MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

In the Matter of Administrative
Proceedings Against:

Griffin Beverage Co.
1901 Dam Road
West Branch, Michigan, AOC-RRD-16-001

Respondent
_____/

ADMINISTRATIVE ORDER BY CONSENT
FOR CORRECTIVE ACTIONS AND PAYMENT OF COSTS

This Administrative Order by Consent (Order) is entered into voluntarily by and between the Department of Environmental Quality (DEQ) and Griffin Beverage Co. (Respondent), to resolve outstanding obligations pursuant to Part 213, Leaking Underground Storage Tanks, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA), resulting from a confirmed release from underground storage tanks at 1901 Dam Road, West Branch, Ogemaw County, Michigan, Facility ID 00014295 (the Site). This Order requires the Respondent to obtain compliance with Part 213 of the NREPA by performing the corrective actions outlined in Section II (Compliance Program) and reimbursing the DEQ and Department of Attorney General (DAG) (collectively, the State) for past and future corrective action costs, as described in Section V (Reimbursement of Costs.)

I. FINDINGS OF FACT AND DETERMINATIONS

The State makes the following Findings of Fact and Determinations.

1.1 A confirmed release, Confirmed Release # C-1437-93, of regulated substances from an underground storage tank was reported to the DEQ on November 12, 1993.

1.2 A Final Assessment Report (FAR) was submitted by the Respondent on September 27, 1996, which included a Corrective Action Plan (CAP). An April 28, 2011

DEQ audit consisting of a review of DEQ file documents and a Site visit disclosed the CAP was not implemented, as required by MCL324.21309a.

1.3 The DEQ sent letters to the Respondent on April 28, 2011; February 10, 2012; and November 25, 2014, notifying the Respondent of its continued non-compliance with Part 213 of the NREPA, and advising the Respondent to address these violations.

1.4 Respondent submitted a revised FAR/CAP on April 1, 2015, with a FAR Addendum submitted July 6, 2015. The revised FAR/CAP was approved with conditions on July 14, 2015, which Respondent did not implement in accordance with the schedule, prompting the DEQ to request the Respondent enter into this Order. As a result, Respondent submitted a revised Scope of Work and Schedule on December 11, 2015.

1.5 This Order does not constitute an admission of any liability on the part of the Respondent.

In accordance with MCL 324.21323i, the State has determined that entry of this Order will expedite the performance of corrective actions, will minimize litigation, and is in the public interest. All terms used in this Order that are defined in Part 3, Definitions, of the NREPA, MCL 324.301, or Part 213, shall have the same meaning in this Order as in Parts 3 and 213, unless otherwise stated herein.

II. COMPLIANCE PROGRAM

IT IS THEREFORE AGREED AND ORDERED THAT the Respondent will perform all necessary corrective actions to comply with the requirements of Part 213, including implementing the April 1, 2015 FAR/CAP, July 6, 2015 FAR Addendum, and December 11, 2015 Scope of Work and Schedule. The December 11, 2015 Scope of Work and Schedule supersedes the schedule and scope of work included in the previous submittals. The April 1, 2015 FAR/CAP, July 6, 2015 FAR addendum and

December 11, 2015 Scope of Work and Schedule shall be collectively referred to as the FAR/CAP for purposes of this Order, and attached in Attachment A. Respondent shall implement the CAP/FAR in accordance with the following schedule and modifications, or as otherwise approved by the DEQ:

2.1 The Respondent shall complete the definition of the vertical and horizontal extent of the groundwater contamination plume as required by MCL 324.21311a(1)(a).

a. Within thirty (30) days of the Effective Date of this Order except as extended under this Order, Respondent shall install three wells; two additional monitoring wells will be installed and screened between 18 and 23 feet below ground surface in the vicinity of AKTP-10 and AKTP-11, and one deeper monitoring well will be installed and screened between 35 and 40 feet below ground surface downgradient of SB-9, as described in the FAR/CAP.

b. Within sixty (60) days of the Effective Date of this Order except as extended under this Order, Respondent shall begin quarterly sampling (February, May, August, November) of the following monitor wells consistent with the FAR/CAP: MW-2 through MW-5, MW-9, BB-1, BB-3 through BB-5, and the three new wells described in subparagraph 2.1a for a period of one year, or as necessary to achieve compliance with Part 213 and this Order.

c. Results of the quarterly sample analysis of the monitor wells listed in subparagraph (b) shall be included in the CAP Status Report, as required in Paragraph 2.6.

d. An evaluation of the sample results to determine whether the extent of contamination has been defined shall be included in the CAP Status Report. If data indicates additional monitor wells are required to define the extent of the contamination, the proposed location and depth, specifications and a schedule for implementation shall be provided in an amendment to the FAR/CAP, as provided in Paragraph 2.8. Any additional monitor wells installed shall be sampled and evaluated in the same manner as the previous monitor wells.

2.2 The Respondent shall recover Non-Aqueous Phase Liquids (NAPL), if any, at the Site until the DEQ approves either a Closure Report as provided in Paragraph 2.7 or Respondent demonstrates to the satisfaction of the DEQ that the NAPL is residual; mobile, but not migrating; or is otherwise appropriately abated or managed.

a. Within thirty (30) days of the Effective Date of this Order, and monthly thereafter, Respondent shall recover NAPL, if any, as provided in the FAR/CAP.

b. Respondent shall characterize the NAPL in May and November to evaluate plume recharge rates and effectiveness of the corrective actions for one year, or as necessary to achieve compliance with Part 213 and this Order. The characterization shall be included in the next CAP Status Report after the characterization.

2.3 Consistent with Paragraph 2.1 and the FAR/CAP, the Respondent shall monitor groundwater contamination on a quarterly basis to demonstrate that the groundwater contamination plume is stable or shrinking, and no potential to impact nearby drinking water receptors exists.

a. An evaluation of the stability of the groundwater plume, whether a potential to impact nearby drinking water receptors exists and the effectiveness of natural attenuation shall be included in the CAP Status Report.

b. If the evaluation required in Paragraph 2.3a determines that the plume is expanding, Respondent shall notify the DEQ within twenty (20) days of making the determination, and an implementation schedule for contingency corrective actions shall be mutually agreed upon by the parties. Respondent shall implement the contingencies in accordance with the mutually agreed upon schedule.

2.4 The Respondent shall perform corrective actions in order to achieve one of the following: i) demonstrate that no indoor air vapor intrusion screening levels are exceeded; ii) demonstrate to the satisfaction of the DEQ that a risk from vapor intrusion

into structures does not exist; or iii) the risk of vapor intrusion into structures has been mitigated.

a. Within sixty (60) days of the Effective Date of this Order , Respondent shall collect soil gas samples from SG1 and SG2 as described in the FAR/CAP, and for three (3) quarters following the initial sampling, or as necessary to achieve compliance with Part 213 and this Order. Except for the initial sampling event, quarterly sampling shall occur in May, August, November, and February, unless modified as provided in Paragraph 4.1 of this Order.

b. Analytical data and evaluation of the data from the soil gas screening points shall be included in the CAP Status Report.

c. If an exceedance of soil gas vapor intrusion screening levels is reported in a sub-slab soil gas screening point, Respondent shall notify the DEQ Project Manager within three (3) days. Respondent, in consultation with the DEQ Project Manager, shall evaluate corrective actions and, if appropriate, promptly implement corrective actions to mitigate the unacceptable exposure, and described in an amended FAR/CAP, as provided in Paragraph 2.8.

d. If no exceedance of soil gas vapor intrusion screening levels is reported for 3 consecutive quarters with respect to the existing structure at the Site, no further soil gas or other vapor intrusion testing is required.

2.5 Restrictive Covenant (RC)

a. Within nine (9) months of the Effective Date of this Order except as extended under this Order, Respondent shall submit to the DEQ for review and comment, a draft RC as described in the FAR/CAP.

b. Respondent shall record the RC with the Ogemaw County Register of Deeds within thirty (30) days of receipt of the DEQ's comments. A copy of the recorded RC shall be provided to the DEQ in the following CAP Status Report and included in the Closure Report to be submitted pursuant to Section 2.7.

2.6 Except as extended under this Order, the CAP Status Report shall be submitted quarterly to the DEQ by the end of March, June, September and December, and will include:

(i) A detailed description of the specific work tasks that will be conducted during the next quarter, including a schedule,

(ii) Presentation and evaluation of analytical results obtained in the last quarter, and

(iii) A description of the corrective actions taken the previous quarter, including any evaluation or characterization of data as provided in Paragraphs 2.1 to 2.4.

