-21) being significantly over generic drinking water criteria at 200 ug/L and 270 ug/L, respectively. These samples were located in the southern end of the berm area.

2.5.8 Summary of Exceedances/Action Required

In September 1998, this unit was closed in place and covered with a Type III landfill cap. In August 1998, a Restrictive Covenant was issued for the Type III landfill cap and the clean fill covering the impoundments associated with the Uncovered Berm Area. This unit is a closed hazardous waste impoundment under RCRA

and is being monitored under a post closure plan approved by MDEQ. No further investigation is required under the RCRA Corrective Action process. On-going monitoring of this unit will be part of the overall site monitoring.

2.6 Closed Former Hazardous Waste Container Storage Unit

This WMU is a former concrete pad materials storage area. In September 1987, the MDNR approved final closure of the Hazardous Waste Container Storage Unit, contingent upon final sampling of the area after removal of the concrete pad and associated waste materials (**Figure 2**).

2.6.1 Period of Operation

The Hazardous Waste Container Storage Unit operated from 1984 to 1989.

2.6.2 Wastes or Materials Managed

Hazardous spent materials (barium and corrosives).

2.6.3 Time Period of Investigation

An investigation into the Closed Former Hazardous Waste Container Storage Unit was conducted in 1989.

2.6.4 Source Information

- "Clean Closure Certification for The Container Storage Area (EDI, 1990);
- "Interim Final Report for RCRA Facility Assessment (RFA) at Quanex Corporation- Michigan Seamless Tube (MST) Division" (Metcalf and Eddy, 1993) (references historical investigation); and
- "Investigation Report for Fall 2006 at the Michigan Seamless Tube, LLC Site" (Earth Tech, 2007) (references historical investigation).

2.6.5 Work Conducted

In 1989, nine soil samples were collected underneath the former concrete pad to verify clean closure. These samples were analyzed for barium, as barium was determined to be the only hazardous waste stored in the Former Container Storage Unit.

2.6.6 Criteria to Which Results Were Compared

The analytical results from the soil samples collected in 1989 were compared to soil samples from four background soil borings collected in October 1985 (BG-23, 24, 25, and 26) and four background soil borings that were collected in December 1988 (BG-27, 28, 29, and 30). Subsequently, these results were compared to the then-current Generic Residential and Industrial Drinking Water Protection and Groundwater Surface Interface Protection criteria Part 201 Residential and Commercial I Generic Cleanup Criteria and Screening Levels, from Operational Memoranda #1, January 2006 in the 2007 Investigation Report.

2.6.7 Analytical Results

2.6.7.1 Soil

Statistical analysis comparing the analytical results for these soil samples to historical background soil data showed that the concentration of barium in the verification samples did not exceed the concentration of barium in the background samples.

2.6.8 Summary of Exceedances/Action Required

In 1989, this WMU was clean closed and the concrete pad was removed under RCRA Part 111 in accordance with the Closure-Plan approved by the MDEQ. No further investigation is required for the Closed Former Hazardous Waste Container Storage Unit under the RCRA Corrective Action process.

2.7 Closed Container Storage Area

Operation of the Closed Container Storage Area began in 1979 (**Figure 2**). This area historically was used for the storage of waste oil and drums of spent solvent, as well as empty, used drums. The waste oil was stored in a 10,000-gallon above-ground storage tank (AST) with secondary containment and sump for surface water runoff and spill containment. The drums were not stored in the secondary containment structure.

2.7.1 Period of Operation

The Closed Container Storage Area began operating in 1979 and remains in operation.

2.7.2 Wastes or Materials Managed

Waste oil, drums of spent solvent, and empty drums.

2.7.3 Time Period of Investigation

The Closed Container Storage area was investigated in 2005 and 2013.

2.7.4 Source Information

- "Investigation Report for Fall 2005 at the Michigan Seamless Tube, LLC Site" (Earth Tech, 2006); and
- "2013-2014 Investigation Report for Michigan Seamless Tube, LLC Site" (AECOM, 2014).

2.7.5 Work Conducted

As part of the 2005 investigation, wells MW-15A and MW-15B were sampled for a short list of VOCs, including benzene, 1,1,1-trichloroethane, 1,1-dichloroethane, 1,1-dichloroethene, cis-1,2-dichloroethene, trans 1,2-dichloroethene, trichloroethene and vinyl chloride.

During the 2013 investigation, the Closed Container Storage Area was investigated to determine if this area is a potential source area for metals and VOCs. Four soil borings were completed (SB-13-01 through SB-13-04) to evaluate potential subsurface impacts.

2.7.6 Criteria to Which Results Were Compared

Groundwater analytical results in the 2005 study were compared to then-current Part 201 Cleanup Criteria Tables 4 and 5 from Operational Memoranda #1, February 2005. The 2013 study used the then-current Part 201 Generic Cleanup Criteria and Screening Levels/Part 213 Risk-Based Screening Levels (December 30, 2013 revision).

2.7.7 Analytical Results

2.7.7.1 Soil

The soil analytical results from 2013 indicate that selenium exceeds the GSIP criterion of 0.4 mg/kg (SB-13-01 measured 1.6 mg/kg, SB-13-02 measured 0.79 mg/kg, and SB-13-04 measured 0.44 mg/kg). No other metals or VOCs exceeded soil criteria.

2.7.7.2 Groundwater

No VOCs were detected in the samples from MW-15A or MW-15B. MW-15A contained 89 ug/L of molybdenum. MW-15B contained 310 ug/L of aluminum, 4,200 ug/L of iron, 280 ug/L of manganese, and 85 ug/L of molybdenum; all of which were above the then-current Part 201 Cleanup Criteria.

2.7.8 Summary of Exceedances/Action Required

Selenium exceeds the current GSIP criterion. No other metals or VOCs exceed current soil criteria. No further investigation is required for the Closed Container Storage Area. This unit is now in the CMS/CMI phase of the

Corrective Action process. Future monitoring will be covered under the Site Metals Groundwater Contamination AOC.

2.8 Neutralization Plant

The Neutralization Plant is part of the current on-site wastewater treatment plant where the neutralization of process wastewater occurs (**Figure 2**).

2.8.1 Period of Operation

The date the Neutralization Plant began operation in 1969 and was upgraded in 1989. This unit is presently in operation.

2.8.2 Wastes or Materials Managed

All waste water from the mill including non-hazardous, hazardous and liquid industrial waste under NPDES permit No.: MI0001902.

2.8.3 Time Period of Investigation

The Neutralization plant has not been investigated.

2.8.4 Source Information

- "Interim Final Report for RCRA Facility Assessment (RFA) at Qualex Corporation- Michigan Seamless Tube (MST) Division" (Metcalf and Eddy, 1993).

2.8.5 Work Conducted

No investigative work has been conducted at the Neutralization plant.

