

THE UNITED STATES DISTRICT COURT  
FOR THE NORTHERN DISTRICT OF OHIO

UNITED STATES OF AMERICA, )  
 )  
 Plaintiff, )  
 )  
 v. )  
 )  
 SCHOTT METAL PRODUCTS, INC. )  
 )  
 and )  
 )  
 THE ESTATE OF SAMUEL C. SCHOTT )  
 )  
 Defendants. )  
 )

Case No.

CONSENT DECREE

TABLE OF CONTENTS

I. <u>JURISDICTION AND VENUE</u> .....	-3-
II. <u>APPLICABILITY</u> .....	-3-
III. <u>DEFINITIONS</u> .....	-4-
IV. <u>CIVIL PENALTY</u> .....	-6-
V. <u>COMPLIANCE REQUIREMENTS</u> .....	-7-
VI. <u>ADDITIONAL WORK</u> .....	-10-
VII. <u>PROJECT COORDINATORS</u> .....	-10-
VIII. <u>REPORTING REQUIREMENTS</u> .....	-11-
IX. <u>STIPULATED PENALTIES</u> .....	-13-
X. <u>FORCE MAJEURE</u> .....	-16-
XI. <u>DISPUTE RESOLUTION</u> .....	-18-
XII. <u>INFORMATION COLLECTION AND RETENTION</u> .....	-21-
XIII. <u>EFFECT OF SETTLEMENT/RESERVATION OF RIGHTS</u> .....	-24-
XIV. <u>COSTS</u> .....	-25-
XV. <u>NOTICES</u> .....	-26-
XVI. <u>EFFECTIVE DATE</u> .....	-27-
XVII. <u>RETENTION OF JURISDICTION</u> .....	-27-
XVIII. <u>MODIFICATION</u> .....	-27-
XIX. <u>TERMINATION</u> .....	-28-
XX. <u>PUBLIC PARTICIPATION</u> .....	-29-

XXI. SIGNATORIES/SERVICE .....-29-

XXII. INTEGRATION.....-30-

XXIII. FINAL JUDGMENT .....-30-

APPENDICES

The following appendices are attached to and part of the Consent Decree:

**Appendix 1:** 1) Comprehensive Work Plan, dated 1/28/11

2) Sampling Analysis Plan and Quality Assurance Project Plan, dated 5/20/11

3) Health and Safety Plan, dated 1/28/11

4) EPA Letter dated 8/16/12 approving changes to Comprehensive Work Plan

**Appendix 2:** 1) Soil Gas Survey (contained in Vadose 8/12/12 Monthly Progress Report

2) EPA Letter dated 8/23/12 approving Soil Gas Survey

3) Variant on Soil Gas Survey (contained in Vadose 9/14/12 Monthly Progress Report

Plaintiff United States of America, on behalf of the United States Environmental Protection Agency ("EPA"), and Defendants Schott Metal Products, Inc. ("Schott Metal") and the Estate of Samuel C. Schott enter into this Consent Decree resolving claims set forth in a Complaint filed concurrently with this Consent Decree for alleged violations of Section 3013 of the Resource Conservation and Recovery Act ("RCRA"), 42 U.S.C. § 6934.

#### BACKGROUND

A. Schott Metal is a generator of hazardous waste and the operator of a hazardous waste management facility ("the Facility") located at and near 2225 Lee Drive, Akron, Ohio. Schott Metal has manufactured automobile parts at the Facility since 1948. The Facility is an ongoing business and is situated on land owned partly by Schott Metal and partly by the estate of Schott Metal's former principal, Samuel C. Schott, who passed away on November 10, 2008.

B. Historically, Schott Metal's manufacturing operations generated three basic types of waste: (1) steel scrap, (2) degreasing waste containing, among other substances, trichloroethylene ("TCE"), and (3) paint waste containing, among other substances, toluene and xylene. There are three unpermitted Solid Waste Management Units ("SWMUs") at the Facility, consisting of a land disposal unit (or "landfill"), a drum storage area, and an area below the waste stack at a spray booth where sludges accumulated. These sludges were created from the storage and disposal of paint solvent and degreasing wastes, both of which contained TCE. Beginning in approximately 1998 and continuing into 2005, the Ohio Environmental Protection Agency ("OEPA") issued orders to Schott Metal requiring it to investigate the extent of contamination at its Facility, and submit and implement a closure plan for the hazardous waste

management units on its Facility. On May 25, 2005, the OEPA referred this matter to EPA and requested EPA to require Defendants to provide soil and groundwater data, and to perform corrective action, if necessary. As provided in Paragraph 62, this Consent Decree does not limit or affect the rights of any third parties, including OEPA, not a party to this Consent Decree, against Defendants, except as otherwise provided by law.

C. The Facility is located in a residential area, and each home within the vicinity uses groundwater extracted from residential wells as its primary source of water. Because of the Facility's location and the potential for hazardous wastes, including TCE, cadmium, lead and mercury, to contaminate the groundwater and migrate from the Facility, EPA determined that the Facility may present a substantial hazard to human health or the environment, or both.

D. On August 7, 2006, EPA issued an Administrative Order ("AO") pursuant to Section 3013(a) of RCRA, 42 U.S.C. § 6934(a), requiring Schott Metal and Samuel C. Schott, to sample and monitor hazardous wastes in the soil, leachate, sediment and groundwater at the Facility. Under the AO, Samuel C. Schott and Schott Metal had thirty (30) Days from the issuance of the AO to submit a plan for carrying out such sampling and monitoring activities. From September 5, 2006 through at least April 26, 2010, Schott Metal failed to comply with the AO.

E. The Complaint against the Defendants alleges that hazardous waste was generated, stored, and disposed of at the Facility during the time that Schott Metal and Samuel C. Schott owned and/or operated it. The Complaint seeks an injunction ordering the Defendants to comply with the AO and seeks a civil penalty pursuant to Section 3013 of RCRA, 42 U.S.C. § 6934(e).

F. The Parties recognize, and the Court by entering this Consent Decree finds, that this Consent Decree has been negotiated by the Parties in good faith and will avoid litigation between the Parties and that this Consent Decree is fair, reasonable, and in the public interest.

NOW, THEREFORE, without the adjudication of any issue of fact or law except as provided in Section I, below, and with the consent of the Parties, IT IS HEREBY ADJUDGED, ORDERED, AND DECREED THAT:

#### I. JURISDICTION AND VENUE

1. This Court has jurisdiction over the subject matter of this action, pursuant to 28 U.S.C. §§ 1331, 1345, and 1355, and Section 3013(e) of RCRA, 42 U.S.C. § 6934(e). Venue lies in this District pursuant to 28 U.S.C. §§ 1391(c) and 1395(a), and Section 3013(e) of RCRA, 42 U.S.C. § 6934(e), because the alleged violations occurred in Akron, Ohio, and Schott Metal conducts business in this judicial district.

2. For purposes of this Consent Decree, Defendants agree that the Complaint states claims upon which relief may be granted pursuant to Section 3013(e) of RCRA, 42 U.S.C. § 6934(e).

#### II. APPLICABILITY

3. The obligations of this Consent Decree apply to and are binding upon the United States and upon Defendants and any successors, assigns, or other entities or persons otherwise bound by law.

4. No transfer of ownership or operation of the Facility, whether in compliance with the procedures of this Paragraph or otherwise, shall relieve Defendants of their obligation to

ensure that the terms of the Decree are implemented. At least thirty (30) Days prior to such transfer, Defendants shall provide a copy of this Consent Decree to the proposed transferee and shall simultaneously provide written notice of the prospective transfer, together with a copy of the proposed written agreement, to EPA Region 5 and the United States Department of Justice, in accordance with Section XV of this Decree (Notices). Any attempt to transfer ownership or operation of the Facility without complying with this Paragraph constitutes a violation of this Decree.

5. Defendants shall provide a copy of this Consent Decree to all officers, employees, and agents whose duties might reasonably include compliance with any provision of this Decree, as well as to any contractor previously retained, or retained in the future, to perform work required under this Consent Decree. Defendants shall condition any such contract upon performance of the work in conformity with the terms of this Consent Decree.

6. In any action to enforce this Consent Decree, Defendants shall not raise as a defense the failure by any of its officers, directors, employees, agents, or contractors to take any actions necessary to comply with the provisions of this Consent Decree.

### III. DEFINITIONS

7. Terms used in this Consent Decree that are defined in RCRA or in regulations promulgated pursuant to RCRA have the meanings assigned to them in RCRA, or the regulations promulgated under RCRA, unless otherwise provided in this Decree. Whenever the terms set forth below are used in this Consent Decree, the following definitions shall apply:

- a. “Complaint” shall mean the complaint filed by the United States in this action;
- b. “Consent Decree” or “Decree” shall mean this Decree;
- c. “Comprehensive Work Plan” shall mean the Work Plan approved by EPA on May 11, 2011, and as modified and approved on August 16, 2012, to ascertain the nature and extent of the threat to human health and the environment posed by the hazardous wastes that were released at the Facility, which is attached hereto as Appendix 1, as approved by EPA;
- d. “Date of Lodging” shall mean the date this Consent Decree is filed with the Court, by the United States Department of Justice, concurrent with a Complaint against Defendants;
- e. “Day” shall mean a calendar day unless expressly stated to be a business day. In computing any period of time under this Consent Decree, where the last day would fall on a Saturday, Sunday, or federal holiday, the period shall run until the close of business of the next business day;
- f. “Defendants” shall mean Schott Metal Products, Inc. and the Estate of Samuel C. Schott;
- g. “Disposal” shall mean “Disposal” as that term is defined in Section 1004(3) of RCRA, 42 U.S.C. § 6903(3);
- h. “EPA” shall mean the United States Environmental Protection Agency and any of its successor departments or agencies;
- i. “Effective Date” shall have the definition provided in Section XVI;



j. "Facility" shall mean Defendants' facilities, as that term is defined in 40 C.F.R. § 260.10, located at 2218 Lee Drive, 2225 Lee Road (Parcel No. 5106337), 2225 Lee Drive (Parcel 5106339), 2209 Lee Road (Parcel No. 5106334), 2227 Lee Road (Parcel No. 5106342), Parcel No. 5106345, which is directly south of 2227 Lee Road, TR 1 Sub 71 Krumroy Farms Proctor RD. 1.500A (Parcel No. 5106336), TR 1 Sub 72 Krumroy Farms Proctor RD. 1.500A (Parcel No. 5106335), and TR 1 Sub 73 Krumroy Farms Proctor RD. 1.500A (Parcel No. 5106338), all in Akron, Ohio;

k. "Hazardous Waste" shall mean "Hazardous Waste" as that term is defined in Section 1004(5) of RCRA, 42 U.S.C. § 6903(5).

l. "Paragraph" shall mean a portion of this Decree identified by an arabic numeral;

m. "Parties" shall mean the United States and Defendants;

n. "Section" shall mean a portion of this Decree identified by a roman numeral;

o. "United States" shall mean the United States of America, acting on behalf of EPA.

#### IV. CIVIL PENALTY

8. Within thirty (30) Days after the Effective Date of this Consent Decree, Defendants shall pay to the United States the sum of \$375,000.00 as a civil penalty.

9. Defendants shall pay the civil penalty due by FedWire Electronic Funds Transfer (EFT) to the U.S. Department of Justice in accordance with written instructions to be provided to

Defendant, following entry of the Consent Decree, by the Financial Litigation Unit of the U.S. Attorney's Office for the Northern District of Ohio, United States Courthouse, 801 West Superior Avenue, Suite 400, Cleveland, OH 44113 (Phone 216-622-3600). At the time of payment, Defendants shall send a copy of the EFT authorization form and the EFT transaction record, together with a transmittal letter, which shall state that the payment is for the civil penalty owed pursuant to the Consent Decree in *United States v. Schott Metal Products, Inc.*, and shall reference the civil action number and DOJ case number 90-7-1-09982, to the United States in accordance with Section XV of this Decree (Notices); by email to [acctsreceivable.CINWD@epa.gov](mailto:acctsreceivable.CINWD@epa.gov); and by mail to:

EPA Cincinnati Finance Office  
26 Martin Luther King Drive  
Cincinnati, Ohio 45268

10. Defendants shall not deduct any penalties paid under this Decree pursuant to this Section or Section IX (Stipulated Penalties) in calculating federal income tax.

#### V. COMPLIANCE REQUIREMENTS

11. Defendants shall comply with Section 3013 of RCRA, 42 U.S.C. § 6934, and the AO issued to Schott Metal Products and Samuel C. Schott in August of 2006.

12. Defendants shall complete all activities required under the Comprehensive Work Plan and the Health & Safety Plan, as approved by EPA (See Appendix 1) and the Soil Gas Survey, and the variant thereto, as approved by EPA (Appendix 2) including the submission of all required plans, reports or other deliverable items to ascertain the nature and extent of the

threat posed by the hazardous wastes present at, or that may have been released at or from, the Facility.

13. Approval of Deliverables. After review of any plan, report, or other item that is required to be submitted pursuant to this Consent Decree, EPA shall in writing: a) approve the submission; b) approve the submission upon specified conditions; c) approve part of the submission and disapprove the remainder; or d) disapprove the submission.

14. If the submission is approved pursuant to Paragraph 13.a, Defendants shall take all actions required by the plan, report, or other document, in accordance with the schedules and requirements of the plan, report, or other document, as approved. If the submission is conditionally approved or approved only in part, pursuant to Paragraph 13.b or 13.c, Defendants shall, upon written direction from EPA, take all actions required by the approved plan, report, or other item that EPA determines are technically severable from any disapproved portions, subject to Defendants' right to dispute only the specified conditions or the disapproved portions, under Section XI of this Decree (Dispute Resolution).

15. If the submission is disapproved in whole or in part pursuant to Paragraph 13.c or 13.d, Defendants shall, within forty-five (45) Days or such other time as the Parties agree to in writing, correct all deficiencies and resubmit the plan, report, or other item, or disapproved portion thereof, for approval, in accordance with the preceding Paragraphs. If the resubmission is approved in whole or in part, Defendants shall proceed in accordance with the preceding Paragraph.

16. Any stipulated penalties applicable to the original submission, as provided in Section IX of this Decree (Stipulated Penalties), shall accrue during the 45-Day period or other specified period, but shall not be payable unless the resubmission is untimely or is disapproved in whole or in part; provided that, if the original submission was so deficient as to constitute a material breach of Defendants' obligations under this Decree, the stipulated penalties applicable to the original submission shall be due and payable notwithstanding any subsequent resubmission.

17. If a resubmitted plan, report, or other item, or portion thereof, is disapproved in whole or in part, EPA may again require Defendants to correct any deficiencies, in accordance with the preceding Paragraphs, or may itself correct any deficiencies, subject to Defendants' right to invoke Dispute Resolution and the right of EPA to seek stipulated penalties as provided in Paragraph 16.

18. Permits. Where any compliance obligation under this Section or Section VI. (Additional Work) requires Defendants to obtain a federal, state, or local permit or approval, Defendants shall submit timely and complete applications and take all other actions necessary to obtain all such permits or approvals. Defendants may seek relief under the provisions of Section X of this Consent Decree (Force Majeure) for any delay in the performance of any such obligation resulting from a failure to obtain, or a delay in obtaining, any permit or approval required to fulfill such obligation, if Defendants have submitted timely and complete applications and have taken all other actions necessary to obtain all such permits or approvals.

## VI. ADDITIONAL WORK

19. Based on work performed under the Comprehensive Work Plan and the Soil Vapor Work Plan described above, EPA may determine that additional monitoring, testing, analysis, and/or reporting is necessary to ascertain the nature and extent of any hazard to human health and the environment which may be presented by the presence or release of hazardous wastes and/or hazardous constituents at or from the Facility. If EPA determines that such additional work is necessary, EPA shall notify Defendants in writing and specify the basis for its determination that additional work is necessary. Within fifteen (15) Days after the receipt of such determination, Defendants shall have the opportunity to meet or confer with EPA to discuss the additional work. If EPA requires, Defendants shall submit for EPA approval a work plan for the additional work. EPA shall specify the contents of such work plan. Such work plan shall be submitted by Defendants within thirty (30) Days of receipt of EPA's determination that additional work is necessary, or according to an alternative schedule established by EPA.

## VII. PROJECT COORDINATORS

20. EPA's and Defendants' respective Project Coordinators shall oversee the implementation of this Consent Decree and function as the principal project contacts.

21. Defendants shall provide EPA with a written notice of any change of its Project Coordinator. Such notice shall be provided at least seven (7) Days prior to the change of Project Coordinator, unless impracticable, but in no event later than the actual day the change is made. Any proposed change of Project Coordinator by Defendants shall be subject to approval by EPA, and any substitute Project Coordinator shall have sufficient technical expertise to adequately oversee

implementation of all activities under the Comprehensive Work Plan, the Soil Vapor Work Plan and any additional work. Defendants' Project Coordinator shall not be an attorney for Defendants in this matter.

#### VIII. REPORTING REQUIREMENTS

22. Defendants shall submit the following reports:

a. On or before the 15<sup>th</sup> day of each month following the Date of Lodging, until termination of this Decree pursuant to Section XIX (Termination), Defendants shall submit to EPA via postal mail or electronic mail a monthly report for the preceding month that shall include the status of any construction or compliance measures; completion of milestones; and problems encountered or anticipated, together with implemented or proposed solutions.

b. The report shall also include a description of any non-compliance with the requirements of this Consent Decree, and an explanation of its likely cause(s), and of the remedial steps taken, or to be taken, to prevent or minimize such non-compliance. If Defendants violate, or have reason to believe that they may violate, any requirement of this Consent Decree, Defendants shall notify the United States of such violation and its likely duration, in writing, within ten (10) working days of the day Defendants first becomes aware of the violation, with an explanation of the violation's likely cause and of the remedial steps taken, or to be taken, to prevent or minimize such violation. If the cause of a violation cannot be fully explained at the time the report is due, Defendants shall so state in the report. Defendants shall investigate the cause(s) of the violation and shall then submit an amendment to the report, including a full explanation of the cause(s) of the violation, within thirty (30) Days of the day Defendants

become aware of the cause(s) of the violation. Nothing in this Paragraph or the following Paragraph relieves Defendants of its obligation to provide the notice required by Section X of this Consent Decree (Force Majeure).

c. The report shall also include the results of all sampling, testing or other data generated by, or on behalf of, Defendants pursuant to this Consent Decree.

23. Whenever any violation of this Consent Decree or any applicable permits, or any other event affecting Defendants' performance under this Decree, or the operation of its Facility, may pose an immediate threat to the public health or welfare or the environment, Defendants shall notify EPA orally or by electronic or facsimile transmission as soon as possible, but no later than 24 hours after Defendants first knew of the violation or event. This procedure is in addition to the requirements set forth in the preceding Paragraph.

24. All reports shall be submitted to the persons designated in Section XV of this Consent Decree (Notices).

25. Each report submitted under this Section shall be signed by one of Defendants' officials and shall include the following certification:

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 assure 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.

This certification requirement does not apply to emergency or similar notifications where compliance would be impractical.

26. The reporting requirements of this Consent Decree do not relieve Defendants of any reporting obligations required by RCRA or its implementing regulations, or by any other federal, state, or local law, regulation, permit, or other requirement.

27. Any information provided pursuant to this Consent Decree may be used by the United States in any proceeding to enforce the provisions of this Consent Decree, and as otherwise permitted by law.

#### IX. STIPULATED PENALTIES

28. Defendants shall be liable for stipulated penalties to the United States for violations of this Consent Decree as specified below, unless excused under Section X (Force Majeure). A violation includes failing to perform any obligation required by the terms of this Decree, including any work plan or schedule approved under this Decree, according to all applicable requirements of this Decree and within the specified time schedules established by or approved under this Decree.

29. Late Payment of Civil Penalty. If Defendants fail to pay the civil penalty required to be paid under Section IV of this Decree (Civil Penalty) when due, Defendants shall pay a stipulated penalty of \$500.00 per Day for each Day that the payment is late.

30. The following stipulated penalties shall accrue per violation per Day for each violation of a separate requirement of Paragraph 12:



<u>Penalty Per Violation Per Day</u>	<u>Period of Noncompliance</u>
\$1,000	1st through 14th Day
\$2,000	15th through 30th Day
\$3,000	31st Day and beyond

31. Compliance Milestones

a. The following stipulated penalties shall accrue per violation per Day for each failure to take any action set forth in a plan, report or other document approved, in whole or in part, by EPA pursuant to Paragraph 14:

<u>Penalty Per Violation Per Day</u>	<u>Period of Noncompliance</u>
\$1,000	1st through 14th Day
\$2,000	15th through 30th Day
\$3,000	31st Day and beyond

b. The following stipulated penalties shall accrue per violation per Day for each violation of the reporting requirements of Section VIII (Reporting Requirements) of this Consent Decree:

<u>Penalty Per Violation Per Day</u>	<u>Period of Noncompliance</u>
\$500	1st through 14th Day
\$1,000	15th through 30th Day
\$3,000	31st Day and beyond

32. Stipulated penalties under this Section shall begin to accrue on the Day after performance is due or on the Day a violation occurs, whichever is applicable, and shall continue to accrue until performance is satisfactorily completed, or until the violation ceases. Stipulated penalties shall accrue simultaneously for separate violations of this Consent Decree.

33. Defendants shall pay any stipulated penalty within thirty (30) Days of receiving the United States' written demand.

34. The United States may in the unreviewable exercise of its discretion, reduce or waive stipulated penalties otherwise due it under this Consent Decree.

35. Stipulated penalties shall continue to accrue as provided in Paragraph 32, during any Dispute Resolution, but need not be paid until the following:

a. If the dispute is resolved by agreement or by a decision of EPA that is not appealed to the Court, Defendants shall pay accrued penalties determined to be owing, together with interest, to the United States within thirty (30) Days of the effective date of the agreement or the receipt of EPA's decision or order.

b. If the dispute is appealed to the Court and the United States prevails in whole or in part, Defendants shall pay all accrued penalties determined by the Court to be owing, together with interest, within sixty (60) Days of receiving the Court's decision or order, except as provided in subparagraph c, below.

c. If any Party appeals the District Court's decision, Defendants shall pay all accrued penalties determined to be owing, together with interest, within fifteen (15) Days of receiving the final appellate court decision.

36. Defendants shall pay stipulated penalties owing to the United States in the manner set forth and with the confirmation notices required by Paragraph 9, except that the transmittal letter shall state that the payment is for stipulated penalties and shall state for which violation(s) the penalties are being paid.

37. If Defendants fail to pay stipulated penalties according to the terms of this Consent Decree, Defendants shall be liable for interest on such penalties, as provided for in 28 U.S.C. § 1961, accruing as of the date payment became due. Nothing in this Paragraph shall be construed to limit the United States from seeking any remedy otherwise provided by law for Defendants' failure to pay any stipulated penalties.

38. Subject to the provisions of Section XIII of this Consent Decree (Effect of Settlement/Reservation of Rights), the stipulated penalties provided for in this Consent Decree shall be in addition to any other rights, remedies, or sanctions available to the United States for Defendants' violation of this Consent Decree or applicable law. Where a violation of this Consent Decree is also a violation of RCRA, 42 U.S.C. § 6901 *et seq.*, Defendants shall be allowed a credit, for any stipulated penalties paid, against any statutory penalties imposed for such violation.

#### X. FORCE MAJEURE

39. "Force majeure," for purposes of this Consent Decree, is defined as any event arising from causes beyond the control of Defendants, of any entity controlled by Defendants, or of Defendants' contractors, that delays or prevents the performance of any obligation under this Consent Decree despite Defendants' best efforts to fulfill the obligation. The requirement that Defendants exercise "best efforts to fulfill the obligation" includes using best efforts to anticipate any potential force majeure event, and best efforts to address the effects of any such event: (a) as it is occurring, and (b) after it has occurred to prevent or minimize any resulting delay to the

greatest extent possible. "Force Majeure" does not include Defendants' financial inability to perform any obligation under this Consent Decree.

40. If any event occurs or has occurred that may delay the performance of any obligation under this Consent Decree, whether or not caused by a force majeure event, Defendants shall provide notice orally or by electronic or facsimile transmission to EPA's Project Coordinators, within seventy-two (72) hours of when Defendants first knew that the event might cause a delay. Within seven (7) Days thereafter, Defendants shall provide in writing to EPA an explanation and description of the reasons for the delay; the anticipated duration of the delay; all actions taken or to be taken to prevent or minimize the delay; a schedule for implementation of any measures to be taken to prevent or mitigate the delay or the effect of the delay; Defendants' rationale for attributing such delay to a force majeure event if they intend to assert such a claim; and a statement as to whether, in the opinion of Defendants, such event may cause or contribute to an endangerment to public health, welfare or the environment. Defendants shall include with any notice all available documentation supporting the claim that the delay was attributable to a force majeure. Failure to comply with the above requirements shall preclude Defendants from asserting any claim of force majeure for that event for the period of time of such failure to comply, and for any additional delay caused by such failure. Defendants shall be deemed to know of any circumstance of which Defendants, any entity controlled by Defendants, or Defendants' contractors knew or should have known.

41. If EPA agrees that the delay or anticipated delay is attributable to a force majeure event, the time for performance of the obligations under this Consent Decree that are affected by

the force majeure event will be extended by EPA for such time as is necessary to complete those obligations. An extension of the time for performance of the obligations affected by the force majeure event shall not, of itself, extend the time for performance of any other obligation. EPA will notify Defendants in writing of the length of the extension, if any, for performance of the obligations affected by the force majeure event.

42. If EPA does not agree that the delay or anticipated delay has been or will be caused by a force majeure event, EPA will notify Defendants in writing of its decision.

43. If Defendants elect to invoke the dispute resolution procedures set forth in Section XI (Dispute Resolution), they shall do so no later than fifteen (15) Days after receipt of EPA's notice. In any such proceeding, Defendants shall have the burden of demonstrating by a preponderance of the evidence that the delay or anticipated delay has been or will be caused by a force majeure event, that the duration of the delay or the extension sought was or will be warranted under the circumstances, that best efforts were exercised to avoid and mitigate the effects of the delay, and that Defendants complied with the requirements of Paragraphs 39 and 40, above. If Defendants carry this burden, the delay at issue shall be deemed not to be a violation by Defendants of the affected obligation of this Consent Decree identified to EPA and the Court.

#### XI. DISPUTE RESOLUTION

44. Unless otherwise expressly provided for in this Consent Decree, the dispute resolution procedures of this Section shall be the exclusive mechanism to resolve disputes arising under or with respect to this Consent Decree. Defendants' failure to seek resolution of a dispute

under this Section shall preclude Defendants from raising any such issue as a defense to an action by the United States to enforce any obligation of Defendants arising under this Decree.

45. Informal Dispute Resolution. Any dispute subject to Dispute Resolution under this Consent Decree shall first be the subject of informal negotiations. The dispute shall be considered to have arisen when Defendants send the United States a written Notice of Dispute. Such Notice of Dispute shall state clearly the matter in dispute. The period of informal negotiations shall not exceed thirty (30) Days from the date the dispute arises, unless that period is modified by written agreement. If the Parties cannot resolve a dispute by informal negotiations, then the position advanced by the United States shall be considered binding unless, within twenty (20) Days after the conclusion of the informal negotiation period, Defendants invoke formal dispute resolution procedures as set forth below.

46. Formal Dispute Resolution. Defendants shall invoke formal dispute resolution procedures, within the time period provided in the preceding Paragraph, by serving on the United States a written Statement of Position regarding the matter in dispute. The Statement of Position shall include, but need not be limited to, any factual data, analysis, or opinion supporting Defendants' position and any supporting documentation relied upon by Defendants.

47. The United States shall serve its Statement of Position within forty-five (45) Days of receipt of Defendants' Statement of Position. The United States' Statement of Position shall include, but need not be limited to, any factual data, analysis, or opinion supporting that position, and any supporting documentation relied upon by the United States. The United States'

Statement of Position shall be binding on Defendants, unless Defendants file a motion for judicial review of the dispute in accordance with the following Paragraph.

48. Defendants may seek judicial review of the dispute by filing with the Court and serving on the United States, in accordance with Section XV of this Consent Decree (Notices), a motion requesting judicial resolution of the dispute. The motion must be filed within fifteen (15) Days of receipt of the United States' Statement of Position pursuant to the preceding Paragraph. The motion shall contain a written statement of Defendants' position on the matter in dispute, including any supporting factual data, analysis, opinion, or documentation, and shall set forth the relief requested and any schedule within which the dispute must be resolved for orderly implementation of the Consent Decree.

49. The United States shall respond to Defendants' motion within the time period allowed by the Local Rules of this Court. Defendants may file a reply memorandum, to the extent permitted by the Local Rules.

50. Standard of Review

a. Disputes Concerning Matters Accorded Record Review. Except as otherwise provided in this Consent Decree, in any dispute brought under Paragraph 46 pertaining to the adequacy or appropriateness of plans, procedures to implement plans, schedules or any other items requiring approval by EPA under this Consent Decree; the adequacy of the performance of work undertaken pursuant to this Consent Decree; and all other disputes that are accorded review on the administrative record under applicable principles of administrative law,

Defendants shall have the burden of demonstrating, based on the administrative record, that the position of the United States is arbitrary and capricious or otherwise not in accordance with law.

b. Other Disputes. Except as otherwise provided in this Consent Decree, in any other dispute brought under Paragraph 46, Defendant shall bear the burden of demonstrating that its position complies with this Consent Decree and better furthers the objectives of the Consent Decree.

51. The invocation of dispute resolution procedures under this Section shall not, by itself, extend, postpone, or affect in any way any obligation of Defendants under this Consent Decree, unless and until final resolution of the dispute so provides. Stipulated penalties with respect to the disputed matter shall continue to accrue from the first day of non-compliance, but payment shall be stayed pending resolution of the dispute as provided in Paragraph 35. If Defendants do not prevail on the disputed issue, stipulated penalties shall be assessed and paid as provided in Section IX (Stipulated Penalties).

## XII. INFORMATION COLLECTION AND RETENTION

52. The United States and its representatives, including attorneys, contractors, and consultants, shall have the right of entry into any facility covered by this Consent Decree, at all reasonable times, upon presentation of credentials, to:

- a. monitor the progress of activities required under this Consent Decree;
- b. verify any data or information submitted to the United States in accordance with the terms of this Consent Decree;



c. obtain samples and, upon request, splits of any samples taken by Schott Metal or its representatives, contractors, or consultants;

d. obtain documentary evidence, including photographs and similar data; and

e. assess Defendants' compliance with this Consent Decree.

53. At EPA's request, Schott Metal shall provide or allow EPA or its authorized representatives to take split or duplicate samples, or both, of all samples collected by Defendants pursuant to this Consent Decree. Similarly, at Schott Metal's request, EPA will allow Schott Metal or its authorized representatives to take split or duplicate samples, or both, of any samples EPA may collect under this Consent Decree, provided that such sampling shall not delay EPA's sampling activities. Nothing in this Consent Decree shall limit or otherwise affect EPA's authority to collect samples pursuant to applicable law, including, but not limited to, RCRA.

54. Until five years after the termination of this Consent Decree, Schott Metal shall retain, and shall instruct its contractors and agents to preserve, all non-identical copies of all documents, records, or other information (including documents, records, or other information in electronic form) in its or its contractors' or agents' possession or control, or that come into its or its contractors' or agents' possession or control, and that relate in any manner to Schott Metal's performance of its obligations under this Consent Decree. This information-retention requirement shall apply regardless of any contrary corporate or institutional policies or procedures. At any time during this information-retention period, upon request by the United

States, Schott Metal shall provide copies of any documents, records, or other information required to be maintained under this Paragraph.

55. At the conclusion of the information-retention period provided in the preceding Paragraph, Schott Metal shall notify the United States at least ninety (90) Days prior to the destruction of any documents, records, or other information subject to the requirements of the preceding Paragraph and, upon request by the United States, Schott Metal shall deliver any such documents, records, or other information to EPA. Schott Metal may assert that certain documents, records, or other information is privileged under the attorney-client privilege or any other privilege recognized by federal law. If Schott Metal asserts such a privilege, it shall provide the following: (1) the title of the document, record, or information; (2) the date of the document, record, or information; (3) the name and title of each author of the document, record, or information; (4) the name and title of each addressee and recipient; (5) a description of the subject of the document, record, or information; and (6) the privilege asserted by Schott Metal. However, no documents, records, or other information created or generated pursuant to the requirements of this Consent Decree shall be withheld on grounds of privilege.

56. Schott Metal may also assert that information required to be provided under this Section is protected as Confidential Business Information ("CBI") under 40 C.F.R. Part 2. As to any information that Schott Metal seeks to protect as CBI, Schott Metal shall follow the procedures set forth in 40 C.F.R. Part 2.

57. This Consent Decree in no way limits or affects any right of entry and inspection, or any right to obtain information, held by the United States pursuant to applicable federal laws,

regulations, or permits, nor does it limit or affect any duty or obligation of Schott Metal to maintain documents, records, or other information imposed by applicable federal or state laws, regulations, or permits.

XIII. EFFECT OF SETTLEMENT/RESERVATION OF RIGHTS

58. This Consent Decree resolves the civil claims of the United States for the violations alleged in the Complaint filed in this action through the Date of Lodging.

59. The United States reserves all legal and equitable remedies available to enforce the provisions of this Consent Decree, except as expressly stated in Paragraph 58. This Consent Decree shall not be construed to limit the rights of the United States to obtain penalties or injunctive relief under the Act or implementing regulations, or under other federal laws, regulations, or permit conditions, except as expressly specified in Paragraph 58. The United States further reserves all legal and equitable remedies to address any imminent and substantial endangerment to the public health or welfare or the environment arising at, or posed by, Defendants' Facility, whether related to the violations addressed in this Consent Decree or otherwise.

60. In any subsequent administrative or judicial proceeding initiated by the United States for injunctive relief, civil penalties, other appropriate relief relating to the Facility or Defendants' violations, Defendants shall not assert, and may not maintain, any defense or claim based upon the principles of waiver, res judicata, collateral estoppel, issue preclusion, claim preclusion, claim-splitting, or other defenses based upon any contention that the claims raised by the United States in the subsequent proceeding were or should have been brought in the instant

case, except with respect to claims that have been specifically resolved pursuant to Paragraph 58 of this Section.

61. This Consent Decree is not a permit, or a modification of any permit, under any federal, State, or local laws or regulations. Defendants are responsible for achieving and maintaining complete compliance with all applicable federal, State, and local laws, regulations, and permits; and Defendants' compliance with this Consent Decree shall be no defense to any action commenced pursuant to any such laws, regulations, or permits, except as set forth herein. The United States does not, by its consent to the entry of this Consent Decree, warrant or aver in any manner that Defendants' compliance with any aspect of this Consent Decree will result in compliance with provisions of RCRA, 42 U.S.C. § 6901 *et seq.*, or with any other provisions of federal, State, or local laws, regulations, or permits.