2.7 Within twenty-four (24) months of the Effective Date of this Order except as extended under the Order, Respondent shall submit to the DEQ for review and approval a Closure Report in accordance with MCL 324.21312a that demonstrates that the requirements of Part 213 have been satisfied.

2.8 If additional corrective actions are necessary to achieve compliance with Part 213 and this Order, an amendment to the FAR/CAP shall be submitted to the DEQ for review and approval prior to implementation. The FAR/CAP amendment shall include:

(i) A detailed description of the specific work tasks proposed to be conducted, and how these work tasks will contribute to achieving compliance with Part 213 and this Order, and

(ii) An implementation schedule for conducting the corrective actions.

2.9 If the DEQ grants approval of the Closure Report, the Respondent shall be entitled to such rights and defenses as provided in Part 213, including MCL 324.21323a(4)(d).

2.10 To the extent that Respondent owns or operates a part or all of the Site, Respondent shall maintain and, upon the DEQ's request, submit documentation to the

DEQ for review and approval that summarizes the actions Respondent has taken or is taking to comply with MCL 324.21304c.

III. SUBMISSIONS AND APPROVALS

3.1 All correspondence and submissions are to be made to:

For the DEQ:

Mr. Larry Engelhart, Project Manager
Saginaw Bay District Office
Remediation and Redevelopment Division
Department of Environmental Quality
401 Ketchum Street, Suite B
Bay City, Michigan 48708
Phone: (989) 894-6257
Email: engelhartl@michigan.gov

For Respondent:

Mr. Charles E. Barbieri
Foster Swift Collins & Smith PC
313 S Washington Square
Lansing, MI 48933-2114
Phone: (517) 371-8155
Email: cbarbieri@fosterswift.com

3.2 If Respondent or DEQ changes its designated contact person, the name, address, and telephone number of the successor shall be provided to the other party as provided in Paragraph 3.1 of this Order.

3.3 Upon written approval by the DEQ, any submission and attachments to submissions required by this Order, or any conditions that are the basis for an approval, shall be considered part of this Order and are enforceable pursuant to the terms of this Order. If there is a conflict between the requirements of this Order and any submission or an attachment to a submission, the requirements of this Order shall prevail.

3.4 Any approval of a submission shall not be construed to mean that the DEQ concurs with all of the conclusions, methods, or statements in any submission or warrants that the submission comports with law.

3.5 No informal advice, guidance, suggestions, or comments by the DEQ will be construed as relieving the Respondent of its obligation to obtain written approval of submissions required by this Order.

IV. MODIFICATIONS

4.1 The DEQ and Respondent may only modify this Order according to the terms of this Section. The modification by the Respondent of any submission or schedule required by this Order may be made only upon written approval from the DEQ.

4.2 Modification of any other provision of this Order shall be made only by written agreement between the DEQ, Remediation and Redevelopment Division Chief, or his or her authorized representative, the designated representative of the DAG and the Respondent.

V. REIMBURSEMENT OF COSTS

5.1 Within thirty (30) days after the Effective Date of this Order, Respondent shall deposit Thirty Thousand Dollars ($30,000) into an interest-bearing escrow account acceptable to the Respondent and DEQ for payment of the DEQ's past corrective action costs, and enter into an escrow agreement substantially similar to that in Attachment B.

5.2 Payment of DEQ past corrective action costs shall be held in abeyance until one of the following occurs:

a. the Respondent submits a Closure Report in compliance with Paragraph 2.7 and receives DEQ-approval of the Closure Report. Upon receipt of DEQ approval of the Closure Report, Five Thousand Dollars ($5,000), plus any accrued interest on that amount of the funds, shall be disbursed to the DEQ as

provided in Paragraph 5.4 of this Order, any remaining funds held in escrow shall be disbursed to the Respondent.

b. the Respondent fails to submit the Closure Report in accordance with Paragraph 2.7 of this Order or fails to receive DEQ-approval of the Closure Report. If either of these events occurs, the Thirty Thousand Dollars ($30,000), plus any accrued interest, held in escrow as provided in Paragraph 5.1 of the Order shall be disbursed to the DEQ as provided in Paragraph 5.4 of the Order.

5.3 If escrow funds are disbursed under Paragraph 5.2b, Respondent shall reimburse the State for all future corrective action costs incurred by the State beginning on the date the Closure Report was due under Paragraph 2.7. The DEQ will periodically provide Respondent with an invoice for future corrective action costs. An invoice will include a summary report (Summary Report) that identifies all the corrective action costs incurred and paid since the previous billing, the nature of those costs, and the dates through which those costs were incurred by the State. Respondent shall reimburse the DEQ for such costs within thirty (30) days of Respondent's receipt of an invoice from the DEQ.

5.4 Respondent shall have the right to request a full and complete accounting of all DEQ invoices made hereunder, including time sheets, travel vouchers, contracts, invoices, and payment vouchers as may be available to the DEQ. The DEQ's provision of these documents to Respondent may result in the DEQ incurring additional future corrective action costs, which will be included in the next invoice for payment of future corrective action costs.

5.5 All payments or disbursements made pursuant to this Order shall be by certified check, made payable to the "State of Michigan – Environmental Response Fund," and shall be sent:

By first class mail:
Michigan Department of Environmental Quality
Casher's Office
P.O. Box 30657
Lansing, MI 48909-8157

Via courier:
Accounting Services Division
Casher's Office for DEQ
1st Floor, Van Wagoner Building
425 W. Ottawa Street
Lansing, MI 48933-2125

The Griffin Beverage Co., the DEQ Reference No. AOC-RRD-16-001 and the RRD Account Number RRD50077 shall be designated on each check. A copy of the transmittal letter and the check shall be provided simultaneously to the DEQ Contact at the address listed in Paragraph 3.1 and to the DAG at:

Assistant in Charge
Environment, Natural Resources, and Agriculture Division
Michigan Department of Attorney General
G. Mennen Williams Building, 6th Floor
P.O. Box 30755
Lansing, MI 48909
Phone: 517-373-7540
Fax: 517-373-1610

Costs recovered pursuant to this Section or payment of stipulated penalties pursuant to Section VI (Stipulated Penalties) of this Order shall be deposited into the Environmental Response Fund in accordance with the provisions of MCL 324.20108(3).

5.6 If Respondent fails to make full payment to the DEQ for future corrective action costs as specified in Paragraphs 5.3 of this Order, interest, at the rate specified in MCL 324.21323b(3), shall begin to accrue on the unpaid balance on the day after payment was due, until the date upon which Respondent makes full payment of those costs and the accrued interest to the DEQ. In any challenge by Respondent to a DEQ demand for reimbursement of costs, Respondent shall have the burden of establishing that the DEQ did not lawfully incur those costs in accordance with MCL 324.21323b(1)(a).

VI. STIPULATED PENALTIES

6.1 If the escrow funds are disbursed under Paragraph 5.2b, the Respondent shall be liable for stipulated penalties of Two Hundred Dollars ($200) per day for each and every failure or refusal to comply with the obligations under this Order from the date Respondent failed to meet the conditions of Paragraph 2.7.

6.2 All penalties shall begin to accrue on the day after performance of an activity was due or the day a violation occurs, and shall continue to accrue through the final day of completion of performance of the activity or correction of the violation. Nothing herein shall prevent the simultaneous accrual of separate penalties for separate violations of this Order.

6.3 Respondent shall pay stipulated penalties owed to the State no later than thirty (30) days after Respondent's receipt of a written demand from the State. Payment shall be made in the manner set forth in Paragraph 5.4 of Section V (Reimbursement of Costs) of this Order.

6.4 The payment of stipulated penalties shall not alter in any way Respondent's obligation to perform the response activities required by this Order.

6.5 If Respondent fails to pay stipulated penalties when due, the State may institute proceedings to collect the penalties. However, the assessment of stipulated penalties is not the State's exclusive remedy if Respondent violates this Order. For any failure or refusal of Respondent to comply with the requirements of this Order, the State also reserves the right to pursue any other remedies to which it is entitled under this Order or any applicable law including, but not limited to, seeking civil fines, injunctive relief, and the specific performance of response activities and reimbursement of costs.

6.6 Notwithstanding any other provision of this Section, the State may waive, in its unreviewable discretion, any portion of stipulated penalties and interest that has accrued pursuant to this Order.

VII. FORCE MAJEURE

7.1 Respondent shall perform the requirements of this Order within the time limits established herein, unless performance is prevented or delayed by events that constitute a "*Force Majeure*." Any delay in the performance attributable to a *Force Majeure* shall not be deemed a violation of this Order in accordance with this Section.