2.8.6 Criteria to Which Results Were Compared

No data has been collected from the Neutralization Plant.

2.8.7 Analytical Results

There are no documented releases at the Neutralization Plant and no data from past investigations suggest that the Neutralization Plant has impacted soil or groundwater.

2.8.8 Summary of Exceedances/Action Required

No releases to date therefore, no investigations are required for the Neutralization Plant WMU under the RCRA Corrective Action process.

2.9 Filter Press

The Filter Press is part of the current on-Site wastewater treatment plant. It is used to remove water from sludge generated in the treatment of process wastewater (**Figure 2**).

2.9.1 Period of Operation

The Neutralization plant began operation in 1969 and is currently operating.

2.9.2 Wastes or Materials Managed

Waste pickle liquor stabilized with lime.

2.9.3 Time Period of Investigation

No investigations have been conducted at the Filter Press.

2.9.4 Source Information

- "Interim Final Report for RCRA Facility Assessment (RFA) at Quanex Corporation- Michigan Seamless Tube (MST) Division" (Metcalf and Eddy, 1993).

2.9.5 Work Conducted

No investigations have been conducted at the Filter Press.

2.9.6 Criteria to Which Results Were Compared

No data has been collected from the Filter Press.

2.9.7 Analytical Results

All operations pertaining to this WMU are indoors. There are no documented releases at the Filter Press and no data from past investigations suggest that the Filter Press has impacted soil or groundwater.

2.9.8 Summary of Exceedances/Action Required

No releases to date therefore, no investigations are required for the Filter Press WMU under the RCRA Corrective Action process.

2.10 Former Vapor Degreaser

The Former Vapor Degreaser (**Figure 2**) was installed in 1957 to clean tubing made for the aircraft industry from a specialty metal called Haynes 25. This tubing was made once or twice per year. The cleaner specified in MST's operations manual for this special operation was Chloroethene VG, which is a brand name for 1,1,1-trichloroethane (TCA). This degreasing operation was used only in connection with the Hanes 25 material. The TCA degreaser was removed prior to 1980 to allow for expansion of the hot mill. No other tubing manufactured at the Site has ever been cleaned with a degreaser in any stage of the manufacturing process, based on conversations with facility employees.

2.10.1 Period of Operation

The Former Vapor Degreaser operated intermittently from 1957 to 1980.

2.10.2 Wastes or Materials Managed

Chloroethene VG, which is a brand name for TCA. TCA naturally biodegrades to either 1,1-dichloroethane which, in turn, degrades into chloroethane or to 1,1-dichloroethene and then into vinyl chloride.

2.10.3 Time Period of Investigation

An investigation into the Former Vapor Degreaser was conducted in 2003.

2.10.4 Source Information

- "Baseline Environmental Assessment for Michigan Seamless Tube, LLC" (Horizon, 2002); and
- "IRA/IM Investigation Report for Michigan Seamless Tube, LLC, South Lyon, Michigan" (Earth Tech, 2004).

2.10.5 Work Conducted

In 2003, six soil borings were installed to a depth of 25 feet, except for SB-03-03 which was 19 feet deep. SB-03-05 was drilled through the floor at the location of the Former Vapor Degreaser. Vertical Aquifer Sampling (VAS) was performed within these borings and tested for VOCs and metals. During this investigation, three new monitoring wells also were installed.

2.10.6 Criteria to Which Results Were Compared

The 2003 analytical results were compared to the then-current Michigan NREPA, 1994 PA 451, Part 201, R229.5744 Generic Groundwater Cleanup Criteria.

2.10.7 Analytical Results

2.10.7.1 Groundwater

TCA was only detected to the southwest (down-gradient) of the degreaser at SB-03-04A (21-25 feet bgs) at a concentration of 4.0 ug/L and is limited to the area immediately west of the degreaser. Chloroethane was detected at a concentration of 1,200 ug/L between 14 and 18 feet bgs, but was not detected above the reporting limit of <1 ug/L between 21 and 25 feet bgs. 1,1-dichloroethane and chloroethane were detected to the south and southwest of the former degreaser at levels below then-current Part 201 criteria.

2.10.8 Summary of Exceedances/Action Required

The only VOC exceeding criteria at the Former Vapor Degreaser is chloroethane. Chloroethane was found to exceed RDW criteria immediately under the location of the Former Degreaser, but has completed degraded down-gradient to non-detectable levels. Based on amendments to Part 201 for operating facilities subject to Michigan Occupational Safety and Health Administration (MIOSHA) regulations for indoor air (MDEQ, 2013b), additional Due Care Obligations are not required for this WMU beyond MST's existing due care obligations

regarding the Former Vapor Degreaser WMU. No further investigation is required for the Former Vapor Degreaser.

2.11 Vinyl Chloride Contamination Area

The CACO describes the Vinyl Chloride Contamination Area (**Figure 2**) as an "area on the south side of the facility displaying vinyl chloride concentrations in groundwater in excess of applicable Part 201 criteria. Unless the source of the contaminant is determined to be from a WMU under paragraph 8.3.3 of the Consent Order, MST must only exercise due care with respect to this area." TCE and its breakdown products, cis-1,2-dichloroethene, trans-1,2-dichloroethene, 1,1-dichloroethene, and vinyl chloride, have been detected at the Site. The data collected from historical investigations demonstrates that there are two potential source areas for the Vinyl Chloride Contamination Area. One includes a possible on-Site TCE source likely associated with incidental spills, while the second possible source is off-site to the south of Yerkes Drain. The extent of the chlorinated VOCs in the groundwater has been defined at the MST property. The off-site source has been identified but not fully defined.

2.11.1 Period of Operation

The Vinyl Chloride Contamination area has not been associated with a specific historical or current Site activity to date. Therefore, no time period of operation for this AOC has been identified.

2.11.2 Wastes or Materials Managed

The Vinyl Chloride Contamination Area has not been associated with a WMU.

2.11.3 Time Period of Investigation

The Vinyl Chloride Contamination Area was investigated between 2002 and 2008.

2.11.4 Source Information

- "Technical Protocol for Evaluating Natural Attenuation of Chlorinated Solvents in Ground Water Issue" (USEPA, 1998);
- "Baseline Environmental Assessment for Michigan Seamless Tube, LLC" (Horizon, 2002);
- Corrective Action Consent Order (MDEQ, 2004);
- "IRA/IM Investigation Report for Michigan Seamless Tube, LLC, South Lyon, Michigan" (Earth Tech, 2004);
- "Interim Measures Remedial Investigation Report for 2005 at the Michigan Seamless Tube, LLC Site" (Earth Tech, 2005);
- "Investigation Report for Fall 2005 at the Michigan Seamless Tube, LLC Site" (Earth Tech, 2006);
- "Investigation Report for Fall 2006 at the Michigan Seamless Tube, LLC Site" (Earth Tech, 2007); and
- "Summary Report and 2008 Work Plan for the Michigan Seamless Tube, LLC Site" (Earth Tech, 2008a).