62. This Consent Decree does not limit or affect the rights of Defendants or of the United States against any third parties, not party to this Consent Decree, nor does it limit the rights of third parties, not party to this Consent Decree, against Defendants, except as otherwise provided by law.

63. This Consent Decree shall not be construed to create rights in, or grant any cause of action to, any third party not party to this Consent Decree.

#### XIV. COSTS

64. The Parties shall bear their own costs of this action, including attorneys' fees, except that the United States shall be entitled to collect the costs (including attorneys' fees)

incurred in any action necessary to collect any portion of the civil penalty or any stipulated penalties due but not paid by Defendants.

XV. NOTICES

65. Unless otherwise specified herein, whenever notifications, submissions, or communications are required by this Consent Decree, they shall be made in writing and addressed as follows:

To the United States:

Chief, Environmental Enforcement Section  
Environment and Natural Resources Division  
U.S. Department of Justice  
Box 7611 Ben Franklin Station  
Washington, D.C. 20044-7611  
Re: DOJ No. 90-7-1-09982

To EPA:

John Nordine, Project Officer  
Land and Chemicals Division, Remediation and Reuse Branch  
U.S. Environmental Protection Agency  
Region 5  
77 W. Jackson Blvd., LCD-9J  
Chicago, IL 60604

To Defendants:

Schott Metal Products, Inc.  
2225 Lee Dr.  
Akron, OH 44306

Counsel for Defendant:

John Pogue  
Harrington, Hoppe & Mitchell  
108 Main Avenue SW, Suite 500  
Warren, OH 44481

66. Any Party may, by written notice to the other Parties, change its designated notice recipient or notice address provided above.

67. Notices submitted pursuant to this Section shall be deemed submitted upon mailing, unless otherwise provided in this Consent Decree or by mutual agreement of the Parties in writing.

#### XVI. EFFECTIVE DATE

68. The Effective Date of this Consent Decree shall be the date upon which this Consent Decree is entered by the Court or a motion to enter the Consent Decree is granted, whichever occurs first, as recorded on the Court's docket; provided, however, that Defendants hereby agree that they shall be bound to perform duties scheduled to occur prior to the Effective Date. In the event the United States withdraws or withholds consent to this Consent Decree before entry, or the Court declines to enter the Consent Decree, then the preceding requirement to perform duties scheduled to occur before the Effective Date shall terminate.

#### XVII. RETENTION OF JURISDICTION

69. The Court shall retain jurisdiction over this case until termination of this Consent Decree, for the purpose of resolving disputes arising under this Decree or entering orders modifying this Decree, pursuant to Sections XI and XVIII, or effectuating or enforcing compliance with the terms of this Decree.

#### XVIII. MODIFICATION

70. The terms of this Consent Decree, including any attached appendices, may be modified only by a subsequent written agreement signed by all the Parties. Where the

modification constitutes a material change to this Decree, it shall be effective only upon approval by the Court.

71. Any disputes concerning modification of this Decree shall be resolved pursuant to Section XI of this Decree (Dispute Resolution), provided, however, that, instead of the burden of proof provided by Paragraph 50(a) or (b), as appropriate, the Party seeking the modification bears the burden of demonstrating that it is entitled to the requested modification in accordance with Federal Rule of Civil Procedure 60(b).

#### XIX. TERMINATION

72. After Defendants have completed the requirements of Section V (Compliance Requirements) of this Decree, and have paid the civil penalty and any accrued stipulated penalties as required by this Consent Decree, Defendants may serve upon the United States a Request for Termination, stating that Defendants have satisfied those requirements, together with all necessary supporting documentation. Following receipt by the United States of Defendants' Request for Termination, the Parties shall confer informally concerning the Request, and any disagreement that the Parties may have as to whether Defendants have satisfactorily complied with the requirements for termination of this Consent Decree. If the United States agrees that the Decree may be terminated, the Parties shall submit, for the Court's approval, a joint stipulation terminating the Decree.

73. If the United States does not agree that the Decree may be terminated, Defendants may invoke Dispute Resolution under Section XI of this Decree. However, Defendants shall not

seek Dispute Resolution of any dispute regarding termination, under Paragraph 46 of Section XI, until ninety (90) Days after service of their Request for Termination.

#### XX. PUBLIC PARTICIPATION

74. This Consent Decree shall be lodged with the Court for a period of not less than thirty (30) Days for public notice and comment in accordance with 28 C.F.R. § 50.7. The United States reserves the right to withdraw or withhold its consent if the comments regarding the Consent Decree disclose facts or considerations indicating that the Consent Decree is inappropriate, improper, or inadequate. Defendants consent to entry of this Consent Decree without further notice and agree not to withdraw from or oppose entry of this Consent Decree by the Court or to challenge any provision of the Decree, unless the United States has notified Defendants in writing that it no longer supports entry of the Decree.

#### XXI. SIGNATORIES/SERVICE

75. Each undersigned representative of Defendants and the Assistant Attorney General for the Environment and Natural Resources Division of the Department of Justice, or her designee, certifies that he or she is fully authorized to enter into the terms and conditions of this Consent Decree and to execute and legally bind the Party he or she represents to this document.

76. This Consent Decree may be signed in counterparts, and its validity shall not be challenged on that basis. Defendants agree to accept service of process by mail with respect to all matters arising under or relating to this Consent Decree and to waive the formal service requirements set forth in Rules 4 and 5 of the Federal Rules of Civil Procedure and any applicable Local Rules of this Court including, but not limited to, service of a summons.



**XXII. INTEGRATION**

77. This Consent Decree and its Appendices constitute the final, complete, and exclusive agreement and understanding among the Parties with respect to the settlement embodied in the Decree and supersedes all prior agreements and understandings, whether oral or written, concerning the settlement embodied herein. Other than deliverables that are subsequently submitted and approved pursuant to this Decree, no other document, nor any representation, inducement, agreement, understanding, or promise, constitutes any part of this Decree or the settlement it represents, nor shall it be used in construing the terms of this Decree.

**XXIII. FINAL JUDGMENT**

78. Upon approval and entry of this Consent Decree by the Court, this Consent Decree shall constitute a final judgment of the Court as to the United States and Defendants. The Court finds that there is no just reason for delay and therefore enters this judgment as a final judgment under Fed. R. Civ. P. 54 and 58.

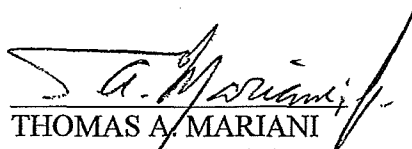
SO ORDERED THIS \_\_\_\_\_ DAY OF \_\_\_\_\_, 2013.

---

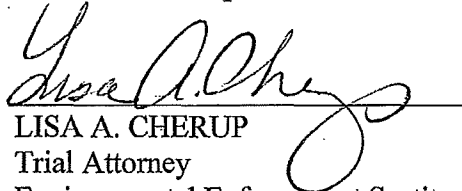
United States District Judge

The undersigned party hereby consents to the Consent Decree in the matter of United States v. Schott Metal Products, Inc., et al. (N.D. Ohio).

**FOR THE UNITED STATES:**




THOMAS A. MARIANI  
Deputy Section Chief  
Environmental Enforcement Section  
Environment and Natural Resources Division  
United States Department of Justice



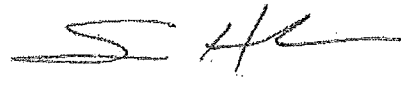
LISA A. CHERUP  
Trial Attorney  
Environmental Enforcement Section  
Environment and Natural Resources Division  
United States Department of Justice  
P.O. Box 7611  
Ben Franklin Station  
Washington, D.C. 20044-7611  
Phone: (202) 514-2802  
Fax: (202) 616-6584  
lisa.cherup@usdoj.gov

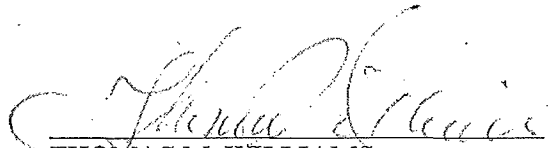
STEVEN M. DETTELBACH  
United States Attorney  
Northern District of Ohio

  
STEVEN J. PAFFILAS (0037376)  
Assistant United States Attorney  
Northern District of Ohio  
801 West Superior Avenue  
Suite 400  
Cleveland, OH 44113  
Phone: (216) 622-3698  
Fax: (216) 522-4982  
steven.paffilas@usdoj.gov

The undersigned party hereby consents to the Consent Decree in the matter of United States v. Schott Metal Products, Inc., et al. (N.D. Ohio).

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY:**

  
SUSAN HEDMAN  
Regional Administrator  
U.S. Environmental Protection Agency  
Region 5

  
THOMAS M. WILLIAMS  
Associate Regional Counsel  
Office of Regional Counsel  
U.S. Environmental Protection Agency  
77 West Jackson Boulevard  
Chicago, Illinois 60604

The undersigned party hereby consents to the Consent Decree in the matter of United States v. Schott Metal Products, Inc. (N.D. Ohio).

FOR SCHOTT METAL PRODUCTS, INC:

Faydella W. Schott

DATE: 2-1-13

FOR THE ESTATE OF SAMUAL SCHOTT:

Faydella W. Schott

DATE: 2-1-13

**Comprehensive Work Plan**  
Including  
Assessment of Hydrogeologic Conditions at the Facility and the  
Tuscarawas River (AO VI A);  
Soil Sampling and Analysis Work Plan (AO VI B);  
Leachate and Runoff Sampling and Analysis Work Plan (AO VI C);  
Sediment Sampling Work Plan (AO VI D); and  
Ground Water Monitoring Work Plan (AO IV E)  
Including Scope of Preliminary Work Plan of November 6, 2010

For

Schott Metal Products Company  
2225 Lee Road  
Akron, Ohio 44306  
Springfield Township

VADOSE Project #2010031

January 28, 2011

*Prepared by:*

VADOSE ENVIRONMENTAL CONSULTANTS, INC.

526 SOUTH MAIN STREET, SUITE 801D  
AKRON, OHIO 44311  
Office: (330) 762-6706 FAX: (330) 762-6708

Schott Metal CD Appendix 1

2010031.WP2

## Table of Contents

1.0	Introduction and Background .....	1
1.1	Facility Description.....	1
1.2	History .....	1
1.3	Recent History .....	2
2.0	Description of Current Conditions.....	3
2.1	Summary .....	3
2.2	Regional Geology and Hydrogeology .....	4
2.3	Site Geology and Hydrogeology.....	4
2.4	Suspect Asbestos Containing Materials.....	5
3.0	Tentative Schedule for Investigation/Characterization Activities .....	6
4.0	Investigation Objectives and Strategies .....	7
4.1	Drum Content Characterization .....	7
4.2	Tanker Trailer Contents Characterization.....	9
4.3	Evaluation of Hydrogeologic Conditions .....	9
4.4	Soil Sampling and Analysis.....	10
4.5	Ground Water Sampling and Analysis .....	14
4.6	Leachate and Runoff Sampling and Analysis.....	16
4.7	Sediment Sampling and Analysis .....	16
4.8	Characterization of Investigation-Derived Wastes .....	17
4.9	Laboratory Analyses .....	17
4.10	Disposal Procedures.....	18
5.0	Risk Assessment .....	19
5.1	Human Health Risk Assessment.....	19
5.2	Ecological Risk Assessment .....	22
6.0	Quality Assurance/Quality Control Procedures.....	26
7.0	Reporting Procedures.....	28
7.1	Status Reports .....	28
7.2	Work Plan Addendums .....	28
7.3	Final Report .....	28
8.0	Health and Safety Procedures.....	29
9.0	References.....	29

### Attachments

- Shallow Soil Sampling Map – Asbestos
- Site Features Map
- Drum Inventory
- Potentiometric Surface Map
- Drum Sampling Form
- Well Location Map
- Proposed Direct Push Boring Map – HWMA
- Ground Water Grab Sample Location Map
- Stream Sediment Sample Location Map

## 1.0 Introduction and Background.

On August 27, 2010 during a meeting at the site, Vadose Environmental Consultants, Inc. (VADOSE) agreed to submit a work plan on behalf of Schott Metal Products (Schott). A Preliminary Work Plan dated November 6, 2010 describes initial steps in achieving compliance with the 2006 Administrative Order (AO). This November 9, 2010 comprehensive Work Plan describes efforts in full requirements of the AO.

According to the AO, there are three unpermitted solid waste management units (SWMU) at the Subject Property:

- SWMU 1, Unpermitted Hazardous Waste Land Disposal Unit
- SWMU 2, Unpermitted Hazardous Waste Drum Storage Area
- SWMU 3, Sludge Accumulation Area Below the Paint Booth Stack.

All three SWMU are reported to have been contained within a single Hazardous Waste Management Unit (HWMU) (see attached Site Features Map). Other SWMU may or may not exist but will, if present, be described in connection with efforts described in the November 6, 2010 Preliminary Work Plan. If present, additional work, if any, to evaluate them will be described by addendum.

This Work Plan delineates VADOSE methodology for characterizing the horizontal and vertical extent of constituent of concern (COC) in the soil and ground water at the Subject Property. This plan combines required work plans for the evaluation of hydrogeologic conditions, soil sampling and analysis, ground water sampling and analysis, leachate and runoff sampling and analysis, and sediment sampling and analysis.

### 1.1 Facility Description:

The Schott facility addressed by this Work Plan is located on approximately four acres of land at 2225 Lee Road in Springfield Township, Summit County, Ohio (hereafter referenced as the "Subject Property"). Schott produces automotive aftermarket stampings and wheel assemblies for recreational vehicles. Automobile parts stamping and tool and die operations have been conducted at the facility since 1948. Several manufacturing and office buildings are present. Facility structures and drum location areas are shown on the attached Site Features Map.

### 1.2 Background:

On August 13, 2006, the U.S. Environmental Protection Agency (EPA) Region 5 issued a Resource Conservation and Recovery Act (RCRA) 3013 Administrative Order (AO) to Samuel C. Schott and Schott Metal Products, Inc (Schott). The AO identified Schott as a generator of hazardous waste and the operator of a hazardous waste management facility located at and near 2225 Lee Drive, Akron, Ohio.

The AO ordered Schott to submit a written proposal for "carrying out monitoring, testing, analysis, and reporting in order to ascertain the nature and extent of the hazard posed by the hazardous wastes that are present at or that may have been released from the study areas at the [Schott Metal Product's] facility."

The AO requires that Schott create and submit a set of five work plans (provided herein), which are to define the nature, location, extent, direction and rate of movement of any hazardous wastes or hazardous waste constituents that are present or may have been released from the Subject Property.

According to the AO, Schott's automobile parts manufacturing operations historically generated three types of wastes: scrap steel, degreasing wastes containing Trichloroethene (TCE), and paint wastes containing toluene and xylenes. Upon disposal, the latter two waste types are considered F001, F003 and F005 listed



hazardous wastes under RCRA. Prior to 1988, Schott processed metal parts through a 100-gallon capacity TCE-based degreaser in preparation for painting. Between 1984 and 1988, used TCE from the degreaser unit was accumulated in drums and stored on site behind the paint building for more than 90 days (the allowable generator accumulation period). SWMU 2 is identified as the area associated with long-term storage of these spent solvent drums and is reportedly contained within the HWMA. In addition to degreasing with TCE, Schott used nonhalogenated solvents (toluene and xylenes) to clean paint booth spray guns. The sludges generated during this process were collected in drums and moved to the SWMU 2 drum storage area, where the solids were allowed to settle out, prior to collection and reuse of the solvents. Residual solid sludge material that remained after settling was disposed in the unpermitted land disposal unit identified as SWMU 1. During the course of operations, paint sludge also collected beneath the stack on the spray paint booth. This area has been identified as SWMU 3. Accumulated sludges in this area were occasionally dug up and also disposed in the unpermitted land disposal unit identified as HWMU 1. In 1988, the solvent degreaser process was replaced with a hot water bath for painting preparation. The solvent-based paint booth system has also been replaced with a baked-on, water-based painting system. As a result, ongoing facility operations no longer generate RCRA hazardous wastes. The historic site-specific analyte list (SSAL) from 1999 included the following constituents:

**Volatile Organic Compounds**

Chloroethane  
 1,1-Dichloroethane  
 1,2-Dichloroethane  
 1,1-Dichloroethene  
 cis-1,2-Dichloroethane  
 trans-1,2-Dichloroethane  
 Toluene  
 Trichloroethene  
 Vinyl Chloride

**RCRA Metals**

Arsenic  
 Barium  
 Cadmium  
 Chromium  
 Lead  
 Mercury  
 Selenium  
 Silver

*1.3 Recent History:*

After the issuance of the AO in August 2006, the U.S. EPA prepared an Investigation Work Plan (WP), a Sampling Analysis Plan and Quality Assurance Project Plan (SAP QA) for Subject Facility in May 2007 (Document Control Numbers REPA3-3502-296 and REPA3-3502-297, respectively).

In March 2009, T. Environmental Consulting (TEC) conducted some sampling at the site between March 2009 and June 2010 after the passing of Mr. Samuel Schott.

On August 27, 2010 a meeting was held on site with Mr. John Nordine, U.S. EPA, Region 5 RCRA Corrective Action Section, Ms. Karen Nesbit, Ohio EPA Division of Hazardous Waste Management, VADOSE representatives Bill Ullom, Mark Caetta and Jennifer Zylko, and representatives from Northcoast Drilling. The purpose of that meeting included general review of site conditions, discussion of logistical challenges to be addressed in the comprehensive Work Plan, and the potential for accumulated wastes to impact the scope of the comprehensive Work Plan.

U.S. EPA requested a work plan explaining how the accumulated wastes will be sampled and how the materials will be disposed of after characterization. That document (the November 6, 2010 Preliminary Work Plan) has been prepared to fulfill U.S. EPA's request (specific disposal facilities will be identified via addendum per section 3.0 of this Preliminary Work Plan after characterization to determine the presence or absence of any hazardous waste and/or asbestos-containing waste).

## **2.0 Description of Current Conditions.**

### *2.1 Summary:*

The Subject Property is occupied by an active manufacturing facility (Schott), having two contiguous tracts occupied by single-family residences (Schott rental properties). Some of Schott's previous operations have been discontinued, i.e. paint line, degreasing line and mold casting. The original/managing owner, the previous office manager and previous plant manager have retired and/or passed away in recent years. The new supervisory staff has afforded access to all information and personnel available without reservation.

The office and manufacturing buildings are currently occupied, as are the two rental properties. The southernmost manufacturing building, formerly used to cast new stamping dies, is now only used for storage. Outdoor accumulation of materials includes stamping dies, scrap steel plate and sheeting, drums and trailers.

VADOSE conducted an inventory of all visible drums found on the Subject Property (see attached Site Features Map and Drum Inventory). A total of 280 drums were found and labeled. This total includes all drums of approximately 15 to 55 gallons, regardless of whether or not they were empty, labeled, in use, or had lost integrity. Of the 280 drums located, 132 were determined to require further characterization, 44 of which are located outdoors.

VADOSE obtained static water level data from the nine (9) existing monitoring wells at the Subject property on August 16, 2010. Monitoring well PZ-2D was located using a metal detector. Static water levels were obtained using an electronic interface probe. All depths to water were measured relative to previously surveyed top-of-casing reference points. No evidence of low-density non-aqueous phase liquids (LNAPL) or dense non-aqueous phase liquids (DNAPL) were detected as the result of these measurements.

The attached Potentiometric Surface Map, generated from the August 16, 2010 data, indicates a general ground water flow pattern to be to the southwest over the developed portion of the Subject Property. Ground water flow appears to turn southward through the undeveloped portion of the Subject Property. This flow pattern is consistent with prior determinations of ground water flow direction beneath the Subject Property reported by others. Ground water flow generally appears to be independent of the pronounced surface topography, and is typical of a bedrock flow pattern. This prompted VADOSE to re-examine the soil boring logs; based on the ground water flow pattern plus the steep incline of surface slopes, Vadose interprets the widespread and consistent occurrence of sand beneath the Subject Property as highly weathered sandstone bedrock.

At the request of Karen Nesbit (Ohio EPA, NEDO, DHWM), made during our August 27, 2010 on-site meeting, VADOSE obtained representative water samples from drinking water wells on the two contiguous residential tracts owned by Schott Metal Products (houses are rented to others). These wells were purged and sampled on August 30, 2010 (details next paragraph). No water well logs for these locations were located in the Ohio Department of Natural Resources internet database. The wells are currently in continual use by the residential occupants and therefore (after appropriate purging) would be anticipated to produce water representative of the formation waters.

In the northern house, at 2125 Lee Road, a jet-type pump was in use. This pump turned on immediately when the system began to be purged and remained on during purging. The system was purged from 10:50 to 11:13 a.m. The first available sampling location nearest the well was an unused washing machine hookup in the basement, which was also used during the purging. Water from the cold water hookup was sampled directly into VOA vials at 11:13 am (sample #2010031 2125). No headspace gas was observed in the VOA vials (zero headspace). In the southern house, at 2227 Lee Road, a submersible pump was in use, but the pressure tank did not appear to be working as the pump turned on immediately during purging and continued to turn on approximately 3 times per minute. The first available sampling location nearest the well

was a tap located just before the pressure tank. This tap was also opened during the well purging. The well was purged from 11:33 to 11:50 a.m. Sample #2010031 2227 was collected from the tap directly into VOA vials at 11:50 a.m. No headspace gas was observed in the VOA vials (zero headspace).

Samples were collected into laboratory-supplied 40 ml VOA vials with hydrochloric acid preservative using methods consistent with the Ohio EPA Technical Guidance Manual for Ground Water Investigations, Ch. 10, Ground Water Sampling. The samples were labeled as to their contents and placed into an ice-pack containing cooler at 4°C immediately after collection for transport to the laboratory under chain-of-custody. The samples were contained in the VOA vials with zero head space.

Upon arrival at the laboratory, the samples were transferred to a small laboratory-supplied cooler and delivered to laboratory personnel under chain-of-custody. The samples were received by the laboratory at 12:30 p.m. on August 30, 2010 using methods consistent with the Ohio EPA Technical Guidance Manual for Ground Water Investigations, Ch. 10, Ground Water Sampling. The analytical laboratory, Summit Environmental Technologies, Inc., is certified by Ohio EPA to perform analysis of volatile organic compound (VOC) content in drinking water. Samples were analyzed by EPA Method 524.2. Laboratory analytical reports (transmitted previously to U.S. EPA and Ohio EPA) included no indication that any of the COCs were detected above respective method detection limits (0.5 µg/L).

Additional information from water wells not owned by Schott Metal Products will be obtained during the course of this investigation, pending the granting of access from the individual property owners.

## 2.2 *Regional Geology and Hydrogeology:*

The Subject Property is located in the Akron-Canton Interlobate Plateau of the glaciated portion of the Allegheny Plateau geologic province. This province lies east of the Interior Lowlands and is the westernmost portion of the Appalachian Highlands. The Akron-Canton Interlobate Plateau is an area of end moraines formed between two converging glacial lobes. Underlying bedrock consists of Devonian to Pennsylvanian age shales, siltstones and sandstones.

## 2.3 *Site Geology and Hydrogeology:*

According to the Soil Survey of Summit County, Ohio (Soil survey staff, reissued July 1990), soils of the Subject Property consist of the non-hydric Chili loam, 2% - 6% slopes (CnB) in the northern portion and below the slope in the southwest portion of the Subject Property, made land (Md) in the ravine immediately east of the manufacturing facility, Conotton-Oshtemo complex soils, 12% to 18% slopes (CyD) and 18% to 25% slopes (CyE) on the slopes below the manufacturing facility. The soils on flat lands adjacent to the Tuscarawas River are mapped as Orrville silt loam (Or), which may have hydric inclusions of Holly silt loam (Ho) in meanders.

Data generated during previous environmental investigations indicates that stratigraphy consists of fill material overlying weathered sandstone and conglomerate and competent sandstone. The encountered bedrock is believed to be the Sharon sandstone and conglomerate member of the Pennsylvanian age Pottsville group. Groundwater lies approximately 15 to 30 feet below grade, depending on the location on the Subject Property, in an unconsolidated aquifer.

Data generated during previous environmental investigations also indicates that ground water in the unconsolidated aquifer beneath the Subject Property flows to the southwest, and turns to the south as the ground surface steepens. Potentiometric surface (static water level) measurements taken by VADOSE on August 16, 2010 confirmed the general ground water flow pattern.

One monitoring well, PZ-2D, was screened in the competent bedrock aquifer. The potentiometric surface measured in this well indicates that the bedrock aquifer has a higher potentiometric surface (by approximately 3.7 feet) than the overlying unconsolidated aquifer. This indicates that the bedrock aquifer should have a measure of protection against surface-sourced contamination based on ground water flow.

#### 2.4 *Suspect Asbestos-Containing Materials.*

Scrap roofing materials located north of the HWMA on the site consisted of metal sheets with roofing tars. On November 11, 2010, VADOSE discovered that these materials had been removed from the Subject Property. On December 1, 2010, Bradley Pringle, RS, of the Akron Regional Air Quality Management District collected three samples of roofing tar remnants from the ground surface using Asbestos Hazard Emergency Response Act (AHERA) sampling protocol (40 CFR Part 763.85). The samples were analyzed by PLM Point-Count. One sample did not contain and detectable asbestos, the second sample contained 3.8% chrysotile asbestos and the third sample contained 4.6% chrysotile. This sampling and analysis indicates that the remnant roofing tar in this portion of the Subject Property is an asbestos-containing material (ACM). On January 4, 2011, VADOSE examined the area visually to determine the extent of roofing tar remnants on the ground surface. A sampling grid was created for the purpose of soil sampling for asbestos( see attached Shallow Soil Sampling Map - Asbestos). Twenty-six soil samples were collected by a certified Asbestos Hazard Evaluation Specialist and submitted under chain-of-custody to Carolina Environmental, Inc., of Cary, North Carolina for analysis of asbestos content by polarized light microscopy (PLM) - visual estimation technique. Carolina Environmental is accredited by the National Voluntary Accreditation Program (NVLAP Accreditation #101768-0). A duplicate of sample AS-9 was sent as sample AS-27, and a duplicate of AS-22 was sent as sample AS-28.

Of the 28 soil samples submitted, only AS-1, AS-8 and AS-21 were positive for asbestos. After consultation with the U.S. EPA, the area of asbestos-containing soil was fenced off and covered to minimize the spreading of and exposure to asbestos-containing soil. No further soil sampling is planned under the current investigation.

**3.0 Tentative Schedule for Investigation/Characterization Activities.**

Within 10 days of work plan approval and seasonal weather dependent, the media sampling detailed in this Work Plan will be initiated. Samples will be sent to independent, third-party laboratories for analyses as detailed in this plan. The field work schedule will be, in part, dependent upon laboratory analytical results (for COC delineation).

Within 10 days of receiving laboratory analytical results indicating that identified COC concentrations are not sufficiently delineated and seasonal weather dependent, Vadose, on behalf of Schott, will conduct additional sampling as necessary.

Within 15 days of completion of disposition of the materials covered by this plan and discussed in the work plan addendum, Vadose, on behalf of Schott, will submit a status report summarizing the completion of such activities including copies of any disposal documentation.

Within 45 days of the completion of all investigative activities described in this Work Plan and the receipt of all related laboratory analytical data, Vadose, on behalf of Schott, will submit a final report summarizing the completion of the approved work.

#### **4.0 Investigation Objectives and Strategies.**

The immediate objective of this plan is to define the extent and magnitude of any residual soil/bedrock contamination in excess of current applicable Regional Screening Levels (Regional Screening Level Summary Table, May 2010). Because previous work indicates that soil contamination is likely to be contained within the industrial portion of the Subject Property, Industrial Soil RSLs will be utilized. Ground water COC concentrations will be compared to current Safe Drinking Water Act (SDWA) Maximum Contaminant Levels (MCLs).

All field sampling will be performed by qualified, experienced personnel who are familiar with the methods to be used at this facility. Field personnel will be certified and current in the Occupational Safety and Health Administration (OSHA) Hazardous Material Site Worker Training (40-hour initial training and 8-hour annual refresher training as required). The sampling devices will be decontaminated according to the schedule noted in Section 5.0 of this work plan.

Laboratory analytical procedures shall follow EPA SW846 (Test Methods for Evaluating Solid Waste) or other approved standards as appropriate. Method detection limits will be dictated by the established laboratory methods.

##### *4.1 Drum Characterization.*

VADOSE conducted an inventory of all drums observed on the Subject Property. A total of 280 drums were found and labeled, including drums used to contain unsold new parts inventory and partial assemblies. This total includes all drums of approximately 15 to 55 gallons, regardless of whether or not they were empty, labeled, unknown, in use, or had lost integrity. Of the 280 drums, 132 were determined to require further characterization, 44 of these drums were located outdoors. Drum characterization consists of the following steps:

- visual inspection of each drum, including any labels or markings and, if it can be done safely, visual inspection of the drum contents;
- interview(s) with facility personnel regarding knowledge of drum contents and which are currently in use;
- sampling of drums to characterize their contents for proper disposal; and
- overpacking of drums that are leaking or have lost integrity.

All drum sampling events will be logged on standardized VADOSE forms (see attached Drum Sampling Form). Information on these forms includes drum location and identification, drum contents description, identification of the sampler, and depths and times of samples. Drum content colors will be referenced to the Munsell Soil Color Charts (1994 revised edition).

##### *4.1.1 Non-liquid Drum Content Sampling Procedure.*

Drums located outdoors which contain solid (non-liquid or sludge) materials are believed to have been generated from parts molding and processing operations. Materials in these drums will be sampled using a decontaminated soil probe, hand auger or shovel, depending on particle size distribution, cementation and density of the material, in order to obtain a representative sample containing material from all levels of material in the drum. In some cases, a composite sample from drums with visually similar materials will be collected. Samples recovered from these drums will be submitted to an independent, third-party laboratory (Crystal Laboratories, Canton OH) for analysis of the following parameters:

- Toxicity characteristic leaching procedure (TCLP) for RCRA metals by EPA Method SW846 7471;
- Semivolatile organic compounds (SVOCs) by EPA Method SW846 8270D;
- PAHs using EPA Method 8310 (if PAHs are detected in the SVOC analysis); and
- pH by EPA Method SW846 150.1.

If a drum on the ground is found to contain hazardous contents and has lost its structural integrity, a confirmation soil sample will be collected from that location after the removal of the drum and its contents. The confirmation sample will be analyzed for the constituents of the drum contents that qualified it as a hazardous material.

#### *4.1.2 Liquid or Sludge Drum Content Sampling Procedure.*

Approximately 25 drums indoors on the site contain liquids and, potentially, sludge. These include several labeled and unlabeled drums located in a central oil room and drums labeled "stamping compound" inside the plant. The next step in characterizing the contents of the drums is to interview plant personnel regarding their knowledge of the drum contents. Non-waste drums and drums of product currently in use or to be used on site will not be sampled. Approximately 13 smaller (8-10 gallon) containers with liquid were found in the former forge building. These containers were labeled as containing a phosphoric acid solution. The contents of these containers will need to be characterized in a similar fashion.

The drums requiring further characterization will be sampled using new, translucent ½" OD disposable polyethylene bailers as drum thieves. All drum content samples will be placed into laboratory-supplied sample containers.

Based on the results of the preliminary characterization investigations, the liquids from the drums and plastic containers will be analyzed for some or all of the following parameters (Crystal Laboratories, Canton OH):

- Volatile organic compounds (VOC), by EPA Method SW846 8260B;
- Semivolatile organic compounds (SVOC) by EPA Method SW846 8270D;
- PAHs using EPA Method 8310 (if PAHs are detected in the SVOC analysis);
- Hexavalent chromium by EPA method SW846 7196A;
- Total RCRA metals by EPA Methods 6010B & 7471;
- Flashpoint by EPA Methods SW846 1010A / 1020B as appropriate; and
- pH by EPA Method 150.1 (to be tested in the field with test strips and/or pH meter for plastic containers).

One drum located outdoors is known to contain a small amount of liquid. Due to the low level of liquid in the drum, it will be sampled directly into laboratory-supplied sample containers. Based on the drum labeling, the liquid from this drum will be sampled in support of analyses for the following parameters (Crystal Laboratories, Canton OH):

- Volatile organic compounds (VOC), by EPA Method SW846 8260B;
- pH by EPA Method 150.1;
- Flashpoint by EPA Method SW846 1020B;
- Semivolatile organic compounds (SVOC) by EPA Method SW846 8270D; and
- PAHs using EPA Method 8310 (if PAHs are detected in the SVOC analysis).

The above order of listed analyses will be followed as the sampling order in the field. If insufficient liquid volume exists for all scheduled analyses, the analytical schedule will be modified accordingly.

#### 4.2 *Tanker Trailer Contents Characterization.*

One tanker trailer, reported to contain foundry sand, is located along the east side of the southern manufacturing building (the former mold foundry). This will be sampled as a contained waste pile. A single composite sample will be collected from this trailer using the systematic composite sampling method. The composite sample will be comprised of equal portions of material collected from all available tanker access ports, the opening of which will not cause an uncontrolled release the contents from the tanker. The sample will be composited on-site, and the sample will be transported to an independent, third-party laboratory under chain-of-custody documentation for the following analysis:

- TCLP for RCRA metals by EPA Method SW846 1311 / 6010B & 7471;
- Semivolatile organic compounds (SVOCs) by EPA Method SW846 8270D;
- PAHs using EPA Method 8310 (if PAHs are detected in the SVOC analysis);
- Hexavalent chromium by EPA method SW846 7196A; and
- pH by EPA Method SW846 150.1.

The results of this analysis will dictate the proper disposal procedures needed for the tanker trailer and its contents.