7.2 For the purposes of this Order, a *Force Majeure* event is defined as any event arising from causes beyond the control of and without the fault of Respondent, of any person controlled by Respondent, or of Respondent's contractors that delays or prevents the performance of any obligation under this Order despite Respondent's "best efforts to fulfill the obligation." The requirement that Respondent exercise "best efforts to fulfill the obligation" includes Respondent using best efforts to anticipate any potential *Force Majeure* event and to address the effects of any potential *Force Majeure* event during and after the occurrence of the event, such that Respondent minimizes any delays in the performance of any obligation under this Order to the greatest extent possible. *Force Majeure* includes an occurrence or nonoccurrence arising from causes beyond the control of and without the fault of Respondent, such as an act of God, untimely review of permit applications or submissions by the DEQ or other applicable authority, and acts or omissions of third parties that could not have been avoided or overcome by the diligence of Respondent and that delay the performance of an obligation under this Order. *Force Majeure* does not include, among other things, unanticipated or increased costs, changed financial circumstances, or failure to obtain a permit or license as a result of actions or omissions of Respondent.

7.3 Respondent shall notify the DEQ by telephone within seventy-two (72) hours of discovering any event that causes a delay or prevents performance with any provision of this Order. Verbal notice shall be followed by written notice within ten (10)

calendar days and shall describe, in detail, the anticipated length of delay for each specific obligation that will be impacted by the delay; the cause or causes of delay; the measures taken by Respondent to prevent or minimize the delay; and the timetable by which those measures shall be implemented. Respondent shall use its best efforts to avoid or minimize any such delay.

7.4 Failure of Respondent to comply with the notice requirements of Paragraph 7.3, above, shall render Section VII (Force Majeure) of this Order, void and of no force and effect as to the particular incident involved. The DEQ may, at its sole discretion and in appropriate circumstances, waive the notice requirements of Paragraph 7.3 of this Order.

7.5 If the parties agree that the delay or anticipated delay was beyond the control of Respondent, this may be so stipulated and the parties to this Order may agree upon an appropriate modification of this Order. If the parties to this Order are unable to reach such agreement, the dispute shall be resolved in accordance with Section VIII (Dispute Resolution) of this Order. The burden of proving that any delay was beyond the control of Respondent, and that all the requirements of this Section have been met by Respondent, is on Respondent.

7.6 An extension of one compliance date based upon a particular incident does not necessarily mean that Respondent qualifies for an extension of a subsequent compliance date without providing proof regarding each incremental step or other requirement for which an extension is sought.

VIII. DISPUTE RESOLUTION

8.1 Unless otherwise expressly provided for in this Order, the dispute resolution procedures of this Section shall be the exclusive mechanism to resolve disputes arising under or with respect to this Order. However, the procedures set forth in this Section shall not apply to actions by the State to enforce any of Respondent's

obligations that have not been disputed in accordance with this Section. Engagement of dispute resolution pursuant to this Section shall not be cause for Respondent to delay the performance of any response activity required under this Order.

8.2 The State shall maintain an administrative record of any disputes initiated pursuant to this Section. The administrative record shall include the information Respondent provides to the State under Paragraphs 8.3 through 8.5 of this Order, and any documents the DEQ and the State rely on to make the decisions set forth in Paragraphs 8.3 through 8.5 of this Order.

8.3 Any dispute that arises under this Order with respect to the DEQ's disapproval, modification, or other decision concerning requirements of this Order shall, in the first instance, be the subject of informal negotiations between the district staff representing the DEQ and Respondent. A dispute shall be considered to have arisen on the date that a Party to this Order receives a written Notice of Dispute from the other Party. The Notice of Dispute shall state the issues in dispute; the relevant facts upon which the dispute is based; factual data, analysis, or opinion supporting the Party's position; and supporting documentation upon which the Party bases its position. In the event Respondent objects to any DEQ notice of disapproval, modification, or decision concerning the requirements of this Order that is subject to dispute under this Section, Respondent shall submit the Notice of Dispute within ten (10) days of receipt of the DEQ's notice of disapproval, modification, or decision. The period of informal negotiations shall not exceed twenty (20) days from the date a Party receives a Notice of Dispute, unless the time period for negotiations is modified by written agreement between the Parties. If the Parties do not reach an agreement within twenty (20) days or within the agreed-upon time period, the RRD Saginaw Bay District Supervisor will thereafter provide the DEQ's Statement of Position, in writing, to Respondent. In the absence of initiation of formal dispute resolution by Respondent under Paragraph 8.4 of this Order, the DEQ's position as set forth in the DEQ's Statement of Position shall be binding on the Parties.

8.4 If Respondent and the DEQ cannot informally resolve a dispute under Paragraph 8.3 of this Order, Respondent may initiate formal dispute resolution by submitting a written Request for Review to the RRD Chief, with a copy to the DEQ Project Manager, requesting a review of the disputed issues. This Request for Review must be submitted within ten (10) days of Respondent's receipt of the Statement of Position issued by the DEQ pursuant to Paragraph 8.3 of this Order. The Request for Review shall state the issues in dispute; the relevant facts upon which the dispute is based; factual data, analysis, or opinion supporting the Party's position; and supporting documentation upon which the Party bases its position. Within twenty (20) days of the RRD Chief's receipt of Respondent's Request for Review, the RRD Chief will provide the DEQ's Statement of Decision, in writing, to Respondent, which will include a statement of his/her understanding of the issues in dispute; the relevant facts upon which the dispute is based; factual data, analysis, or opinion supporting his/her position; and supporting documentation he/she relied upon in making the decision. The time period for the RRD Chief's review of the Request for Review may be extended by written agreement between the Parties. The DEQ's Statement of Decision shall be binding on the Parties.

8.5 Notwithstanding the invocation of a dispute resolution proceeding, stipulated penalties shall accrue from the first day of Respondent's failure or refusal to comply with any term or condition of this Order for disputes arising after the provisions of Section VI (Stipulated Penalties) are triggered. Payment shall be stayed pending resolution of the dispute. In the event, and to the extent that Respondent does not prevail on the disputed matters, the DEQ may demand payment of stipulated penalties and Respondent shall pay stipulated penalties as set forth in Paragraph 7.5 of Section VII (Stipulated Penalties) of this Order. Respondent shall not be assessed stipulated penalties for disputes that are resolved in their favor. The MDAG, on behalf of the DEQ, may take civil enforcement action against Respondent to seek the assessment of civil penalties or damages, pursuant to MCL 324.20137(1), or other statutory and equitable authorities.

8.6 Notwithstanding the provisions of this Section and in accordance with Section V (Reimbursement of Costs) of this Order, and Section VII (Stipulated Penalties) of this Order, Respondent shall pay to the DEQ that portion of a demand for reimbursement of costs or for payment of stipulated penalties that is not the subject of an ongoing dispute resolution proceeding.

8.7 No action or decision of the DEQ or the DAG shall constitute a final agency action giving rise to any rights of judicial review prior to the DAG's initiation of judicial action to compel Respondent to comply with this Order or to enforce a term, condition, or other action required by this Order. Nothing in this Order shall expand Respondent's ability to obtain pre-enforcement review of this Order.

IX. COMPLIANCE WITH STATE AND FEDERAL LAWS

All actions required to be taken pursuant to this Order shall be undertaken in accordance with the requirements of all applicable or relevant and appropriate state and federal laws, rules, permits, and regulations, including, but not limited to, Part 213 and laws relating to occupational safety and health.

X. EFFECTIVE DATE

This Order shall become effective on the date the DEQ signs the Order. All dates for performing obligations under this Order shall be calculated from the effective date. For this Order, "day" means a calendar day unless otherwise noted.

XI. TERMINATION OF ORDER

Upon DEQ receipt of all payments required to be made under this Order, including stipulated penalties, and DEQ's approval of the Closure Report, all obligations under this Order are terminated.

XII. SIGNATORIES

The undersigned certify they are fully authorized by the party they represent to enter into this Administrative Order by Consent, to comply by consent, and to execute and legally bind that party to its terms and conditions.

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

Robert Wagner, Chief
Remediation and Redevelopment Division
Michigan Department of Environmental Quality

4/21/16
Date

GRIFFIN BEVERAGE CO.

Robert T. Griffin, President
Griffin Beverage Co.