2.11.5 Work Conducted

During the 2002 BEA, vinyl chloride was detected to the south of the facility in MW-8A, TW-2, TW-3, TW-4, and in a surface sample from Yerkes Drain, while MW-8A also contained an exceedance of cis-1,2-dichloroethylene. The extent of the TCE plume was further investigated in the 2004 IRA/IM Investigation Report. SB-03-05 was drilled through the floor at the location of the Former Vapor Degreaser. It was concluded that the TCE and vinyl chloride were not attributable to the operation of the degreaser. Groundwater samples collected at depth (21-25 feet) from soil borings SB-03-04 and SB-03-01 contained the highest concentrations of TCE and its breakdown products. Permanent monitoring wells were placed at the locations of these soil borings (MW-03-01 and MW-03-02, respectively). Groundwater samples from these wells confirmed the presence of TCE and its breakdown

products at the base of the aquifer. In 2004, two new monitoring wells (MW-04-20 and MW-04-21) were installed south of MW-03-02. In the Fall of 2005, an additional two monitoring wells (MW-05-03 and MW-05-04) were installed to the southwest and south of MW-04-21. The presence of these wells, and others to the west, effectively define the extent of the contaminated area.

In order to qualitatively evaluate if natural attenuation is occurring for these constituents at the Site, the screening procedures from the USEPA's "Technical Protocol for Evaluating Natural Attenuation of Chlorinated Solvents in Ground Water" were evaluated in the 2006 Investigation Report. This evaluation found evidence that anaerobic biodegradation is naturally attenuating TCE into its breakdown products and that monitored natural attenuation (MNA) may be a feasible approach for the Vinyl Chloride Contamination Area. As part of the 2007 Investigation Report, MST researched historical operations to determine if TCE, the parent product of vinyl chloride, was used at the Site. There is no indication that TCE had been used at any WMU at the Site. Further investigation into this area in 2008 considered the possibility of dense nonaqueous phase liquid (DNAPL) as a contributor to the VOCs and used past investigation data to analyze the solubility in water.

2.11.6 Criteria to Which Results Were Compared

Analytical data was compared to the then-current Part 201 Residential and Industrial-Commercial Generic Cleanup Criteria and Screening Levels, from Operational Memoranda #1, February 2005.

2.11.7 Analytical Results

TCE naturally degrades to cis-1,2-dichloroethene, trans-1,2-dichloroethene, and 1,1-dichloroethene which, in turn, degrade to vinyl chloride. Vinyl chloride further degrades into non-harmful byproducts.

2.11.7.1 Groundwater

In the 2004 Investigation, groundwater samples collected from SB-03-04 contained 10,000 ug/L of TCE, 650 ug/L of cis-1,2-dichloroethene, and 7.1 ug/L of vinyl chloride. Groundwater samples collected from SB-03-01 contained 350 ug/L of TCE, 5,700 ug/L of cis-1,2-dichloroethene, and 440 ug/L of vinyl chloride. Also, samples from MW-03-01 contained 8,800 ug/L of TCE, 4,600 ug/L of cis-1,2-dichloroethene, and 56 ug/L of vinyl chloride while MW-03-02 contained 7,900 ug/L of TCE, 5,600 ug/L of cis-1,2-dichloroethene, and 85 ug/L of vinyl chloride.

In the 2005 IMRI Report, MW-04-21 contained 40 ug/L of TCE and 140 ug/L of cis-1,2-dichloroethene with no detectable trans-1,2-dichloroethene or vinyl chloride. MW-04-20 (approximately 100 feet to the west of MW-04-21) contained no detectable TCE, 200 ug/L of cis-1,2-dichloroethene, and 59 ug/L of vinyl chloride. Additionally, additional wells down-gradient (west-southwest) from the area were sampled for these VOCs. Moving west along the south side of the property, the vinyl chloride concentrations were MW-04-14: 530 ug/L, MW-04-12: 180 ug/L, MW-04-10: <1 ug/L, and MW-04-03: <1 ug/L, showing degradation moving down-gradient.

The 2008 Summary Report concluded that interstitial globules of DNAPL are a potential source for dissolved phase VOCs in groundwater.

2.11.8 Summary of Exceedances/Action Required

Since the TCE and its breakdown products are not from an associated WMU, the CACO provides that MST must only exercise due care with respect to these materials. Investigations show a source to be located on MST's property likely associated with incidental spills, as well as a secondary source south of the Site. MST will voluntarily undertake MNA testing to document the breakdown of TCE.

2.12 Site Mill Scale

This AOC consists of mill scale that was placed at or near the surface at various locations across the Site as a road base and for other uses. The mill scale is a by-product of the facility's processes. On average, the mill scale ranges 1 to 2 feet thick, with some areas being thicker above the soil horizon, and covers approximately 20.6 acres. Mill scale produced during current operations is properly disposed of off-site.

2.12.1 Period of Operation

Mill scale is a byproduct of the seamless steel tubing manufacturing process. The timeframe in which the mill scale was used as a road base is unknown.

2.12.2 Wastes or Materials Managed

Mill scale (contains arsenic, chromium, iron, lead, manganese, molybdenum, nickel, and zinc)

2.12.3 Time Period of Investigation

The Site Mill Scale was investigated from 2005 to 2012.

2.12.4 Source Information

- "Sampling Strategies and Statistics Training Material for Part 201 Cleanup Criteria" (MDEQ, 2002);
- "Interim Measures Remedial Investigation Report for 2005 at the Michigan Seamless Tube, LLC Site" (Earth Tech, 2005);
- "Investigation Report for Fall 2005 at the Michigan Seamless Tube, LLC Site" (Earth Tech, 2006);
- "Investigation Report for Fall 2006 at the Michigan Seamless Tube, LLC Site" (Earth Tech, 2007);
- "Particulate Soil Inhalation Evaluation, Michigan Seamless Tube Site" (Earth Tech, 2008b);
- "Technical Memorandum Particulate Soil Inhalation Evaluation for Molybdenum, Michigan Seamless Tube, LLC Site" (AECOM, 2009c); and
- "2011-2012 Investigation Report for Michigan Seamless Tube, LLC Site" (AECOM, 2012a).

2.12.5 Work Conducted

For the 2005 IMRI Report, a soil investigation was done to support placement of wells for the groundwater investigation. Twenty-five soil borings were completed and eight samples were tested for the full suite of VOCs, metals, and SVOCs (SB-04-03, SB-04-04, SB-04-05, SB-04-06, SB-04-09, SB-04-15, SB-04-21, and SB-04-25). These borings were sampled at varying depths immediately above the groundwater table (between 3 and 10 feet bgs), but below the mill scale.