#### 4.3 *Evaluation of Hydrogeologic Conditions.*

Nine ground water monitoring wells and three potable water supply wells, installed by others, exist on the Subject Property. Thirteen to fifteen ground water monitoring wells are to be installed during this investigation (see attached Well Location Map). These well locations have been selected as follows:

- One well (PZ-9) will be located in the Hazardous Waste Management Area, where previously only direct-push borings have been advanced, to investigate ground water quality near the release;
- Three wells (PZ-10 to PZ-12) will be located down gradient of the investigated portion of the shallow aquifer, to investigate potential migration of COC beyond monitoring wells PZ-7 and PZ-8;
- One well (PZ-13) east of the northern portion of the manufacturing facility for use as an upgradient well;
- One well (PZ-14) located at the southwest corner of the manufacturing facility to monitor for COC that may migrate west from the Subject Property;
- Four wells (PZ-15 to PZ-18) to be located along the Tuscarawas River to help characterize ground water and surface water quality interaction;
- Three wells, PZ-2A, PZ-3A and PZ-4, located at PZ-2, PZ-3 and PZ-4, respectively, screened across the water table where current monitoring wells are not properly screened; and
- Up to two wells may be installed to replace PZ-3 and/or PZ-6, if required. These wells had previously been reported to be damaged or possibly improperly installed. These wells will be inspected regarding the reported anomalies and a decision will be made regarding their viability.

All additional monitoring wells will also provide data points for the further definition of the potentiometric surface beneath the Subject Property. Surrounding domestic water supply wells, as available, will supply additional bedrock aquifer water quality information.



The locations and elevations of the existing monitoring wells have previously been established by professional surveyors, and the elevations are relative to “a nearby USGS benchmark” (Haley & Aldrich, January 1999). The locations and elevations of the new (and, if needed, replacement) monitoring wells will be surveyed by a licensed land surveyor.

Ground water shall be sampled quarterly for one year. After the initial year of quarterly ground water sampling from the expanded monitoring network, it may be possible to limit the COC list for ground water quality based on the contaminant concentrations identified in background and down gradient ground water. A proposal to limit groundwater COCs will be submitted to the U.S. EPA after the first year of quarterly monitoring is complete.

Additional information from water wells not owned by Schott Metal Products will be obtained during the course of this investigation, pending the granting of access from the individual property owners. The wells are currently in continual use by the residential occupants and therefore (after appropriate purging) are anticipated to produce water representative of the formation waters.

Samples will be collected into laboratory-supplied 40 ml VOA vials with hydrochloric acid preservative and zero head space using methods consistent with the Ohio EPA Technical Guidance Manual for Ground Water Investigations, Ch. 10, Ground Water Sampling. The samples will be labeled as to their contents and placed into an ice-pack containing cooler at 4°C immediately after collection for transport to the laboratory under chain-of-custody. Samples will be transported to an independent laboratory certified by the Ohio EPA to perform analyses of volatile organic compound (VOC) content in drinking water under chain-of-custody.

The whole of the soil boring and groundwater data shall be utilized in the interpretation of the hydrogeologic conditions of the Subject Property. Stratigraphic cross sections, including static water level data, will be developed and presented in the final report.

After delineating the full extent of contamination, maps depicting the full extent of contamination for each of the identified contaminant plumes will be developed and presented based on the data accumulated throughout all phases of ground water grab sampling. These maps will depict the maximum concentrations for each of the principal contaminants identified during the sampling program at each sampling location. Fence diagrams depicting the vertical distribution of contaminants throughout the unconsolidated aquifer will also be presented for each contaminant plume. Based on the plume delineation obtained using the ground water grab samples, an analysis of the plume migration pathway and direction for each contaminant plume will be developed and presented. Based on this analysis of the current plume configurations and migration pathways, all potential receptors will be identified. Following completion of the expanded monitoring well network, hydrogeologic cross sections will be developed based on the boring logs from both existing and new monitoring well locations. After each ground water sampling event, contour maps depicting static water levels and ground water flow directions be prepared. Contour maps depicting contaminant distributions within the unconsolidated and bedrock aquifers will also be prepared. Any significant discrepancies noted with past observations in ground water flow and/or contaminant distributions will be noted and discussed.

#### *4.4 Soil Sampling & Analysis.*

The U.S. EPA has reviewed the previous investigative work conducted at the Subject Property with regards to the usability of the existing soil analytical data in current studies. Several points were raised by the EPA concerning the existing data, including the following:

- Because the available data range were generated more than 10 years ago there is some concern over whether the historical data represent current environmental conditions;

- Based on an EPA Region 5 letter dated May 4, 2004 (EPA 2004b), it has been determined that historic data on VOC contamination in soil at the Schott SWMU cannot be used for quantitative risk assessment or closure/corrective action decision-making purposes. As outlined in the letter, scientific studies found that up to 90 percent of VOC could typically be lost from a sampled matrix when non-conservative sampling methods were used. Furthermore, significantly fewer fugitive emissions resulted when conservative methods, such as those described in SW-846 Method 5035, were employed. Because such conservative soil sampling procedures were required for RCRA corrective actions only after January 1, 1998 (the effective date of Update III to EPA's SW-846 Test Methods Manual), it is unlikely that these conservative sampling procedures were used during the Schott mid-1990s investigation efforts. The available file material does not provide any documentation to dispute this assumption. Therefore, it is likely that the historic VOC data currently available are biased low.
- Natural attenuation over the intervening time since the data were initially collected may have had a significant impact on the nature and concentration of VOC present in soil at the Schott SWMU.
- The lowest detection level achieved for arsenic in historical soil samples was 5.0 mg/kg. This level exceeded the residential soil PRG of 0.39 mg/kg. Accordingly, even if a good correlation exists between detected historical arsenic levels and new data, the reported non-detect results for this metal cannot be used to delineate the full extent of contamination above PRGs. Consequently, if arsenic is not eliminated as a concern based on an assessment of naturally occurring background concentrations, at least some of the previous sampling locations will have to be re-sampled and analyzed for 'this constituent.
- Page 4 of the Region 5 guidance document (EPA 1998) indicates that the data confirmation samples should be collected from the same locations previously sampled. Due to the lack of survey coordinates on boring logs from the mid-1990s investigation (or other similar documentation), the precise locations of the historic borings cannot be determined. Although the Region 5 guidance does not specify how closely the boring locations must match, it may become problematic to select data confirmation sample locations based solely on figures from the 1999 Hydrogeologic Characterization Report (Haley & Aldrich, 1999), with no indication as to the accuracy of those figures. This becomes a greater concern given the fact that releases across the three SWMU occurred as a result of multiple release events over several years; thus, limited hot spot areas may not be encountered for re-sampling if the boring locations do not match precisely.
- The suite of other analytes for which data are available was very limited and did not consider the potential for contamination by SVOC or other constituents such as polychlorinated biphenyls (PCBs), as required by Section VI.28.B of the AO (EPA 2006).

Consequently, consistent with the findings of the EPA, this Work Plan has been written using previous soil data as a general guide, and the sampling program will largely be repeated with a more comprehensive suite of analytes and a similar, but expanded, coverage area.

#### *4.4.1 Direct-Push Soil Sampling.*

Direct-push soil borings are to be advanced at the following locations:

- Thirty five (35) soil borings in an off-set grid pattern in and around the HWMA (see attached Proposed Direct Push Boring Map – HWMA), in the area formerly noted to contain COCs in shallow soils (0 - 16 feet) at concentrations potentially in excess of applicable standards;
- Three (3) soil borings at the location of an unused storage tank immediately south of the main outdoor stamping die storage area; and

- Three (3) soil borings in an apparently uncontaminated area near the northeast corner of the Subject Property for the collection of soil samples for background metals data.

Direct-push soil sampling will be conducted to define the extent of identified soil contamination on the east side of the buildings on the Subject Property (in and adjacent to the HWMA) and other areas of potential shallow soil contamination. This method will also be used to collect soil samples from the location of an unused steel storage tank immediately south of the main outdoor die storage area; this potential source of COC was not included in previous investigations. Additional sample locations are also required on all slopes of the ravine and between PZ-3 and PZ-5 and between PZ-2 and PZ-4. Samples are anticipated to be collected in four-foot intervals in accordance with ASTM D6292-98(2005), "Standard Guide for Direct Push Soil Sampling for Environmental Site Characterizations". The work is currently planned to be performed using a Geoprobe® Model 6620DT. The soil borings are planned to extend to a depth of 20 feet, unless field observations indicate that deeper sampling is required. All planned direct-push soil boring locations are subject to relocation based on utilities, subsurface obstructions and health and safety considerations.

All soil samples will be identified in accordance with ASTM D2488-09a, "Standard Practice for Description and Identification of Soils" (Visual-Manual Procedure) and soil colors will be referenced to the Munsell Soil Color Charts (1994 revised edition). All soil samples will be screened for VOCs using a photoionization detector (PID) in accordance with SW846 Method 3815, and the maximum headspace VOC concentration will be recorded on the boring log. As this investigation has historically been driven by the presence of TCE, the most pervasive contaminant in both quantity and extent, a 10.6 eV lamp will be used in the PID. TCE and most of the VOCs that have been found at this site have ionization potentials below 10.6 eV.

All soil borings not converted to monitoring wells will be abandoned with bentonite pellets / chips. The boring locations will be accurately noted on a boring location map and marked in the field for future reference. The soil samples collected from the HWMA will be analyzed for the following parameters:

- Volatile organic compounds (VOC), by EPA Methods SW846 5035/8260B;
- Semivolatile organic compounds (SVOC) by EPA Method SW846 8270D;
- PAHs using EPA Method 8310 (if PAHs are detected in the SVOC analysis);
- RCRA metals by EPA SW846 6010B and 7471;
- Hexavalent chromium by EP SW846 7196A;
- Mercury by EPA Method SW846 7471A; and
- Polychlorinated biphenyls (PCBs) by EPA Method SW846 8082.

The soil samples collected from the unused storage tank area will be analyzed for the following parameters:

- Volatile organic compounds (VOC), by EPA Methods SW846 5035/8260B;
- Semivolatile organic compounds (SVOC) by EPA Method SW846 8270D;
- PAHs using EPA Method 8310 (if PAHs are detected in the SVOC analysis);
- RCRA metals by EPA SW846 6010B and 7471;
- PCBs by EPA Method SW846 8082; and
- Total petroleum hydrocarbons (TPH), full range, by EPA Method SW846 8015.

#### 4.4.2 Monitoring Well Drilling & Installation.

Thirteen to fifteen ground water monitoring wells are planned to be installed during this investigation (see attached Well Location Map). These well locations have been selected as follows:

- One well (PZ-9) to be located in the Hazardous Waste Management Area, where previously only direct-push borings have been advanced, to investigate ground water quality near the release;
- Three wells (PZ-10 to PZ-12) to be located down gradient of the investigated portion of the shallow aquifer, to investigate potential migration of COC beyond monitoring wells PZ-7 and PZ-8;
- One well (PZ-13) east of the northern portion of the manufacturing facility for use as an upgradient well;
- One well (PZ-14) located at the southwest corner of the manufacturing facility to monitor for COC that may migrate west from the Subject Property;
- Four wells (PZ-15 to PZ-18) to be located along the Tuscarawas River to help characterize ground water and surface water quality interaction;
- Three wells, PZ-2A, PZ-3A and PZ-4, located at PZ-2, PZ-3 and PZ-4, respectively, screened across the water table where current monitoring wells are not properly screened; and
- Up to two wells to replace PZ-3 and PZ-6, if required. These wells had previously been reported to be damaged or possibly improperly installed. These wells will be inspected regarding the reported anomalies and a decision will be made regarding their viability.

The borings for the monitoring wells will be advanced with an ATV-truck mounted drilling rig (anticipated to be a CME 75) and 4.25" ID continuous flight augers. Continuous sampling of soils and weathered bedrock will be conducted in accordance with ASTM D1586-08a, "Standard Test Method for Standard Penetration Test and Split-Barrel Sampling of Soils" where soil sampling is required. All planned hollow-stem auger soil boring locations are subject to relocation based on utilities and health and safety considerations. All soil and weathered bedrock samples will be identified in accordance with ASTM D2488-09a, "Standard Practice for Description and Identification of Soils" (Visual-Manual Procedure) and ASTM D2487, "Standard Practice for Classification of Soils for Engineering Purposes" (Unified Soil Classification System), and soil colors will be referenced to the Munsell Soil Color Charts (1994 revised edition). Soil borings for monitoring wells will be advanced approximately 7 to 8 feet into saturated materials.

All soil samples will be screened for VOCs using a photoionization detector (PID) in accordance with SW846 Method 3815, and the maximum headspace VOC concentration will be recorded on the boring log. A minimum of one subsurface soil sample collected above the ground water table from each new well boring, and one subsurface soil sample with an elevated VOC screening level, if any, will be submitted for laboratory analysis.

Monitoring wells will be constructed of 2" OD Schedule 40 PVC flush-threaded risers and screens. The screens will have 0.010" (10-slot) machine-cut openings and a bottom cap. No glues or PVC cements will be used in well construction. Each monitoring well shall include a 10 to 15 foot long well screen. A #5 (20-50 mesh, 0.012 – 0.033 inch) washed sand pack will be placed around the well screen to a depth 2 feet above the top of the screen. A minimum 2-foot thick bentonite seal will be placed on top of the sand pack. Potable water will be added to hydrate the bentonite and seal the annulus of the boring. A cement-bentonite grout will be added from the top of the bentonite seal to a depth of approximately 3 feet below grade. A steel stand-up, lockable protective casing will be set in concrete over the top of the well riser.

#### 4.5 *Ground Water Sampling and Analysis.*

##### 4.5.1 *Direct-Push Ground Water Sampling.*

Direct-push soil borings for ground water sample collection (grab samples) are to be advanced at the following locations (see attached Ground Water Grab Sample Location Map):

- Approximately 10 locations to create ground water data 'fences' along the west side of the manufacturing facility and from a point 50 feet west of PZ-7 to PZ-8;
- Five borings for vertical ground water sampling at PZ-2, PZ-3, PZ-4 and midway between PZ-2 and PZ-4 and midway between PZ-3 and PZ-5; and
- One boring for ground water sampling near the industrial water supply well.

Direct-push borings will be advanced at the above locations with ground water sampling commencing at the water table and continuing every 10 feet until competent bedrock or probe refusal are encountered. Samples will be collected using a 1.6" OD disposable polyethylene bailer through a screen-point sampler designed for the collection of discreet samples at depth. This will allow the construction of ground water quality cross-sections that display a vertical section of any detected contaminant plume. The placement of borings along the west side of the manufacturing facility and in line with the southernmost monitoring wells will facilitate the detection of VOC contamination migration through these areas.

The ground water samples collected by direct-push sampling will be analyzed for the following parameters:

- Volatile organic compounds (VOC), by EPA Method SW846 8260B;
- Semivolatile organic compounds (SVOC) by EPA Method SW846 8270D;
- PAHs using EPA Method 8310 (if PAHs are detected in the SVOC analysis);
- RCRA metals by EPA SW846 6010B and 7470;
- Hexavalent chromium by EPA Method SW846 7196A; and
- Polychlorinated biphenyls (PCBs) by EPA Method SW846 8082.

##### 4.5.2 *Monitoring Well Drilling & Installation.*

Thirteen to fifteen ground water monitoring wells are planned to be installed during this investigation as noted in Section 4.4.2. Monitoring well locations are subject to change dependent upon the results of direct-push ground water sampling and analyses. New (and, if needed, replacement) monitoring wells installed during this investigation as well as existing monitoring wells will be developed according to procedures detailed in the Ohio EPA's "Technical Guidance Manual for Hydrogeologic Investigations and Ground Water Monitoring" (February 1995) as amended. The current chapter on "Monitoring Well Development, Maintenance, and Redevelopment" is dated February 2009. Consistent with that document, development of an individual well shall take place no sooner than 48 hours after installation of that well has been completed.

The static water level and the depth to the bottom of each well will be measured with an interface probe (Keck® KIR-89) prior to development to facilitate well volume calculations. The interface probe is capable of detecting non-aqueous phase liquid (NAPL) layers as well as water levels. The well development will be initiated by surging with a bailer to destroy any bridging of the well screen and to remove the bulk of any fine sediment that may have accumulated inside the well during installation. The wells will then be bailed until the temperature, pH and conductivity have stabilized, according to the following Table 1, for three successive well volumes.

Monitoring well purging and sampling will be conducted according to procedures described in the U.S. EPA Paper "Low-Flow (Minimal Drawdown) Ground-Water Sampling Procedures" (EPA/540/S-95/504). Well samples will be collected no sooner than one week after well development. New tubing will be used for each sampling event. Well purging progress will be monitored in a flow-through cell for the parameters listed in Table 2. Water quality parameter measurements will be taken approximately every 3 to 5 minutes, dependent upon actual purging rates.

<b>Table 1</b> <b>Water Quality Indicator Parameters for Development (ASTM D6771-02)</b> <b>Schott Metal Products Company Property</b> <b>2225 Lee Road, Akron, Ohio 44601</b>	
Parameter	Stabilization Criteria
pH	+/- 0.2
Specific electric conductance	+/- 3%
Temperature	+/- 0.5°C
Dissolved oxygen	+/- 10% of previous reading or 0.2 mg/l, whichever is greater

<b>Table 2</b> <b>Water Quality Indicator Parameters for Low-Flow Purging</b> <b>Schott Metal Products Company Property</b> <b>2225 Lee Road, Akron, Ohio 44601</b>	
Parameter	Stabilization Criteria
pH	+/- 0.1
specific electric conductance	+/- 3%
temperature	+/- 0.3°C

Ground water samples will be collected directly into laboratory-supplied containers from the pump tubing after water quality stabilization has been documented. The flow-through cell will be removed from the sampling string prior to sample collection.

The ground water samples will be analyzed for the following parameters:

- Volatile organic compounds (VOC), by EPA Methods SW846 5035/8260B;
- Semivolatile organic compounds (SVOC) by EPA Method SW846 8270D;
- PAHs using EPA Method 8310 (if PAHs are detected in the SVOC analysis);
- RCRA metals by EPA SW846 6010B and 7470;
- Hexavalent chromium by EPA Method SW846 7196A;
- Mercury by EPA Method SW846 7471A; and
- Polychlorinated biphenyls (PCBs) by EPA Method SW846 8082.

The locations and elevations of the existing monitoring wells have previously been established by professional surveyors, and the elevations are relative to "a nearby USGS benchmark" (Haley & Aldrich, January 1999). The locations and elevations of the new (and, if needed, replacement) monitoring wells will be measured relative to the existing wells and facility buildings. Elevations of the ground surface and the top of well casing (to a mark on the north side) will be surveyed using an autolevel.

#### 4.6 *Leachate and Runoff Sampling & Analysis.*

The AO requires that leachate and runoff sampling and analysis be addressed in a work plan. Any leachate generated by the passing of precipitation through any deposited materials would go to ground water. The actual impact of the leachate on the ground water shall be directly measured by ground water sampling and analysis (see Section 4.5). The maximum impact from leachate to the ground water is anticipated to be located in the shallow ground water immediately beneath the HWMA. A new monitoring well is scheduled to be installed at this location.

Surface drains are located at the manufacturing facility on the Subject Property. These are believed to drain to the shallow valley east of the manufacturing building. A visual inspection of the valley did not reveal any outlet; the outlet may or may not have been buried during the documented "landfilling activities". The drainage path(s) of these surface drains will be confirmed by dye testing. The surface of the Subject Property will be inspected for evidence of any other locations of concentrated surface flow.

Upon completion of the dye testing, locations for storm water runoff sampling will be selected. If the surface drainage outlet is confirmed to have been buried by valley fill, sampling will be conducted at the last accessible surface drain. Samples will also be collected from two locations of the ditch located between the manufacturing facility and the Tuscarawas River; one upstream and one downstream of the runoff from the manufacturing facility. Storm water runoff sampling will be conducted in a manner consistent with initial sampling for an individual National Pollutant Discharge Elimination System (NPDES) permit. Runoff sampling at each location includes collecting one sample during the first part of a rain event and a composite sample collected at regular intervals during the rain event. A qualifying rain event is a rain event of at least 0.1" occurring at least 72 hours after the last rainfall of 0.1" or more.

The runoff water samples will be analyzed for the following parameters:

- Volatile organic compounds (VOC), by EPA Methods SW846 5035/8260B;
- Semivolatile organic compounds (SVOC) by EPA Method SW846 8270D;
- PAHs using EPA Method 8310 (if PAHs are detected in the SVOC analysis);
- RCRA metals by EPA SW846 6010B and 7470;
- Hexavalent chromium by EPA Method SW846 7196A;
- Mercury by EPA Method SW846 7471A; and
- Polychlorinated biphenyls (PCBs) by EPA Method SW846 8082.

#### 4.7 *Sediment Sampling & Analysis.*

The AO stated that sediment samples must be collected to determine the nature and extent of contamination at the Tuscarawas River, which is located within one-quarter mile of the facility. VADOSE has inspected topographic maps of the Subject Property and the immediately surrounding area to locate optimum sediment sampling locations. County property records were researched to verify land ownership along the river. Selected sampling locations are on land owned by Faydelle W. Schott or Summit County; any sampling activities on lands owned by Summit County must be conducted pursuant to formal authorization to conduct such activities by the Summit County Administrator or his designee.

Topographic maps show a ditch along the north side of the Tuscarawas River flood plain, between the manufacturing facility and the river. Runoff and sediments from the manufacturing facility would be intercepted by this ditch before reaching the river. This ditch eventually discharges to the river at a location southwest of the Subject Property. In order to evaluate the contribution, if any, of COC from the Subject Property to the sediments of the Tuscarawas River, VADOSE will collect shallow (0" - 12") sediment samples from the following locations (see attached Stream Sediment Sample Location Map):

- Six samples from the drainage ditch between the manufacturing facility and the Tuscarawas River before runoff from the manufacturing facility would enter the ditch;
- One sample from the Tuscarawas River before runoff from the manufacturing facility would enter the river; and
- One sample from the Tuscarawas River after the ditch discharges to the river at a location southwest of the Subject Property.

These samples will be collected by hand auguring, or digging with a stainless steel trowel, sediments to a maximum depth of 12 inches. The sediment samples will be analyzed for the following parameters:

- Volatile organic compounds (VOC), by EPA Method SW846 5035/8260B;
- Semivolatile organic compounds (SVOC) by EPA Method SW846 8270D;
- PAHs using EPA Method 8310 (if PAHs are detected in the SVOC analysis);
- RCRA metals by EPA SW846 6010B and 7470;
- Hexavalent chromium by EPA Method SW846 7196A;
- Mercury by EPA Method SW846 7471A; and
- Polychlorinated biphenyls (PCBs) by EPA Method SW846 8082.

#### 4.8 *Characterization of Investigation-Derived Wastes.*

Potentially contaminated investigation-derived wastes will be segregated into three categories:

- Soils / solid wastes;
- Ground water; and
- Decontamination water / fluids.

All drums will be labeled as to their contents, including dates and information on borings/wells from which waste was generated. Drums will be accumulated indoors in the former forge building. Drums will be sampled within three weeks of filling. Drum content analytical suites (to be identified in an addendum report and subject to U.S. EPA approval) will be dependent upon laboratory analyses of the associated media. Drum sample analytical suites will be dependent upon the analytical suites of the samples collected during the generation of the waste, as well as the results of the relevant sample analyses.

#### 4.9 *Laboratory Analyses.*

Crystal Laboratories, Inc., of Canton, Ohio will be the independent third-party environmental testing laboratory for this project. A copy of Crystal laboratories' current Quality Assurance Program Manual is maintained on file at Vadose Environmental Consultants, Inc., Akron Ohio office. Crystal Laboratories participates in a biannual performance evaluation standards evaluation program with Analytical Products Group. A blind sample of unknown concentration is supplied to the laboratory, and their results are reported to three significant figures. A report is issued with an 'acceptable', 'marginal' or 'unacceptable' rating. For 'marginal' and 'unacceptable' results, a corrective actions report is issued including an explanation of why the result was out of range and actions to be taken to correct the problem.



All suspect asbestos containing material samples will be submitted to Carolina Environmental, Inc., of Cary, North Carolina for analysis of asbestos content by polarized light microscopy (PLM) - visual estimation technique. Carolina Environmental, Inc., is accredited by the National Voluntary Accreditation Program (NVLAP Accreditation #101768-0).

All samples will be transported / shipped to the appropriate analytical laboratory under chain-of-custody documentation. Laboratory analytical procedures shall follow EPA SW846 (Test Methods for Evaluating Solid Waste) or other approved standards as appropriate. Laboratory analyses will be performed according to current and appropriate methods as of the dates of sample submittals. Method detection limits will be dictated by the established laboratory methods.

#### *4.10 Disposal Procedures.*

Proper disposal procedures for the items that are the subjects of this preliminary work plan and investigation derived wastes are dependent upon the results of laboratory analyses. Most (if not all) of the outdoor drums which contain substances, if the contents are deemed to be hazardous, will require overpacking prior to shipment due to the loss of structural integrity of some of the drums.

Materials will be packaged and shipped off-site to appropriate disposal facilities (to be identified via addendum and subject to USEPA approval) in accordance with applicable federal, state and local regulations for hazardous waste and hazardous materials. Some materials may have a market value as recyclable scrap or may otherwise be recyclable materials. Used roofing materials will either be sent to a landfill which accepts asbestos-containing materials or, if no asbestos is reported by the independent third-party laboratory, will be sold as recyclable steel scrap, pending results of this investigation.

## 5.0 Risk Assessment.

A risk assessment will be performed using data generated during this investigation. Risk assessment involves the numeric characterization of potentially adverse effects from exposure to contaminants in the environment. Results of a risk assessment provide conservative estimates of potential human health and ecological risks posed by contaminants that are present at or migrating from a site. These quantitative risk estimates provide an analysis of the need for remedial action at sites and a basis for establishing cleanup levels that will adequately protect public health and the environment. The objective of a risk assessment is to determine whether site-related contaminants pose any current or potential future risk to human health and the environment in the absence of any remedial action.

### 5.1 Human Health Risk Assessment.

The objectives of the baseline human health risk assessment (HHRA) are to: (1) quantify exposures and characterize baseline risks to potentially exposed individuals (both current and future) at or near the Subject Property; (2) identify those chemicals that may pose risks to human health; and (3) provide the basis with which to assess the need, if any, for additional studies. The Schott HHRA will follow the methodology outlined in the *Risk Assessment Guidance for Superfund: Vol. I Part A - Human Health Evaluation Manual* (RAGS - Part A) (EPA 1989) and several more recent regulatory guidance documents and resources as appropriate, including (but not necessarily limited to):

- *Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites* (OSWER 9355.4-24, March 2001)
- *Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual, Part E, Supplemental Guidance for Dermal Risk Assessment* (EPA/540/R/99/005, OSWER 9285.7-02EP, PB99-963312, July 2004)
- *Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites* (OSWER 9285.6-10, December 2002)
- *Exposure Factors Handbook, Volumes 1 through 3* (EPA/6001P-951002Fb, August 1997).

The approach that will be followed for developing the baseline HHRA incorporates fundamental components of risk assessment including data evaluation, exposure assessment, toxicity assessment, and risk characterization. The following subsections provide general information regarding the approach that will be used for developing the baseline HHRA for the Subject Property.

#### 5.1.1 Data Evaluation.

One of the first steps of the baseline HHRA process is to review data collected during site investigations (SI) to develop a data set to support the site-specific HHRA. The analytical data from the SI activities will be reviewed to: (1) validate and organize sampling data that are of acceptable quality for their use in the risk assessment, and (2) identify a set of constituents that are site related. The data collected as part of this SI will be used, along with any appropriate data from previous studies, to perform baseline human health assessments of the risks posed by exposure to contaminants released from the Subject Property.

Separate data sets will be created for each medium. Contaminated media may include, but are not limited to: soil (surface and subsurface), groundwater, surface water, air (indoor and outdoor), and sediment. Summary statistics, including detection frequency, arithmetic mean concentration, maximum detected concentration, standard deviation, and 95% upper confidence limit of the mean (UCL), will be generated for each data set.

To streamline the HHRA process and focus efforts on important issues, a tiered risk-based approach will be used for the selection of constituents of concern (COC) to be further evaluated in the site-specific HHRA. This approach will be based on EPA-developed methodology and follow standard HHRA procedures. The maximum detected concentration of a chemical will be compared with chemical- and medium-specific risk-based screening concentrations (RBSCs), defined as concentrations that are not expected to result in any adverse impact based on exposure conditions. A chemical will be selected as a COC if its maximum detected concentration exceeds the RBSC.

For this HHRA, the initial RBSCs will be taken from the Regional Screening Level (RSL) Summary Table (May 2010). The RSL calculator shall be employed when site-specific data can be input to generate site-specific screening levels. If multiple COC are evaluated for risk, the formulae from RAGS Part A Appendix B will be used to evaluate the total risk, accounting for possible additive effects of COC on target populations. RBSCs from the following sources will be used if RSLs are unavailable: Ohio EPA, Division of Emergency and Remedial Response, Voluntary Action Program generic numeric standards, and Federal Ambient Water Quality Criteria (AWQC).

If the maximum concentration of a chemical does not exceed the RBSC, the chemical will be eliminated from further evaluation in the risk assessment. If there is no RBSC for a detected chemical, the chemical will be considered a COC and will be further evaluated in the risk assessment.

#### *5.1.2 Exposure Assessment.*

Exposure assessment involves the identification of the potential human receptors and exposure pathways at the Subject Property for present and potential future land use scenarios. Potential release and transport mechanisms will be identified for contaminated source media. Exposure pathways will be finalized by assessing information gathered during the SI described by this Work Plan. The exposure pathway links the sources, locations, types of environmental releases, and environmental fate with receptor locations and activity patterns. Generally, an exposure pathway is considered complete if it consists of the following four elements: (1) a source and mechanism of release, (2) a transport medium, (3) an exposure point (i.e., point of potential contact with a contaminated medium), and (4) an exposure route (e.g., ingestion) at the exposure point.

The site conceptual exposure model (SCEM) provides a visual depiction of the possible release pathways and transport of contaminants from the source locations to the points of exposure, as well as the routes of exposure to humans. A SCEM will be developed for this Subject Property. Based on the results of site investigations, contaminated sources (media) may include (but are not limited to) groundwater, surface water, surface and subsurface soil, sediment, and indoor and outdoor air. In addition, because of the adjacent Tuscarawas River and nearby off-site residents, fish/shellfish and homegrown food produce may be secondary sources of contamination and require evaluation.

At a minimum, the Schott HHRA will evaluate exposures to on-site workers, off-site residents, and future on-site residents. Other potentially exposed receptor populations (e.g., trespassers, construction workers) will be evaluated after the nature and extent of contamination has been defined. Justifications will be provided for the receptors and complete exposure pathways retained in the HHRA, as well as for those excluded from further quantitative evaluation.

The potential for human receptors to be exposed to contaminated media through relevant routes of exposure (i.e., inhalation, ingestion, and dermal contact) will be evaluated once the nature and extent of contamination are known and all potential receptors have been considered. All potentially complete routes of exposure will be considered in the HHRA.

Exposure parameters will be determined to calculate estimates of intake of COC. The key parameters will include body weight (BW), exposure frequency (EF), and exposure duration (ED). Other exposure parameters will be defined once all routes of exposure have been determined. Unless there is site-specific information available, the exposure parameters will be EPA-approved values.

Exposure point concentrations (EPCs) are those concentrations of contaminants in environmental media to which humans are exposed. EPCs will be calculated following methods presented in EPA (2002), which is also consistent with RAGS - Part A.

The toxicity assessment provides a framework for characterizing the relationship between the magnitude of exposure to a COC and the nature and likelihood of adverse health effects that may result from such exposure. In the HHRA, chemical toxicity is typically divided into two categories: carcinogenic and noncarcinogenic effects of concern (hazards). Potential health effects are evaluated separately for these two categories, because their toxicity criteria are based on different mechanistic assumptions and associated risks are expressed in different units.

Consistent with EPA (2003), pertinent toxicological and dose-response information for COC will be selected from the following sources:

- Tier 1 - Integrated Risk Information System (IRIS)
- Tier 2 - EPA's Provisional Peer-Reviewed Toxicity Values (PPRTVs)
- Tier 3 - Other toxicity values (e.g., California Environmental Protection Agency, Agency for Toxic Substances and Disease Registry, and EPA's Health Effects Assessment Summary Tables).

Those constituents that cannot be quantitatively evaluated due to a lack of toxicity factors will not be eliminated as COC on this basis. Instead, these constituents will be qualitatively addressed and included in the risk characterization discussion to allow consideration in risk management decisions.

### *5.1.3 Risk Characterization.*

In this section of the risk assessment, toxicity and exposure assessments will be integrated into quantitative and qualitative expressions of carcinogenic risk and noncarcinogenic hazards. The estimates of risk and hazard will be presented numerically in spreadsheets.

Carcinogenic risks are estimated as the incremental probability of an individual developing cancer over a lifetime as a result of exposure to a potential carcinogen. In accordance with guidance provided in RAGS - Part A (EPA 1989), incremental risk of an individual developing cancer will be estimated by multiplying the calculated daily intakes, which are averaged over a lifetime of exposure, by the slope factors. The potential for noncarcinogenic effects will be estimated by comparing an exposure level over a specified time period with a Reference Dose (RID) derived for a similar exposure period. This ratio of exposure to toxicity is referred to as a hazard quotient (HQ). Carcinogenic risks and noncarcinogenic hazard values will be combined across pathways, as appropriate, to account for potential additive effects.

For noncarcinogens, the sum of HQs is termed a hazard index (HI). HIs are compared to EPA's benchmark of one (1). An HI less than one is interpreted as not presenting concern for the potential for non-cancer effects. An HI greater than one may indicate potential adverse health effects from a chemical exposure, however, the magnitude of that potential is uncertain.

For carcinogens, EPA's National Contingency Plan (NCP) establishes an excess cancer risk of one in one million ( $10^{-6}$ ) as a point of departure for making decisions to manage the risks. Excess cumulative cancer risks lower than  $10^{-6}$  are not addressed by the NCP and are considered acceptable. Excess cumulative cancer risks between  $10^{-4}$  to  $10^{-6}$  may be considered acceptable, depending on whether there are ecological risks, site-specific factors such as the potential for exposure, and the level of uncertainty in the data that may lead to overestimation of risk estimates.

The results presented in the spreadsheet calculations will be compared to these target levels and exceedances will be qualitatively discussed. These levels provide a basis for determining residual chemical levels that are adequately protective of human health.

#### *5.1.4 Uncertainty Analysis.*

In any risk assessment, estimates of potential carcinogenic risk and noncarcinogenic hazards have numerous associated uncertainties. The primary areas of uncertainty and limitations will be qualitatively discussed and their impact on the quantitative estimates of risk and hazard will be evaluated. Areas of uncertainty that will be discussed in the HHRA include, but are not limited to, the following:

- Data collection and evaluation
- Assumptions regarding exposure scenarios
- Applicability and assumptions of models selected to predict the fate and transport of COC in the environment
- Parameter values for estimating intake of COC.