3-28-2016
Date

APPROVED AS TO FORM:

By Richard S. Kuhl (P42042)
Assistant Attorney General
Environment, Natural Resources, and Agriculture Division
Michigan Department of Attorney General

4/15/16
Date

ATTACHMENT A

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY – REMEDIATION AND REDEVELOPMENT DIVISION
PO BOX 30426, LANSING, MI 48909-7926, Phone 517-284-5087, Fax 517-241-3571

LEAKING UNDERGROUND STORAGE TANK FINAL ASSESSMENT REPORT COVER SHEET

RECEIVED
APR 02 2015
REMEDIATION DIVISION
Bay District

☐NEW or ☒REVISED PER DEQ AUDIT

INSTRUCTIONS: COMPLETION OF THIS REPORT WITH ALL APPLICABLE INFORMATION IS MANDATORY pursuant to Part 213, Section 324.21311a of the Leaking Underground Storage Tanks, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. Check one of the boxes above to indicate whether this is a new or revised submittal. Please provide the completed Final Assessment Report with the associated Table of Contents, Form EQP4007, within 365-days of discovery of a release to the appropriate RRD District Office.

SITE NAME: Griffin Beverage Co			FACILITY ID NUMBER: 00014295
STREET ADDRESS: 1901 Dam Road			
CITY: West Branch	ZIP: 48661	COUNTY: Ogemaw	
DATE(S) RELEASE(S) DISCOVERED: 11/12/93	CONFIRMED RELEASE NUMBER(S): 0-1437-93		
O/O NAME: Griffin Beverage Co	O/O EMAIL ADDRESS: Inventory@griffinbev.com		
O/O STREET ADDRESS: 1901 Dam Road	CITY: West Branch	STATE: MI	ZIP: 48661
CONTACT PERSON: Tom Spencer	PHONE: 989.345-0540	FAX:	

Permission is given for the Department of Environmental Quality to contact the Qualified Consultant: ☒YES ☐NO

FINAL ASSESSMENT REPORT INFORMATION: Answer All Questions. (DO NOT LEAVE BLANKS)

1. Site Classification (1-4): 2 Previous Site Classification (1-4): 1 Type of RBCA Evaluation: ☒ Tier I ☐ Tier II ☐ Tier III

2. Substance(s) released: ☒ Gasoline ☒ Diesel ☐ Ethanol: E-10 ☐ E-85 ☐ ☐ Other:

3. Has contamination migrated off-site above Tier 1 Residential RBSLs? ☐YES ☒NO
If YES, have off-site impacted parties been notified per Section 21309a(3) of Part 213? ☐YES ☐NO

4. Predominant groundwater flow direction: Southwest Depth to groundwater: 20-feet bgs

5. Is mobile NAPL present: Currently? ☒YES ☐NO Previously? ☒YES ☐NO
If present, was it recovered? ☒YES ☐NO If recoverable, total gallons recovered since last reported: 10 to date: 417

6. Is migrating NAPL present: ☐YES ☒NO If yes, are actions being taken to stop the NAPL migration? ☐YES ☐NO

7. Since Last Report: cubic yards of soil remediated: 0 gallons of groundwater remediated: 0
Totals to date: cubic yards of soil remediated: 600 gallons of groundwater remediated: 0

8. Have toxic or explosive vapors been identified in any confined spaces (basement, sewer, etc.)? ☐YES ☒NO

9. Drinking water supply affected? Currently: ☐YES ☒NO Previously: ☐YES ☒NO
Indicate type and # of wells affected: ☐ Private # ☐ Public Type II/III # ☐ Municipal #

10. Has the release affected surface water or wetlands? ☐YES ☒NO

11. Estimated distance and direction from point of release to nearest: Private well: 460 ft south Municipal well: None
Surface water/wetland: 300 ft north, Rifle Creek Is site within a wellhead protection zone? ☐YES ☒NO

12. Does the report include a request for: In-Situ Injection? ☐YES ☒NO DEQ approval for GSI compliance? ☐YES ☒NO
Groundwater not in an aquifer determination? ☐YES ☒NO Institutional controls regarding off-site migration? ☐YES ☒NO

13. What type of corrective action is proposed for each contaminated media? (i.e., Air Sparge/Soil Vapor Extraction; Monitored Natural Attenuation; Multi-phase Extraction; Excavation; Institutional Controls; etc.): MNA, free product recovery and institutional Controls

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY – REMEDIATION AND REDEVELOPMENT DIVISION
PO BOX 30426, LANSING, MI 48909-7926, Phone 517-284-5087, Fax 517-241-9581

LEAKING UNDERGROUND STORAGE TANK
FINAL ASSESSMENT REPORT COVER SHEET
(Continued)

RECEIVED
APR 09 2015
REMEDIATION DIVISION
Saginaw Bay District

This Final Assessment Report (FAR), which was completed in accordance with Part 213, Leaking Underground Storage Tanks, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, is submitted by:

SIGNATURE OF OWNER/OPERATOR (O/O)		
[signature]	Thomas Alan Spence	4-1-15
O/O or AUTHORIZED REPRESENTATIVE SIGNATURE	PRINT NAME	DATE

SIGNATURE OF QUALIFIED UST CONSULTANT (QC)		
[signature]	Jon A. Hirschenberger, CPG	5-19-14
QC SIGNATURE*	PRINT NAME	DATE

* By signing this form I certify that I meet the qualified underground storage tank consultant requirements identified in section 324.21325 of Part 213, Leaking Underground Storage Tanks, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

AKT Peerless Environmental	214 Janes Avenue, Saginaw, MI 48607	
QC COMPANY NAME	QC ADDRESS, CITY, STATE, ZIP	
989-754-9896	989-754-3804	jon@aktpeerless.com
QC PHONE	QC FAX NUMBER	QC Email ADDRESS

Instructions - Utilize the following Table Of Contents (TOC) to ensure that all information required by Part 213, Leaking Underground Storage Tanks, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Part 213), is provided in the Final Assessment Report (FAR). RBCA is defined in Part 213 as the ASTM standards E 1739-95 (2010), E 2081-00 (2010), and E 2531-06. Information in these standards must be provided, as applicable per site conditions. The Department of Environmental Quality, Remediation and Redevelopment Division may request supporting documentation to the data and conclusions of the FAR, which may include information identified in the ASTM standards referenced above. Complete the FAR Cover Sheet and pages 1 through 4 of this TOC. The order and format in which the information is provided is at the discretion of the qualified consultant preparing the FAR. Consecutively number each page of the report, including appendices. The TOC column labeled as "Page(s)" should be completed with the range of page numbers for each section. Information previously submitted to the Department may be referenced by specifying where it is located within the referenced document.

FINAL ASSESSMENT REPORT TOC Page 2 of 4	PAGE(s)
D. TIER II EVALUATION	
1. If Site-specific Target Levels (SSTLs) are generated, provide all information and an explanation of the calculation of the SSTLs. 2. If relying upon alternative points of compliance, provide the reasoning and information supporting their selection. 3. Gather additional site assessment information to develop or identify corrective action goals, if warranted. 4. Complete a Tier II evaluation on potentially complete exposure pathways. 5. Obtain site-specific hydrogeologic and geologic characteristics to aid in generation of the SSTLs. 6. Define the extent of CoC relative to the RBSL or SSTL, as appropriate. 7. Evaluate the changes in concentrations of CoC over time to determine if they are stable, increasing, and/or decreasing. 8. Determine the CoC measured at the point(s) of exposure (i.e., in drinking water wells, sewers, surface water bodies). 9. Complete mathematical models to generate SSTLs based on the measured and predicted attenuation of the CoC away from the source area(s). 10. Compare the concentrations of the CoC at the point(s) of compliance to the RBSLs or SSTLs to determine if corrective action, interim remedial action or further tier evaluation should be implemented. Reference: Part 213, Section 21311a(b) and ASTM E1739-95 (2010), Section. 5.6, Section 6.2, Section 6.7 thru 6.7.3, and Section 6.8 thru 6.83	17
E. TIER III EVALUATION	
1. Site-specific and surrounding area geological and hydrogeologic characteristics. 2. The extent of CoC relative to the RBSL and/or SSTL. 3. Changes in concentrations of CoC over time (stable, increasing, and decreasing). 4. CoC measured at point(s) of exposure. 5. Models: SSTLs developed using more sophisticated statistical and contaminant fate and transport analyses, using site-specific input parameters for direct and indirect exposure scenarios. 6. Identify the exposure scenarios where the measured concentrations of the CoC are above the SSTL at the point(s) of compliance. 7. Compare the target levels (RBSLs or SSTLs) to the concentrations of the CoC at the point(s) of compliance. Reference: Part 213, Section 21311a(b), and ASTM E1739-95 (2010), Section 6.7 thru 6.7.3, and Section 6.8 thru 6.8.2	18
F. CONCEPTUAL SITE MODEL(s) (CSM)	
1. **CSMs** - Provide a written and/or pictorial understanding of the site; conduct exposure pathway evaluations; detail the exposure pathways evaluated; determine if the exposure pathways are incomplete, potentially complete, or complete; and identify possible corrective actions. **OR: FOR MOST SITES A Light Nonaqueos Phase Liquid (LNAPL) CSM (LCSM) WILL BE REQUIRED IN PLACE OF A CSM SINCE A PETROLEUM RELEASE IS A LNAPL RELEASE.** 2. **LCSMs** - Describe the occurrence, composition, and physical properties of the LNAPL; as well as the geologic setting(s) where the LNAPL body is located, and is used to determine the risks and potential remedial action; as well as the changes to the LNAPL body and/or footprint. a. **LNAPL DISCOVERY:** i. Describe how and where the LNAPL was discovered/observed, in which well(s)/boring(s), and provide a site map of the LNAPL. ii. Describe the soil type and product type. If product type is unknown, describe the characteristics and what might be the product type. iii. Describe the known/suspected source of LNAPL and identify on a map.	18-22 15-17 33-42