The Investigative Report for Fall 2005 included a Site visit and visual inspection that estimated 455,000 square feet of soil was impacted with mill scale across the Site, as well as an additional 41,000 square feet in the Former Scrap Yard. These areas were divided into sections and a shallow soil sample (0-2 feet bgs) was collected from a biased location (visually impacted by mill scale) within each section. In addition, nine background samples were collected from undeveloped areas along the north and east property boundaries of the Site.

The Fall 2006 investigation worked to further delineate the extent of the Site Mill Scale. Approximately 70 locations were sampled, with 33 of those being the same locations as the 2005 investigation. The remaining 37 locations were placed along the perimeter of the Mill Scale area in order to delineate the vertical and lateral extent of the Mill Scale (**Figure 2**). At locations within the mill scale area, two soil samples were collected at each

location: one sample from a six-inch interval just below where mill scale was visibly present and one sample from a six-inch interval starting one foot below the previous sample. At perimeter locations an additional surface sample was taken from 0-0.5 feet bgs. At five interior locations, additional deeper samples were taken when the previous deep sample contained metal exceedances.

In 2008, the FSBLs were recalculated and updated from those calculated in 2005 to be more representative of the native soil in areas not impacted by Site operations. The FSBLs were updated for arsenic (14 mg/kg), cobalt (5.9 mg/kg), iron (25,000 mg/kg), manganese (560 mg/kg), and molybdenum (33 mg/kg); FSBLs for nickel (83 mg/kg) and zinc (470 mg/kg) were also calculated. FSBLs were also calculated for subsurface soil for arsenic (11 mg/kg), cobalt (4.8 mg/kg), iron (20,000 mg/kg), manganese (720 mg/kg), molybdenum (5.9 mg/kg), nickel (21 mg/kg), and zinc (69 mg/kg).

The 2012 Investigative Report completed the delineation of the Mill Scale north of the Sludge Drying Beds. Also, ten mill scale samples (MS-11-01 through MS-11-10) were collected and analyzed using SPLP for arsenic, chromium, cobalt, copper, iron, manganese, molybdenum, nickel and zinc.

Particulate soil inhalation evaluations were completed to address the potential particulate soil inhalation exposure pathway to workers on-Site.

2.12.6 Criteria to Which Results Were Compared

In the 2005 report, soil samples were compared to the then-current Part 201 cleanup criteria in Table 4, Residential and Commercial I Generic Cleanup Criteria and Screening Levels, from Operational Memoranda #1, February 2005. Chemicals that did not exceed these criteria were compared to State Default Background Levels (SDBL's). After FSBLs were calculated, Site data was first compared to these values. If a parameter's concentration exceeded the FSBL, then it was compared to the Part 201 Criteria.

2.12.7 Analytical Results

2.12.7.1 Soil

The 2005 IMRI Report found that chemicals in the soil were less than background criteria and criteria for currently complete exposure pathways for protection of human health. Only molybdenum exceeded background criteria and RDWP/NRDWP criteria.

During the fall 2005 surface soil investigation, arsenic, cobalt, copper, iron, manganese, mercury, molybdenum, nickel, and zinc all exceeded at least one criterion. The 2012 Investigative Report conclusively delineated the extent of the Mill Scale and confirmed that it does not extend off Site to property north of the Sludge Drying Beds. From these investigations, the extent of the Mill Scale has been fully delineated both vertically and horizontally and it was determined that the Mill Scale is completely contained within MST's property.

The results of the soil inhalation evaluations determined that metal concentrations in soil were below the MDEQ's particulate soil inhalation criteria (PSIC) for those respective metals and did not pose a risk to the workers on-Site.

The SPLP results indicate that potential for leaching varies across the Site and is most likely dependent on the amount, age, and degree of weathering of the mill scale in any one particular area.

2.12.8 Summary of Exceedances/Action Required

No further investigation is required for the Site Mill Scale AOC under the RCRA Corrective Action process. This unit is now in the CMS/CMI phase of the Corrective Action process. Future monitoring will be covered under the Site Metals Groundwater Contamination AOC.

2.13 Site Metals Groundwater Contamination

The Site Metals Groundwater Contamination AOC includes areas at the Site that have groundwater exceeding Part 201 criteria for metals, predominately iron, and areas down-gradient of the Site to the west of Dixboro Road (Figure 2).

2.13.1 Period of Operation

The Site Metals Groundwater Contamination relates to various historical operations at the property and not to a specific WMU.

2.13.2 Wastes or Materials Managed

The Site Metals Groundwater Contamination Area has not been associated with a WMU.

2.13.3 Time Period of Investigation

The groundwater contamination at the Site has been investigated since 2004.

2.13.4 Source Information

- "IRA/IM Investigation Report for Michigan Seamless Tube, LLC, South Lyon, Michigan" (Earth Tech, 2004);
- "Interim Measures Remedial Investigation Report for 2005 at the Michigan Seamless Tube, LLC Site" (Earth Tech, 2005);
- "Investigation Report for Fall 2005 at the Michigan Seamless Tube, LLC Site" (Earth Tech, 2006);
- "Investigation Report for Fall 2006 at the Michigan Seamless Tube, LLC Site" (Earth Tech, 2007);
- "Summary Report and 2008 Work Plan for the Michigan Seamless Tube, LLC Site" (Earth Tech, 2008a);
- "Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities: Unified Guidance" (USEPA, 2009);
- "2009 Investigation Report for the Michigan Seamless Tube, LLC Site" (AECOM, 2009a);
- "Investigation Report for Fall 2008 at the Michigan Seamless Tube, LLC Site" (AECOM, 2009b);
- "2011-2012 Investigation Report for Michigan Seamless Tube, LLC Site" (AECOM, 2012a);
- "Data Package for 2012 Work Plan Field Investigation" (AECOM, 2012b); and
- "2013-2014 Investigation Report for Michigan Seamless Tube, LLC Site" (AECOM, 2014).

2.13.5 Work Conducted

The 2004-2014 studies have all focused on monitoring well installation and groundwater monitoring at different locations throughout the Site and neighboring areas. Monitoring wells have been continuously added to ensure accurate delineation of the extent of groundwater contamination both on- and off-Site.

Groundwater FSBLs were calculated for the predominant metals of concern during several of the studies. The most recent groundwater FSBLs were recalculated for arsenic (18 ug/L), iron (5,372 ug/L), lead (11ug/L), manganese (274 ug/L), and molybdenum (40 ug/L) during the 2011-2012 investigation. The updated FSBLs were based on groundwater metal concentrations at 11 background monitoring wells located up-gradient of the

Site to delineate and assess the metal impacts from the Site, if any, versus naturally occurring metals in groundwater in the region. These background wells (MW-1B, MW-1C, MW-17A, MW-17B, MW-09-03A, MW-09-03B, MW-09-03C, MW-09-03D, MW-09-03E, MW-09-05, and MW-09-06) are located on the eastern edge of the Site property, as well as on adjacent properties to the east of the Site. These background well locations were selected because the current and historical Site operations are/were unlikely to have affected soils and groundwater in these areas.