#### *5.2 Ecological Risk Assessment.*

Ecological risk assessment (ERA) is defined as a process that evaluates the likelihood that adverse ecological effects are occurring or may occur as a result of exposure to one or more stressors. Essentially, an ERA is an evaluation of the actual or potential impacts of contaminants from a hazardous waste site on plants and animals other than humans or domesticated species. A risk does not exist unless: (1) the contaminant has the ability to cause an adverse effect, and (2) a plant or animal can come into contact with a contaminant long enough and at a high enough concentration that the contaminant causes an adverse effect.

There are four main goals of an ERA:

- To determine whether harmful effects are likely for wild animals or plants exposed to site-related hazardous chemicals; these harmful effects are referred to as a significant risk,
- If there is significant risk, to calculate a protective cleanup level that would reduce the risk to wild animals or plants
- To determine the potential impact of cleanup activities on the habitats, plants, or animals, and
- To provide information that can be used as a baseline for long-term biological monitoring programs to determine if the cleanup is effective.

The ERA conducted for the Schott facility will follow the eight-step methodology outlined in EPA's *Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments, Interim Final*, (ERAGS) (EPA 1997). This eight-step process involves a screening-level ecological risk assessment (SERA) and, if warranted based on initial results from the SERA, a more detailed baseline ecological risk assessment (BERA).

### *5.2.1 Screening-Level Ecological Risk Assessment*

The first two steps of the ERA process are often referred to as a SERA. An initial step of the SERA will be to decide which components of an ecosystem (the sum of all the living organisms, their interactions, and the physical factors in a particular area) should be protected, and therefore, which species should be the focus of the ERA.

#### Step 1 (Problem Formulation)

Problem formulation is the first stage in determining the potential problem at the site: a basic understanding of possible risk to the local environment/ecology. This will include a visit to the Subject Property to: (1) determine what plants and animals might be at risk to chemical contamination, (2) gather information on the chemical contaminants present, and (3) determine how those chemicals might affect the plants and animals. The final component of Step 1 will consist of an ecological effects evaluation, which involves a review of scientific literature to determine at what level (concentration) various chemical contaminants will not cause adverse effects in the plants and animals that may come into contact with the contaminants present at the Subject Property. These levels will be no-observed adverse-effects-levels (NOAELs) and will be used as screening-level benchmarks.

#### Step 2 (Exposure Estimates and Risk Characterization)

Exposure estimates and risk characterization will include: (1) estimating to what level a plant or animal is exposed to a particular contaminant, and (2) comparing maximum contaminant concentrations to screening values (these comparisons result in HQs). Risk characterization will involve comparing contaminant concentrations with screening-level benchmarks to determine whether the contamination at the site presents a potentially significant risk. For the exposure pathways that are described for this Subject Property, the highest measured or estimated on-site contaminant concentration for each environmental medium (sediments, water, or soil) will be used to estimate exposure to contaminants. This will help ensure that potential threats to the environment are not missed. HQs will be calculated by dividing the maximum contaminant concentrations present at the site for a particular contaminant by the screening-level benchmarks. The process will conclude with a scientific-management decision point, at which time it is determined if:

- Ecological threats are almost, or entirely, absent (i.e.,  $HQ < 1.0$ ) and therefore no further work is needed
- The ecological risk assessment should continue to determine whether risk exists, or
- There is the possibility of adverse ecological effects (i.e.,  $HQ > 1.0$ ), and a more detailed ecological risk assessment, with more information about the Subject Property, is needed.

An Uncertainty Section will be included in all risk assessments to describe the uncertainties associated with the assumptions, extrapolations, and limitations of knowledge, and the possible effects of these uncertainties on the outcome.

### *5.2.2 Baseline Ecological Risk Assessment*

If more detailed assessment is determined to be warranted at the conclusion of the SERA, a BERA will be conducted to evaluate the potential for adverse effects to ecological receptors from COC at the Subject Property. The BERA will be prepared in accordance with ERAGS (EPA 1997). The BERA will correspond with Steps 3 through 7 of the eight step process outlined in ERAGS. The following provides an outline of the process that will be completed for the Schott BERA, if warranted based on the conclusions of the SERA.

Step 3 (Baseline Risk Assessment Problem Formulation)

- Refining contaminants of potential ecological concern (COPECs) decide whether chemicals found at the site should be considered further in determining potential ecological risk
- Contaminant fate and transport-what happens to the chemicals in the environment biologically, chemically, physically and how they move among plants and animals
- Mechanisms of toxicity-what are the harmful effects on plants and animals
- Ecosystems potentially at risk-habitats and plants and animals present; sensitivity by plants and animals to chemicals; water bodies present
- Exposure pathways-how the chemicals pass through the food web from the source of contamination
- Assessment endpoints-the characteristic(s) of a plant or animal that can be measured in terms of harmful effects
- Conceptual site model--collection of exposure pathways
- Risk questions-using various lines of evidence, answer the question "does chemical X cause harmful effects in plant or animal Y?"

Step 4 (Study Design and Data Quality Objective Process)

- Work plan and sampling plan-develop a written description of how the investigation of ecological effects will proceed at the site
- Measurement endpoints-what is measured (i.e., reproduction, mortality, growth) in relationship to the assessment endpoints
- Study design-what type of testing will be performed to evaluate the potential ecological risk at the site
- Data quality objectives and statistical considerations-a series of planning steps to ensure that the quality, type, and quantity of data will be adequate and defensible

Step 5 (Field Verification of Sampling Design)

- Determine if the site conditions still allow the investigation to proceed as described in Step 4 or if new conditions require modifications of the work plan

Step 6 (Site Investigation)

- Site investigation-the work is carried out as described in the work plan
- Data analysis-the information gathered is analyzed according to the work plan and statistical design

Step 7 Risk Characterization

The final step in the BERA is risk characterization, which includes risk estimation and risk descriptions. Risk characterization involves combining the results of the studies performed to produce an estimate of the ecological risk and describe that risk in terms of extent, future potential for risk, how long might contamination remain, and what are the prospects of natural recovery if no action is taken. Information collected during the remedial investigation is used to support qualitative risk evaluations. Quantitative risk evaluation is conducted by comparing estimated exposures with appropriate toxicity values to calculate hazard quotients. Because uncertainties are inherent in quantitative assessments, a qualitative discussion about the range of confidence in the risk characterization (i.e., low, medium, high) will be provided and will include a description of the factors that may contribute to an overestimation or underestimation of risk. If possible, risk will be expressed in terms of relative magnitude and direction (overestimation or underestimation). The output from the uncertainty analysis will be an evaluation of the impact of the uncertainties on the overall assessment and, to the extent possible, will include mechanisms to reduce uncertainty.

Step 8 (Risk Management)

In risk management, the results of the BERA are used by risk managers to determine what, if any, corrective measures are needed to address potential risks to the environment. This step is typically performed by EPA risk managers with input from facility representatives and is considered to be outside the scope of this Work Plan.



## 6.0 Quality Assurance/Quality Control Procedures.

Quality Assurance/Quality Control (QA/QC) procedures are detailed in a separate Quality Assurance Project Plan. QA/QC procedures will be implemented to ensure that the data generated during this investigation is valid and can be used with confidence. In addition to laboratory internal QA/QC procedures, VADOSE personnel will employ the following methods and techniques during sample collection and handling:

- Decontamination
  - Methods will be consistent with ASTM D5088-02(2008), "Standard Practice for Decontamination of Field Equipment Used at Nonradioactive Waste Sites".
  - Reusable sample collection devices include soil probes, hand augers or shovels, and split-spoons. These sampling implements will be decontaminated before each sampling event with a potable water/laboratory grade detergent (i.e., Alconox<sup>®</sup> or Liquinox<sup>®</sup>) wash, potable water rinse, reagent-grade methanol rinse and distilled water rinse in that order. The samplers will then be allowed to air-dry.
  - Direct-push sampling equipment will be decontaminated as above between borings. Samples will be collected in new, disposable liners.
  - Drilling equipment (augers, rods, split spoons, etc.) will be cleaned before each boring using a high-pressure steam cleaner and allowed to air-dry. The steam cleaner is scheduled to be part of a decontamination trailer. the trailer will have a partially enclosed rack for equipment with a waste water collection area below the rack. A sump pump will be used to collect used wash water into 55-gallon DOT-approved drums pending characterization and disposal.
  - The low-flow pump for monitoring well development and sampling will be decontaminated between wells according to the manufacturer's instructions.
  - Decontamination fluids will be collected in labeled, 55-gallon drums and placed in the former forge building pending characterization and disposal.
- QA/QC Samples
  - Trip blanks - A trip blank supplied by the analytical laboratory will accompany the sample containers to check for cross-contamination of samples by volatile organic compounds (VOC). A single trip blank will be used for each sample shipment. The trip blank will be analyzed for VOC by EPA Method SW846 8260B.
  - Field blanks - Field blanks collected by running distilled water over decontaminated sampling equipment will be analyzed in order to document the efficiency of the field decontamination procedures. A single field blank will be collected from each sampling device used during the day. The field blanks will be analyzed for similar parameters as the media which it samples.
  - Field duplicates - Field duplicates will be collected at a rate of one per 20 laboratory samples per media per day by splitting a sample for analysis. The identity of the sample from which the duplicate is made will not be known to the analytical laboratory. The duplicate will be submitted for the same laboratory analysis as the sample which it is taken from.
- Sample Handling
  - Personnel collecting field samples will wear clean, disposable nitrile or latex sampling gloves.
  - All sample container lids and rims will be cleaned of soil or sediment prior to sealing.
  - Required sample preservatives will be supplied by the analytical laboratory.

- Samples for laboratory analyses will be handled under chain-of-custody documentation and refrigerated to 4°C. The standard chain-of-custody provided and utilized by the respective analytical laboratories will be used. Chains of custody will include sample identities, sampling dates and times, analytical suite requested for each sample, description of sample media, signatures of samplers and handlers of the samples, and other pertinent information (e.g. potential interferents, strong odors, notation of multiples phases, etc.).

## **7.0 Reporting Procedures.**

VADOSE, on behalf of Schott, will provide the following reports to the U.S. EPA:

### *7.1 Status Reports.*

Once the Work Plan is approved, monthly progress reports will be submitted on the seventh calendar day of the subsequent month. All activities conducted during the month will be identified and discussed. Data obtained during the month, including any laboratory analysis, will be submitted in summary form. Any significant findings or conclusions resulting from the month's activities or from data received during the month, including the completion of any portion(s) of the approved Work Plan, will be identified. Any significant deviations during the month from the Work Plan will similarly be noted.

### *7.2 Work Plan Addendums.*

During the course of this investigation, VADOSE will learn more about the subsurface of the Subject Property, including COC distribution and optimum sampling procedures. Any significant deviations from the approved Work Plan that VADOSE believes should become standard procedures will be submitted to the U.S. EPA for approval, along with justification for the changes.

VADOSE will select appropriate third-party contractors to receive manifested wastes generated in connection with activities described in the November 6, 2010 Preliminary Work Plan as well as this Comprehensive Work Plan.

### *7.3 Final Report.*

After completion of all investigation phases, including the first round of groundwater sampling from the expanded monitoring network, a Final Report will be submitted. This report will summarize and document completion of characterization and disposal or recycling activities covered under this work plan. All data, including boring logs, will be included as appendices.

Based on the results of the investigation, the Final Report will characterize the sources of hazardous waste and/or hazardous waste constituent contamination in the HWMA and associated areas. The Final Report will identify and characterize the identified and potential pathways of migration of hazardous wastes and hazardous waste constituents (COC) away from the source areas. The Final Report will define the extent of hazardous waste and/or COC contamination in soil and groundwater. Based on these data and analysis, actual and/or potential receptors will be identified. Based on the baseline HHRA and ERA described in Section 5, a preliminary assessment of the hazard posed by the hazardous wastes that are present or that may have been released from the study areas at the Subject Property will be provided.

The Final Report will conclude with recommendations for further actions, if any. Any remaining gaps in data or analysis will be identified, and recommendations for additional investigations or data analysis to address these gaps will be provided. Recommendations for future monitoring, if any, will be provided. Based on the results of the preliminary risk assessment, recommendations for future assessment of risk and/or interim corrective actions will be provided as is appropriate.

## 8.0 Health and Safety Procedures.

The site Health and Safety Plan for the activities detailed in this Work Plan will be submitted under separate cover.

## 9.0 References.

- Interim Final RCRA Facility Investigation (RFI) Guidance, Volumes I-IV, EPN530/SW-89-031, May 1989
- ASTM D6292-98(2005), "Standard Guide for Direct Push Soil Sampling for Environmental Site Characterizations"
- ASTM D2488-09a, "Standard Practice for Description and Identification of Soils" (Visual-Manual Procedure)
- ASTM D1586-08a, "Standard Test Method for Standard Penetration Test and Split-Barrel Sampling of Soils"
- USEPA, "Low-Flow (Minimal Drawdown) Ground-Water Sampling Procedures" (EPA/540/S-95/504).
- Risk Assessment Guidance for Superfund: Vol. I Part A - Human Health Evaluation Manual (RAGS - Part A) (EPA 1989)
- Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites (OSWER 9355.4-24, March 2001)
- Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual, Part E, Supplemental Guidance for Dermal Risk Assessment (EPA/540/R/99/005, OSWER 9285.7-02EP, PB99-963312, July 2004)
- Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites (OSWER 9285.6-10, December 2002)
- Exposure Factors Handbook, Volumes 1 through 3 (EPA/6001P-951002Fb, August 1997).
- Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments, Interim Final (ERAGS) (EPA 1997)
- ASTM D5088-02(2008), "Standard Practice for Decontamination of Field Equipment Used at Nonradioactive Waste Sites"
- Ohio EPA. Technical Guidance Manual for Ground Water Investigations, Ch. 10, Ground Water Sampling.



## Shallow Soil Sampling Location Map - Asbestos

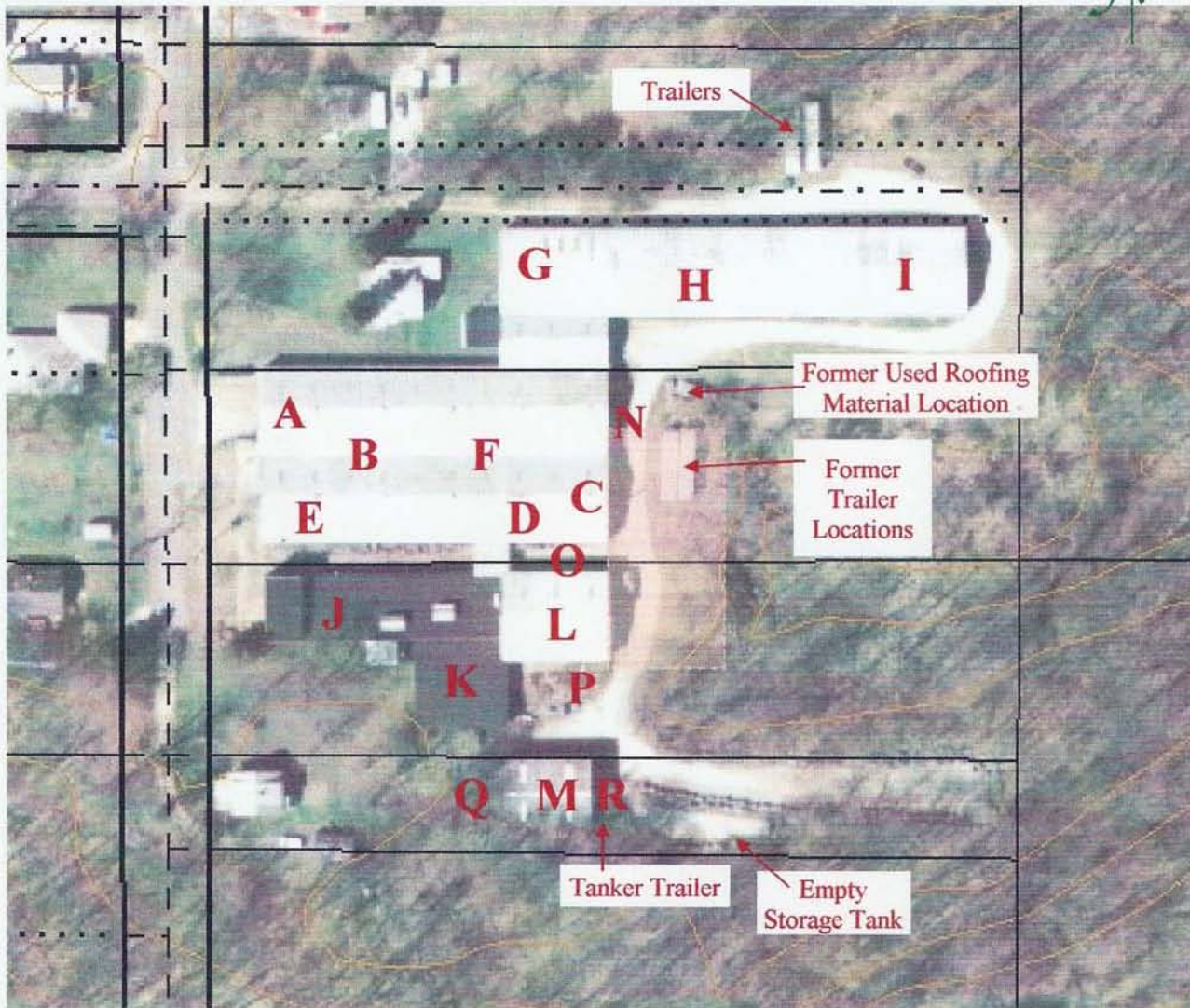
 = Shallow Soil Sampling Location

 = Hazardous Waste Management Area (HWMA)

**VADOSE ENVIRONMENTAL CONSULTANTS, INC.** VADOSE Project #2010031  
526 SOUTH MAIN STREET, SUITE 801 D Schott Metal Products Facility  
AKRON, OHIO 44311 2225 Lee Road  
330-762-6706 www.vadose.com Akron, Ohio 44306




Map Scale: 1" = 30'



## SITE FEATURES MAP

Base map is from the Summit County Fiscal Office's GIS

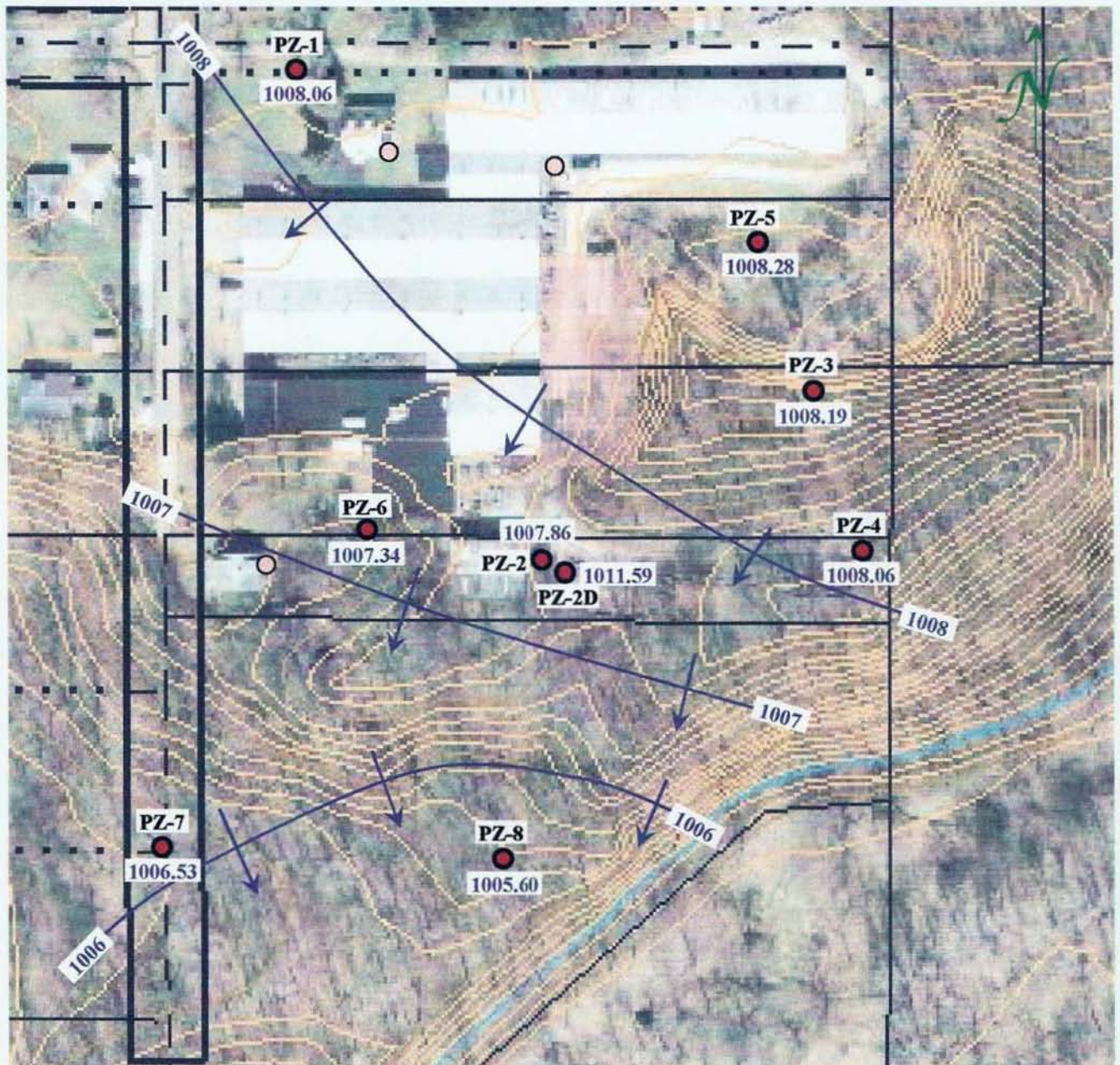
**E** = Drum Inventory Location Area, see Drum Inventory

 = Hazardous Waste Management Area (HWMA)      Surface contour interval = 10 feet.

**VADOSE ENVIRONMENTAL CONSULTANTS, INC.**      **VADOSE Project #2010031**  
 526 SOUTH MAIN STREET, SUITE 801D      **Schott Metal Products Facility**  
 AKRON, OHIO 44311      2225 Lee Road  
 330-762-6706      www.vadose.com      Akron, Ohio 44306



Map Scale: 1"= 100'



## POTENTIOMETRIC SURFACE MAP

Measured August 16, 2010

Base map is from the Summit County Fiscal Office's GIS

- PZ-3** ● = Existing Monitoring Well
- = Existing Water Supply Well
- 1008.19 = Ground Water Elevation, feet
- = Ground Water Flow Direction

■ = Hazardous Waste Management Area (HWMA)

Potentiometric surface contour interval = 1 foot.

**VADOSE ENVIRONMENTAL CONSULTANTS, INC.**



526 SOUTH MAIN STREET, SUITE 801D  
AKRON, OHIO 44311  
330-762-6706 www.vadose.com

**VADOSE Project #2010031**

**Schott Metal Products Facility**  
2225 Lee Road  
Akron, Ohio 44306

Map Scale: 1" = 100'

# VADOSE ENVIRONMENTAL CONSULTANTS, INC.

ENVIRONMENTAL AND ECOLOGICAL PROFESSIONALS

## DRUM SAMPLING FORM

Project #

Facility:

Drum I.D.:

Location:

Drum Markings:

General condition of drum:

solid  liquid  sludge

Drum Contents Description / Amount:

Sample I.D.:

Collection Date & Time:

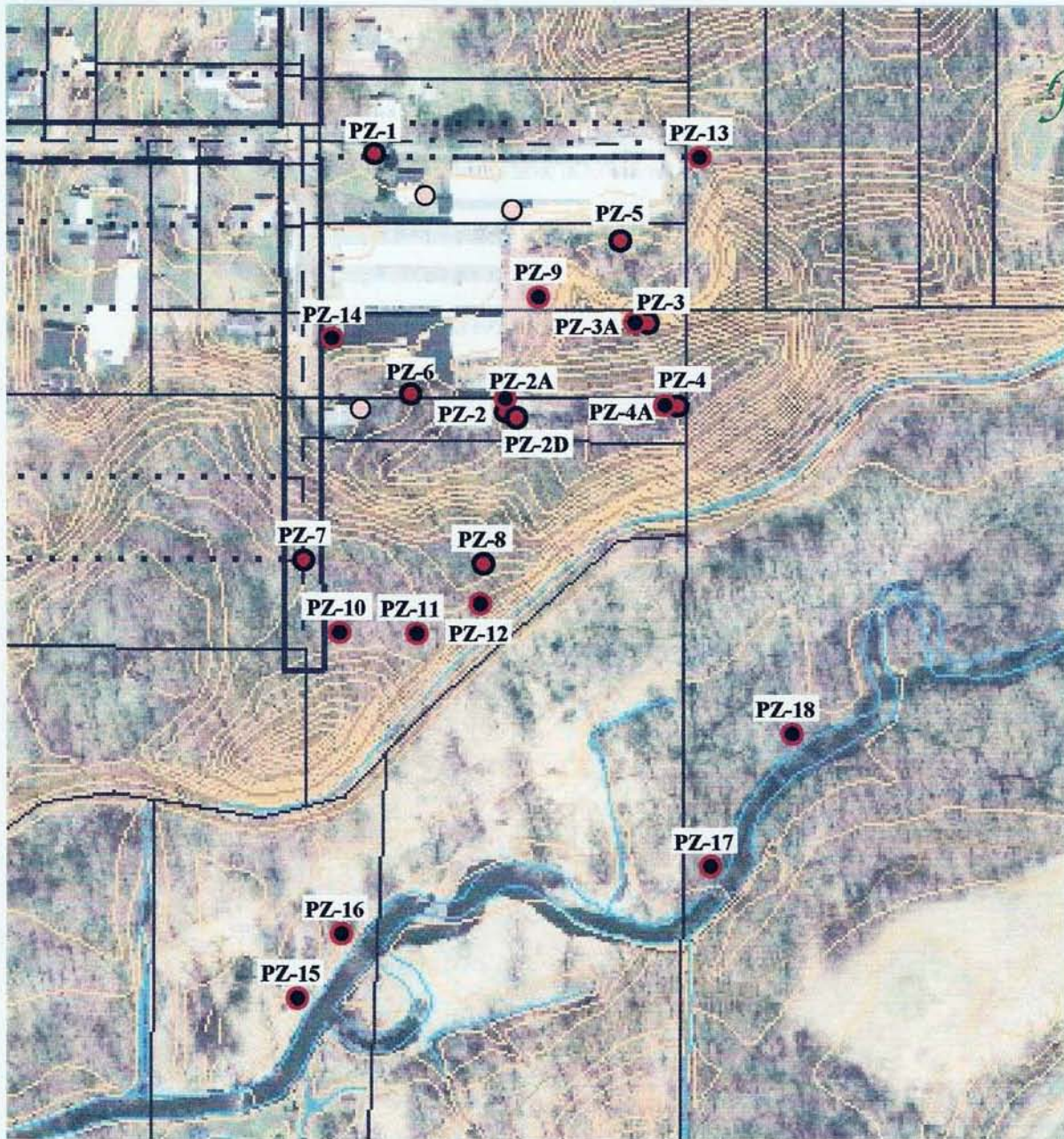
Sampling Tools Used:

Sampling Depth(s):

Notes:

Sampler Signature(s):





## WELL LOCATION MAP

Base map is from the Summit County Fiscal Office's GIS

- PZ-3** ● = Existing Monitoring Well
- = Existing Water Supply Well
- PZ-9** ● = Proposed Monitoring Well

■ = Hazardous Waste Management Area (HWMA)

Surface contour interval = 2 feet.

**VADOSE ENVIRONMENTAL CONSULTANTS, INC.**

526 SOUTH MAIN STREET, SUITE 801D

AKRON, OHIO 44311

330-762-6706 [www.vadose.com](http://www.vadose.com)

**VADOSE Project #2010031**

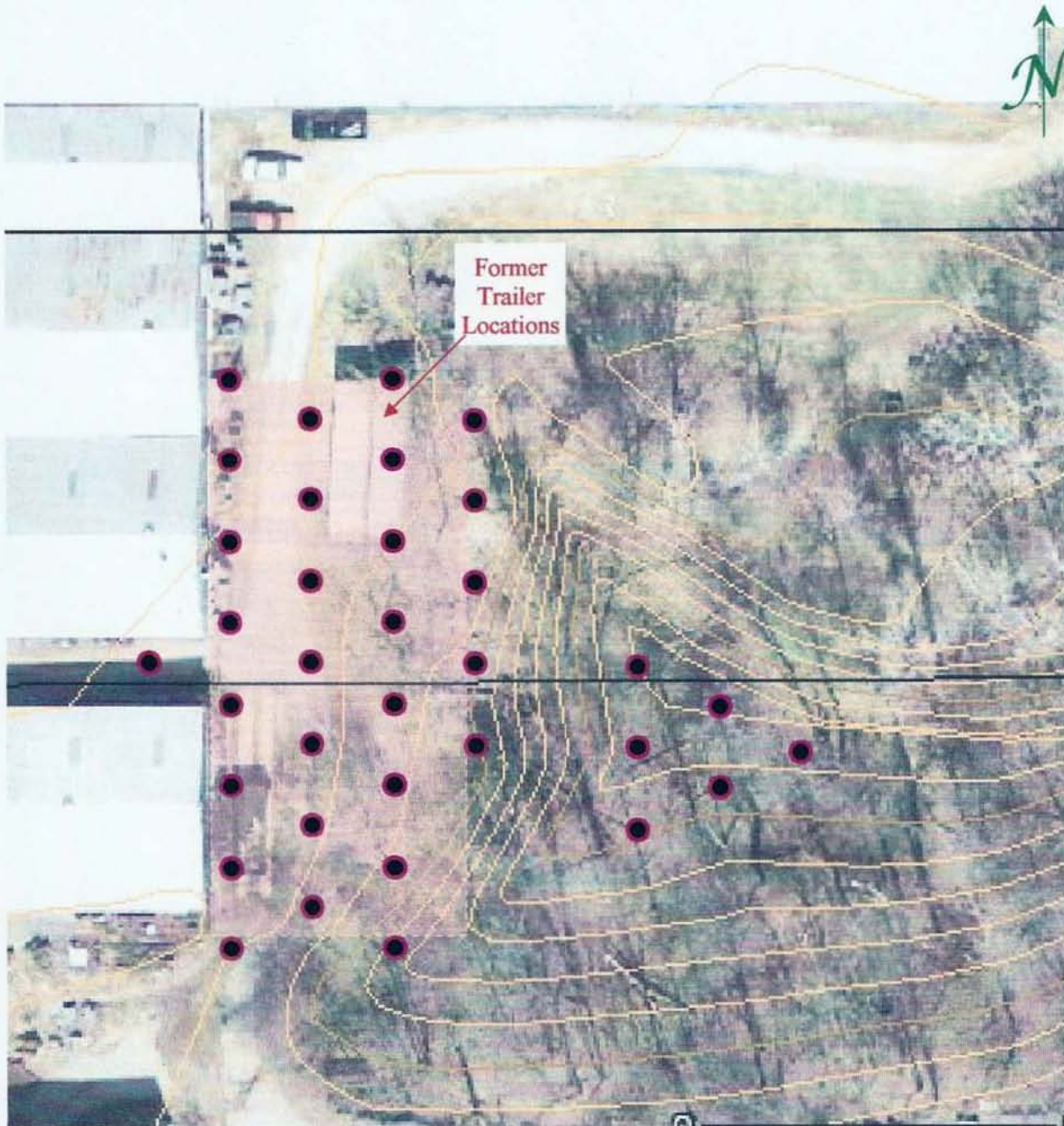
**Schott Metal Products Facility**

2225 Lee Road

Akron, Ohio 44306



Map Scale: 1" = 200'



## PROPOSED DIRECT PUSH BORING MAP - HWMA

Base map is from the Summit County Fiscal Office's GIS

● = Proposed Direct Push Boring Location

Surface contour interval = 2 feet.

■ = Hazardous Waste Management Area (HWMA)

**VADOSE ENVIRONMENTAL CONSULTANTS, INC.**

**VADOSE Project #2010031**

**526 SOUTH MAIN STREET, SUITE 801D**

**Schott Metal Products Facility**

**AKRON, OHIO 44311**

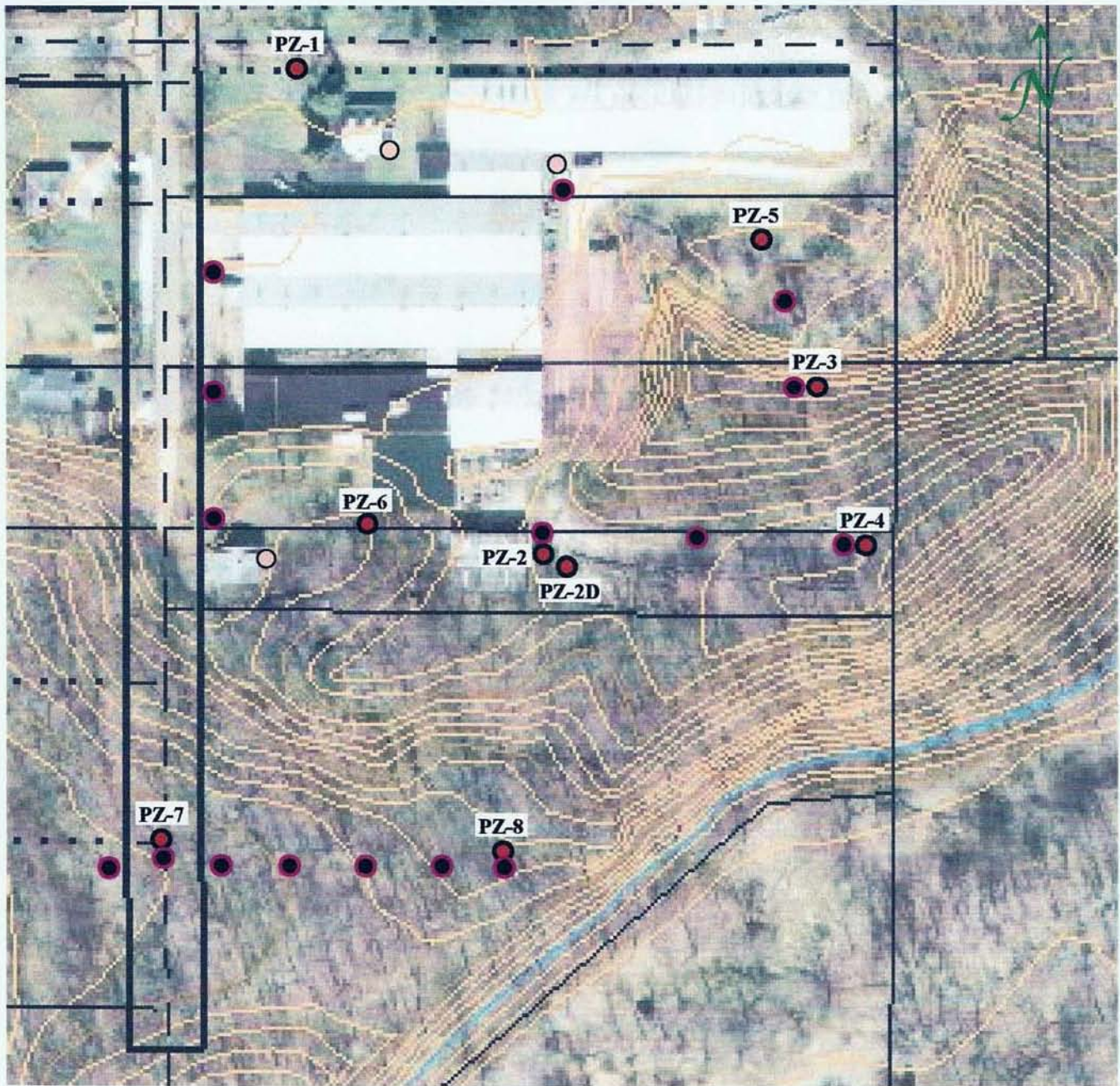
**2225 Lee Road**

**330-762-6706 www.vadose.com**

**Akron, Ohio 44306**



**Map Scale: 1"= 40'**



## GROUND WATER GRAB SAMPLE LOCATION MAP

Base map is from the Summit County Fiscal Office's GIS

- PZ-3** ● = Existing Monitoring Well
- = Existing Water Supply Well
- = Proposed Direct Push Boring

■ = Hazardous Waste Management Area (HWMA)

Surface contour interval = 2 feet.