FINAL ASSESSMENT REPORT TOC Page 3 of 4	PAGE(s)
F. CONCEPTUAL SITE MODEL(s) (CSM) – 2.a. LNAPL DISCOVERY continued iv. Provide the LNAPL thickness and/or volume and the measured or estimated LNAPL saturation profile, including measurement methods and procedures. v. List obvious nearby receptors, including basements, utilities, water wells, etc. vi. Describe mobile and/or migrating (defined in Part 213) delineation activities completed to date, and provide a site map showing known extent of LNAPL. vii. Delineate and depict, plan view and cross section, of the LNAPL body including the site boundaries, as well as the residual, mobile, and migrating LNAPL, as applicable. b. LNAPL EVALUATION AND RECOVERY: i. Describe all LNAPL recovery events (i.e., what and where was done, and duration). ii. Describe in detail the LNAPL recovery methods and procedures utilized, including if groundwater was also recovered and how the recovered LNAPL was differentiated from the recovered groundwater. iii. Complete a table (i.e., Example Table 1 in Appendix A) and discuss event-based and cumulative LNAPL, and groundwater volumes recovered. iv. Provide observations of LNAPL recharge rate(s) for each impacted well. v. If an LNAPL recovery test was performed, complete a table (i.e., Example Tables 2a and 2b in Appendix A) and include applicable figures. Describe the methods, procedures, calculations, results, and conclusions. vi. Describe how recovered LNAPL and groundwater were handled, including the disposal method and location. vii. Describe any and all risks posed by the LNAPL (i.e., expanding plumes, explosion hazards, vapor hazards, contact hazards, etc.). viii. Provide recommendations for future recovery of LNAPL and discuss the rationale for those activities. c. FIGURES: i. Attach the following figures in order of discussion in the text. All figures must include a north arrow, scale, and legend. Approximate scales are not acceptable. 1. Site Location Map. 2. One or more Site Maps showing (as applicable). A. Structures. B. Boring and well locations (including drinking water wells on site). C. Suspected source(s) of LNAPL. D. Locations and depths of on-site buried utilities. E. All past and present petroleum storage tanks, piping, dispensers, and transfer areas. F. Extent of soil excavation. G. Horizontal and vertical extent of LNAPL and state/occurrence of LNAPL ii. Distinguish sequential elements of investigations by dates, symbols, etc. in the legend. iii. LNAPL recovery test graphs showing LNAPL thickness and volume versus time during the recharge phase (i.e., Example Table 2b data). iv. Trend analysis of mobile and/or migrating (as defined in Part 213) LNAPL vs Water Table elevation and select downgradient MWs dissolved contaminants vs. Water Table elevation to determine if the LNAPL is acting as a continuing source of groundwater contamination. Graphical representation is preferred. Reference: CSMs: ASTM E2081-00(2010), Section 3.2.62; and LCSMs: ASTM 2531-06, Section 3.1.19; and Sections 6 and 7; and Part 213, Section 21307(2), Section 21307(3)(b), Section 21308a.(1)(E)*xv* through xviii(A – H), Section 21308a(2), Section 21309a(2)(a) and Section 21311a(1)(c)(*ii*).	33-42

See Example Tables in Appendix A	
FINAL ASSESSMENT REPORT TOC Page 4 of 4	**PAGE(S)**
G. SITE CLASSIFICATION 1. Classify site according to Michigan's site classification system which is based upon the Risk-based Corrective Action (RBCA) process. References: Part 213, Section 21314a; and ASTM E1739-95 (Reapproved 2010), Section 5.4 and Section 6.3	23
H. FEASIBILITY ANALYSIS 1. On-site and off-site corrective action alternatives to remediate contaminated soil and groundwater for each cleanup type above the applicable RBSL or applicable SSTL, including alternatives that permanently and significantly reduce the volume, toxicity, and mobility of the regulated substances, if above the applicable RBSL or applicable SSTL. 2. An analysis of the recoverability and whether the NAPL is mobile or migrating. 3. The costs associated with each corrective action alternative, including alternatives that permanently and significantly reduce the volume, toxicity, and mobility of the regulated substances that are above the applicable RBSL or applicable SSTL. 4. The effectiveness and feasibility of each corrective action alternative, in meeting cleanup criteria that are above the applicable RBSL or applicable SSTL. 5. The time necessary to implement and complete each corrective action alternative. 6. The preferred corrective action alternative based upon all of the above. 7. An implementation schedule for completion of the corrective action. Reference: Part 213, Section 21311a(c)	23
I. CORRECTIVE ACTION PLAN (CAP) 1. Description of the corrective action to be implemented. 2. Analysis of indicator parameters to be used in evaluating the implementation. 3. Analysis of the recoverability of NAPL and whether NAPL is mobile or migrating. 4. Description of ambient air quality monitoring activities. 5. Operation and maintenance plan. 6. A monitoring plan including: a. Location of monitoring points. b. Environmental media to monitor, including, but not limited to, soil, air, water, biota. c. Monitoring schedule. d. Monitoring methodology, including sample collection and other procedures. e. Substances to be monitored, with explanation of how they will be used. f. Lab methodology, lab name, method detection limits, practical quantitation levels. g. Quality control/quality assurance plan. h. Data presentation and evaluation plan. i. How monitoring data will be used to demonstrate effectiveness of corrective actions. j. Other elements required by the Department to determine the adequacy of the monitoring plan. 7. A schedule for implementation of the corrective action. 8. Financial assurance mechanism. Reference: Part 213, Section 21309a	27
J. NOTICE OF CORRECTIVE ACTIONS, INSTITUTIONAL CONTROLS, RESTRICTIVE COVENANTS, ALTERNATIVE MECHANISMS, NOTICE OF LAND & USE RESTRICTIONS 1. An explanation of land and use restrictions, or resource use restrictions, and how they will prevent or control unacceptable exposures. 2. Provide notice to the public directly impacted by the release above a residential RBSL and the proposed corrective action. a. The notice shall include the name, address, and telephone number of a contact person. b. A copy of the notice and proof of providing the notice shall be submitted to the Department. Reference: Part 213, Section 21310a	29

Table of Contents

AKTPEERLESS

AKTPEERLESS

PART 213 FINAL ASSESSMENT REPORT

Griffin Beverage Company
1901 Dam Road, West Branch, Michigan
AKT Peerless Project No. 7552s-5-21

A. Executive Summary

AKT Peerless Environmental and Energy Services (AKT Peerless) was retained by Griffin Beverage Company (Griffin) to conduct leaking underground storage tank (LUST) corrective actions for a confirmed release (C-1437-93) identified at 1901 Dam Road, West Branch, Michigan, herein referred to as the site. The release was identified during underground storage tank (UST) removal activities in November 1993. As a result, historical corrective actions (1993 to 1996) have been completed in attempt to define the nature and extent of the release. A Final Assessment Report (FAR) was prepared by Campbell Environmental Services (CES) on behalf of Griffin, which was submitted on October 1, 1996, to the Michigan Department of Environmental Quality (MDEQ). The Corrective Action Plan (CAP) contained within the FAR included recovery of free product. Consequently, a Free Product Quarterly Status Report was submitted to the MDEQ on October 1, 1997.