In September 2008, MST conducted pre-softening/treatment and post-softening/treatment residential well sampling at 16 homes located to the west of Dixboro Road to further define the groundwater quality and determine the extent of metals in groundwater down gradient of the Site. Eighty-one records were requested from the Oakland and Livingston County Health Departments and the MDEQ's Water Bureau under the Freedom of Information Act to evaluate available residential water quality data for residential water wells located around the Site. The following year, pressure transducers were used to determine if pumping of City of South Lyon municipal wells was causing groundwater to flow off-Site to the east.

As part of the investigation conducted in 2013 (supplemental to the 2008 residential investigations), 78 homes in the down-gradient Greenock Hills Subdivision were surveyed to determine what type of water softening/treatment systems were present in the homes. Pre-softening/treatment and post-softening/treatment water samples were collected from 13 of the homes.

2.13.6 Criteria to Which Results Were Compared

Groundwater analytical data were compared to the then-current Part 201 RDW, NRDW, and GSI criteria and calculated FSBLs.

2.13.7 Analytical Results

It is assumed that the clay aquitard found between 112 and 126 feet bgs in several of the deep soil borings in the central and western portion of the Site is the lower confining boundary of the metals groundwater plume. Lateral distributions of metal exceedances in groundwater are found across the majority of the Site and off-Site to the south and west.

2.13.7.1 Groundwater

Of the 81 well quality records requested in 2008, 12 samples contained detections of iron; however, the conditions of the sampling within the records are unknown and these may not be representative of aquifer conditions and are expected to be low if the water was filtered or otherwise treated.

It was concluded in the 2008 investigation that the residential water treatment systems removed concentrations of iron and manganese in groundwater to below Part 201 criteria. As a result, iron and manganese in groundwater is not adversely affecting residents west of the Site. It was also determined that pumping of the City of South Lyon municipal wells does not encourage off-Site migration of groundwater to the east.

Similar to the 2008 results, the results of the 2013 residential sampling showed that several of the pre-softening/treatment samples exceeded FSBLs and RDW criteria, but all of the post-softening/treatment water samples were below the FSBLs and RDW criteria. Based on the analytical data collected from the homes in the Greenock Hills Subdivision, it was determined that a properly working softening /treatment system is capable of removing the metals of concern to below applicable Part 201 residential cleanup criteria.

Parcels located to the south of the Site are zoned industrial and groundwater concentrations from monitoring wells present in those areas have been found in other investigations to exceed the FSBLs and NRDW and GSI criteria for metals.

2.13.8 Summary of Exceedances/Action Required

Based on sampling of the groundwater at the Site, it was determined that metals exceed FSBLs, NRDW, and GSI criteria at varying depths within the aquifer. No further investigation is required for the Site Metals Groundwater Contamination. This unit is now in the CMS/CMI phase of the Corrective Action process.

2.14 Removed Gas and Oil Underground Storage Tanks

This AOC (**Figure 2**) includes two former 1,000-gallon tanks, one 10,000-gallon tank, and one 20,000-gallon underground storage tank (UST) that were used to store gasoline, diesel fuel, and heating oil during previous operations.

2.14.1 Period of Operation

Operation of the gas and oil USTs ceased in 1988.

2.14.2 Wastes or Materials Managed

Diesel fuel, gasoline, and heating oil

2.14.3 Time Period of Investigation

Three investigations into the gas and oil USTs were conducted in 1976, 1988, and 2002.

2.14.4 Source Information

- "Baseline Environmental Assessment for Michigan Seamless Tube, LLC" (Horizon, 2002).

2.14.5 Work Conducted

The 20,000 gallon storage tank was filled with sand and closed in place in 1976. Great Lakes Environmental Services and D&B Excavation excavated and removed the other three storage tanks and contaminated soil in 1988. These tanks were closed and removed under then-existing regulations. Excavated soils were screened with a photoionization detector and composite samples from the floor and sidewall of the excavated area were collected and submitted for laboratory analysis.

2.14.6 Criteria to Which Results Were Compared

Both excavation samples were compared to the then-current Part 201 cleanup criteria.

2.14.7 Analytical Results

2.14.7.1 Soil

Laboratory data sheets were not available for review; however, Quanex files indicate results of 53 mg/kg total petroleum hydrocarbons (TPH) for the floor sample and 20mg/kg TPH for the sidewall sample.

2.14.8 Summary of Exceedances/Action Required

The USTs in this area were operated before MST's purchase of the property in 2002. Therefore, MST is not liable for this AOC, but must exercise due care with respect to this area.

2.15 Former Chromium Plating Line

The Former Chromium Plating Line was a small, former batch plating line used to plate equipment historically used by the facility to manufacture seamless tube, not for the finished product itself (Figure 2).

2.15.1 Period of Operation

The Chromium Plating line was operated from 1941 to 1980.

2.15.2 Wastes or Materials Managed

Chromium

2.15.3 Time Period of Investigation

An investigation into the Former Chromium Plating Line was conducted in 2013.

2.15.4 Source Information

- "Baseline Environmental Assessment for Michigan Seamless Tube, LLC" (Horizon, 2002); and
- "2013-2014 Investigation Report for Michigan Seamless Tube, LLC Site" (AECOM, 2014).

2.15.5 Work Conducted

Two soil borings (SB-13-08 and SB-13-09) were completed to determine if this area is a potential source of contamination. In addition, one monitoring well (MW-13-03) was installed at the SB-13-09 location to evaluate groundwater impacts.

2.15.6 Criteria to Which Results Were Compared

Analytical results were compared to the then-current Part 201 Generic Cleanup Criteria and Screening Levels/Part 213 Risk-Based Screening Levels (December 30, 2013 revision) Analytical data was also compared to the established FSBLs.

2.15.7 Analytical Results

2.15.7.1 Soil

The samples collected were tested for VOCs and metals. Soil analytical data from the two soil borings measured selenium at a concentration of 0.98 mg/kg in SB-13-08 and 1.3 mg/kg in SB-13-09. No VOCs exceeded soil criteria.

2.15.8 Summary of Exceedances/Action Required

Soil investigation shows an exceedance only in selenium. Groundwater data from MW-13-03 indicate that no metals or VOCs exceed groundwater criteria. No further investigation is required for the Former Chromium Plating Line AOC under the RCRA Corrective Action process. No further investigation is required for the Former Chromium Plating Line. This unit is now in the CMS/CMI phase of the Corrective Action process. Future monitoring will be covered under the Site Metals Groundwater Contamination AOC.