**VADOSE ENVIRONMENTAL CONSULTANTS, INC.**

526 SOUTH MAIN STREET, SUITE 801D

AKRON, OHIO 44311

330-762-6706 www.vadose.com

**VADOSE Project #2010031**

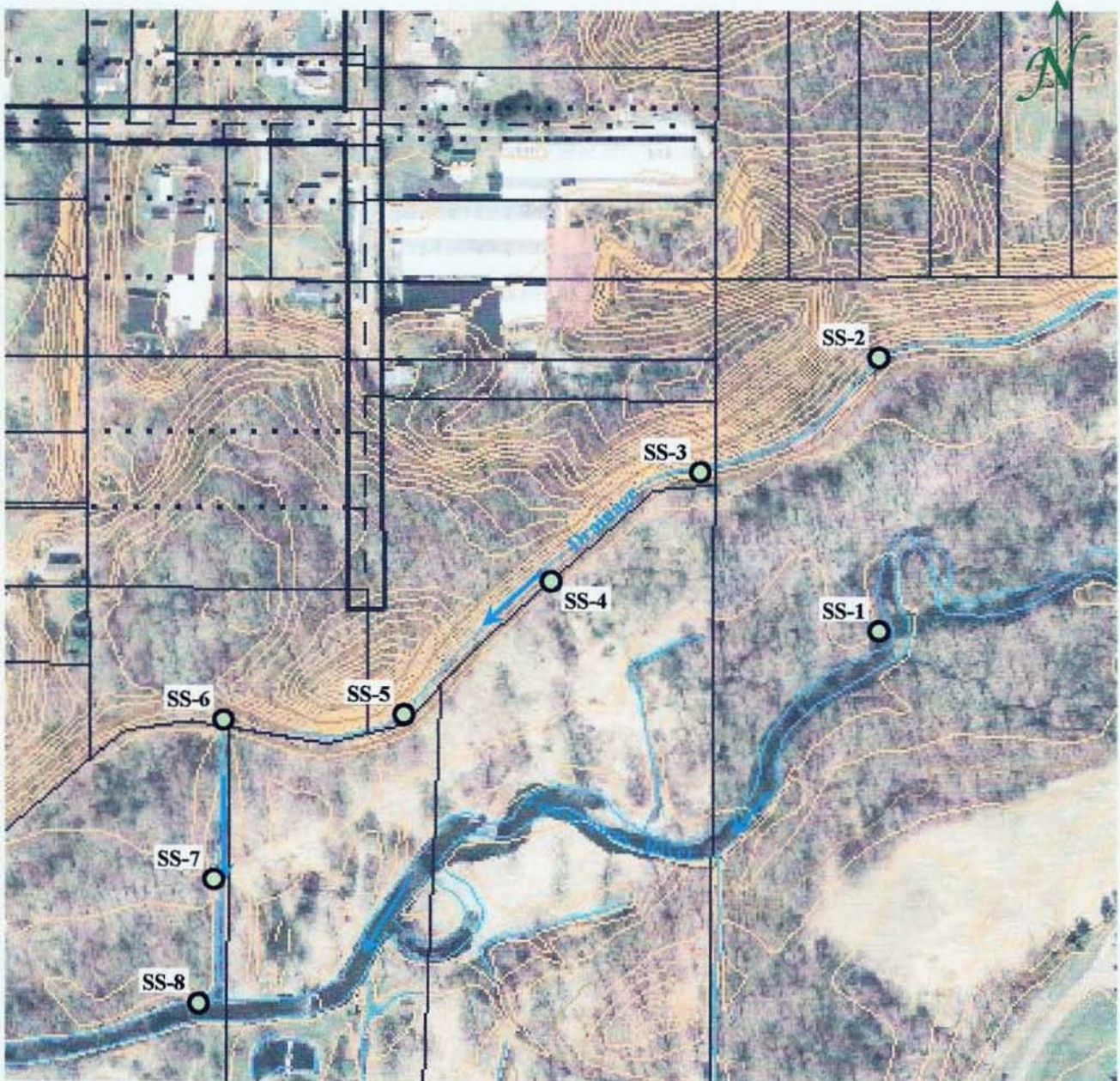
**Schott Metal Products Facility**

2225 Lee Road

Akron, Ohio 44306



**Map Scale: 1"= 100'**



## STREAM SEDIMENT SAMPLE LOCATION MAP

Base map is from the Summit County Fiscal Office's GIS

SS-3 ○ = Proposed Stream Sediment Sampling Location

■ = Hazardous Waste Management Area (HWMA)

Surface contour interval = 2 feet.

**VADOSE ENVIRONMENTAL CONSULTANTS, INC.**

**VADOSE Project #2010031**

526 SOUTH MAIN STREET, SUITE 801D

**Schott Metal Products Facility**

AKRON, OHIO 44311

2225 Lee Road

330-762-6706 www.vadose.com

Akron, Ohio 44306



Map Scale: 1" = 220'



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

**MEMORANDUM**

**SUBJECT:** Approval of 5/20/ 2011 Schott Metals Sampling & Analysis Plan and QAPP

**DATE:** 6-2-2011

**FROM:** Christine McConaghy  
LCD RRB CAS2 Quality Assurance Liaison

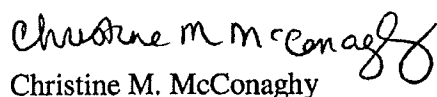
**TO:** John Nordine  
Project Manager

---

The QAPP and Sampling & Analysis Plan, dated May 20, 2011, is approved subject to the following minor conditions:

1. Several EPA Method numbers are incorrect in the SAP/QAPP. Typically, the correct Methods are cited elsewhere in the SAP/QAPP.
  - a. **PCBs:** Pages 16, 19, 20 and 21 say that PCBs will be analyzed by EPA Method SW846 8081 (which is for analysis of pesticides.) This approval is contingent that Method 8082A will be used: Polychlorinated Biphenyls (PCBs) by Gas Chromatography.  
<http://www.epa.gov/osw/hazard/testmethods/sw846/pdfs/8082a.pdf>
  - b. **pH by EPA Method SW846- 150.1:** Note: 150.2 is the current version. This is a Clean Water Act method. Methods promulgated under Section 304(h) of the Clean Water Act are sometimes referred to as the "304(h)" or "Part 136" methods.  
[http://water.epa.gov/scitech/methods/cwa/methods\\_index.cfm](http://water.epa.gov/scitech/methods/cwa/methods_index.cfm)  
[http://water.epa.gov/scitech/methods/cwa/bioindicators/upload/2007\\_07\\_10\\_methods\\_method\\_150\\_2.pdf](http://water.epa.gov/scitech/methods/cwa/bioindicators/upload/2007_07_10_methods_method_150_2.pdf)  
See also SW-846 pH methods: 9040C (pH Electrometric Measurement), 9041A (pH Paper Method), and 9045D (Soil and Waste pH).
  - c. **TCLP (pg. 13):** Page13 states Method 7471 will be used. TCLP is SW-846 Method 1311/6010 & 7471 (as stated later in the text).
2. The stated trip blank frequency for VOCs is one trip blank per shipment. If a shipment has multiple coolers, each cooler should contain a separate trip blank.  
Please contact me at (312) 353-2013 or [mcconaghy.christine@epa.gov](mailto:mcconaghy.christine@epa.gov) with any questions.

Sincerely,

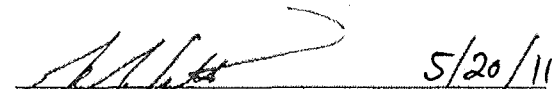
  
Christine M. McConaghy

**1.0 Signature Page.**

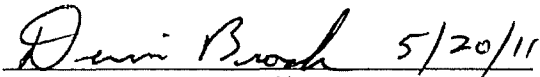
The following persons approve the contents of this Sampling Analysis Plan and Quality Assurance Project Plan (SAP/QAPP) for the Schott Metal Products Company located in Springfield Township, Summit County, Ohio and are committed to implementing the provisions described herein:

 5/20/11

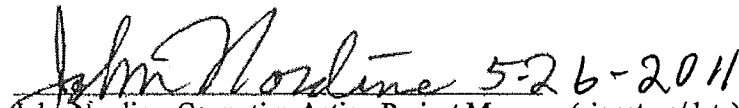
William L. Ullom (signature/date)  
President, Vadose Environmental Consultants, Inc.

 5/20/11

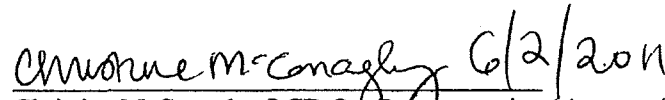
Mark A. Caetta (signature/date)  
Project Manager, Vadose Environmental Consultants, Inc.

 5/20/11

Dennis Brock (signature/date)  
RCRA Coordinator, Environmental Compliance Manager

 5-26-2011

John Nordine, Corrective Action Project Manager (signature/date)  
EPA Region 5

 6/2/2011

Christine McConaghy, LCD QA Representative (signature/date)  
EPA Region 5

Sampling Analysis Plan and  
Quality Assurance Project Plan

For

Schott Metal Products Company  
2225 Lee Road  
Akron, Ohio 44306  
Springfield Township

VADOSE Project #2010031

May 20, 2011

*Prepared by:*

VADOSE ENVIRONMENTAL CONSULTANTS, INC.

526 SOUTH MAIN STREET, SUITE 801D  
AKRON, OHIO 44311  
Office: (330) 762-6706 FAX: (330) 762-6708

## Table of Contents

		<u>Page</u>
1.0	Signature Page .....	1
2.0	Introduction .....	2
3.0	Project Description .....	3
3.1	Site Description .....	3
3.2	Site History and Background .....	3
3.3	Project and Data Quality Objectives .....	4
3.4	Target Parameter List .....	7
3.5	Risk-Related Issues .....	7
4.0	Project Organization and Responsibility .....	9
4.1	EPA Region 5 .....	9
4.2	Project Team .....	9
4.3	Laboratory .....	9
4.4	Special Training/Certification .....	10
5.0	Quality Assurance Objectives for Measurement Data .....	11
5.1	Project-Specific QA Objectives .....	11
5.2	Analytical Quality Assurance Objectives .....	11
6.0	Sampling Procedures .....	12
6.1	Sampling Methods .....	12
6.2	Field QC Samples .....	21
6.3	Sample Containers and Coolers .....	22
6.4	Equipment Decontamination .....	22
6.5	Management of Investigation Derived Wastes .....	23
7.0	Custody Procedures .....	25
7.1	Sample Identification .....	25
7.2	Sample Packaging .....	25
7.3	Sample Delivery .....	25
7.4	Scheduling .....	25
7.5	Sample Custody .....	26
7.6	Sample Disposition .....	26
7.7	Documents and Records .....	26
7.8	Final Evidence Files .....	27
8.0	Calibration Procedures and Frequency .....	28
8.1	Standards Preparation and Traceability .....	28
8.2	Preparation of Spiked Samples .....	28
8.3	Field Calibrations .....	28
8.4	Laboratory Calibrations .....	28



9.0 Analytical Procedures ..... 29  
 9.1 Analytical Parameters ..... 29  
 9.2 Analytical and Preparation Methods ..... 29

10.0 Internal Quality Control Checks ..... 30  
 10.1 Field QC Checks ..... 30  
 10.2 Laboratory QC Checks ..... 30  
 10.3 Inspection and Acceptance of Supplies and Consumables ..... 30

11.0 Data Reduction, Validation and Reporting ..... 31  
 11.1 Data Review, Validation, and Verification ..... 31  
 11.2 Verification and Validation Methods ..... 32  
 11.3 Reconciliation with User Requirements ..... 32

12.0 Performance and System Audits ..... 34

13.0 Preventative Maintenance ..... 35  
 13.1 Equipment Use and Management ..... 35  
 13.2 Inspection and Testing ..... 37  
 13.3 Preventive and Remedial Maintenance ..... 37  
 13.4 Storage and Disposal ..... 37

14.0 Specific Routine Procedures Used to Assess Data Quality ..... 38  
 14.1 Accuracy ..... 38  
 14.2 Precision ..... 39  
 14.3 Completeness ..... 39  
 14.4 Representativeness ..... 40  
 14.5 Comparability ..... 40  
 14.6 Sensitivity ..... 40  
 14.7 Assessment of Data ..... 40

15.0 Corrective and Preventive Action ..... 41

16.0 Quality Assurance Report to Management ..... 43

**1.0 Signature Page.**

The following persons approve the contents of this Sampling Analysis Plan and Quality Assurance Project Plan (SAP/QAPP) for the Schott Metal Products Company located in Springfield Township, Summit County, Ohio and are committed to implementing the provisions described herein:

---

William L. Ullom (signature/date)  
President, Vadose Environmental Consultants, Inc.

---

Mark A. Caetta (signature/date)  
Project Manager, Vadose Environmental Consultants, Inc.

---

Dennis Brock (signature/date)  
RCRA Coordinator, Environmental Compliance Manager

---

John Nordine, Corrective Action Project Manager (signature/date)  
EPA Region 5

---

Christine McConaghy, LCD QA Representative (signature/date)  
EPA Region 5

## 2.0 Introduction.

Sufficient and appropriate QA and quality management requirements must be addressed to ensure that generated data are of known and documented quality, and of the appropriate level of quality to support project objectives. Detailed quality management plans submitted by the contractor selected to perform the work outlined in the Work Plan must be consistent with various guidance documents on quality control (QC) and management such as:

- *RCRA QAPP Instructions, U.S. EPA Region 5, Revision April 1998;*
- *EPA Requirements for Quality Assurance Project Plans (QA/R-5), EPA Guidance for Quality Assurance Project Plans (QA/G-5);*
- *EPA Quality Manual for Environmental Programs, May 2000 (CIO 2105-P-01-0, formerly EPA 5360 A1);*
- *Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs (ANSI/ASQC E4-1994); and*
- *Uniform Federal Policy for Quality Assurance Project Plans (UFP-QAPP, 2005).*

### 3.0 Project Description

#### 3.1 Site Description.

The Schott facility addressed by this Preliminary Work Plan is located on approximately four acres of land at 2225 Lee Road in Springfield Township, Summit County, Ohio (hereafter referenced as the "Subject Property"). Schott produces automotive aftermarket stampings and wheel assemblies for recreational vehicles. Automobile parts stamping and tool and die operations have been conducted at the facility since 1948. Several manufacturing and office buildings are present.

The facility is located approximately 500 feet north of the Tuscarawas River in the glaciated portion of the Allegheny Plateau Province. This province is underlain by shale and sandstone covered by glacial deposits of clayey till, sand, and gravel. The underlying consolidated materials are generally weathered and dissected by pre-glacial streams. Valleys of these pre-glacial streams are partially or completely filled by glacial deposits. The Tuscarawas River valley is an east-west trending pre-glacial valley with topographic relief of 200 feet in most places. The uppermost bedrock consists of Pennsylvanian and Mississippian sandstones. The bedrock unit likely encountered at the Subject Property is the variably thick Sharon member sandstone and conglomerate of the Pottsville Group, Pennsylvanian System.

Groundwater for domestic or industrial use in the general vicinity of the facility is generally obtained from the Sharon sandstone and conglomerate, encountered at depths less than 100 feet below ground surface (ft bgs). The borings completed for monitoring well installation at the Subject Property range in depth from 47 to 70 ft bgs. Competent bedrock was characterized by others during installation of a deep monitoring well at the Subject Property and was encountered approximately 80 feet below ground surface.

#### 3.2 Site History and Background.

On August 13, 2006, the U.S. Environmental Protection Agency (EPA) Region 5 issued a Resource Conservation and Recovery Act (RCRA) 3013 Administrative Order (AO) to Samuel C. Schott and Schott Metal Products, Inc (Schott). The AO identified Schott as a generator of hazardous waste and the operator of a hazardous waste management facility located at and near 2225 Lee Drive, Akron, Ohio.

The AO ordered Schott to submit a written proposal for "carrying out monitoring, testing, analysis, and reporting in order to ascertain the nature and extent of the hazard posed by the hazardous wastes that are present at or that may have been released from the study areas at the (Schott Metal Products) facility."

The AO requires that Schott create and submit a set of five work plans, which are to define the nature, location, extent, direction and rate of movement of any hazardous wastes or hazardous waste constituents that are present or have been released from the Subject Property.

Several previous SIs have been conducted at the Subject Property. Field work performed during those investigations included the installation of nine groundwater monitoring wells since June 1993 and the collection of numerous surface and subsurface soil samples from 34 soil borings at various locations on the Subject Property between 1995 and 1996.

Previous site characterization activities indicate that soil has been contaminated with volatile organic compounds (VOCs) and metals. In addition, contamination has been identified in groundwater at the Subject Property at concentrations exceeding Safe Drinking Water Act (SDWA) Maximum Contaminant Levels (MCLs). Toluene has also been identified in one off-site water supply well at a residence. Previous soil analytical results show contamination by TCE, cis-1,2-dichloroethene (cDCE), and toluene. Maximum concentrations of TCE, cDCE, and toluene were 3.74 milligrams per kilogram (mg/kg), 206 mg/kg, and 96.4

mg/kg, respectively. Lead, cadmium, and total chromium were also detected in soils at maximum concentrations of 920 mg/kg, 20.1 mg/kg, and 240 mg/kg, respectively. In November 2002, TCE was detected in a groundwater sample collected from monitoring well PZ-2 at a concentration of 117 micrograms per liter ( $\mu\text{g/L}$ ), which significantly exceeds the MCL of 5  $\mu\text{g/L}$ . Concentrations of both TCE and cDCE in excess of 500  $\mu\text{g/L}$  have historically been detected at this location. A more detailed description of the results of historical SIs are available in the Corrective Measures Investigation Report for Schott Metal Products, Inc., prepared by the Ohio Environmental Protection Agency, Division of Hazardous Waste Management, dated December 2000.

### 3.3 Project and Data Quality Objectives.

The purpose of this SAP/QAPP is to establish procedures and methodologies for comprehensive field sampling, data collection, and data analysis from the Subject Property to fully characterize the vertical and horizontal nature and extent of contamination in soil and groundwater. Data collected in accordance with these procedures and methodologies will be used to determine the need for corrective measures to address releases and to evaluate the risks posed to human health and the environment by contaminants released from the Subject Property. It should be noted that subsequent SI phases may be required to address data gaps identified at the conclusion of previous phases of investigation. As discussed in the Work Plan, the most recent soil and groundwater data were collected from the Subject Property approximately five to ten years ago and a complete characterization of the nature and extent of contamination has never been accomplished. In addition, the existing on-site groundwater monitoring wells are insufficient to provide a comprehensive understanding of groundwater contamination at the Subject Property. Based on historical soil and groundwater data, known contaminants of potential concern (COPCs) detected at the Subject Property are listed in Table 3-1.

<b>Table 3-1</b> Contaminants of Potential Concern in Soil and Groundwater Schott Metal Products Company, 2225 Lee Road, Springfield Township, Summit County, Ohio	
<u>Organic Compounds</u>	<u>Metals</u>
Trichloroethene	Arsenic
1,1-Dichloroethene	Barium
1,2-Dichloroethane	Cadmium
cis-1,2-Dichloroethene	Chromium
1,2-Dichloroethane	Mercury
Chloroethane	Silver
Toluene	Lead
trans-1,2-Dichloroethene	
Vinyl chloride	

Although it was not detected in historical sampling, vinyl chloride is a breakdown product of TCE and, therefore, should also be included as a COPC for the Subject Property. In addition, given the former use of coatings having older formulas and hydraulic fluids in presses in the plant on the Subject Property, the potential exists for other contaminants such as polynuclear aromatic hydrocarbons (PAHs) and polychlorinated biphenyls (PCBs) to have been released to soil and groundwater at the Subject Property. Therefore, a full suite of analyses for VOCs, semi-volatile organic compounds (SVOCs) including PAHs, Appendix IX metals, hexavalent chromium, and PCBs are to be completed on soil and groundwater samples collected from the Subject Property as appropriate.

Data quality objectives (DQOs) are qualitative and quantitative statements that clarify the intended use of data, define the types of data needed to support a decision, identify the conditions under which the data should be collected, and specify tolerable limits on the probability of making a decision error because of uncertainty in the data. Data of known and documented quality are essential to the success of any SI study, which in turn generates information for use in decision making.

The DQO process, as outlined in EPA's *Guidance on Systematic Planning Using the Data Quality Objectives Process* (QNG-4), and *Systematic Planning: A Case Study for Hazardous Waste Site Investigations, and Data Quality Objectives Decision Error Feasibility Trials* (QNG-4D), consists of the following seven planning steps:

- State the problem,
- Identify the goal of the study,
- Identify information inputs,
- Define the boundaries of the study,
- The analytical approach,
- Specify performance or acceptance criteria, and
- Develop the plan for obtaining data.

The first four steps are discussed in this section. The final three steps are addressed in detail in Sections 5, 6 and 9.

#### State the Problem.

Historical sampling results indicate that hazardous constituents have been released to the soil and groundwater of the Subject Property. Insufficient data are available to define the full nature and extent of said contamination, therefore, it is necessary to collect and analyze a sufficient number of soil and groundwater samples to complete the characterization. Historical sampling data also indicate that unacceptable concentrations of contaminants may or may not still be present in domestic water supply wells located at adjoining properties. A well survey will be necessary to determine if potentially contaminated wells are located nearby. If potentially contaminated wells are identified, domestic well sampling may be necessary.

#### Identify the Goal of the Study.

The purpose of this SI is to fully characterize any remaining contaminated soil and groundwater at the Subject Property to determine if corrective measures are required to protect human health and the environment. The following questions are to be answered at the conclusion of the SI:

- What constituents have been released to soil and groundwater by Schott?
- What is the full vertical and horizontal nature and extent of soil and groundwater that has been contaminated by hazardous constituents released from the Subject Property?
- What naturally occurring concentrations of inorganic contaminants are present in soil and groundwater?
- Does the distribution of surface soil and groundwater contamination indicate potential impacts to surface water and sediment quality of the Tuscarawas River?
- Are domestic water supply wells present nearby that could potentially be contaminated by groundwater migrating from the Subject Property?
- Has contaminated groundwater migrated beyond Subject Property boundaries?

#### Identify Information Inputs.

The information required to support these decisions includes multiple soil and groundwater sample data collected from each of the SWMU areas, domestic water well survey information that identifies nearby

residences supplied by wells, and targeted soil and groundwater samples from likely routes of potential transport from the Subject Property to surface water and sediment in the Tuscarawas River. Sample types will include surface and subsurface soil samples collected from surface soil locations and soil borings, and groundwater samples collected from direct-push borings and monitoring wells. Samples will be analyzed for VOCs, SVOCs (including PAHs), Appendix IX metals, hexavalent chromium, and PCBs as appropriate. Data collected as part of this investigation must be of sufficient quality to support risk-based determinations and to allow for effective risk management decisions.

Define the Boundaries of the Study.

Soil and groundwater samples will be collected from throughout the approximately ten acres of the Subject Property located at and near 2225 Lee Drive, Akron, Ohio and from the area immediately adjacent to the Subject Property. Eight distinct populations of samples will be collected:

- Surface soil (0 to 1 ft bgs) from each of the three on-site unpermitted SWMUs;
- Subsurface soil (1 ft bgs to top of water table) from each of the three on-site unpermitted SWMUs;
- Groundwater samples to delineate contamination plumes beneath the Subject Property;
- Surface soil (0 to 1 ft bgs) samples from various other potentially impacted areas around the Subject Property;
- Subsurface soil (1 ft bgs to top of water table) samples from various other potentially impacted areas around the Subject Property;
- Background soil samples from uncontaminated locations near the Subject Property;
- Background groundwater samples from uncontaminated locations near the Subject Property; and
- QA/QC samples collected concurrently with all field samples.

Proposed sampling locations are shown on the figures attached to the Work Plan. Table 6-1 identifies the specific type and quantity of each type of sample proposed for collection during the initial investigation.

Based on the analytical results from the initial phase of investigation, additional sampling may be required to delineate soil and groundwater that is identified as containing concentrations of hazardous constituents greater than screening criteria identified below. Additional phases of investigation may be required until the full nature and extent of contamination is defined in accordance with the AO. All phases of the SI will be completed based on a schedule determined by EPA Region 5, Schott, and Vadose.

Attachment A provides reporting limits and QC acceptance criteria for the various target parameters. The following decision rules will determine when the full nature and extent of contamination has been adequately delineated:

- Concentrations of hazardous constituents in soil samples will be compared with the applicable EPA Regional Screening Levels (Regional Screening Level Summary Table, May 2010) for industrial soil to determine if additional delineation is required. If a contaminant is traced onto a residential property, residential RSLs will be employed for that portion of the investigation.
- If contaminant concentrations in a surface soil sample exceed the Regional Screening Levels (RSLs), surface soil samples must be collected from additional locations located a short distance horizontally from the SWMU or likely source of contamination.
- If contaminant concentrations in a surface or subsurface soil sample exceed the RSLs, soil samples must be collected from additional, deeper locations until the limit of contamination is reached or the saturated zone is encountered.
- Maximum concentrations of hazardous constituents in groundwater samples will be compared with the tap water RSLs and published EPA Maximum Contaminant Levels (MCLs) to determine if additional delineation is required.

- If contaminant concentrations in a groundwater sample exceed the RSL and MCL for tap water, additional groundwater samples must be collected from locations both at a vertically greater depth and horizontally down gradient.

### 3.4 Target Parameter List.

Soil samples will be analyzed for the following parameters:

- VOCs using EPA SW846 Method 8260B;
- SVOCs using EPA Method 8270D;
- PAHs using EPA Method 8310 (if PAHs are detected in the SVOC analysis);
- PCBs using EPA Method 8082;
- RCRA Appendix IX metals using EPA Method 6010B;
- mercury using EPA Method 7471A; and
- hexavalent chromium using EPA Method 7196A.

Groundwater samples will be analyzed for the following parameters:

- VOCs using EPA SW-846 Method 8260B;
- SVOCs using EPA Method 8270D;
- PAHs using EPA Method 8310 (if PAHs are detected in the SVOC analysis);
- PCBs using EPA Method 8082;
- dissolved RCRA Appendix IX metals using EPA Methods 6010B and 6020;
- dissolved mercury using EPA Method 7470A; and
- dissolved hexavalent chromium using EPA Method 7196A.

Although EPA Methods 8270D and 6010B address all SVOCs and metals of potential concern, EPA Methods 8310 and 6020 have been included to achieve lower detection limits for specific PAHs and metals (e.g., lead). Attachment A identifies target parameters for both soil and groundwater methods. The COPCs identified in Table 3-1 are considered to be the most critical parameters for the investigation because they are known to have been released, based on historical analytical data.

### 3.5 Risk Related Issues.

#### Background Sampling.

Background sampling will be conducted on natural media that have not been impacted by facility operations. Background samples will be collected from each particular environmental medium of concern and a suitable number of samples will be collected from all horizons and matrices in order to represent background conditions in a statistically meaningful way. For risk assessment application, evaluation of data with respect to background concentrations of chemicals is only relevant for inorganic chemicals that occur naturally in the environment. Organic and inorganic chemical constituents normally associated with industrial or anthropogenic activities will not be compared to background concentrations.

#### Analytical Method Detection Limits.

In the vast majority of cases, the reporting limits (RLs) for the analytical methods identified in Section 3.4 are less than the constituent-specific RSLs, which will ensure that data obtained during the SI are sufficiently sensitive to allow for a determination of whether the Subject Property poses a threat to human health. In a few instances, the RL is greater than the relevant screening level, which suggests that concentrations of contaminants less than the RL but above risk-based screening criteria may not be detected. However, it is anticipated that the selected analytical laboratory will be able to achieve a method detection limit (MDL) that is less than the relevant screening criteria (e.g., PRG), which will allow for an effective assessment



of risk posed to human health. Final selection of analytical methods will be based on the ability of the laboratory to achieve MDLs that are below the screening criteria.

Ecological Risk Assessment.

To evaluate risk posed by the Subject Property to the environment, contaminant concentrations in surface soil will be compared with the U.S. EPA Ecological Soil Screening Levels (Eco-SSLs) available at <http://www.epa.gov/ecotox/ecossl/>. Contaminant concentrations that exceed the Eco-SSLs will require additional delineation and subsequent detailed evaluation of the risks posed to ecological receptors.

**4.0 Project Organization and Responsibility.**

This section addresses the key project management components of the sampling and analysis project. It also identifies the individuals and organizations responsible for the planning and execution of field activities, laboratory services, and reporting.

*4.1 EPA Region 5.*

EPA Region 5 will oversee all aspects of the investigation to ensure AO requirements are fulfilled. Once identified, the contractor will provide a plan for interacting with EPA Region 5 staff, including lines of communication, reporting, and approval chain.

*4.2 Project Team.*

The following personnel are designated to carry out the stated job functions on site (subject to update):

TITLE	OFFICE PHONE	MOBILEPHONE
Site Safety Officer & Project Manager: Mark Caetta, VADOSE	330-762-6706	330-322-8321
Field Team Leader: Mark Caetta, VADOSE	330-762-6706	330-322-8321
H&S Advisor: Dennis Brock, VADOSE	330-762-6706	330-807-0143
Additional Contact: William Ullom, VADOSE	330-762-6706	330-312-3082

Other Site Personnel: Employees of:

Vadose Environmental Consultants, Inc.  
Northcoast Drilling Service, Inc.

All personnel arriving or departing the site must check in and out with the Field Team Leader. All personnel potentially exposed to site contaminants (entering active work zones) must read this site health and safety plan and sign a form documenting that they have read the plan and agreed to abide by the stipulations set forth in the plan. All activities on-site must be cleared through the Project Manager.

Employees of Vadose Environmental Consultants, Inc., will be responsible for planning, managing, and executing field operations, data validation and reporting. Key personnel anticipated to participate in this site investigation include:

- William Ullom, President, Vadose Environmental Consultants, Inc.
- Mark Caetta, Senior Environmental Geologist / Project Manager, Vadose Environmental Consultants, Inc.
- Dennis Brock, RCRA Coordinator / Environmental Compliance Manager, Vadose Environmental Consultants, Inc.
- Drillers and employees of Northcoast Drilling Service, Inc., Grafton, Ohio (site clearing, direct-push sampling, rotary drilling, monitoring well installation, decontamination)
- Employees of TestAmerica, North Canton, Ohio (chemical analyses)
- Employees of Carolina Environmental, Inc., Cary, North Carolina (asbestos analyses)

*4.3 Analytical Laboratories.*

TestAmerica of North Canton, Ohio is the chemical analytical laboratory for this project. This laboratory will analyze the soil, sediment, surface water, ground water and drummed material samples required

for completion of this project. Rebecca Strait is the Manager of Client Services for the North Canton, Ohio laboratory. TestAmerica's NELAP certification number is E87225.

All suspect asbestos containing material samples will be submitted to Carolina Environmental, Inc., of Cary, North Carolina for analysis of asbestos content by polarized light microscopy (PLM) - visual estimation technique. Tianbao Bai, Ph.D., is the laboratory director. Carolina Environmental, Inc., is accredited by the National Voluntary Accreditation Program (NVLAP Accreditation #101768-0).

All samples will be transported / shipped to the appropriate analytical laboratory under chain-of-custody documentation. Laboratory analytical procedures shall follow EPA SW846 (Test Methods for Evaluating Solid Waste) or other approved standards as appropriate. Laboratory analyses will be performed according to current and appropriate methods as of the dates of sample submittals. Method detection limits will be dictated by the established laboratory methods.

#### 4.4 *Special Training / Certification.*

Sample management personnel, Mark Caetta, is trained and certified as hazardous site workers per 29 CFR 1910.120(e). Samples for chemical analysis will be picked up at the Subject Property by the laboratory or delivered to the laboratory by Vadose employees. Because the laboratory is local, shipping of samples for chemical analyses is not required.

Field personnel will be certified and current in the Occupational Safety and Health Administration (OSHA) Hazardous Material Site Worker Training (40-hour initial training and 8-hour annual refreshers). Field supervisory personnel will also be certified and current in the OSHA Hazardous Material Supervisor Training (8-hour initial training and 8-hour annual refresher alternating with site worker refresher).

Mr. Caetta is also qualified as an Asbestos Hazard Evaluation Specialist, certified by the Ohio Department of Health.

## 5.0 Quality Assurance Objectives for Measurement Data.

VADOSE will have control over the collection of field data and all media samples. Field and laboratory measures to maintain the integrity of data generated during this site investigation are noted in the Work Plan and in the following sections of this SAP/QAPP. Any information submitted by the contractor selected to perform field work at the Subject Property will adhere to EPA's *Guidance on Systematic Planning Using the Data Quality Objectives Process* (EPA QAIG-4) and will address each of the elements outlined in Section 5.3 of *RCRA QAPP Instructions, U.S. EPA Region 5*, as they apply to the project.