In April 2011, the MDEQ conducted a file review associated with the LUST incidence. At that time, it was determined that the site was not in compliance with Part 213, Leaking Underground Storage Tanks, of the Natural Resources and Environmental Protection Act (NREPA), 1994 Public Act (PA) 451, as amended (Part 213), due to the lack of ongoing corrective actions to address free product in accordance with the previously filed FAR and CAP. As a result of this review and determination, the MDEQ issued Griffin an Audit of Corrective Actions letter that requested the completion of an amended FAR and CAP.

Between April 2012 and March 2015, AKT Peerless conducted additional subsurface investigation activities to further define the nature and extent of soil and groundwater contamination at the site in accordance with Part 213. The results of these investigations are intended to support the preparation of this FAR.

Site characterization activities included the: (1) advancement of sixteen soil borings, (2) installation of six permanent and seven temporary monitoring wells, (3) collection of twenty soil samples, (4) collection of twenty-six groundwater samples, (5) the measurement and recovery of free product, and (6) measurement of groundwater elevations. Soil and groundwater samples were submitted for laboratory analysis of select petroleum contaminant indicator parameters, including volatile organic compounds (VOCs), polynuclear aromatics (PNAs) and lead. Based on the results of the current and historical investigation activities, soil and groundwater contamination has been delineated and is located within the site boundary.

As a result of the site characterization activities, AKT Peerless conducted an exposure pathway evaluation to determine the effect of the release with respect to occupants of the site and sensitive receptors. Based on this evaluation in comparison to known contaminant concentrations and distribution, unacceptable exposures were not identified at the site. However, additional monitoring is proposed to further address free product, evaluate contaminant concentrations and plume stability. Results of additional corrective actions will be utilized to prepare a CAP Status Report or a Closure Report.

The location of the site is depicted on **Figure 1** (Topographic Location Map) and site features are depicted on **Figure 2** (Site Map).

B. Site Assessment and RBCA Reporting

Between April 2012 and March 2015, AKT Peerless conducted subsurface investigation activities to evaluate for the presence of contamination as part of ongoing LUST compliance. The results of the investigation indicated contamination was present in soil and groundwater proximal to the former UST basin present beneath a portion of the existing structure at depths between 14.0 and 20.0 feet below ground surface (bgs). Groundwater contamination including the presence of free product and/or non-aqueous phase liquids (NAPL) is also present beneath the existing structure at approximately 19.0 feet bgs.

The following subsection describes site characterization activities subsequent to the submission of the last corrective action status report (1997) to evaluate the nature and extent of petroleum contaminants in soil and groundwater. Soil borings were completed to further evaluate the lateral and vertical extent of soil and groundwater impact on the subject property. Monitor wells were installed proximal to areas exhibiting highest known soil impact to evaluate the potential for soil contamination to leach to groundwater. Furthermore, monitoring wells were installed to evaluate for the presence of free product/NAPL and contamination.

AKT Peerless is providing the following summary of activities completed between April 2012 and March 2015. It should be noted that this FAR includes data obtained during historical corrective actions. However, a description of these activities were provided in CES' FAR submitted in 1996. Furthermore, soil boring/monitoring well logs and analytical reports regarding this data are not included in this submittal. It should be noted that several inconsistencies were identified in the materials prepared by CES (i.e. boring depths, sample intervals, monitor well screen intervals, etc.). This information was evaluated in conjunction with the results of AKT Peerless investigation to aid in evaluating the nature of the contamination. The information reviewed by AKT Peerless was previously submitted to the department, including CES boring logs and analytical results, and is therefore not included within this FAR.

Description of Site Assessment Activities

On April 17, 2012, AKT Peerless accessed the site to evaluate for the presence of free product and collect groundwater samples from select existing monitoring wells. At that time, free product was not identified. Therefore, 4 groundwater samples were collected from located monitoring wells (MW-2, MW-12, RC-1, and RC-2). Groundwater samples were submitted for laboratory analysis of VOCs, PNAs, and lead.

On September 11, 2012, AKT Peerless returned to the site to advance 5 soil borings (AKTP-1 through AKTP-5) for the purpose of delineating soil contamination. During these activities, AKT Peerless advanced soils borings to depths between 12.0 and 20.0 feet bgs. Soil samples were collected in the vadose zone to evaluate for the presence of contamination. AKT Peerless collected 5 soil samples (AKTP-1 through AKTP-5). Soil samples were submitted for laboratory analysis of VOCs, PNAs, and lead. Soil borings logs are provided in **Appendix A.**

On September 27, 2012, AKT Peerless returned to the site to conduct free product evaluation activities within two existing recovery wells (RC-1 and RC-2). At that time, approximately 2.4 feet of free product was measured within RC-2, utilizing an electronic oil-water interface probe graduated to 0.01 feet. Free product was gauged between 18.80 and 20.20 feet bgs. Free product was not measured within RC-1.

AKT Peerless also conducted a bail down in RC-2 to evaluate recharge rates of the free product. Approximately 3-gallons of free product was recovered from the well. Results of the bail down test indicated free product recovered to 1.0 foot in thickness following a recharge duration of 75 min and remained stable at that thickness through 150 minutes of monitoring. Results of the bail down test are provided in Table 1, Free Product Recovery. Free product recovered from RC-2 was stored within an onsite 55-gallon steel drum for future disposal.

On December 7, 2012, AKT Peerless returned to the site to advance additional soil borings and collect groundwater samples for delineation purposes. Soil borings were advanced extending in a radial pattern extending from the RC-1 and RC-2. Subsurface investigation activities included: (1) the advancement of 3 soils borings (BB-1, BB-2 and BB-3), utilizing hollow stem auger sampling techniques; (2) the advancement of 3 soils borings (AKTP-6, AKTP-7, AKTP-8), utilizing direct push sampling methodologies; (3) the installation of 3, two-inch monitoring wells (BB-1, BB-2, BB-3); (4) the installation of 3, one-inch monitoring wells (AKTP-6, AKTP-7, and AKTP-8); (5) the collection of 12 soil samples (AKTP-6s, AKTP-6d, AKTP-7s, AKTP-7d, AKTP-8s, AKTP-8d, BB-1s, BB-1d, BB-2s, BB-2d, BB-3s, and BB-3d); (6) collection of 7 groundwater samples (AKTP-6, AKTP-7, MW-2, MW-3, MW-4, MW-5, and MW-9); (7) the collection of 1 potable drinking water sample (DW Well); and (8) the measurement of static water level and free product elevations. All soil and groundwater samples were submitted for laboratory analysis of VOCs and select locations were submitted for laboratory analysis of PNAs and lead. Soil boring and monitor well logs are provided in **Appendix A**. Groundwater and free product elevations are provided in **Tables 1 and 5**.

On January 9, 2013, AKT Peerless returned to the site to conduct groundwater sampling and free product monitoring activities. AKT Peerless personnel evaluated the newly installed 2-inch monitoring wells (BB-1, BB-2, and BB-3) and the existing free product monitoring wells (RC-1 and RC-2) for the presence of free product utilizing a graduated oil-water interface probe. At that time, free product was not observed in BB-1, BB-3, and RC-1. However, approximately 2-inches of free product was observed in BB-2 at 19.35 feet bgs and 1.6 feet of free product was observed in RC-2 at 18.4 feet bgs. AKT Peerless recovered approximately 3-gallons of free product from RC-2 and less than 1L from BB-2. Free product recovered from the wells was contained within an onsite 55-gallons steel drum for future disposal. Additionally, the 1996 FAR prepared by CES indicates free product recovery activities were conducted. However, recovery records documenting the volumes recovered were not identified. Free product elevations measured by AKT Peerless are provided in **Table 1**.

On March 2, 2015, AKT Peerless returned to the site to conduct additional soil and groundwater contamination delineation activities. Specifically, AKT Peerless biased soil borings in areas representing soil and/or groundwater data gaps. In addition, AKT Peerless installed 2 sub-slab soil gas screening points to evaluate for the potential of impacted soil gas migrating into the existing structure. Sub-slab soil gas sample locations were biased to areas of known significant impact proximal to RC-2 and BB-2. Subsurface investigation activities included: (1) the advancement of 2 soil borings (BB-4 and BB-5) utilizing hollow stem auger methodologies, (2) the advancement of 1 soil boring (AKTP-9) utilizing direct push methodologies, (3) the installation of 2 sub-slab soil gas screening points (SG-1 and SG-2), and (4) the collection of 3 soil and 2 soil gas samples for laboratory analysis of VOCs. Soil borings and monitoring well logs are provided in **Appendix A**.