2.16 Fuel Oil Release Area

The Fuel Oil Release Area is an area impacted by a fuel oil release from a below grade transfer pipe discovered in 1974 (**Figure 2**). The supply for the transfer pipe was two, 500,000 gallon fuel oil ASTs in the northwest portion of the facility. The fuel oil was used for the annealing furnace and boiler before the plant converted to natural gas. An estimated 250,000 to 500,000 gallons of fuel oil were released. Subsequent to the release, an active recovery trench was installed to assist in the removal of the fuel oil. In 2003, the MDEQ approved the shut-down of the fuel recovery system.

2.16.1 Period of Operation

The Fuel Oil Release Area relates to an area of impact from various historical operations at the property and not to a specific WMU.

2.16.2 Wastes or Materials Managed

Fuel Oil.

2.16.3 Time Period of Investigation

Two investigations were conducted in 1974 and 2002 to determine the extent and condition of the fuel oil release.

2.16.4 Source Information

- "Baseline Environmental Assessment for Michigan Seamless Tube, LLC" (Horizon, 2002).

2.16.5 Work Conducted

Quanex conducted test pitting and groundwater sampling in 1974 to investigate the extent of the release. Oil was found to be seeping into the Yerkes Drain to the south and a trench interceptor fuel recovery system was installed. Approximately 289,729 gallons of oil were recovered from the system between 1974 and 1996, after which no more oil was recovered. In April 2003, the MDEQ approved the shutdown of the fuel recovery system.

In 2012, the area of the Fuel Oil Release was expanded based on the discovery of soil impacted with fuel oil during excavation activities for plant expansions. Based upon the proximity to the Fuel Oil Release Area, it was concluded that this newly discovered impacted soil was part of the original fuel oil release. Pursuant to the terms of the CACO, MST is not liable for this release. This discovery was documented with a letter of notification to the MDEQ dated December 10, 2012.

2.16.6 Criteria to Which Results Were Compared

None found in historical reports.

2.16.7 Analytical Results

None found in the historical reports. A summary of the excavation activities were summarized in the BEA.

2.16.8 Summary of Exceedances/Action Required

MST must only exercise Due Care with respect to this area.

3 Summary and Conclusions

The following table summarizes the status of the WMUS, AOCs and Other Areas as defined in the CACO for the MST facility:

	Waste Management Units	Status
1	Two Closed Hazardous Waste Surface Impoundments	No Further Investigation. Future monitoring under the Post Closure Monitoring Program.
2	Two Sludge Drying Beds	No Further Investigation. Unit now in the CMS/CMI phase. Future monitoring will be covered under the Site Metals Groundwater Contamination AOC.
3	Three Former Acid Pits	No Further Investigation. Unit now in the CMS/CMI phase. Future monitoring is covered under Site Metals Groundwater Contamination AOC.
4	Former Scrap Yard	No further Investigation. Metals attributed to Mill Scale on Site. Unit now in the CMS/CMI phase. Future monitoring is covered under Site Metals Groundwater Contamination AOC.
5	Uncovered Berm Area	No Further Investigation. Future monitoring under the Post Closure Monitoring Program.
6	Closed Former Hazardous Waste Container Storage Unit	Unit clean closed. No Further Investigation.
7	Closed Container Storage Unit	No Further Investigation. Unit now in the CMS/CMI phase. Future monitoring is covered under Site Metals Groundwater Contamination AOC.
8	Neutralization Plant	No Further Investigation.
9	Filter Press	No Further Investigation.
10	Former Vapor Degreaser	No Further Investigation. MST must exercise due care only.
	AREAS OF CONCERN	Status
A	Vinyl Chloride Contamination Area	No Further Investigation. Unit now in the CMS/CMI phase. MST must only exercise due care, but agreed to conduct future monitoring for MNA.
B	Site Mill Scale	No Further Investigation. Unit now in the CMS/CMI phase. Future monitoring will be covered under the Site Metals Groundwater Contamination AOC.
C	Site Metals Groundwater Contamination	No Further Investigation. Future Groundwater monitoring to address AOC.
D	Removed Gas and Oil Underground Storage Tanks	No Further Investigation. MST must exercise due care only.
E	Former Chromium Plating Line	No Further Investigation. Unit now in the CMS/CMI phase. Future monitoring is covered under Site Metals Groundwater Contamination AOC.
	OTHER AREAS	Status
A	Fuel Oil Release Area	No Further Investigation. MST must exercise due care only.

4 References

- AECOM, 2014. 2013-2014 Investigation Report for Michigan Seamless Tube, LLC Site. August 2014.
- AECOM, 2013a. Waste Management Unit Review and Evaluation Report for the Michigan Seamless Tube, LLC, Site. January 2013.
- AECOM, 2013b. 2013 Work Plan for Site Characterization and Corrective Measures. Michigan Seamless Tube, LLC. Site. April 2013.
- AECOM, 2012a. 2011-2012 Investigation Report for Michigan Seamless Tube, LLC. Site. April 2012.
- AECOM, 2012b. Data Package for 2012 Work Plan Field Investigation. Michigan Seamless Tube, LLC. Site. September 2012.
- AECOM, 2009a. 2009 Investigation Report for the Michigan Seamless Tube, LLC Site, December 2009.
- AECOM, 2009b. Investigation Report for Fall 2008 at the Michigan Seamless Tube, LLC Site, April 2009.
- AECOM, 2009c. Technical Memorandum Particulate Soil Inhalation Evaluation for Molybdenum, Michigan Seamless Tube, LLC Site, February 2009.
- BLDI, 1999. Petition to Designate High-Volume, Low-Hazard Industrial Waste. Vision Metals, Inc., Michigan Specialty Tube. August 1999.
- BLDI, 1995. Characterization of the Impoundments, Berm and Sludge Drying Beds. June 1995.
- Corrective Action Consent Order, 2004. MDEQ, June 2004.
- Earth Tech, 2008a. Summary Report and 2008 Work Plan for the Michigan Seamless Tube, LLC Site, April 2008.
- Earth Tech, 2008b. Particulate Soil Inhalation Evaluation, Michigan Seamless Tube Site, April 2008.
- Earth Tech, 2007. Investigation Report for Fall 2006 at the Michigan Seamless Tube, LLC Site. March 2007.
- Earth Tech, 2006. Investigation Report for Fall 2005 at the Michigan Seamless Tube, LLC Site. February 2006.
- Earth Tech, 2005. Interim Measures Remedial Investigation Report for 2005 at the Michigan Seamless Tube, LLC Site. April 2005.
- Earth Tech, 2004. IRA/IM Investigation Report for Michigan Seamless Tube, LLC, South Lyon, Michigan. April 2004.
- EDI Engineering & Science, 1990. Clean Closure Certification for The Container Storage Area. September 1990.
- EDI Engineering & Science, 1987. Quanex Corporation, Michigan Seamless Tube Division, South Lyon, Michigan- Sludge Drying Beds. Letter to the MDNR. June 26, 1987.

Horizon Environmental Corporation, 2002. Baseline Environmental Assessment for Michigan Seamless Tube, LLC. December 2002.