### 5.1 Project-Specific QA Objectives.

The project-specific QA objectives for this SAP/QAPP are to develop and implement procedures for field sampling, chain of custody, laboratory analysis, and reporting that will provide the level of data required for determining the characteristics of the various environmental media. Specific procedures for sampling, chain of custody, laboratory instruments calibration, laboratory analysis, reporting of data, internal QC, audits, preventative maintenance of field equipment, and corrective actions are discussed in other sections of this SAP/QAPP.

### 5.2 Analytical Quality Assurance Objectives.

Analytical QA will be conducted in accordance with the specified EPA SW-846 methods. A table with the method RLs and QA limits for each of the methods identified in Section 3.4 is provided in Attachment A of this document.

## 6.0 Sampling Procedures.

Sampling procedures for soil and groundwater are described in the individual sections below. Minimum numbers of samples to be recovered include approximately 61 ground water samples, 105 soil samples, 3 stream sediment samples and 80 to 105 drum characterization samples. Table 6-1 lists relevant SOPs to be used during environmental sampling and related activities.

<b>Table 6-1</b> Standard Operating Procedures for Sampling Activities Schott Metal Products Company, 2225 Lee Road, Springfield Township, Summit County, Ohio		
Standard Operating Procedure	Issuing Organization	Designation
Photoionization Detector (PID)	EPA ERT	2114
Sampling Equipment Decontamination	ASTM	D5088-02(2008)
Monitoring Well Installation	EPA ERT	2048
Monitoring Well Development	ASTM EPA	D6771-02 Technical Guidance Manual
Manual Water Level Measurements	EPA ERT	2043
Groundwater Sampling	EPA	EPA/540/S-95/504
Direct Push Soil Sampling	ASTM	D6292-98(2005)
Split-Spoon Soil Sampling	ASTM	D1586-08a
Geoprobe Operation	Geoprobe Systems	N/A

### 6.1 Sampling Methods.

#### 6.1.1 Drum Characterization.

VADOSE conducted an inventory of all drums observed on the Subject Property. A total of 280 drums were found and labeled, including drums used to contain unsold new parts inventory and partial assemblies. This total includes all drums of approximately 15 to 55 gallons, regardless of whether or not they were empty, labeled, unknown, in use, or had lost integrity. Of the 280 drums, 132 were determined to require further characterization, 44 of these drums were located outdoors. Drum characterization consists of the following steps:

- visual inspection of each drum, including any labels or markings and, if it can be done safely, visual inspection of the drum contents;
- interview(s) with facility personnel regarding knowledge of drum contents and which are currently in use; and
- sampling of drums to characterize their contents for proper disposal.

All drum sampling events will be logged on standardized VADOSE forms. Information on these forms includes drum location and identification, drum contents description, identification of the sampler, and depths and times of samples. Drum content colors will be referenced to the Munsell Soil Color Charts (1994 revised edition).

Drums located outdoors which contain solid (non-liquid or sludge) materials are believed to have been generated from parts molding and processing operations. Materials in these drums will be sampled using a decontaminated soil probe, hand auger or shovel, depending on particle size distribution, cementation and density of the material, in order to obtain a representative sample containing material from all levels of material in the drum. In some cases, a composite sample from drums with visually similar materials will be collected. The samples from these drums will be submitted to an independent, third-party laboratory (TestAmerica, North, Canton, Ohio) for analysis of the following parameters:

- Toxicity characteristic leaching procedure (TCLP) for RCRA metals by EPA Method SW846 7471; and
- pH by EPA Method SW846 150.1.

If a drum located on the ground is found to contain hazardous contents and has lost its structural integrity, a confirmation soil sample will be collected from that location after the removal of the drum and its contents. The confirmation sample will be analyzed for the constituents of the drum contents that qualified it as a hazardous material.

Approximately 25 drums located indoors on the site contain liquids and, potentially, sludge. These include several labeled and unlabeled drums located in a central oil-storage room and drums labeled "stamping compound" inside the plant. The next step in characterizing the contents of the drums is to interview plant personnel regarding their knowledge of the drum contents. Non-waste drums and drums of product currently in use or to be used on site will not be sampled. Approximately 13 smaller (8-10 gallon) containers with liquid were found in the former foundry building. These containers were labeled as containing a phosphoric acid solution. The contents of these containers will need to be characterized in a similar fashion.

The drums requiring further characterization will be sampled using new, translucent ½" OD disposable polyethylene bailers as drum thieves. All drum content samples will be placed into laboratory-supplied sample containers.

Based on the results of the preliminary characterization investigations, the liquids from the drums and plastic containers will be analyzed for some or all of the following parameters (TestAmerica, North Canton, Ohio):

- Volatile organic compounds (VOCs), by EPA Method SW846 8260;
- Semivolatile organic compounds (SVOCs) by EPA Method SW846 8270;
- PAHs using EPA Method 8310 (if PAHs are detected in the SVOC analysis);
- Total RCRA metals by EPA Methods 6010 & 7471;
- Flashpoint by EPA Methods SW846 1010A / 1020B as appropriate; and
- pH by EPA Method 150.1 (to be tested in the field with test strips and/or pH meter for plastic containers).

One drum located outdoors is known to contain a small amount of liquid. Due to the low level of liquid in the drum, it will be sampled directly into laboratory-supplied sample containers. Based on the drum labeling, the liquid from this drum will be sampled in support of analyses for the following parameters (TestAmerica, North Canton, Ohio):

- Volatile organic compounds (VOCs), by EPA Method SW846 8260;
- pH by EPA Method 150.1;

- Flashpoint by EPA Method SW846 1020B;
- Semivolatile organic compounds (SVOCs) by EPA Method SW846 8270; and
- PAHs using EPA Method 8310 (if PAHs are detected in the SVOC analysis);

The above order of listed analyses will be followed as the sampling order in the field. If insufficient liquid volume exists for all scheduled analyses, the analytical schedule will be modified accordingly.

#### *6.1.2 Suspect Asbestos-Containing Materials Sampling Procedure.*

Scrap roofing materials located north of the HWMA on the site consisted of metal sheets with roofing tars. On November 11, 2010, VADOSE discovered that these materials had been removed from the Subject Property. On December 1, 2010, Bradley Pringle, RS, of the Akron Regional Air Quality Management District collected three samples of roofing tar remnants from the ground surface using Asbestos Hazard Emergency Response Act (AHERA) sampling protocol (40 CFR Part 763.85). The samples were analyzed by PLM Point-Count. One sample did not contain and detectable asbestos, the second sample contained 3.8% chrysotile asbestos and the third sample contained 4.6% chrysotile. This sampling and analysis indicates that the remnant roofing tar in this portion of the Subject Property is an asbestos-containing material (ACM). On January 4, 2011, VADOSE examined the area visually to determine the extent of roofing tar remnants on the ground surface. A sampling grid was created for the purpose of soil sampling for asbestos (see attached Shallow Soil Sampling Map - Asbestos). Twenty-six soil samples were collected by a certified Asbestos Hazard Evaluation Specialist and submitted under chain-of-custody to Carolina Environmental, Inc., of Cary, North Carolina for analysis of asbestos content by polarized light microscopy (PLM) - visual estimation technique. Carolina Environmental is accredited by the National Voluntary Accreditation Program (NVLAP Accreditation #101768-0). A duplicate of sample AS-9 was sent as sample AS-27, and a duplicate of AS-22 was sent as sample AS-28.

Of the 28 soil samples submitted, only AS-1, AS-8 and AS-21 were positive for asbestos. After consultation with the U.S. EPA, the area of asbestos-containing soil was fenced off and covered to minimize the spreading of and exposure to asbestos-containing soil. No further soil sampling is planned under the current investigation.

#### *6.1.3 Tanker Trailer Contents Characterization.*

One tanker trailer, reported to contain foundry sand, is located along the east side of the southern manufacturing building (the former mold foundry). This will be sampled as a contained waste pile. A single composite sample will be collected from this trailer using the systematic composite sampling method. The composite sample will be comprised of equal portions of material collected from all available tanker access ports, the opening of which will not cause an uncontrolled release the contents from the tanker. The sample will be composited on-site, and the sample will be transported to an independent, third-party laboratory under chain-of-custody documentation for the following analysis:

- TCLP for RCRA metals by EPA Method SW846 1311 / 6010 & 7471 and
- pH by EPA Method SW846 150.1.

The results of this analysis will dictate the proper disposal procedures needed for the tanker trailer and its contents.

#### 6.1.4 *Evaluation of Hydrogeologic Conditions.*

Nine ground water monitoring wells and three potable water supply wells, installed by others, exist on the Subject Property. Thirteen to fifteen ground water monitoring wells are to be installed during this investigation. These well locations have been selected as follows:

- One well (PZ-9) will be located in the Hazardous Waste Management Area, where previously only direct-push borings have been advanced, to investigate ground water quality near the release;
- Three wells (PZ-10 to PZ-12) will be located down gradient of the investigated portion of the shallow aquifer, to investigate potential migration of COC beyond monitoring wells PZ-7 and PZ-8;
- One well (PZ-13) east of the northern portion of the manufacturing facility for use as an upgradient well;
- One well (PZ-14) located at the southwest corner of the manufacturing facility to monitor for COC that may migrate west from the Subject Property;
- Four wells (PZ-15 to PZ-18) to be located along the Tuscarawas River to help characterize ground water and surface water quality interaction;
- Three wells, PZ-2A, PZ-3A and PZ-4, located at PZ-2, PZ-3 and PZ-4, respectively, screened across the water table where current monitoring wells are not properly screened; and
- Up to two wells may be installed to replace PZ-3 and/or PZ-6, if required. These wells had previously been reported to be damaged or possibly improperly installed. These wells will be inspected regarding the reported anomalies and a decision will be made regarding their viability.

All additional monitoring wells will also provide data points for the further definition of the potentiometric surface beneath the Subject Property.

The locations and elevations of the existing monitoring wells have previously been established by professional surveyors, and the elevations are relative to "a nearby USGS benchmark" (Haley & Aldrich, January 1999). The locations and elevations of the new (and, if needed, replacement) monitoring wells will be surveyed by a licensed land surveyor.

The whole of the soil boring and groundwater data shall be utilized in the interpretation of the hydrogeologic conditions of the Subject Property. Stratigraphic cross sections, including static water level data, will be developed and presented in the final report.

#### 6.1.5 *Soil Sampling & Analysis.*

Direct-push soil borings are to be advanced at the following locations:

- Thirty five (35) soil borings in an off-set grid pattern in and around the HWMA, in the area formerly noted to contain COCs in shallow soils (0 - 16 feet) at concentrations potentially in excess of applicable standards;
- Three (3) soil borings at the location of an unused storage tank immediately south of the main outdoor stamping die storage area; and
- Three (3) soil borings in an apparently uncontaminated area near the northeast corner of the Subject Property for the collection of soil samples for background metals data.

Direct-push soil sampling will be conducted to define the extent of identified soil contamination on the east side of the buildings on the Subject Property (in and adjacent to the



HWMA) and other areas of potential shallow soil contamination. This method will also be used to collect soil samples from the location of an unused steel storage tank immediately south of the main outdoor die storage area; this potential source of COCs was not included in previous investigations. Samples are anticipated to be collected in four-foot intervals in accordance with ASTM D6292-98(2005), "Standard Guide for Direct Push Soil Sampling for Environmental Site Characterizations". The work is currently planned to be performed using a Geoprobe® Model 6620DT. The soil borings are planned to extend to a depth of 20 feet, unless field observations indicate that deeper sampling is required. All planned direct-push soil boring locations are subject to relocation based on utilities, subsurface obstructions and health and safety considerations.

All soil samples will be identified in accordance with ASTM D2488-09a, "Standard Practice for Description and Identification of Soils" (Visual-Manual Procedure) and soil colors will be referenced to the Munsell Soil Color Charts (1994 revised edition).

All soil samples will be screened for VOCs using a photoionization detector (PID) in accordance with SW846 Method 3815, and the maximum headspace VOC concentration will be recorded on the boring log. As this investigation has historically been driven by the presence of TCE, the most pervasive contaminant in both quantity and extent, a 10.6 eV lamp will be used in the PID. TCE and most of the VOCs that have been found at this site have ionization potentials below 10.6 eV.

All soil borings not converted to monitoring wells will be abandoned with bentonite pellets / chips. The boring locations will be accurately noted on a boring location map and marked in the field for future reference. The soil samples collected from the HWMA will be analyzed for the following parameters:

- Volatile organic compounds (VOCs), by EPA Methods SW846 5035/8260;
- Semivolatile organic compounds (SVOCs) by EPA Method SW846 8270;
- PAHs using EPA Method 8310 (if PAHs are detected in the SVOC analysis);
- RCRA metals by EPA SW846 6010 and 7471;
- Hexavalent chromium by EP SW846 7196A;
- Mercury by EPA Method SW846 7471A; and
- Polychlorinated biphenyls (PCBs) by EPA Method SW846 8081.

The soil samples collected from the unused storage tank area will be analyzed for the following parameters:

- Volatile organic compounds (VOCs), by EPA Methods SW846 5035/8260;
- Semivolatile organic compounds (SVOCs) by EPA Method SW846 8270;
- PAHs using EPA Method 8310 (if PAHs are detected in the SVOC analysis);
- RCRA metals by EPA SW846 6010 and 7471;
- PCBs by EPA Method SW846 8081; and
- Total petroleum hydrocarbons (TPH), full range, by EPA Method SW846 8015.

#### 6.1.6 *Monitoring Well Drilling & Installation.*

Thirteen to fifteen ground water monitoring wells are to be installed during this investigation. These well locations have been selected as follows:

- One well (PZ-9) will be located in the Hazardous Waste Management Area, where previously only direct-push borings have been advanced, to investigate ground water quality near the release;

- Three wells (PZ-10 to PZ-12) will be located down gradient of the investigated portion of the shallow aquifer, to investigate potential migration of COC beyond monitoring wells PZ-7 and PZ-8;
- One well (PZ-13) east of the northern portion of the manufacturing facility for use as an upgradient well;
- One well (PZ-14) located at the southwest corner of the manufacturing facility to monitor for COC that may migrate west from the Subject Property;
- Four wells (PZ-15 to PZ-18) to be located along the Tuscarawas River to help characterize ground water and surface water quality interaction;
- Three wells, PZ-2A, PZ-3A and PZ-4, located at PZ-2, PZ-3 and PZ-4, respectively, screened across the water table where current monitoring wells are not properly screened; and
- Up to two wells may be installed to replace PZ-3 and/or PZ-6, if required. These wells had previously been reported to be damaged or possibly improperly installed. These wells will be inspected regarding the reported anomalies and a decision will be made regarding their viability.

The borings for the monitoring wells will be advanced with an ATV-truck mounted drilling rig (anticipated to be a CME 75) and 4.25" ID continuous flight augers. Continuous sampling of soils and weathered bedrock will be conducted in accordance with ASTM D1586-08a, "Standard Test Method for Standard Penetration Test and Split-Barrel Sampling of Soils" where soil sampling is required. All planned hollow-stem auger soil boring locations are subject to relocation based on utilities and health and safety considerations. All soil and weathered bedrock samples will be identified in accordance with ASTM D2488-09a, "Standard Practice for Description and Identification of Soils" (Visual-Manual Procedure) and soil colors will be referenced to the Munsell Soil Color Charts (1994 revised edition). Soil borings for monitoring wells will be advanced approximately 7 to 8 feet into saturated materials.

All soil samples will be screened for VOCs using a photoionization detector (PID) in accordance with SW846 Method 3815, and the maximum headspace VOC concentration will be recorded on the boring log. As this investigation has historically been driven by the presence of TCE, the most pervasive contaminant in both quantity and extent, a 10.6 eV lamp will be used in the PID. TCE and most of the VOCs that have been found at this site have ionization potentials below 10.6 eV.

Monitoring wells will be constructed of 2" OD Schd 40 PVC flush-threaded risers and screens. The screens will have 0.010" (10 slot) machine-cut openings and a bottom cap. No glues or PVC cements will be used in well construction. Each monitoring well shall include a 10 to 15 foot long well screen. A sand pack will be placed around the well screen to a depth 2 feet above the top of the screen. A minimum 2-foot thick bentonite seal will be placed on top of the sand pack. Potable water will be added to hydrate the bentonite and seal the annulus of the boring. A cement-bentonite grout will be added from the top of the bentonite seal to a depth of approximately 3 feet below grade. A steel stand-up, lockable protective casing will be set in concrete over the top of the well riser.

#### 6.1.7 *Ground Water Sampling and Analysis.*

Direct-push soil borings for ground water sample collection (grab samples) are to be advanced at the following locations:

- Approximately 10 locations to create ground water data 'fences' along the west side of the manufacturing facility and from a point 50 feet west of PZ-7 to PZ-8;
- Five borings for vertical ground water sampling at PZ-2, PZ-3, PZ-4 and midway between PZ-2 and PZ-4 and midway between PZ-3 and PZ-5; and

- One boring for ground water sampling near the industrial water supply well.

Direct-push borings will be advanced at the above locations with ground water sampling commencing at the water table and continuing every 10 feet until competent bedrock or probe refusal are encountered. Samples will be collected using a 1.6" OD disposable polyethylene bailer through a screen-point sampler designed for the collection of discreet samples at depth. This will allow the construction of ground water quality cross-sections that display a vertical section of any detected contaminant plume. The placement of borings along the west side of the manufacturing facility and in line with the southernmost monitoring wells will facilitate the detection of VOC contamination migration through these areas.

The ground water samples collected by direct-push sampling will be analyzed for the following parameter:

- Volatile organic compounds (VOCs), by EPA Method SW846 8260.

Thirteen to fifteen ground water monitoring wells are planned to be installed during this investigation as noted in Section 6.1.6. Monitoring well locations are subject to change dependent upon the results of direct-push ground water sampling and analyses. New (and, if needed, replacement) monitoring wells installed during this investigation as well as existing monitoring wells will be developed according to procedures detailed in the Ohio EPA's "Technical Guidance Manual for Hydrogeologic Investigations and Ground Water Monitoring" (February 1995) as amended. The current chapter on "Monitoring Well Development, Maintenance, and Redevelopment" is dated February 2009. Consistent with that document, development of an individual well shall take place no sooner than 48 hours after installation of that well has been completed.

The static water level and the depth to the bottom of each well will be measured with an interface probe (Keck<sup>®</sup> KIR-89) prior to development to facilitate well volume calculations. The interface probe is capable of detecting non-aqueous phase liquid (NAPL) layers as well as water levels. The well development will be initiated by surging with a bailer to destroy any bridging of the well screen and to remove the bulk of any fine sediments that may have accumulated inside the well during installation. The wells will then be bailed until the temperature, pH and conductivity have stabilized, according to the following Table 6.2, for three successive well volumes.

<b>Table 6-2</b> <b>Water Quality Indicator Parameters for Development (ASTM D6771-02)</b> <b>Schott Metal Products Company Property</b> <b>2225 Lee Road, Akron, Ohio 44601</b>	
Parameter	Stabilization Criteria
pH	+/- 0.2
specific electric conductance	+/- 3%
Temperature	+/- 0.5°C

Monitoring well purging and sampling will be conducted according to procedures described in the U.S. EPA Paper "Low-Flow (Minimal Drawdown) Ground-Water Sampling Procedures" (EPA/540/S-95/504). Well samples will be collected no sooner than one week after well development. New tubing will be used for each sampling event. Well purging progress will be

monitored in a flow-through cell for the parameters listed in Table 6.3. Water quality parameter measurements will be taken approximately every 3 to 5 minutes, dependent upon actual purging rates.

<b>Table 6-3</b> Water Quality Indicator Parameters for Low-Flow Purging Schott Metal Products Company Property 2225 Lee Road, Akron, Ohio 44601	
Parameter	Stabilization Criteria
pH	+/- 0.1
specific electric conductance	+/- 3%
Temperature	+/- 0.3°C

Ground water samples will be collected directly into laboratory-supplied containers from the pump tubing after water quality stabilization has been documented. The flow-through cell will be removed from the sampling string prior to sample collection.

The ground water samples will be analyzed for the following parameters:

- Volatile organic compounds (VOCs), by EPA Methods SW846 5035/8260;
- Semivolatile organic compounds (SVOCs) by EPA Method SW846 8270;
- PAHs using EPA Method 8310 (if PAHs are detected in the SVOC analysis);
- RCRA metals by EPA SW846 6010 and 7470;
- Hexavalent chromium by EPA Method SW846 7196A;
- Mercury by EPA Method SW846 7471A;
- Polynuclear aromatic hydrocarbons (PAHs) by EPA Method SW846 8310; and
- Polychlorinated biphenyls (PCBs) by EPA Method SW846 8081.

The locations and elevations of the existing monitoring wells have previously been established by professional surveyors, and the elevations are relative to "a nearby USGS benchmark" (Haley & Aldrich, January 1999). The locations and elevations of the new (and, if needed, replacement) monitoring wells will be measured relative to the existing wells and facility buildings. Elevations of the ground surface and the top of well casing (to a mark on the north side) will be surveyed using an autolevel.

#### 6.1.8 Leachate and Runoff Sampling & Analysis.

The AO requires that leachate and runoff sampling and analysis be addressed in a work plan. Any leachate generated by the passing of precipitation through any deposited materials would go to ground water. The actual impact of the leachate on the ground water is directly measured by ground water sampling and analysis (see Section 4.5). The maximum impact from leachate to the ground water is anticipated to be located in the shallow ground water immediately beneath the HWMA. A new monitoring well is scheduled to be installed at this location.

Surface drains are located at the manufacturing facility on the Subject Property. These are believed to drain to the shallow valley east of the manufacturing building. A visual inspection of the valley did not reveal any outlet; the outlet may have been buried during the documented landfilling activities. The drainage path(s) of these surface drains will be confirmed by dye testing. The surface

of the Subject Property will be inspected for evidence of any other locations of concentrated surface flow.

Upon completion of the dye testing, locations for storm water runoff sampling will be selected. If the surface drainage outlet is confirmed to have been buried by valley fill, sampling will be conducted at the last accessible surface drain. Samples will also be collected from two locations of the ditch located between the manufacturing facility and the Tuscarawas River; one upstream and one downstream of the runoff from the manufacturing facility. Storm water runoff sampling will be conducted in a manner consistent with initial sampling for an individual National Pollutant Discharge Elimination System (NPDES) permit. Runoff sampling at each location includes collecting one sample during the first part of a rain event and a composite sample collected at regular intervals during the rain event. A qualifying rain event is a rain event of at least 0.1" occurring at least 72 hours after the last rainfall of 0.1" or more.

The runoff water samples will be analyzed for the following parameters:

- Volatile organic compounds (VOCs), by EPA Methods SW846 5035/8260;
- Semivolatile organic compounds (SVOCs) by EPA Method SW846 8270;
- PAHs using EPA Method 8310 (if PAHs are detected in the SVOC analysis);
- RCRA metals by EPA SW846 6010 and 7470;
- Hexavalent chromium by EPA Method SW846 7196A;
- Mercury by EPA Method SW846 7471A; and
- Polychlorinated biphenyls (PCBs) by EPA Method SW846 8081.

#### 6.1.9 *Sediment Sampling & Analysis.*

The AO stated that sediment samples must be collected to determine the nature and extent of contamination at the Tuscarawas River, which is located within one-quarter mile of the facility. VADOSE has inspected topographic maps of the Subject Property and the immediately surrounding area to locate optimum sediment sampling locations. County property records were researched to verify land ownership along the river. Selected sampling locations are on land owned by Faydelle W. Schott or Summit County.

Topographic maps show a ditch along the north side of the Tuscarawas River flood plain, between the manufacturing facility and the river. Runoff and sediments from the manufacturing facility would be intercepted by this ditch before reaching the river. This ditch eventually discharges to the river at a location southwest of the Subject Property. In order to evaluate the contribution, if any, of COCs from the Subject Property to the sediments of the Tuscarawas River, VADOSE will collect shallow (0" - 12") sediment samples from the following locations:

- One sample from the drainage ditch between the manufacturing facility and the Tuscarawas River before runoff from the manufacturing facility would enter the ditch;
- One sample from the Tuscarawas River before runoff from the manufacturing facility would enter the river; and
- One sample from the Tuscarawas River after the ditch discharges to the river at a location southwest of the Subject Property.

These samples will be collected by hand auguring sediments to a maximum depth of 12 inches. The sediment samples will be analyzed for the following parameters:

- Volatile organic compounds (VOCs), by EPA Method SW846 5035/8260;

- Semivolatile organic compounds (SVOCs) by EPA Method SW846 8270;
- PAHs using EPA Method 8310 (if PAHs are detected in the SVOC analysis);
- RCRA metals by EPA SW846 6010 and 7470;
- Hexavalent chromium by EPA Method SW846 7196A;
- Mercury by EPA Method SW846 7471A; and
- Polychlorinated biphenyls (PCBs) by EPA Method SW846 8081.

## 6.2 *Quality Control Samples.*

QA/QC procedures will be implemented to ensure that the data generated during this investigation is valid and can be used with confidence. In addition to laboratory internal QA/QC procedures, VADOSE personnel will employ the following methods and techniques during sample collection and handling:

- **Decontamination**
  - Methods will be consistent with ASTM D5088-02(2008), "Standard Practice for Decontamination of Field Equipment Used at Nonradioactive Waste Sites".
  - Reusable sample collection devices include soil probes, hand augers or shovels, and split-spoons. These sampling implements will be decontaminated before each sampling event with a potable water/laboratory grade detergent (i.e., alconox or Liquinox) wash, potable water rinse, reagent-grade methanol rinse and distilled water rinse in that order. The samplers will then be allowed to air-dry.
  - Direct-push sampling equipment will be decontaminated as above between borings. Samples will be collected in new, disposable liners.
  - Drilling equipment (augers, rods, split spoons, etc.) will be cleaned before each boring using a high-pressure steam cleaner and allowed to air-dry. The steam cleaner is scheduled to be part of a decontamination trailer. the trailer will have a partially enclosed rack for equipment with a waste water collection area below the rack. A sump pump will be used to collect used wash water into 55-gallon DOT-approved drums pending characterization and disposal.
  - The low-flow pump for monitoring well development and sampling will be decontaminated between wells according to the manufacturer's instructions.
  - Decontamination fluids will be collected in labeled, 55-gallon drums and placed in the former foundry building pending characterization and disposal.
- **QA/QC Samples**
  - Trip blanks - A trip blank supplied by the analytical laboratory will accompany the sample containers to check for cross-contamination of samples by volatile organic compounds (VOCs). A single trip blank will be used for each sample shipment. The trip blank will be analyzed for VOCs by EPA Method SW846 8260.
  - Field blanks - Field blanks collected by running distilled water over decontaminated sampling equipment will be analyzed in order to document the efficiency of the field decontamination procedures. A single field blank will be collected from each sampling device used during the day. The field blanks will be analyzed for similar parameters as the media which it samples.
  - Field duplicates - Field duplicates will be collected at a rate of one per 20 laboratory samples by splitting a sample for analysis. The identity of the sample from which the duplicate is made will not be known to the analytical laboratory. The duplicate will be submitted for the same laboratory analysis as the sample which it is taken from.

- Sample Handling
  - Personnel collecting field samples will wear clean, disposable nitrile or latex sampling gloves.
  - All sample container lids and rims will be cleaned of soil or sediment prior to sealing.
  - Required sample preservatives will be supplied by the analytical laboratory.
  - Samples for laboratory analyses will be handled under chain-of-custody documentation and refrigerated to 4°C. The standard chain-of-custody provided and utilized by the respective analytical laboratories will be used. Chains of custody will include sample identities, sampling dates and times, analytical suite requested for each sample, description of sample media, signatures of samplers and handlers of the samples, and other pertinent information (e.g. potential interferents, strong odors, notation of multiples phases, etc.).

### 6.3 *Sample Containers and Coolers.*

Sample containers and coolers will be inspected before each use. Sample containers will be selected, prepared, cleaned, and controlled per EPA Office of Solid Waste and Emergency Response (OSWER) Directive #9240.0-0SA, Specifications and Guidance/or Contaminant-Free Sample Containers (EPA S40/R-93/0S1, December 1992). A complete set of sample containers will be prepared in advance of each sampling event. Extra containers will be readily available to field staff as a contingency for damaged or potentially contaminated containers and for use with samples of opportunity. Sample containers will be kept away from fuels and solvents.

Project requirements will also include the following:

- The laboratory will provide sample bottles and coolers within five calendar days of notification from the investigation lead.
- The coolers will be cleaned and decontaminated by the laboratory before shipment. If additional coolers are needed at the site, new coolers will be purchased and rinsed three times with distilled water prior to use.
- Coolers must be sealed with custody seals before shipment to the sampling site. The seals must be affixed in such a manner that the cooler cannot be opened without breaking the seals.
- Bottles must be certified clean in writing on a per-shipment basis.
- Records concerning the cleaning of sample containers, container shipment to the site, and security of empty containers at the site will be retained in the project files.

### 6.4 *Equipment Decontamination.*

Methods for equipment decontamination will be consistent with ASTM D5088-02(2008), "Standard Practice for Decontamination of Field Equipment Used at Nonradioactive Waste Sites".

Reusable sample collection devices include soil probes, hand augers or shovels, and split-spoons. These sampling implements will be decontaminated before each sampling event with a potable water/laboratory grade detergent (i.e,alconox or Liquinox) wash, potable water rinse, reagent-grade methanol rinse and distilled water rinse in that order. The samplers will then be allowed to air-dry.

Direct-push sampling equipment will be decontaminated as above between borings. Samples will be collected in new, disposable liners.

Drilling equipment (augers, rods, split spoons, etc.) will be cleaned before each boring using a high-pressure steam cleaner and allowed to air-dry. The steam cleaner is scheduled to be part of a decontamination

trailer. the trailer will have a partially enclosed rack for equipment with a waste water collection area below the rack. A sump pump will be used to collect used wash water into 55-gallon DOT-approved drums pending characterization and disposal.

The low-flow pump for monitoring well development and sampling will be decontaminated between wells according to the manufacturer's instructions.

Decontamination fluids will be collected in labeled, 55-gallon drums and placed in the former foundry building pending characterization and disposal.

#### 6.5 *Management of Investigation Derived Wastes.*

Investigation Derived Wastes (IDW) includes any material discarded after use during the field investigation, such as personal protective equipment (PPE); disposable equipment, such as sampling equipment, drilling mud, soil cuttings, purge or well-development water; and samples that are collected but not selected for laboratory analysis. IDW will be containerized and characterized as hazardous or nonhazardous. If IDW is suspected to be hazardous, the material will be tested for proper classification. If the test determines the material to be hazardous, it will be accumulated on site for no longer than 90 days and then disposed of at a permitted treatment or disposal facility. Nonhazardous IDW will be disposed in an on-site dumpster or an off-site landfill.

Potentially contaminated investigation-derived wastes that are anticipated to require characterization will be segregated into three categories:

- Soils / solid wastes;
- Ground water; and
- Decontamination water / fluids.

The generation of hazardous IDW will be kept to a minimum. Non-hazardous materials will be segregated from hazardous materials to prevent cross-contamination. Segregating the cleaning fluids from the wash water during equipment decontamination procedures will minimize the volume of spent solvent IDW generated during field activities. Field personnel will implement the following procedures when managing IDW from specific practices:

- Disposable PPE - Place in a double bag, 55-gallon drum, or five-gallon bucket with tight fitting lid, and place in on-site dumpster.
- Spent Cleaning Fluid - Containerize in original containers (if practical) with contents clearly identified. Arrange for proper off-site disposal.
- Soil Cuttings - Containerize in 55-gallon drum with a tight-fitting lid. Conduct testing (sampling and analysis using TCLP) and arrange for proper off-site disposal.
- Groundwater - Containerize in 55-gallon drum with a tight-fitting lid. Conduct testing (sampling and analysis using TCLP) and arrange for proper off-site disposal.
- Decontamination Water - Containerize in 55-gallon drum with a tight-fitting lid. Conduct testing (sampling and analysis) and arrange for proper off-site disposal.
- Disposable Equipment - Place in a double bag, 55-gallon drum, or five-gallon bucket with tight-fitting lid and place in on-site dumpster.
- Trash - Place waste in a double bag, and place in on-site dumpster.

All drums will be labeled as to their contents, including dates and information on borings/wells from which waste was generated. Drums will be accumulated indoors in the former foundry building. Drums will be sampled within three weeks of filling. Drum content analytical suites (to be identified in an addendum



report and subject to U.S. EPA approval) will be dependent upon laboratory analyses of the associated media. Drum sample analytical suites will be dependent upon the analytical suites of the samples collected during the generation of the waste, as well as the results of the relevant sample analyses.

Proper disposal procedures for investigation derived wastes are dependent upon the results of laboratory analyses. Materials will be packaged and shipped off-site to appropriate disposal facilities (to be identified in the addendum and subject to U.S. EPA approval) in accordance with applicable federal, state and local regulations for hazardous waste and hazardous materials.

## 7.0 Custody Procedures.

This section summarizes sample identification, handling, packaging and shipment, documentation, document control, custody, and scheduling requirements. For samples collected in support of this investigation, the chain-of-custody and sample storage requirements of SW846 will be followed. Custody procedures will be implemented such that accurate and complete records of sample collection, transfer of samples between personnel, sample shipment, and receipt by the laboratory are generated and retained.

### 7.1 *Sample Identification.*

The field team lead will assign and issue a unique sample identification number for each sample collected under his/her purview. Once assigned, the sample identification number will be included on the sample label and referenced on the chain-of-custody form, the field logbook, and all data reports related to the sample. Total and dissolved samples will each have unique sample identification numbers. A sample label will be affixed on each sample container prior to sample collection. The sample label will be sufficiently durable, and a waterproof, permanent ink pen will be used to record data on the sample label so that sample identification information remains legible even when wet. Markers should never be used for sample labeling, as they can be a source of volatile compounds and potential contamination of the sample.

### 7.2 *Sample Packaging.*

Because a local laboratory is to be utilized, packaging soil and ground water samples requiring chemical analysis will not be required during this site investigation. Samples for analysis of asbestos content will include roofing tar samples and small soil samples. These samples will be contained in individual, labeled zip-seal type plastic bags. The sample bags and the chain-of-custody for these samples will be packaged in an appropriately sized cardboard shipping box with appropriate, cushioning packing material for transport to the analytical laboratory. Standard package sealing and labeling will be applied prior to shipment.