On March 10, 2015, AKT Peerless returned to the site to collect groundwater samples and assess for the presence of free product. Specifically, AKT Peerless biased additional soil borings southwest and north of the contaminant plume in attempt to delineate groundwater contamination at the site. Furthermore, free product assessment was conducted within 7 existing monitoring wells (BB-1 through BB-5, RC-1 and RC-2). Subsurface investigation activities included: (1) the advancement of 2 soil borings (AKTP-10 and AKTP-11) utilizing direct push methodologies, (2) the collection of 12 groundwater samples, and (3) the measurement of static water level and free product level elevations. During these activities, AKT Peerless did not observe free product within the newly installed monitoring wells (BB-4 and BB-5) and RC-1. Conversely, free product was observed within 2 monitoring wells (RC-2 and BB-2) at approximately 0.02 feet and 0.08 feet in thickness, respectively. It should be noted that due to collapse and refusal into the phreatic zone (greater than 19.0 feet bgs), AKT Peerless was unable to install monitoring wells. Therefore, groundwater samples collected from AKTP-9, AKTP-10 and AKTP-11 utilized a four-foot discrete dropout sampler.

Soil boring logs are provided in **Appendix A.** Groundwater and free product elevations are provided in **Tables 1 and 5.**

Soil borings were drilled using the direct push method in accordance with American Society for Testing and Materials (ASTM) D-6282-98: *"Standard Guide for Direct Push Soil Sampling for Environmental Site Characterizations."* The following table illustrates the rationale and objective of investigation activities described above. Soil boring logs and monitoring well installation logs not previously submitted are provided in **Appendix A.**

Table A – Sample Location Description and Rationale

Sample Location	Soil Sample Interval (Feet, bgs)	Monitor Well Screen Interval (Feet, bgs)	Purpose of Sample or Boring	Rationale for Selecting Sample Interval
AKTP-1	6.0-7.0'	NA	Evaluate soil concentrations on periphery of known contaminant plume	Define lateral extent
AKTP-2	5.5-6.5'	NA		
AKTP-3	6.5-7.5'	NA		
AKTP-4	7.0-8.0'	NA		
AKTP-5	16.0-17.0'	(15.0-20.0')		
AKTP-6s	12.0-13.0'	16.0-21.0'	Evaluate soil and groundwater extent	Define lateral and vertical extent
AKTP-6d	17.0-18.0'			
AKTP-7s	12.0-13.0'	15.0-20.0'		
AKTP-7d	16.0-17.0'			
AKTP-8s	10.0-11.0'	NA		
AKTP-8d	17.0-18.0'			
BB-1	BB-1s (14.0-15.0') BB-1d (17.5-18.5')	13.0-23.0'	Evaluate soil and groundwater extent, define free product plume	Define lateral and vertical extent

Sample Location	Soil Sample Interval (Feet, bgs)	Monitor Well Screen Interval (Feet, bgs)	Purpose of Sample or Boring	Rationale for Selecting Sample Interval
BB-2	BB-2s (14.0-15.0') BB-2d (17.0-18.0')	13.0-23.0'	Evaluate soil and groundwater extent, define free product plume	Evaluate soil and groundwater extent, define free product plume
BB-3	BB-3s (12.0-13.0') BB-3d (19.0-20.0')	14.0-24.0'	Evaluate soil and groundwater extent, define free product plume	Evaluate soil and groundwater extent, define free product plume
SG-1	1.0-1.5' (soil gas screen)	NA	Evaluate soil gas concentrations above free product/NAPL plume	Immediately beneath concrete slab
SG-2	1.0-1.5' (soil gas screen)	NA	Evaluate soil gas concentrations above free product/NAPL plume	Immediately beneath concrete slab
BB-4	19.0-20.0'	19.5-24.5'	Evaluate soil and groundwater extent, define free product plume	Evaluate soil and groundwater extent, define free product plume
BB-5	19.0-20.0'	20.0-25.0'	Evaluate soil and groundwater extent, define free product plume	Evaluate soil and groundwater extent, define free product plume
AKTP-9	17.5-18.5'	19.0-23.0'	Evaluate soil and groundwater extent	Define lateral extent of soil and groundwater
AKTP-10	NA	19.0-23.0'	Evaluate groundwater extent	Define lateral extent of groundwater
AKTP-11	NA	19.0-23.0'	Evaluate groundwater extent	Define lateral extent of groundwater

Note: The "s" descriptor denotes shallow, while the "d" denotes deeper

Soil characteristics were documented during the site investigation activities. Soil types were classified in accordance with the ASTM designation D-2488: Unified Soil Classification System. The following soil types were encountered:

- **Concrete and/or gravel:** Surface material consisted of one of the following: (1) 3 to 6-inch thick concrete within the existing building, and (2) 3-inch thick gravel in exterior portions of the site immediately adjacent to the existing structure.
- **Sand (SW and SP):** Sand was observed beneath the surface cover. It varied in thickness between 3.0 to 7.0 feet in thickness. Sand contained trace fine gravel and was brown in color. The moisture content ranged from damp in the upper intervals to moist in the lower intervals (in select locations). Groundwater was not observed in this stratum.
- **Sandy Clay (CL):** Sandy Clay was observed below the sand to approximately 16.0 to 20.0 feet bgs. However, clay observed in this interval varied in thickness, composition and depth dependent upon location at the site. The clay was medium to very stiff, contained trace sand and gravel, was brown to gray in color and damp to moist depending upon the location. This stratum exhibited confining characteristics. However, the stratum was not consistent across the site. Groundwater was not observed within this stratum.
- **Sand (SP):** Sand was observed beneath the clay stratum. Sand was identified in this stratum between 20.0 and 27.0 feet bgs, the maximum depth explored. Sand contained trace fine gravel, was brown in color and contained significant cobbles and pebbles. This stratum was very stiff and impenetrable in some locations; however, this material contained significant pore space in which groundwater was present. Groundwater was observed in this stratum between 18.5 and 21.0 feet bgs.

Soil borings/monitor well logs not included in previous submittals are provided in Appendix A. Cross Section AA' is provided as Figure 8 and Cross Section BB' as Figure 9.

Soil Contamination Detected

Soil contamination was detected in samples collected from soil borings advanced at the subject property during assessment activities. Specifically, soil contamination was identified in soil borings advanced proximal to the former UST basin and in areas south and west of the former UST basin. Analytical results are presented below in Table B and in **Table 2**, Summary of Soil Analytical Results.

As discussed in Section B, AKT Peerless advanced soil borings to further evaluate the lateral and vertical extent of soil impact. Soil samples were collected between April 2012 and March 2015. Discrete soil samples were selected from each soil boring for laboratory analysis based on photoionization detector (PID) readings, field observations (i.e. visual and/or olfactory evidence), and depth proximal to the identified contamination. Collected samples were submitted for laboratory analysis of select parameter including VOCs, PNAs, and lead. Samples submitted for analyses of VOCs were preserved in the field using methanol. Samples were submitted to Merit Laboratories, Inc. East Lansing, Michigan, Quantum Laboratories, Wixom, Michigan and Fibertec Environmental Services, Holt, Michigan for laboratory analysis. Samples were analyzed using USEPA Methods 8260B/5035 for VOCs, USEPA Method 8270C for PNAs and USEPA Method 3015A/200.8 for lead.

Refer to **Table 2** for a summary of soil analytical results and **Appendix B** for copies of the analytical results not previously submitted. Based on the results of the above mentioned investigation activities and historical subsurface investigation activities, the lateral and vertical extent of soil contamination has been identified.

In total, AKT Peerless collected 20 soil samples from soil borings completed between April 2012 and March 2015. The following table includes contamination exceeding one or more Non-Residential Generic Cleanup Criteria (NRCC) detected during sampling events conducted by AKT Peerless. Also, the following table includes samples collected during CES's 1993 to 1996 sampling activities, which includes the historical analytical results previously submitted in the 1996 FAR.