MDEQ, 2013a. Letter to MST regarding the Corrective Action Status Update and Review; Michigan Seamless Tube, LLC (MST); MID 082 767 591. March 25, 2013.

MDEQ, 2013b. Approval of 2013 Work Plan for Site Characterization and Corrective Measures at Michigan Seamless Tube, LLC (Plan); Michigan Seamless Tube, LLC (MST); MID 082 767 591. May 2013.

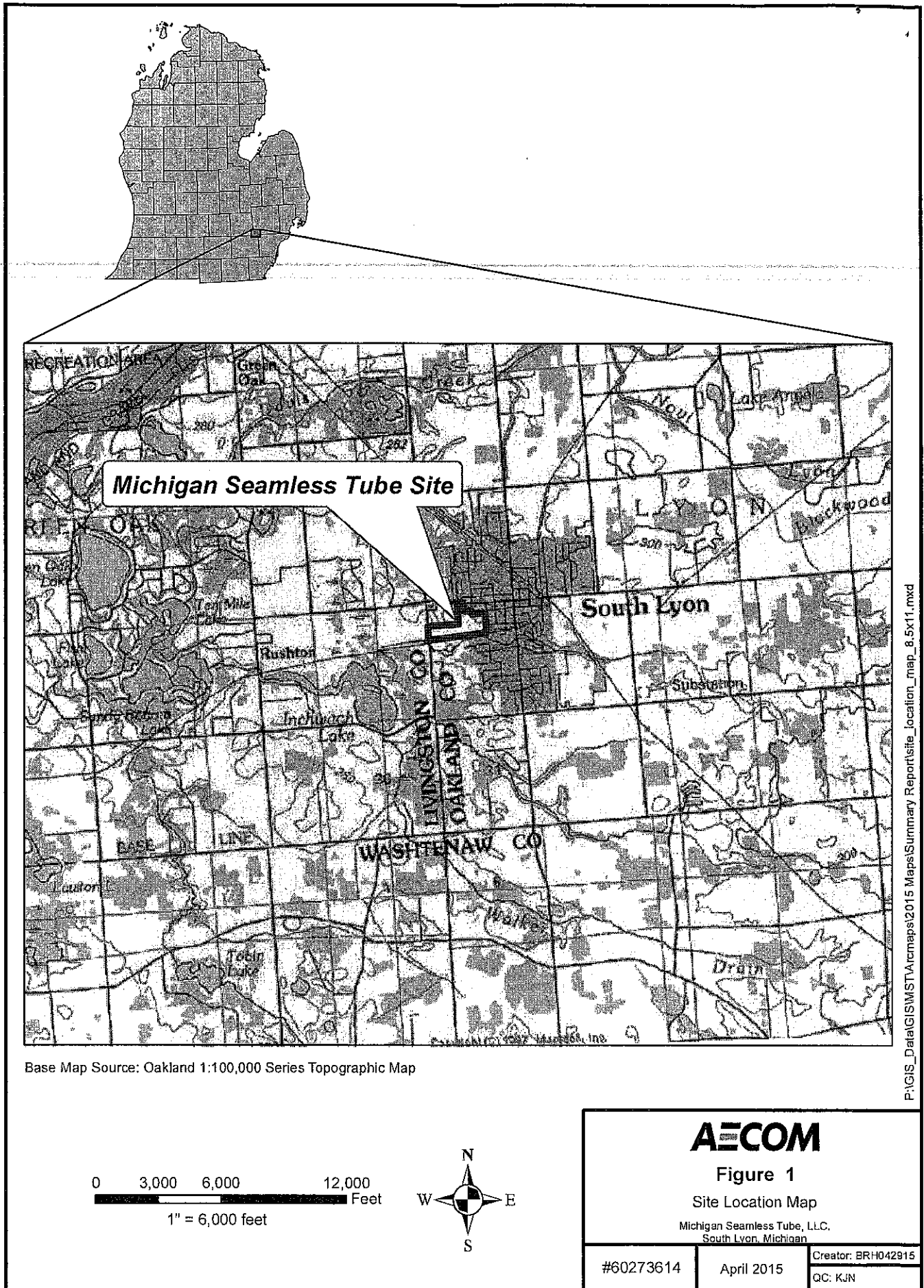
MDEQ, 2002. Sampling Strategies and Statistics Training Material for Part 201 Cleanup Criteria.

Metcalf & Eddy, Inc., 1993. Interim Final Report for RCRA Facility Assessment (RFA) at Quanex Corporation-Michigan Seamless Tube (MST) Division. August 1993.

USEPA, 2009. Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities: Unified Guidance. EPA/530/R/09/007. March 2009.

USEPA, 1998. Technical Protocol for Evaluating Natural Attenuation of Chlorinated Solvents in Ground Water Issue. EPA/540/S-95/504. April 1996.