### 7.3 *Sample Delivery.*

Samples for chemical analysis will either be picked up by the analytical laboratory at the Subject Property or delivered to TestAmerica by Vadose personnel under chain of custody documentation. Unless otherwise approved by EPA, samples will be delivered to and received by the laboratory within 48 hours of collection; samples recovered for determination of the presence or absence of asbestos will be shipped by UPS ground, USPS or equivalent ground service to Carolina Environmental under chain of custody documentation.

### 7.4 *Scheduling.*

The field team lead will coordinate the scheduling of sample collection with the receiving laboratory so as to minimize sample transport and holding time. Unless otherwise approved by EPA, samples will be delivered to and received by the laboratory within 24 hours of collection. Unless otherwise approved by EPA, the turnaround of analytical results from receipt of samples at the laboratory to submittal of results will be based on a standard turnaround time of 21 calendar days from the date received.

### 7.5 *Sample Custody.*

The field team will ensure the integrity and security of all samples collected in support of this investigation using a stringent chain-of-custody protocol. Chain-of-custody will be maintained and documented throughout the life of each sample. A chain-of-custody form will be initiated during sample collection and will remain with the samples until receipt in the laboratory. The chain-of-custody record will include the sample identification numbers, date and time of collection, sampling location, name of the person

who collected the samples, preservatives used (if any), and the analyses requested. Each sample transfer will then be documented on the chain-of-custody form. Under no circumstance is there to be a break in custody.

At the time that custody is transferred from the carrier to the laboratory, the laboratory's sample custodian will sign off under "Received By" and document the date and time of transfer. The sample custodian will also check the temperature of each ice chest and record this information on the chain-of-custody form and internal traffic log. The pH of those samples intended for inorganic analyses will be checked and recorded after scanning for radioactivity. If an ice chest is found to be warmer than 6°C or if samples exhibit evidence of having been frozen, the field team lead will be notified by the laboratory. In the laboratory, the necessary documentation will be prepared and distributed to all involved analysts, and the samples will be housed in appropriate refrigerators. Access to the samples will be obtained through the sample custodian. The laboratory sample management and analytical documentation procedures will satisfy EPA requirements. All samples will be handled under strict chain-of-custody protocol, and in the laboratory, samples and extracts will be tracked and accounted for at all points during processing. The original sample analysis data will be captured in a permanent form, along with the appropriate documentation to support its quality. A sufficient level of redundancy will exist so that all information can be verified from multiple sources.

#### 7.6 *Sample Disposition.*

The analytical laboratories will be responsible for the proper disposal of all samples and extracts.

#### 7.7 *Documents and Records.*

Documents and records associated with the investigation will be prepared or generated, reviewed, approved, and controlled in accordance with EPA guidance and direction. In the event that electronic information is transferred to EPA, it will be performed in accordance with the applicable Region 5 guidelines and protocols.

Field notes for sampling and measurement activities will be recorded using indelible black or blue ink in permanently bound notebooks with numbered pages. The person recording the notes will sign and date the bottom of every page in the field notebook. Changes will be crossed out with a single line so that the original text remains legible; the change will be initialed and dated. Unused portions of logbook pages will be crossed out, signed, and dated by the assigned individual at the end of each workday.

The field notes will include the following information, as appropriate for each task:

- Location, date, and time;
- Personnel performing the activity;
- Type of PPE used;
- Weather conditions;
- The numerical value and units of each measurement;
- The identity and calibration results for each item of field equipment used;
- Sample type and sample collection method;
- Unique sample identification numbers;
- Depth(s) from which the sample was collected;
- Description of the sample (e.g., color, odor, clarity); and
- Identification of conditions that might affect the representativeness of the sample.

Field notebooks will be labeled with the facility name and investigation dates and sequential notebook number.

Additional information will be recorded on separate field forms and referenced in the field notebook. Standardized field forms will include the following:

- Drum Sampling Form;
- Asbestos Sample Log;
- Borehole Logging Form;
- Well Development and Sampling Form;
- Chain-of-Custody Forms; and
- Waste Inventory Tracking Form.

For procured analytical services, the laboratory will provide an analytical report. The report will be signed by the proper laboratory official and include a narrative about the analyses, original completed chain-of-custody forms, and any other documentation received with the samples. The laboratory will also include a summary of the calibration data and laboratory QC data, and raw data (e.g., instrument printouts and manual records). At a minimum, the report will include the following elements:

- Dates of sample receipt, preparation, and analysis;
- Condition of samples upon receipt;
- Sample preparation and analysis procedures;
- Problems encountered during sample handling, storage, preparation, or analysis, and subsequent corrective and preventive actions, if any;
- Deviations from approved SOPs, if any; and
- Discussion of resulting data quality.

Additional requirements for case file maintenance and turnover are provided in Section 11.1.

#### 7.8 *Final Evidence Files.*

At the conclusion of the investigation, the following information will be stored and retained: all work plans and reports, including EPA comments and correspondence; site plans and procedures; field logbooks; completed field forms; photographs; field data; laboratory data packages; facility documents provided for review or as a source of information; data validation reports; custody records; and any related QA/QC records.

## **8.0 Calibration Procedures and Frequency.**

Calibration procedures will be specified in the SOPs for each of the analytical methods. All analytes reported will be present in the initial and continuing calibrations, and these calibrations will meet the acceptance criteria specified in the SOPs for the analytical methods. Reported results will fall within the calibration range. Records of standards preparation and instrument calibration will be maintained. Records will unambiguously trace the preparation of standards and their use in calibration and quantitation of sample results. Calibration standards will be traceable to standard materials. Traceability to the National Institute of Standards and Technology (NIST) and EPA standards will be maintained to the maximum extent possible, but the source of calibration will be documented in all cases.

### *8.1 Standards Preparation and Traceability.*

Traceability of standards will be accomplished by comparing in-house standards to EPA or NIST materials, and by maintaining the required records. Whenever a standard is prepared, the manufacturer's lot number, the starting materials, the starting amount and volume, the source and volume of the solvent or acid, the date of preparation, and the initials of the technician will be recorded in a permanent, bound notebook. The accuracy of the standards will be established by comparison to previously prepared standards and by comparison to standards prepared independently from different starting materials.

### *8.2 Preparation of Spiked Samples.*

The method used to prepare spiked samples will be documented, and the solutions used in sample preparation must be traceable to NIST and current, to the maximum extent possible. For many target compounds, however, traceability to NIST may not be possible. Traceability to EPA standards or other nationally recognized standards will be used instead. In such cases, the laboratory will document the standard in the analytical data reports.

### *8.3 Field Calibrations.*

Sampling equipment and measurement and testing equipment (M&TE) requiring periodic calibration includes: PID, flow-through cell with multi-parameter probe and water level indicator. Calibration activities will be conducted and verified by qualified personnel in accordance with the manufacturer's recommendations. Instruments and manufacturer's instructions and specifications will be maintained in the project files. Instruments will be calibrated before being sent to the field. Field calibration results will be documented in the field logbook. Where available, calibration materials should be traceable to relevant, recognized performance standards.

### *8.4 Laboratory Calibrations.*

Instrument calibration is a QC measure taken to verify selectivity and sensitivity. The analytical laboratory will perform calibrations through the use of reference materials that are traceable to NIST; or, if NIST-traceable materials are not available, certified from government agencies or reliable vendors. In general, analytical instruments will be calibrated prior to use with standard solutions at levels appropriate for the analysis. This initial calibration is verified at the beginning of each analytical sequence and at specified intervals throughout the analytical sequence. If the initial calibration or any of the subsequent calibration verification checks fail the pre-defined acceptance criteria, the system is recalibrated. Only results generated under acceptable calibration conditions are reported. Specific calibration procedures will be documented in the laboratory's SOP for each method of analysis.

**9.0 Analytical Procedures.**

This section provides analytical requirements and procedures for the investigation.

*9.1 Analytical Parameters.*

Samples will be laboratory analyzed according to the schedules listed in the Work Plan and in Section 6 of this SAP/QAPP.

*9.2 Analytical and Preparation Methods.*

The planned sample analytical and preparation methods are listed in Table 9-1.

<b>Table 9-1</b> <b>Sample Preparation Methods</b> <b>Schott Metal Products Company, 2225 Lee Road, Springfield Township, Summit County, Ohio</b>		
Analytical Method	Parameter	Preparatory Methods
600	Asbestos (soil)	see analytical method
8260B	Volatile Organic Compounds (water and soil)	3585, 5021, 5030B, 5031, 5032, 5035
8270D	Semivolatile Organic Compounds (water and soil)	3510C, 3520C, 3540C, 3541, 3545, 3550B
8310	Polynuclear Aromatic Hydrocarbons (water and soil)	3510C, 3520C
6010B	Metals (water and soil)	3005A, 3010A, 3015, 3050B, 3051
6020	Lead (water)	3005A, 3010A, 3015, 3050B, 3051
8082	Polychlorinated Biphenyls (water and soil)	3510C, 3520C, 3540C, 3541
7470A	Mercury (water)	see analytical method
7471A	Mercury (soil)	see analytical method
7196A	Hexavalent Chromium (water and soil)	3060A

TestAmerica of North Canton, Ohio is the chemical analytical laboratory for this project. This laboratory will analyze the soil, sediment, surface water, ground water and drummed material samples required for completion of this project. Rebecca Strait is the Manager of Client Services for the North Canton, Ohio laboratory. TestAmerica's NELAP certification number is E87225.

All suspect asbestos containing material samples and underlying soils will be submitted to Carolina Environmental, Inc., of Cary, North Carolina for analysis of asbestos content by polarized light microscopy (PLM) - visual estimation technique. Carolina Environmental, Inc., is accredited by the National Voluntary Accreditation Program (NVLAP Accreditation #101768-0).

## **10.0 Internal Quality Control Checks.**

This section describes routine quality control (QC) procedures to be employed in accomplishing the investigation.

### *10.1 Field QC Checks.*

Field QC procedures will include the implementation of field readiness reviews, calibration and proper use of field measuring and test equipment, replicate measurements where appropriate, appropriate use of reference standards, and collection of field duplicate/co-located samples as prescribed in Section 6.2.

### *10.2 Laboratory QC Checks.*

Laboratory QC samples (e.g., blanks and laboratory control samples) will be included in the preparation batch with the field samples as prescribed in the cited method. An analytical batch is a number of samples (not to exceed 20 environmental samples plus the associated laboratory QC samples) that are similar in composition (matrix) and that are extracted or digested at the same time and with the same lot of reagents. MSs and MSDs count as environmental samples. The term 'analytical batch' also extends to cover samples that do not need separate extraction or digestion (e.g., volatile analyses by purge and trap). The identity of each analytical batch will be unambiguously reported with the analyses so that a reviewer can identify the QC samples and the associated environmental samples.

### *10.3 Inspection/Acceptance of Supplies and Consumables.*

Materials used in the execution of work will be appropriate and approved for intended uses. The procurement and handling of quality-affecting materials will be controlled to ensure initial and continued conformance with applicable technical requirements and acceptance criteria. These items will be visually inspected before shipment to the field and again before use. Inspection elements will include, as appropriate, a review of physical condition, expiration dates, limitations of use, size and quantity, and quality grade (e.g., reagents and solvents). Quality-affecting materials that are to be controlled may include, but are not limited to, sample bottles, deionized water, calibration standards for field equipment, sample preservatives, disposable sampling supplies, disposable PPE, and electronic data storage media. Materials that do not meet performance specifications will be segregated and labeled to preclude use.

## **11.0 Data Reduction, Validation, and Reporting.**

Project chemists will validate investigation data as outlined in the EPA National Functional Guidelines, EPA QA/G-9R, and applicable EPA Region 5 protocols.

### *11.1 Data Review, Validation and Verification.*

The quality and usability of environmental data that are generated as part of this investigation will be assessed and documented as prescribed herein. The quality of data will be assessed to establish usability for their intended purpose and to foster continuous improvement in data collection efforts by identifying major or recurring sources of error. Data quality assessment will include data review, verification of attainment of DQOs, data validation, and determination of data usability.

For the purposes of this SAP/QAPP and any plan developed through its use, data review is defined as the process whereby the technical merit of data is determined by the organization that generates the data. During this process, achieved QC results are compared to method-specified criteria to determine whether the analyses were performed under controlled conditions. Because data review criteria are based on the analytical methods used to generate the data, the review process and results are independent of the intended use of the data. Before submitting data, each subcontract laboratory is responsible for reviewing their data, implementing corrective actions where possible, and reporting nonconformances and the corresponding corrective actions, as applicable. Field teams will review their data and implement any necessary corrective actions before submitting the data for use.

For the purposes of this plan, data validation is defined as the independent verification of the quality and integrity of environmental data. During this process, data deliverables will be evaluated as follows: data traceability is verified from raw data to custody documentation to reporting forms, calculations and transcriptions are checked, QC results are evaluated against procurement specifications and the applicable project DQOs, and data are qualified as necessary to denote limitations on usability.

The analytical SOPs provided by the laboratory will provide detailed instructions and equations for calculating analyte concentrations. Section 14 of this plan describes calculations related to QC requirements.

The analyst performing the assay will review all results with respect to QC requirements. Compiled results will be further reviewed by at least one other qualified individual at the laboratory, with respect to completeness of the data package and compliance with all contractual and in-house QC requirements. The field team lead or his/her designee will provide a final independent review of the completed data package with respect to data usability.

Electronic data will be prepared by direct electronic transfer from analytical instruments to avoid transcription errors.

Data will be supplied in both electronic and hard copy media. Both reports will consist essentially of a listing specifying the client ID number, the internal laboratory ID number, the sample date, the data prepared and/or analyzed, the method, the matrix, the parameter(s) and the measured concentration(s), units, and the detection limit. QC sample results will be reported in similar format with cross-references to unambiguously relate QC results to their associated environmental samples.

The laboratory will maintain requirements for case file maintenance and archiving. Documentation must be sufficient to recheck and recalculate reported results at a later date if it becomes necessary. The case file will contain the following:



- Internal laboratory chain of custody;
- Copy of field sample collection team's chain-of-custody form;
- Logbook records (sample preparation, standard preparation, run sequence logs);
- Copies of final internal (laboratory) raw summary sheets from which data are entered;
- Information needed to evaluate results (acceptance limits, control charts, detection limits, retention time windows, tunes, percent moisture, corrective actions);
- Instrument printouts, including chromatograms (i.e., from gas chromatography [GC], GC/mass spectrometry [MS], liquid chromatography [LC], ion chromatography [IC], spectra of raw responses); and
- Internal (laboratory) detailed documentation supporting internal QA and assessment, precision, and accuracy (replicates, duplicates, MSs, MSDs, trip blanks, control samples, calibration checks).

Both electronic and hard copy data reports will be archived at the laboratory for three years after termination. At that time, EPA or an EPA designee will take possession of the reports, or give the laboratory permission to destroy them. The reports will be protected from damage from moisture and fire while in the storage area. It is recommended that records be maintained in two-hour rated Class B file containers, meeting the requirements of NFPA 232-1975. Case files must contain sufficient information to recalculate reported results should the need arise at a later date. Case files will be maintained for a minimum of three years, subject to EPA's requirements, and will be open for inspection by EPA. Reports will be prepared in a suitable electronic database media for rapid transmission between the concerned parties. In all cases, hard copy printouts will supplement these electronic reports.

The MDL is the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero. The laboratory will establish MDLs for each method, matrix, and analyte for each instrument the laboratory plans to use for the project according to the procedures in 40 CFR 136, Appendix B. The laboratory will revalidate these MDLs at least once per 12-month period. Results less than or equal to the MDL will be reported as the MDL value and flagged.

In the event of nonconforming conditions that may potentially impact the quality or timeliness of analysis, EPA will be notified. At the same time, proposed corrective actions will be presented. Nonconforming conditions would include out-of-control results or supporting documentation, inadvertently destroyed or lost samples, or the loss of a laboratory capability that may adversely affect analytical test results.

### *11.2 Verification and Validation Methods.*

Data reduction, validation, verification, and archiving for this investigation will be performed as prescribed herein. Data will be evaluated as outlined in EPA's National Functional Guidelines for Inorganic Data Review (EPA 540/R-94/013) and National Functional Guidelines/or Organic Data Review (EPA 540/R-991008), as appropriate and applicable to the methods in this SAP/QAPP.

The laboratory will apply the appropriate data qualifiers if acceptance criteria are not met and corrective action is either not successful or not performed. Data validation chemists will review the entire data report package, determine if the data quality objectives have been met, and calculate the data completeness for the project. These results will be included in the data package deliverable sent to EPA.

### *11.3 Reconciliation with User Requirements.*

After validation, the suitability of environmental data for their intended use(s) will be determined using the EPA Data Quality Assessment (DQA) process, as outlined in EPA's Data Quality Assessment: A Reviewer's Guide (EPA QA/G-9R). DQA is the scientific and statistical evaluation of data to determine if data obtained from environmental data operations are of the right type, quality, and quantity to support their

intended use. By implementing the DQA process, the user can determine: (1) if the decision can be made with the desired confidence, given the quality of the data; and (2) how well the sampling design can be expected to perform if repeated under the same or similar circumstances. DQA involves five steps that begin with a review of the planning or scoping documentation and end with an answer to the question posed during the planning phase of the study. A team of reviewers, who generally include chemists, statisticians, and other applicable technical personnel (e.g., risk assessor and hydrogeologist), will implement DQA as an iterative process. The five steps, which are described in detail in EPA QA/G-9, are summarized briefly as follows:

- Review the DQOs and sampling design - The review team assesses DQO outputs to ensure that they are still applicable. If DQOs have not been developed, DQOs must be specified before evaluating the data. The sampling design and data collection documentation are then reviewed for consistency with the DQOs.
- Conduct a preliminary data review - The review team assesses QA reports, calculates basic statistics, and generates graphs of the data. This information is then used to gain a better understanding of the structure of the data and identify patterns, relationships, or potential anomalies.
- Select a statistical test - The review team selects the most appropriate procedure for summarizing and analyzing the data, based on the review of the DQOs, the sampling design, and the preliminary data evaluation. The review team also identifies the key underlying assumptions that must hold true for the statistical procedures to be valid.
- Verify the assumptions of the statistical tool - The review team determines if the underlying assumptions hold true or if the departures are acceptable, given the actual data and other information about the study.
- Draw conclusions from the data - The review team performs the calculations required for the statistical test and documents the inferences that result from these calculations. If the sampling design may potentially be used again, the review team evaluates the effectiveness of the sampling design.

In conjunction with the process outlined in EPA QA/G-9, usability will be assessed in accordance with the applicable EPA guidance. For example, data usability for the purposes of risk assessments is generally determined as prescribed in EPA's *Guidance for Data Usability in Risk Assessment* (OSWER 9285.7-09).

## **12.0 Performance and System Audits.**

Performance and system audits will be performed to demonstrate that QA and QC programs are adhered to during field and laboratory activities. Assessment tools to be used include technical systems audits (TSAs) of sampling systems and analytical and testing systems, and data management and validation systems. Vadose shall provide project-specific details of performance and system audits in the monthly update reports. Information will include staff responsible for performing the audits and documentation of audit procedures.

Field audits will include ongoing evaluations of drilling and monitoring of well installation; monitoring of well development methods; sample collection and handling of samples; decontamination of equipment that may directly or indirectly contact samples; collection of field QC samples; and record keeping.

Laboratory audits will include an evaluation of the laboratory's QC program, including comparability of data, calibration and quantitation, QC execution, SOPs, and sample management; record keeping, including instrument calibration records and other analytical records, QC records, corrective action reports, analyst training and certifications, and maintenance logs; data review; limits of detection; QC limits; and analytical methods.

Audits of data management and data validation activities will include an evaluation of data management systems and procedures, configuration control, software validation techniques, transcription and data entry procedures, data change/correction management, data transfer procedures and controls, data review and validation procedures, record keeping, and the qualifications of data validation personnel.

### **13.0 Preventative Maintenance.**

Field and laboratory equipment will be appropriate and approved for intended uses. The procurement and handling of quality-affecting equipment will be controlled to ensure initial and continued conformance with applicable technical requirements and acceptance criteria. Quality-affecting materials that are to be controlled include, but are not limited to, field and laboratory measuring and testing equipment and sampling equipment.

#### *13.1 Equipment Use and Management.*

Equipment selected and used in the execution of work will be appropriate and approved for its intended use, and will be operated, handled, maintained, and stored in accordance with the manufacturer's specifications. Sample collection and storage equipment will be cleaned, stored, and handled using the necessary precautions against cross-contamination, corrosion, and damage. Table 13-1 provides restrictions for field equipment selection and use:

<b>Table 13-1</b> <b>Field Equipment Selection and Use</b> Schott Metal Products Company, 2225 Lee Road, Springfield Township, Summit County, Ohio		
Equipment	Use	Restrictions
Gloves, safety shoes, hard hat, first aid kit	PPE	Compatible with site conditions and investigations
Sample containers	Contain samples	Compatible with analyses of concern and preservatives
Sample shipment containers	Contain sample containers for transport from field to laboratory	Capable of maintaining internal ambient temperature of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$
Buckets	Decontamination, miscellaneous	No leaks
Large polyethylene bags	Waste storage	Properly disposed
Sample tags, custody seals, chain-of-custody forms, logbooks, waterproof pens	Sample documentation	Use indelible ink; corrections made in accordance with SOPs; initialed, dated
HSA drill rig with split spoon	Drilling, soil sampling, and completing monitoring wells	Property decontaminate prior to first use and between locations
Air rotary drill rig	Drilling, soil sampling, and completing deep monitoring wells	Properly decontaminate prior to first use and between locations
Submersible or bladder pump	Groundwater sample collection	Properly decontaminate pump prior to first use and between locations
Disposable towels, distilled water, Alconox, trash bags	Clean sampling equipment	Properly disposed
PID	Detect organic vapors	Properly calibrated, clean filter
Water quality meter	Measure water quality parameters	Wells purged by pump
Interface probe	Measure ground water levels in wells	Properly decontaminate prior to each use

### 13.2 *Inspection and Testing.*

Field equipment will be visually inspected before shipment to the field and again before use. Sample collection and storage equipment will be cleaned, stored, and handled using the necessary precautions against cross-contamination, corrosion, and damage. Equipment, parts, or components that do not meet specifications (i.e., nonconforming items) will be identified in a manner that is easily recognized. These items will be controlled so as to prevent their inadvertent use or installation.

### 13.3 *Preventative and Remedial Maintenance.*

Field and laboratory equipment will be maintained on routine preventive maintenance schedules. Preventive and remedial maintenance will be performed and verified by qualified personnel and in accordance with approved procedures and manufacturer's recommendations. Routine maintenance activities for field equipment will include the following:

- Water quality meters will be inspected regularly and prior to use for damage and function.
- Sampling equipment will be inspected prior to use and replaced if damaged.

Documentation of the chemical analytical laboratory's equipment maintenance program is included in their Quality Assurance Program Manual attached to this plan. Maintenance records will be generated, retained, and reviewed as part of the project quality records. Maintenance activities will be documented in instrument-specific or field logbooks.

Entries shall include the following information:

- Equipment identification (e.g., type, model, serial number, and manufacturer);
- Procedure reference;
- Date, description, and results of calibration/maintenance; and
- Name and affiliation of the person who performed maintenance.

### 13.4 *Storage and Disposal.*

Project personnel will ensure the secure and appropriate storage and/or disposal of investigation-related equipment and materials under their responsibility. Where needed for generators, gasoline will be transported in a different vehicle from sample collection equipment and sample containers, stored and handled away from sampling activities, and handled by individuals not involved in sample collection.

#### 14.0 Specific Routine Procedures Used to Assess Data Quality.

This element addresses the procedures and equations used to ensure that the data generated meet the established DQOs. Specifically, this element addresses accuracy, precision, completeness, representativeness, comparability, and sensitivity. This section addresses these items in general terms. The specific acceptance criteria for these quality measures can be found in Attachment A for the analytical parameters of interest.

##### 14.1 Accuracy.

Accuracy is the degree of conformity of a measurement to a true value or a known standard and reflects the total error associated with a measurement. Accuracy in analysis is a function of the calibration method. Measurement accuracy is determined by analyzing a standard of known concentration and comparing the measured result to the true concentration. Continuing calibration verifications (CCV), laboratory control samples (LCS), MS samples, and surrogate spike samples are examples of QC procedures that are used to measure analytical accuracy. Accuracy will be expressed and calculated as the percent recovery of a known concentration of analyte added to a field sample. Recovery from spiked samples will be calculated as:

$$\%R = 100 \times (S-U)/C_{SA}$$

where:

%R = percent recovery  
 S = measured concentration in spiked aliquot  
 U = measured concentration in unspiked aliquot  
 C<sub>SA</sub> = actual concentration of spike added.

For situations where a standard reference material (SRM) is used instead of or in addition to matrix spikes:

$$\%R = 100 \times C_M/C_{SRM}$$

where:

%R = percent recovery  
 C<sub>M</sub> = measured concentration of SRM  
 C<sub>SRM</sub> = actual concentration of SRM

To the extent practical, spiked samples and LCSs should include all target compounds or analytes for the given analysis. The tables in Attachment A provide accuracy acceptance criteria for the required analytical methods.

Only project samples will be used for MS/MSDs. Blanks will not be used for the preparation of MS/MSDs. Sufficient sample volume will be collected and provided with each group of 20 or fewer samples to be used for preparation of the MS/MSD sample. This sample will include sufficient volume such that one re-extraction/reanalysis of the organic MS/MSD pair or one redigestion/reanalysis of the inorganic spike may be performed.

##### 14.2 Precision.

Precision measures the reproducibility of measurements. It is defined as the degree of mutual agreement among independent measurements as the result of repeated application of the same process under similar conditions. Analytical precision is the measurement of the variability associated with duplicate or replicate analyses. Total precision is the measurement of the variability associated with the entire sampling and analysis process. Total precision is determined by analysis of duplicate or replicate field samples and measures

variability introduced by both the laboratory and field operations. Field duplicate samples and MSD samples are analyzed to assess precision.

Unless otherwise specified in the referenced method, the principal measurement of precision for this investigation will be relative percent difference (RPD) obtained from duplicate sample pairs and will be calculated as:

$$RPD = [(C_1 - C_2) \times 100] / [(C_1 + C_2) / 2]$$

where:

$C_1$  = larger of two observed values

$C_2$  = smaller of two observed values.

Unless otherwise specified by EPA, field duplicate samples will be collected at a frequency of no less than five percent of the number of field samples collected and of each matrix sampled. To the extent practical, field duplicates will be coded and labeled such that data validation staff can readily identify duplicates but the subcontract laboratory cannot. The tables in Attachment A provide precision acceptance criteria for the required analytical methods.

Laboratory duplicates (including MS/MSD) will be prepared and analyzed for each matrix submitted to the laboratory, as prescribed in the approved method, and at a frequency of no less than five percent of the number of project samples analyzed. Laboratory duplicates will be analyzed concurrently with the associated project samples.

#### 14.3 *Completeness.*

Completeness will be calculated and reported for each method, matrix, and analyte. For the purposes of this investigation, the completeness goal is 95%. Failure to meet completeness goals is an indicator that data gaps exist and the data set is insufficient to support project objectives. The investigation lead will require prompt notification by the laboratory in the event of sample loss, or if samples are received at the laboratory in a compromised form as a result of shipping damage.

Completeness is generally calculated for each type of measurement/analysis as follows:

$$\%C = 100 \times V / n$$

where:

$\%C$  = percent completeness

$V$  = number of measurements judged valid

$n$  = total number of measurements necessary to achieve a specified level of confidence in decision making.

In addition to completeness goals, critical samples should be identified and appropriate controls maintained to ensure that collected data are of the requisite type, quantity, and quality.

#### 14.4 *Representativeness.*

Representativeness is the degree to which each sample is a valid and true representative of field conditions. It is achieved through use of proper sample collection, compositing, handling, preservation, packaging, transport, and storage practices. Representativeness is also ensured through elements such as proper well locations, drilling and installation procedures, sampling locations, and statistical sampling design. In the laboratory, representativeness will be ensured by appropriate sub-sampling or aliquoting techniques. Representativeness will be assessed through results of duplicate field and laboratory samples.



#### 14.5 Comparability.

Comparability is the confidence with which one data set can be compared to another data set. The types of matrices sampled and the range of field conditions encountered are considered in determining comparability. Comparability will be achieved by using standardized and consistent methodology, performance conditions, practices, reporting units, and reporting formats.

#### 14.6 Sensitivity.

Sensitivity will be expressed in terms of detection and quantitation/reporting limits for each type of measurement/analysis. Detection/quantitation limits should be compared to the levels proposed within the applicable methods to verify that they are attainable with the specified methodology and instrumentation. Routine reporting limits are provided in Attachment A for each analytical method.

MDL is defined as follows:

$$\text{MDL} = t_{(n-1, 1-\alpha=0.99)} \times S$$

where:

MDL = method detection limit

S = standard deviation of the replicate analyses

$t_{(n-1, 1-\alpha=0.99)}$  = Students' t-value for a one-sided 99% confidence level and a standard deviation estimate with n-1 degrees of freedom.

The laboratory will notify the investigation lead, prior to project sample analysis, if the laboratory anticipates or experiences any difficulties in achieving the detection/quantitation limits specified in this plan. Matrix effects should be considered in assessing the laboratory's compliance with sensitivity specifications. The laboratory will provide a detailed discussion of all failures to meet sensitivity specifications in the data package narrative. If a sample dilution results in non-detect values for analytes that had been detected in the original analysis, the results of the original run and the dilution will be reported with the appropriate notations in the data narrative.

#### 14.7 Assessment of Data.

The results of QC activities will be compared to the project objectives stated in Section 3.4. Unless otherwise agreed to by EPA, only data meeting the specifications outlined in this plan will be considered usable for decision making purposes. A team of qualified reviewers will assess these data from a qualitative and a quantitative perspective and the results will be presented and discussed in the monthly progress reports. All project data will be assessed in accordance with the EPA Region 5 DQA Policy.

## 15.0 Corrective and Preventive Action.

Corrective actions may be required for field activities, laboratory activities, or data validation and assessment activities. In each case, the need for corrective action will be identified through application of routine QC checks or through management and technical assessments. All investigation participants are responsible, within their respective roles, for identifying conditions adverse to quality and the possible need for corrective and preventive actions.

Minor nonconformances will be corrected and documented as part of routine operations. Audit findings and significant conditions adverse to quality require a formal Corrective Action Plan. Once the adverse conditions are corrected, the investigation lead will verify the outcome.

Nonconformances that are identified through routine QC checks will be corrected as quickly as practical and at the most appropriate operational level. Where routine corrective actions are identified in the governing SOP, the responsible staff member will implement, verify, and document corrective actions as prescribed in the SOP. If the problem is not addressed in the SOP, the individual uncovering the problem will consult with the investigation lead, and implement and document corrective actions at his/her direction. In the event that a problem may be recurrent, widespread, or of significant impact, the individual noticing the problem will discuss the situation with the investigation lead. Any corrective action issues which directly impact project DQOs should be reported immediately by the investigation lead to the EPA RCRA Project Coordinator and/or the EPA Enforcement/Permitting RCRA QC Coordinator.

With regard to data quality, short-term corrective actions will be implemented in response to minor incidents of noncompliance. Short-term corrective actions may include the recalibration of field or laboratory measurement and testing equipment using freshly prepared calibration standards, repetition of the preparation and analysis of samples associated with unacceptable QC results, replacement of reagent lots associated with unacceptable blank values, repair or replacement of field or laboratory equipment, recalculation of sample data, or reinstruction of field or laboratory personnel. These types of corrective actions will generally be implemented soon after the noncompliant condition is identified and should not have long-term or serious implications.

Long-term corrective actions will be implemented in response to major or systemic noncompliances. Long-term corrective actions may include a change in technical or management approach, major revision to an existing SOP (such as the introduction of additional or precautionary steps), substitution or modification of an approved method or technique, and personnel retraining or reassignment to achieve a better fit between personnel skills and technical requirements. The need for such actions may be identified by EPA or project personnel through routine operations, systems audits, and management reviews.

A formal Correction Action Plan will be required in the event of an audit finding or the occurrence of a significant condition adverse to quality (e.g., a controllable condition that may adversely impact the project budget, schedule, or the acceptability of data). Significant conditions adverse to quality are generally identified by or in consultation with the investigation lead.

Where required, the investigation lead will conduct a root cause analysis and develop a Corrective Action Plan. As applicable to the particular circumstances, the Corrective Action Plan will identify or include brief statements of the following:

- Reference - What is being responded to, a letter or audit report, etc.
- Requirement - What requirement(s) were not met? As appropriate, cite the work plan, SAP, SOP, or other reference.

- Description of noncompliance / Result of noncompliance - What is the immediate problem? What is the nature and extent of any impact? Dates and locations will be included as appropriate.
- Affected areas/data/reports - As appropriate, include dates, locations, titles, and lot numbers.
- List of planned corrective and preventive actions (brief bullet list / table /spreadsheet). Information will include individual(s) (specific name, title, and affiliation if applicable) responsible for each action and the schedule to be followed (identify steps already completed).
- Signature(s) with date denoting commitment to the proposed corrective actions - Must be the individual(s) with sufficient authority to commit the resources required for the proposed actions.

The investigation lead will verify the effectiveness of corrective actions. He/she will review affected project activities or work products during formal audits or through observations of day to day operations. During these assessments, he/she will verify the adequacy of corrective actions specified in SOPs, and compliance with specified commitments and the effectiveness of the outcome.

## 16.0 Quality Assurance Reports to Management.

To ensure that problems associated with the investigation sampling and analysis are investigated and corrected, a discussion of QA-related issues will be submitted as part of the monthly progress report. The QA report will contain the following elements:

- A discussion of any deviations from the approved work plan and SAP
- All data validation and assessment results available since the last report
- Results of any field or laboratory audits performed since the last report
- QA/QC problems, recommended solutions, and results of corrective actions
- Assessment of data generated since the last report, including the following:
  - Precision, accuracy, representativeness, completeness, comparability
  - Detection limits
  - Determination of whether DQOs are being met
  - Any limitations on use of the data.

# HEALTH AND SAFETY PLAN

SCHOTT METAL PROPERTY

2225 Lee Road

Akron, Ohio 44601

VADOSE Project #2010031

January 28, 2011

*Prepared by:*

VADOSE ENVIRONMENTAL CONSULTANTS, INC.