Figures



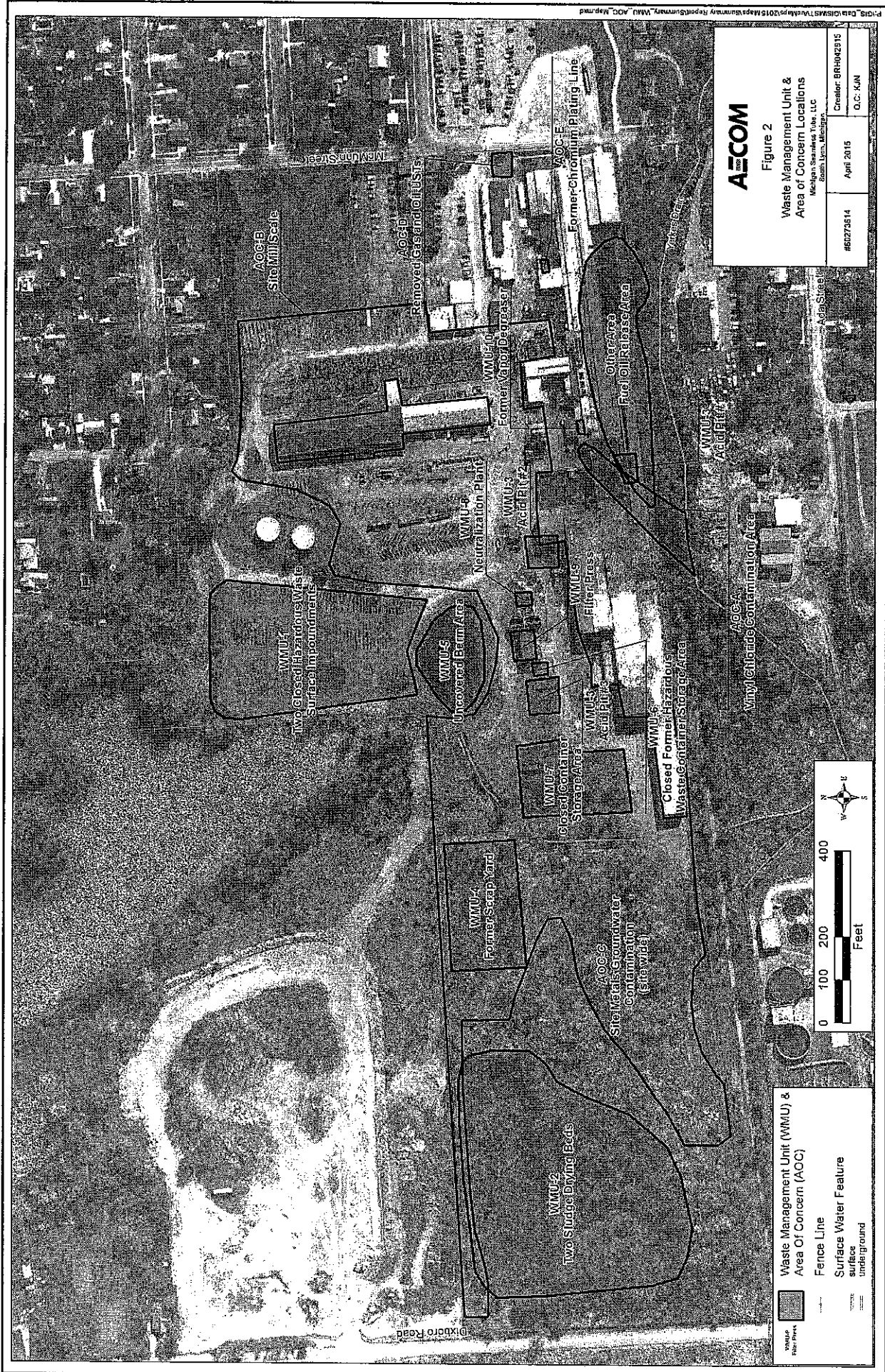


Figure 2
 Waste Management Unit &
 Area of Concern Locations
 Michigan Department of Environment & Natural Resources
 South Lyon, Michigan

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Waste Management Unit (WMU) &
 Area of Concern (AOC)

Fence Line

Surface Water Feature

surface

underground

0 100 200 400

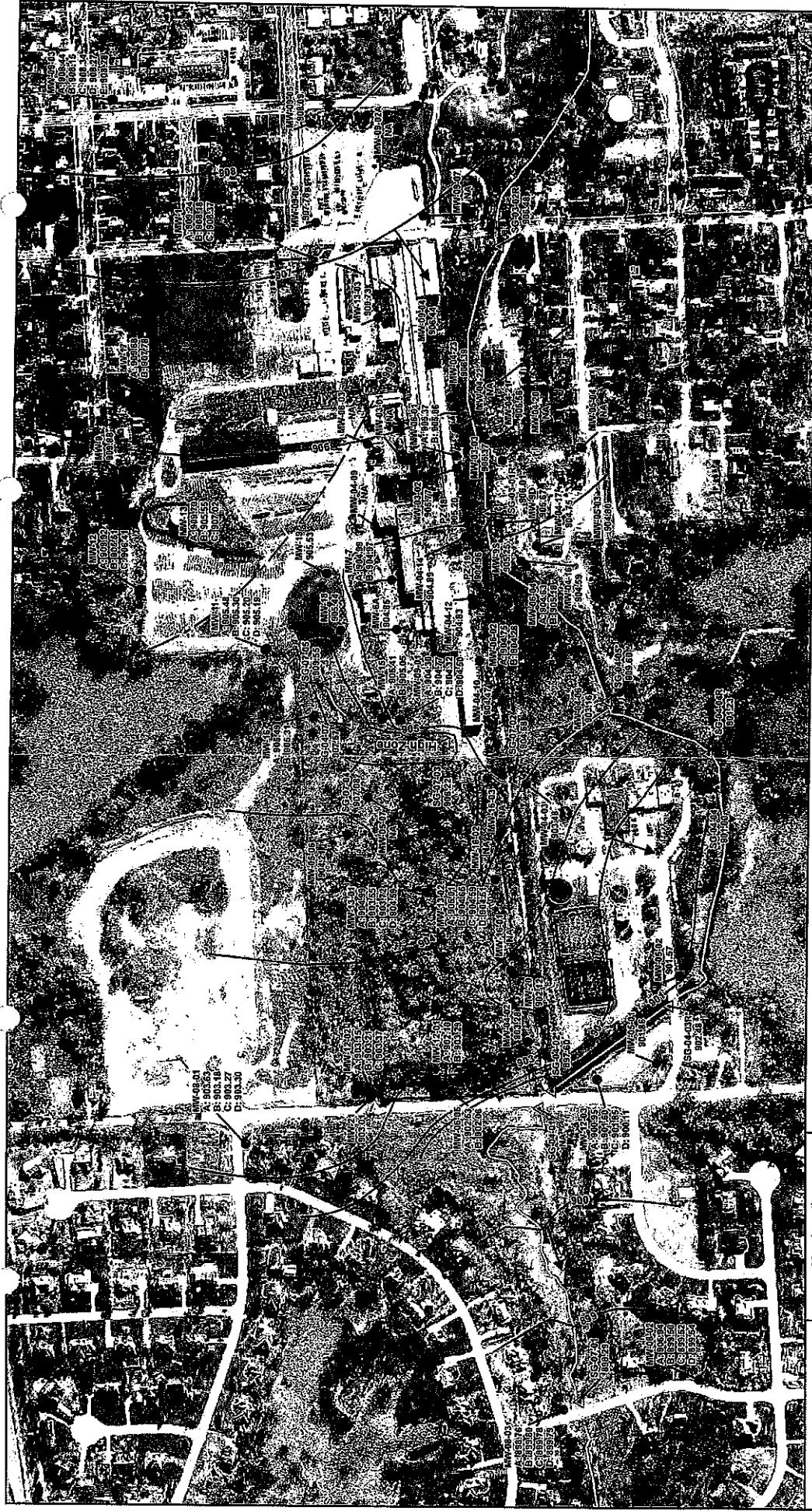
Feet

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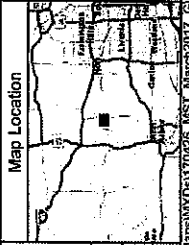
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Approved: EV 4/28/2017
Project #: 60273614



Map Location

- Legend**
- Monitoring Well
 - Shallow Aquifer Contour
 - Shallow Isolated Zone Contour
 - Surface Water Feature
 - Groundwater Flow
 - Location Not Included in Contours
 - Underground

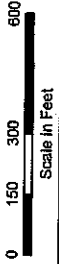


FIGURE 1
GROUNDWATER CONTOUR MAP
MARCH 2017

MICHIGAN SEAMLESS TUBE, LLC
SOUTH LYON, MICHIGAN