526 SOUTH MAIN STREET, SUITE 801D

AKRON, OHIO 44311

Office: (330) 762-6706 FAX: (330) 762-6708

2010031.H&SPlan

TABLE OF CONTENTS

	<u>Page</u>
A. EMERGENCY RESPONSE PLAN .....	1
B. HAZARD EVALUATION .....	6
C. GENERAL SITE CONDITIONS/DESCRIPTION .....	8
D. PROJECT OBJECTIVES/ACTIVITIES .....	8
E. ON SITE ORGANIZATION AND COORDINATION .....	9
F. ON-SITE CONTROL .....	9
G. OFF-SITE IMPACTS .....	9
H. PERSONAL PROTECTIVE EQUIPMENT .....	10
I. ENVIRONMENTAL MONITORING .....	12
J. DECONTAMINATION PROCEDURES .....	12
K. PERSONNEL EXPOSURE MONITORING .....	12
L. TRAINING AND MEDICAL REQUIREMENTS.....	13
M. APPROVALS .....	14
N. SIGN OFFS.....	15

Appendices

Appendix A - Site Map and Route to Hospital

Appendix B - Material Safety Data Sheets for COCs

**A. EMERGENCY RESPONSE PLAN**

This Health and Safety Plan is to be utilized by Vadose Environmental Consultants, Inc., ("VADOSE") and its subcontractors during investigative field activities conducted at the Schott Metal Products Company facility located at 2225 Lee Road, Akron, Ohio 44601. The policies and procedures contained in this Health and Safety Plan must be followed, at a minimum, by all authorized personnel engaging in investigative work at this site. This plan meets the requirements of 29 CFR 1910.120(B)(1)(ii)(c) as required for hazardous material/waste investigations.

This plan shall be reviewed periodically and amended as necessary due to changing site conditions. The site has been evaluated for potential emergency situations based on physical and potential chemical site hazards, active work plan tasks, and weather. Anticipated tasks during this investigation include, but are not necessarily limited to, drummed material sampling, suspect asbestos-containing material sampling, direct-push soil sampling, standard penetration test soil sampling, hollow-stem auger drilling, monitoring well installation and development, and ground water sampling.

Akron General Medical Center is the designated Emergency Medical Facility. This facility is located at 400 Wabash Avenue, Akron, Ohio 44307. The emergency phone number is 911 or (local) 330-344-6000. The hospital is approximately 16 minutes from the site. A map from the site to this facility is attached in Appendix A.

First-aid equipment is available on site at the following locations:

- First-aid kit - Field vehicle.
- Emergency eye wash - Field vehicle / Schott facility.
- Emergency shower - Not available.

Emergency phone numbers:

<u>Agency/Facility</u>	<u>Phone #</u>	<u>Contact</u>
Police	911	dispatcher
Fire	911	dispatcher
Chemtrec	1-800-424-9300	N/A
Ambulance	911	dispatcher
Vadose Environmental Consultants, Inc.	330-762-6706	William Ullom
Schott Metal Products Company	330-773-7873	Scott Smoot

The following standard emergency procedures will be used by on-site personnel. The Site Safety Officer shall be notified of any on-site emergencies and shall be responsible for ensuring that the appropriate procedures are followed.

**Personnel Injury in the Exclusion Zone:** Upon finding out that an injury has occurred in the Exclusion Zone, all site personnel shall assemble at the decontamination line. The rescue team will enter the Exclusion Zone (if required) to remove the injured person to the hotline. The Site Safety Officer and Project Manager should evaluate the nature of the injury, and the affected person should be decontaminated to the extent possible prior to movement to the Support Zone. The plant manager shall be notified. Trained First Aid personnel shall initiate the appropriate first aid, and an ambulance/emergency vehicle should be called to transport the injured person to the designated medical facility (if required). No persons shall reenter the Exclusion Zone until the cause of the injury/symptoms is determined and managed.



**Personnel Injury in the Support Zone:** Upon finding out that an injury has occurred in the Support Zone, the Project Manager and Site Safety Officer will assess the nature of the injury. If the cause of the injury or loss of the injured person does not affect the performance of site personnel, operations may continue, with the on-site first-aid personnel initiating the appropriate first aid and necessary follow-up as stated above. If the injury increases the risk of others, an emergency signal shall be sounded and all site personnel shall move to the decontamination line for further instructions. On site activities will stop until the risk is removed or minimized.

**Fire/Explosion:** Upon identification of a fire or explosion on site, all site personnel shall assemble at the decontamination line. The fire department shall be alerted and all personnel shall move to a safe distance from the involved area.

**Personal Protective Equipment Failure:** If any site worker experiences a failure or alteration of protective equipment that affects the protection factor, that person and his/her buddy shall immediately leave the Exclusion Zone. Reentry shall not be permitted until the equipment has been repaired or replaced.

**Other Equipment Failure:** If any other equipment on site fails to operate properly, the Project Manager and Site Safety Officer shall be notified and then determine the potential effect of this failure on continuing operations on site. If the failure affects the safety of personnel or prevents completion of the planned tasks, all personnel shall leave the Exclusion Zone until the situation is evaluated and appropriate actions taken. Hydrogen peroxide spills should be contained and diluted.

In all situations, when an on-site emergency results in evaluation of the Exclusion Zone, personnel shall not reenter until:

1. The conditions causing the emergency have been identified and corrected.
2. The hazards have been reassessed.
3. The Site Safety Plan has been reviewed.
4. Site personnel have been briefed on any changes to the Site Safety Plan.

The individual chemicals of concern (COCs) listed in the following table have been documented to occur in detectable concentrations in the soil and/or ground water of the site. Note that the listed exposure symptoms were developed for concentrations of COCs much higher than those that have been or are anticipated to be encountered during site activities.

General first aid procedures for COC exposure includes irrigation of contaminated eyes, washing of exposed skin, respiratory support for inhalation and immediate medical attention for ingestion. Emergency decontamination will include the following:

- Water rinse using pressurized or gravity flow;
- Removal to a building or heated vehicle until dry to avoid complications of low temperatures (seasonal).

**Table 1**  
**Emergency Medical Information for Substances Potentially Present On-Site**  
**(based on environmental investigations conducted to date)**  
**SCHOTT METAL PROPERTY**  
**2225 Lee Road, Akron, Ohio 44601**

Substance	Exposure Symptoms
Trichloroethylene (Trichloroethene)	<p>Ingestion causes irritation to gastrointestinal tract. May also cause effects similar to inhalation. May cause coughing, abdominal pain, diarrhea, dizziness, pulmonary edema, unconsciousness. Kidney failure can result in severe cases. Estimated fatal dose is 3-5 ml/kg.</p> <p>Vapors can irritate the respiratory tract. Causes depression of the central nervous system with symptoms of visual disturbances and mental confusion, incoordination, headache, nausea, euphoria, and dizziness. Inhalation of high concentrations could cause unconsciousness, heart effects, liver effects, kidney effects, and death.</p> <p>Cause irritation, redness and pain. Can cause blistering. Continued skin contact has a defatting action and can produce rough, dry, red skin resulting in secondary infection. Vapors may cause severe irritation with redness and pain. Splashes may cause eye damage.</p>
Chloroethane	<p>Inhalation causes dizziness, dullness, headache and/or abdominal cramps. Exposure to eyes causes redness, pain and/or blurred vision.</p>
1,1-Dichloroethane	<p>Irritation of the skin; central nervous system depression; liver, kidney, lung damage.</p>
1,2-Dichloroethane	<p>Eye irritation, corneal opacity; central nervous system depression; nausea, vomiting; dermatitis; liver, kidney, cardiovascular system damage; potential occupational carcinogen.</p>
1,1-Dichloroethylene (1,1-Dichloroethene)	<p>Short term exposure may cause irritation, symptoms similar to drunkenness, lung congestion, liver damage or convulsions.</p>
cis-1,2-Dichloroethylene (1,1-Dichloroethene)	<p>Ingestion may cause gastrointestinal irritation with nausea, vomiting and diarrhea. Inhalation of high concentrations may cause central nervous system effects characterized by headache, dizziness, unconsciousness and coma. May cause respiratory tract irritation. Inhalation of high concentrations may cause narcotic effects.</p> <p>May cause skin irritation. May cause dermatitis. May cause eye irritation.</p>
trans-1,2-Dichloroethylene (1,1-Dichloroethene)	<p>May cause gastrointestinal irritation with nausea, vomiting and diarrhea. May be harmful if swallowed. May cause central nervous system depression. May cause respiratory tract irritation. May cause narcotic effects in high concentration. May cause nausea and possible vomiting. Causes moderate skin irritation. May cause dermatitis. Causes moderate eye irritation.</p>

**Table 1 (continued)**  
**Emergency Medical Information for Substances Potentially Present On-Site**  
**(based on environmental investigations conducted to date)**  
**SCHOTT METAL PROPERTY**  
**2225 Lee Road, Akron, Ohio 44601**

Substance	Exposure Symptoms
Toluene	Swallowing may cause abdominal spasms and other symptoms that parallel over-exposure from inhalation. Aspiration of material into the lungs can cause chemical pneumonitis, which may be fatal. Inhalation may cause irritation of the upper respiratory tract. Symptoms of overexposure may include fatigue, confusion, headache, dizziness and drowsiness. Peculiar skin sensations (e. g. pins and needles) or numbness may be produced. Very high concentrations may cause unconsciousness and death. Causes skin irritation. May be absorbed through skin. Causes severe eye irritation with redness and pain.
Vinyl Chloride	Lassitude (weakness, exhaustion); abdominal pain, gastrointestinal bleeding; enlarged liver; pallor or cyanosis of extremities; liquid: frostbite; potential occupational carcinogen.
Xylenes (mixed isomers)	<p>May cause central nervous system depression, kidney damage, and liver damage. Symptoms may include: headache, excitement, fatigue, nausea, vomiting, stupor, and coma. Causes gastrointestinal irritation with nausea, vomiting and diarrhea. Aspiration of material into the lungs may cause chemical pneumonitis, which may be fatal.</p> <p>Inhalation of high concentrations may cause central nervous system effects characterized by headache, dizziness, unconsciousness and coma. Inhalation of vapor may cause respiratory tract irritation. Prolonged exposure may result in dizziness and general weakness. Irritation may lead to chemical pneumonitis and pulmonary edema.</p> <p>Exposure may cause irritation characterized by redness, dryness, and inflammation. Prolonged and/or repeated contact may cause defatting of the skin and dermatitis. Causes severe eye irritation.</p>
Arsenic	Ulceration of nasal septum, dermatitis, gastrointestinal disturbances, peripheral neuropathy, respiratory irritation, hyperpigmentation of skin, potential occupational carcinogen.
Barium	Irritation of the eyes, skin, upper respiratory system; skin burns; gastroenteritis; muscle spasms; slow pulse, extrasystoles; hypokalemia
Cadmium	Pulmonary edema, dyspnea (breathing difficulty), cough, chest tightness, substernal (occurring beneath the sternum) pain; headache; chills, muscle aches; nausea, vomiting, diarrhea; anosmia (loss of the sense of smell), emphysema, proteinuria, mild anemia; potential occupational carcinogen.
Chromium (total)	Irritation of the eyes and/or skin; lung fibrosis (histologic).

<b>Table 1 (continued)</b> <b>Emergency Medical Information for Substances Potentially Present On-Site</b> <b>(based on environmental investigations conducted to date)</b> <b>SCHOTT METAL PROPERTY</b> <b>2225 Lee Road, Akron, Ohio 44601</b>	
Lead	<p>Causes gastrointestinal irritation with nausea, vomiting and diarrhea. Ingestion of lead compounds can cause toxic effects in the blood-forming organs, kidneys and central nervous system. Symptoms of lead poisoning or plumbism include weakness, weight loss, lassitude, insomnia, and hypotension. It also includes constipation, anorexia, abdominal discomfort and colic.</p> <p>May cause respiratory tract irritation. Inhalation of fumes may cause metal fume fever, which is characterized by flu-like symptoms with metallic taste, fever, chills, cough, weakness, chest pain, muscle pain and increased white blood cell count. May cause effects similar to those described for ingestion. Causes skin irritation. May be absorbed through the skin. Causes eye irritation.</p>
Mercury	<p>May cause liver and kidney damage. May cause reproductive and fetal effects. Effects may be delayed. Chronic exposure to mercury may cause permanent central nervous system damage, fatigue, weight loss, tremors, personality changes. Chronic ingestion may cause accumulation of mercury in body tissues. Prolonged or repeated exposure may cause inflammation of the mouth and gums, excessive salivation, and loosening of the teeth. May cause severe and permanent damage to the digestive tract. May cause systemic effects. Causes chemical burns to the respiratory tract. Inhalation of fumes may cause metal fume fever, which is characterized by flu-like symptoms with metallic taste, fever, chills, cough, weakness, chest pain, muscle pain and increased white blood cell count. May cause central nervous system effects including vertigo, anxiety, depression, muscle incoordination, and emotional instability. Aspiration may lead to pulmonary edema. May cause systemic effects. May cause respiratory sensitization. May be absorbed through the skin in harmful amounts. May cause skin sensitization, an allergic reaction, which becomes evident upon re-exposure to this material. Causes skin irritation and possible burns. May cause skin rash (in milder cases), and cold and clammy skin with cyanosis or pale color. Eye exposure to mercury or mercury compounds can cause discoloration on the front surface of the lens, which does not interfere with vision. Causes eye irritation and possible burns. Contact with mercury or mercury compounds can cause ulceration of the conjunctiva and cornea.</p>
Polychlorinated biphenyls (PCBs)	Inhalation of material may be harmful. Contact may cause burns.

**B. HAZARD EVALUATION**

The following substances are known or suspected to be in the soil and/or ground water of the site based upon the site history and previous environmental investigations:

<b>Table 2</b> <b>Chemicals of Concern</b> <b>(based on site history and environmental investigations conducted to date)</b> <b>SCHOTT METAL PROPERTY</b> <b>2225 Lee Road, Akron, Ohio 44601</b>			
Chemicals of Concern (COCs)	Rationalization	Regional Screening Level, mg/Kg	U.S. EPA Drinking Water Standard, mg/L
Trichloroethylene (TCE) (Trichloroethene)	Site history; Previously detected	14	0.005
Chloroethane	Daughter product of 1,1-dichloroethane	N/A	N/A
1,1-Dichloroethane	Site history	17	N/A
1,2-Dichloroethane	Site history	2.2	0.005
1,1-Dichloroethylene (1,1-Dichloroethene)	Daughter product of TCE	1,100	0.007
cis-1,2-Dichloroethylene (cis-1,1-Dichloroethene)	Daughter product of TCE, Previously detected	10,000	0.07
trans-1,2-Dichloroethylene (trans-1,1-Dichloroethene)	Daughter product of TCE, Previously detected	690	0.1
Toluene	Site history; Previously detected	45,000	1
Vinyl Chloride	Daughter product of TCE	1.7	0.002
Xylenes (mixed isomers)	Site history	2,700	10
Arsenic	Site history; Previously detected	1.6	0.01
Barium	Site history; Previously detected	190,000	2
Cadmium	Site history; Previously detected	800	0.005
Chromium (Total)	Site history; Previously detected	N/A	0.1
Lead	Site history; Previously detected	800	0.015
Mercury	Site history; Previously detected	34	0.002

**Table 2 (continued)**  
**Chemicals of Concern**  
**(based on site history and environmental investigations conducted to date)**  
**SCHOTT METAL PROPERTY**  
**2225 Lee Road, Akron, Ohio 44601**

Chemicals of Concern (COCs)	Rationalization	Regional Screening Level, mg/Kg	U.S. EPA Drinking Water Standard, mg/L
Selenium	Site history; Previously detected	5,100	0.05
Silver	Site history; Previously detected	5,100	0.1 (National Secondary Drinking Water Regulation)
Polychlorinated biphenyls (PCBs)	Site history	0.54 to 21, depending on the PCB detected	0.0005

Note: Regional Screening Levels are from Regional Screening Level (RSL) Summary Table, May 2010. U.S. EPA Drinking Water Standards are currently published maximum contaminant levels (MCLs) except as marked.

The following additional physical hazards may be present on site:

- Fire and explosion: YES - fuels for heavy equipment
- Oxygen deficiency: NO
- Ionizing radiation: NO
- Biological hazards: YES - Stinging insects, dogs, other animals, poison ivy, etc.
- Confined Space Entry: NO
- Electrical hazards: NO
- Heat stress: YES - seasonal
- Cold stress: YES - seasonal
- Noise: YES - drilling/soil sampling operations
- Open excavations: NO

Although no confined space entry is anticipated during this project, there will be no entry into confined spaces for any person without prior receipt of a written confined space entry permit. Aerial obstructions such as power lines will be verified prior to the movement of large equipment. A 15 foot horizontal clearance must be maintained for elevated equipment (i.e., drill rig masts).

Locations of subsurface utilities and buried objects also shall be verified. VADOSE will contact the Ohio Utilities Protection Service (OUPS) to have all utilities marked. OUPS member utilities typically do not mark utilities behind buildings. Site drawings and owner/occupant knowledge, as available, will also be used to locate site utilities.

**C. GENERAL SITE CONDITIONS/DESCRIPTION**

The site addressed by this Preliminary Work Plan is located on approximately four acres of land at 2225 Lee Road in Springfield Township, Summit County, Ohio. The site is an active manufacturing facility with two contiguous single-family residential rental properties. Schott currently produces automotive aftermarket stampings and wheel assemblies for recreational vehicles. Some of its previous operations have been abandoned. Automobile parts stamping and tool and die operations have been conducted at the facility since 1948.

Work is anticipated to take place during November 2010 to March 2011. A tailgate health and safety meeting is scheduled for the beginning of each phase of work (drum contents sampling, drilling, etc.). Site work times and dates will be dependent upon weather conditions (available daylight, thunder storms, excessive cold, ice storms, etc.) at the discretion of the Field Team Leader.

Expected Hazards:	Metals, solvents
Area Affected:	See Appendix A for site map
Surrounding Land Uses:	Residential & vacant
Topography:	Variable, level to steep, overgrown to gravel paved
Weather Conditions:	Fall to Spring, 20°F to 70°F

**D. PROJECT OBJECTIVES/ACTIVITIES**

The objective of the project is to define the horizontal and vertical extents of the identified COCs. Other environmental compliance issues are also to be addressed. Details may be found in the Work Plan for the site, submitted under separate cover.

Project management - Vadose Environmental Consultants, Inc.  
Direct-push sampling, drilling and monitoring well installation - subcontractor: Northcoast Drilling Service, Inc.  
Geologic oversight/sampling, other material sampling - Vadose Environmental Consultants, Inc.

**E. ON SITE ORGANIZATION AND COORDINATION**

The following personnel are designated to carry out the stated job functions on site (subject to update):

TITLE	OFFICE PHONE	MOBILEPHONE
Site Safety Officer & Project Manager: Mark Caetta, VADOSE	330-762-6706	330-322-8321
Field Team Leader: Mark Caetta, VADOSE	330-762-6706	330-322-8321
H&S Advisor: Jennifer Zylko, VADOSE	330-762-6706	330-319-
	3429	
Additional Contact: William Ullom, VADOSE	330-762-6706	330-312-3082

Other Site Personnel: Employees of:  
 Vadose Environmental Consultants, Inc.  
 Northcoast Drilling Service, Inc.

All personnel arriving or departing the site MUST check in and out with the Field Team Leader. All personnel potentially exposed to site contaminants (entering active work zones) must read this site health and safety plan and sign a form documenting that they have read the plan and agreed to abide by the stipulations set forth in the plan. All activities on-site must be cleared through the Project Manager.

**F. ON-SITE CONTROL**

Mark Caetta of VADOSE has been designated to coordinate access control and security on site. On-site personnel for Schott Metal Products will be notified when VADOSE personnel arrive and leave for the day. The exclusion zone(s) will be established within the area designated as the perimeter dependent on active work locations and site conditions. No unauthorized person will be allowed within this area. The exclusion zone control boundary will be marked with flagging, tape and/or colored cones as needed.

The on-site command post and staging areas will be established in a level or nearly level area near the buildings on the Subject Property. The prevailing wind conditions are anticipated to be from the west. The command-post/staging areas will be established at a safe distance from the exclusion zone.

**G. OFF-SITE IMPACTS**

No off-site impacts are anticipated during the completion of this phase of the investigation.



**H. PERSONAL PROTECTIVE EQUIPMENT**

Personal protective equipment (PPE) selection will be dependent upon documented and anticipated site hazards and active investigative tasks. The appropriate PPE will be utilized based on chemicals and concentrations of chemicals anticipated to be encountered during field activities. The use of negative pressure respirators is limited to those individuals who are medically qualified, have received the appropriate training on respirator use and the limitations and have successfully completed a "respirator fit test" within the last 12 months. Based on evaluation of potential hazards, the following levels of personal protection have been designated for the applicable work areas or tasks:

ACTIVITY	LEVEL OF PROTECTION
Drum Content Sampling	D / C
Suspect Asbestos-Containing Material Sampling	Modified C
Trailer Investigation	D / C
Site Grading / Clearing	D / C
Drilling and Monitoring Well Installation	D / C
Soil and Ground Water Sampling	D / C
Decontamination of Equipment	D / C

Specific protective equipment for each level of protection is as follows:

LEVEL A: (Not Applicable for this Project)

- Fully-Encapsulating Suit
- Supplied Breathing Air
- Chemical Resistant Inner Clothing/Gloves
- Chemical Resistant Inner Boots/Shoes
- Two-Way Communications

LEVEL B: (Not Applicable for this Project)

- Splash Gear
- Self-Contained Breathing Apparatus
- Inner/Outer Chemical Resistant Gloves
- Inner/Outer Chemical Resistant Boots
- Hard Hat
- Two-Way Communication

LEVEL C: (Potentially Applicable for this Project)

- Splash Gear (Tyvek coverall, splash goggles)
- Full-Face Respirator with Organic Cartridges
- Chemical Resistant Inner (nitrile)/Outer (neoprene, etc.) Gloves
- Tyvek coverall
- Hard Hat

MODIFIED LEVEL C (for Suspect Asbestos-Containing Materials Sampling):

- Nitrile / Work Gloves as needed
- Safety Glasses
- Half-Face Respirator

- LEVEL D: (Applicable for this Project)
- Hard Hat near drilling/construction equipment
  - Steel Toed Boots
  - Insulated Clothing as needed
  - Latex / Work Gloves as needed
  - Safety Glasses / Splash Goggles as needed

NO CHANGES TO THE SPECIFIED LEVELS OF PROTECTION SHALL BE MADE WITHOUT THE APPROVAL OF THE SITE SAFETY OFFICER OR THE PROJECT MANAGER.

**I. ENVIRONMENTAL MONITORING**

During site clearing, soil sampling, drilling, monitoring well installation, and other activities as needed, the following monitoring instrument(s) will be used:

Instrument	Action Level	Monitoring Frequency
PID	>5 ppm above background	Intermittently

If the PIID readings are greater than 5 ppm above background for 1 minute in the breathing zone, cease activities and withdraw from affected area and notify the site safety officer. If elevated instrument readings persist, Level C protection must be utilized upon approval from the site safety officer/advisor.

As this investigation has historically been driven by the presence of TCE, the most pervasive contaminant in both quantity and extent, a 10.6 eV lamp will be used in the PID. TCE and most of the VOCs that have been found at this site have ionization potentials below 10.6 eV.

**J. DECONTAMINATION PROCEDURES**

Personnel and equipment leaving the Exclusion Zone shall be properly decontaminated. Minimum decontamination under Level D PPE conditions will consist of gross removal of potentially contaminated soils from personnel and equipment. Minimum personnel decontamination under Level C PPE conditions will consist of a thorough wash and rinse of protective clothing, disposal of contaminated protective clothing, and hand and face wash and rinse. The specific procedures and location of equipment will be covered in the pre-site briefing.

Emergency decontamination will include the following:

- Water rinse using pressurized or gravity flow;
- Removal to a building or heated vehicle until dry to avoid complications of low temperatures (seasonal).

The following decontamination equipment is required:

Readily available source of potable water;  
Liquinox<sup>®</sup> (or equivalent)/potable water solution and potable water rinse.

All drums of decontamination water/fluids will be labeled as to their contents, including dates and information on borings/wells from which waste was generated. Drums will be accumulated indoors in the former forge building. Drums will be sampled within three weeks of filling. Drum content analytical suites (to be identified in an addendum report and subject to U.S. EPA approval) will be dependent upon laboratory analyses of the associated media, as well as the results of the relevant sample analyses.

**K. PERSONNEL EXPOSURE MONITORING**

The following personnel exposure monitoring will be in effect on site:

- Personnel exposure sampling device: PID
- Personnel Monitoring: In breathing zone during site clearing, soil sampling, drilling, monitoring well installation, and other activities as needed.

**L. TRAINING AND MEDICAL REQUIREMENTS**

Employees that will enter an exclusion zone or contamination reduction zone must meet the training and medical requirements as outlined in 29 CFR 1910.120.

**M. APPROVALS**

This plan has been written for exclusive use of Vadose Environmental Consultants, Inc., and its subcontractors on the project for which this plan was specifically drafted. Vadose Environmental Consultants, Inc., accepts no responsibility for its use by others.

Plan prepared by:

\_\_\_\_\_  
Mark A. Caetta, Site Safety Officer, Vadose Environmental Consultants, Inc.

**O. SIGN OFFS**

---

Printed Name	Signature	Date
Mark A. Caetta		
Site Safety Officer, Vadose Environmental Consultants, Inc.		

By my signature, I certify that I have completed training and medical monitoring requirements required under OSHA 29 CFR 1910.120, and have read, understand and will abide by the above plan.

Other Site Personnel:

---

Printed Name	Signature	Date
--------------	-----------	------

---

Printed Name	Signature	Date
--------------	-----------	------

---

Printed Name	Signature	Date
--------------	-----------	------

---

Printed Name	Signature	Date
--------------	-----------	------

---

Printed Name	Signature	Date
--------------	-----------	------

---

Printed Name	Signature	Date
--------------	-----------	------

---

Printed Name	Signature	Date
--------------	-----------	------

By my signature, I certify that I have completed training and medical monitoring requirements required under OSHA 29 CFR 1910.120, and have read, understand and will abide by the above plan.

Other Site Personnel:

---

Printed Name	Signature	Date
--------------	-----------	------

---

Printed Name	Signature	Date
--------------	-----------	------

---

Printed Name	Signature	Date
--------------	-----------	------

---

Printed Name	Signature	Date
--------------	-----------	------

---

Printed Name	Signature	Date
--------------	-----------	------

---

Printed Name	Signature	Date
--------------	-----------	------

---

Printed Name	Signature	Date
--------------	-----------	------

---

Printed Name	Signature	Date
--------------	-----------	------

Appendix A

Site Map and Route to Hospital

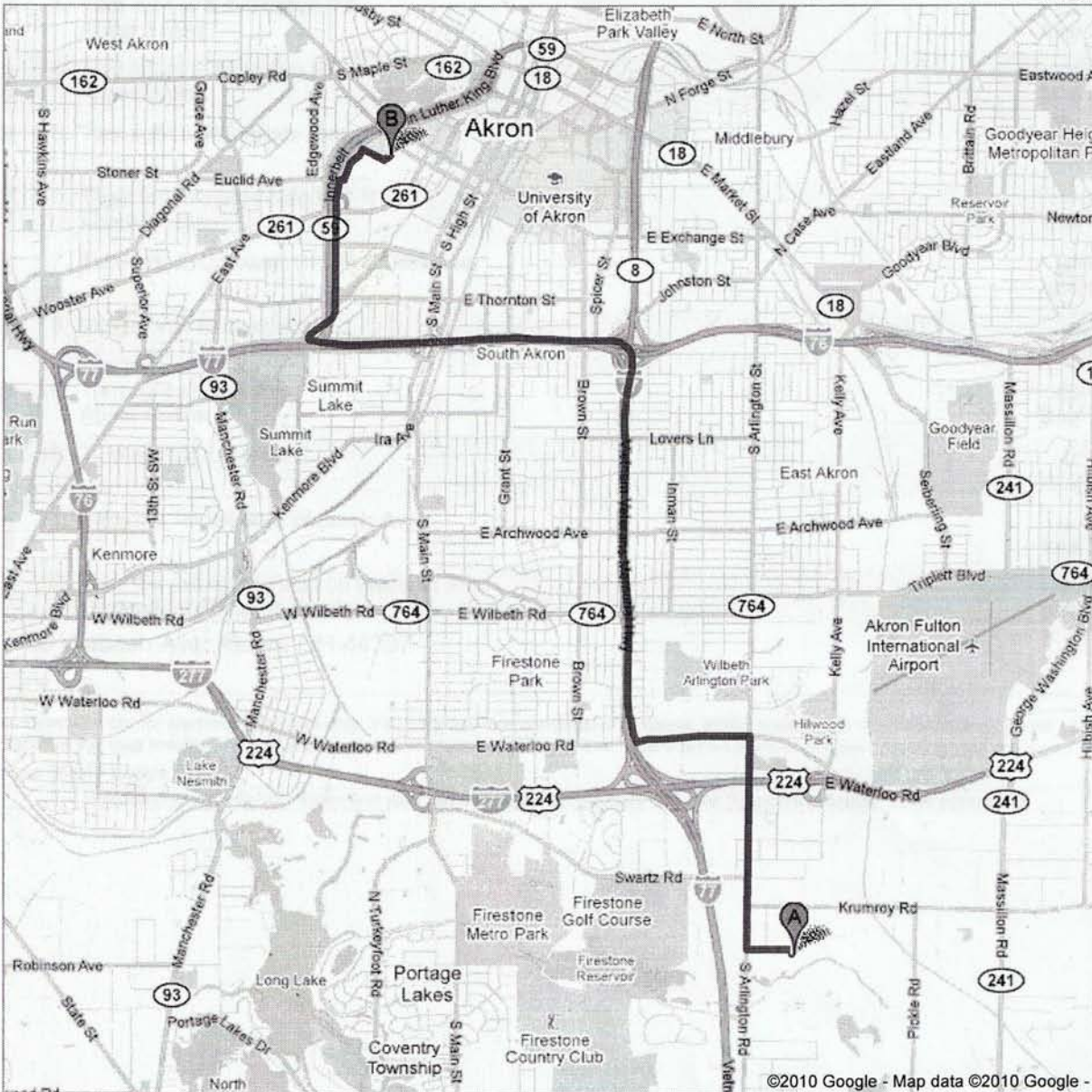



Google maps











**Directions to Akron General Medical Center**  
400 Wabash Avenue, Akron, OH 44307 - (330) 344-6000  
7.7 mi – about 16 mins


**Save trees. Go green!**

Download Google Maps on your phone at [google.com/gmm](http://google.com/gmm)



 2225 Lee Dr, Akron, OH 44306

- |   |   |                           |
|---|---|---------------------------|
|   | 1. Head north on <b>Lee Rd</b> toward <b>Ironwood Rd</b>                                | go 167 ft<br>total 167 ft |
|  | 2. Take the 1st left onto <b>Ironwood Rd</b><br>About 1 min                             | go 0.3 mi<br>total 0.3 mi |
|  | 3. Turn right at <b>S Arlington Rd</b><br>About 3 mins                                  | go 1.2 mi<br>total 1.5 mi |
|  | 4. Turn left at <b>E Waterloo Rd</b><br>About 2 mins                                    | go 0.7 mi<br>total 2.2 mi |
|  | 5. Turn right at <b>Allendale Ave</b>   | go 0.1 mi<br>total 2.3 mi |
|  | 6. Slight left to merge onto <b>I-77 N</b><br>About 4 mins                              | go 3.8 mi<br>total 6.1 mi |
|  | 7. Take exit <b>21C</b> toward <b>OH-59 E/Dart Ave</b>                                  | go 0.2 mi<br>total 6.3 mi |
|   | 8. Merge onto <b>Russell Ave</b>  | go 148 ft<br>total 6.3 mi |
|  | 9. Turn right at <b>Dart Ave</b><br>About 4 mins  | go 1.0 mi<br>total 7.3 mi |
|  | 10. Turn right at <b>1st Merit Cir</b>  | go 141 ft<br>total 7.3 mi |
|  | 11. Take the 1st left onto <b>Wabash Ave</b>  | go 0.2 mi<br>total 7.5 mi |
|  | 12. Take the 1st right to stay on <b>Wabash Ave</b><br>Destination will be on the right | go 0.2 mi<br>total 7.7 mi |

 400 Wabash Ave, Akron, OH 44307

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.

Map data ©2011 Google

Directions weren't right? Please find your route on [www.google.com](http://www.google.com) and click "Report a problem" at the bottom left.

## Appendix B

### Material Safety Data Sheets for COCs

- Trichloroethylene
- Chloroethane
- 1,1-Dichloroethane
- 1,2-Dichloroethane
- 1,1-Dichloroethene
- cis-1,2-Dichloroethene
- trans-1,2-Dichloroethene
- Toluene
- Vinyl chloride
- Xylenes (mixed isomers)
- Arsenic
- Barium
- Cadmium
- Chromium (total)
- Lead
- Mercury
- Selenium
- Silver
- Polychlorinated biphenyls



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5

77 WEST JACKSON BOULEVARD

CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF:

LU-9J

CERTIFIED MAIL #7009 1680 0000 7671 1494  
RETURN RECEIPT REQUESTED

August 16, 2012

Bill Ullom  
Vadose Environmental Consultants, Inc.  
526 South Main Street, Suite 801D  
Akron, Ohio 44311

**Re: Email Request for Change to Comprehensive Work Plan:  
Schott Metal Products Company dated August 16, 2012  
Schott Metal Products Company Akron, Ohio  
U.S. EPA ID No.: OHD 004 192 720**

Dear Mr. Ullom:

This letter is the United States Environmental Protection Agency (EPA) response to the Email request for change to Comprehensive Work Plan date August 16, 2012 at the Schott Metal Products Company, (Schott) Akron, Ohio site. Currently, Schott is required under Section 7.1 of the Comprehensive Work Plan that monthly status reports will be submitted on the seventh calendar day of the month. Schott's contractor VADOSE respectfully requested that Section 7.1 be amended to reflect a reporting date change to the fifteenth of the month, making this requirement consistent with that proposed in the draft Consent Decree.

EPA approves the change in the reporting date from the seventh of the month to the fifteenth of the month. If you have any questions, please do not hesitate to contact me.

Sincerely,

A handwritten signature in blue ink that reads "John Nordine".

John Nordine, Geologist, CPG, LPG  
Land and Chemicals Division  
Corrective Action Section 2

Enclosure

cc: Mr. Tom Williams, ORC  
James Bickett, USAOHN  
Steven Paffilas, USAOHN  
Mr. Ron Shadrach, M.S., P.G., OEPA