Table B – Summary of Soil Analytical Results

Parameter	Chemical Abstract Service (CAS) Number	Non-Residential RBSL Exceeded/Established RBSL Concentration (µg/kg)	Concentration (µg/kg) and Location (Maximum Concentration and Location Bolded)
Benzene	71-43-2	NRDWP / 100 GSIP / 4,000	560 / BB-2s 101 / BB-2d 3,500 / BB-4 110 / BB-5 **6,200 / SB-1**
Ethylbenzene	100-41-4	NRDWP / 1,500 GSIP / 360	470 / BB-5 **30,000 / SB-1**
Toluene	108-88-3	NRDWP / 16,000 GSIP / 5,400	**38,000 / SB-1**
1,2,4-Trimethylbenzene	95-63-6	GSIP / 570	1,250 / BB-2s 1,010 / BB-2d **1,800 / BB-5**
Xylenes	1330-20-7	NRDWP / 5,600 GSIP / 820	2,860 / BB-2s 1,610 / BB-2d 2,400 / BB-5 **72,000 / SB-1**

Table Notes
NRDWP – Nonresidential Drinking Water Protection Criteria
GSIP - Groundwater Surface Water Interface Protection

Groundwater Contamination Detected

Groundwater contamination was detected in samples collected from soil borings advanced at the subject property during assessment activities. Specifically, groundwater contamination was identified in soil borings advanced within and proximal to the former UST basin. Analytical results are presented below in Table C and in **Table 3**, Summary of Groundwater Analytical Results.

As discussed in Section B, AKT Peerless advanced soil borings to further evaluate the lateral and vertical extent of groundwater impact. Soil boring locations were selected to delineate the lateral extent of groundwater contamination. Permanent and temporary monitoring wells were installed within select soil borings. Between April 2012 and March 2015, AKT Peerless accessed the site numerous times to evaluate for the presence of free product and collect groundwater samples. Samples were submitted for laboratory analysis of VOCs and select samples were submitted for laboratory analysis of PNAs and lead. Samples submitted for analyses of VOCs were preserved in the field using hydrochloric acid. Samples were submitted to Merit Laboratories, Inc. East Lansing, Michigan, Quantum Laboratories, Wixom, Michigan and Fibertec Environmental Services, Holt, Michigan for laboratory analysis. Samples were analyzed using USEPA Methods 8260B/5035 for VOCs, USEPA Method 8270C for PNAs and USEPA Method 3015A/200.8 for lead.

Refer to Table 3 for a summary of groundwater analytical results and Appendix B for copies of the analytical results not previously submitted. Based on the results of the above mentioned investigation activities, the lateral and vertical extent of groundwater contamination has been identified.

In total, AKT Peerless collected 26 groundwater samples from soil borings and monitoring wells completed between April 2012 and March 2015. The following table includes contamination exceeding one or more Non-Residential Generic Cleanup Criteria detected during sampling events conducted by AKT Peerless. Groundwater data from the initial assessment activities conducted between 1993 and 1996 are not included in this table, as they are not representative of current site and contaminant plume characteristics. The following table includes samples collected during AKT Peerless' 2012 to 2015 sampling activities, as well as samples collected for delineation purposes.

Table C – Summary of Groundwater Analytical Results

Parameter	Chemical Abstract Service (CAS) Number	Non-Residential RBSL Exceeded/Established RBSL Concentration (µg/L)	Concentration (µg/L) and Location (Maximum Concentration and Location Bolded)
Lead	7439-92-1	NRDW / 4.0	**12 / MW-2** 7 / MW-3
Benzene	71-43-2	NRDW / 5.0 GSI / 200	800 / RC-1 3,600 / RC-2 20 / MW-2 9 / MW-12 9,500 / BB-4 **13,000 / BB-5**
Ethylbenzene	100-41-4	NRDW / 74 GSI / 18	900 / RC-1 2,300 / RC-2 70 / MW-2 37 / MW-12 1,100 / BB-4 **3,000 / BB-5**
Isopropyl benzene	98-82-8	GSI / 28	**34 / BB-4** 33 / BB-5
2-Methylnaphtalene	91-57-6	NDW / 750 GSI / 19	**282 / RC-1** 201 / RC-2
Naphthalene	91-20-3	GSI / 11	**900 / RC-1** 600 / RC-2 120 / BB-4 56 / BB-5
Toluene	108-88-3	NDW / 790 GSI / 140	6,800 / RC-1 19,000 / RC-2 310 / MW-2 310 / MW-12 8,600 / BB-4 11,000 / BB-5

Parameter	Chemical Abstract Service (CAS) Number	Non-Residential RBSL Exceeded/Established RBSL Concentration (µg/L)	Concentration (µg/L) and Location (Maximum Concentration and Location Bolded)
1,2,3-Trimethylbenzene	526-73-8	NRDW / 63 GSI / 17	**1400 / RC-1** 700 / RC-2 50 / MW-2 33 / MW-12 180 / BB-4 140 / BB-5
1,2,4-Trimethylbenzene	95-63-6	NRDW / 63 GSI / 17	**3,600 / RC-1** 2,200 / RC-2 150 / MW-2 105 / MW-12 83 / BB-3 550 / BB-4 620 / BB-5
1,3,5-Trimethylbenzene	108-67-8	NRDW / 72 GSI / 45	**1,100 / RC-1** 600 / RC-2 49 / BB-3 150 / BB-4 110 / BB-5
Xylenes	1330-20-7	NRDW / 280 GSI / 41	14,000 / RC-1 **19,100 / RC-2** 800 / MW-2 439 / MW-12 4,400 / BB-4 11,000 / BB-5

Table Notes
NRDW- Non-residential Drinking Water
GSI – Groundwater Surface Water Interface

Refer to Figures 4 (Soil Results Exceeding MDEQ Criteria Map) and Figure 5 (Groundwater Results Exceeding MDEQ Criteria Map), which depicts the sample locations and the identified contaminants.

Soil Vapor Detected

AKT Peerless installed two soil gas screening points proximal to known areas of free product to assess for the potential of impacted soil and/or groundwater vapor to accumulate within the structure. Specifically, soil gas screening points (SG-1 and SG-2) were installed adjacent to RC-2 and BB-2 (both containing free product). Grab soil gas samples were collected using bottle-vacs provided by Fibertec Environmental Services. Samples were submitted for laboratory analysis of VOCs utilizing Method TO-15. Laboratory analytical results were compared to MDEQ Nonresidential Vapor Intrusion Shallow Soil Gas Screening Levels. Based on this comparison, results were reported below all nonresidential soil gas screening levels. Sub-Slab soil gas analytical results are provided in **Table 4.**

The lateral and vertical extent of contamination has been defined and the volume of impacted soil exceeding one or more Generic Cleanup Criteria may range from 800 to 1,400 in-place cubic yards within the vadose zone and capillary fringe. Based on the concentration and location of the detected contamination and the observed soil types, contamination has not migrated off-site. The known extent of soil impact is shown on **Figure 4** and the known extent of groundwater impact is shown on **Figure 5.**

Soil Analytical results are summarized on **Table 2** (Summary of Soil Analytical Results). Groundwater analytical results are summarized on **Table 3** (Summary of Groundwater Analytical Results). Copies of laboratory analytical reports are provided in **Appendix B.**

RBCA Reporting

1. Potentially Impacted Human and Environmental Receptor Locations

Potential impact to human receptors include employees and future commercial workers occupying the subject property. Third party construction/utility workers that may perform subsurface excavation activities in the future could also be potential receptors.

The following table outlines the possible exposure pathways at the site.

MDEQ Exposure Pathway	Does Threat Exist to Potential Receptor(s) (Yes or No)	Explanation
Soil Exposure Pathways		
Drinking Water Protection (all land uses)	Yes	Soil contaminant concentrations are above criteria. The onsite potable well is located (525 feet south of the warehouse) in an area outside of the defined contaminant plume. The CAP includes groundwater monitoring activities for the onsite potable well and the implementation of resource use restrictions on portions of the site to prohibit groundwater development within the plume.
GSI Protection	No	Soil contaminant concentrations are above criteria. However, surface water is not present on the site and impacted groundwater is defined to an area of the site in which groundwater is not venting to a surface water. Furthermore, soil contaminant concentrations are located at depths ranging between 14 and 20 feet bgs.
Soil Volatilization to Indoor Air Inhalation (all land uses)	Yes	Soil contaminant concentrations are below generic cleanup criteria and the depth to groundwater is greater than 3 meters. However, contaminant concentrations exceed nonresidential soil vapor intrusion screening levels. The defined contaminant plume that includes free product is present beneath the structure. Therefore, additional soil gas monitoring activities are proposed to evaluate indoor air quality.
Infinite Source VSIC	No	Soil contaminant concentrations are below criteria.
Particulate Soil Inhalation	No	Surface contamination is not present and soil contaminant concentrations are below criteria.
Direct Contact	No	Soil contaminant concentrations are below criteria.

MDEQ Exposure Pathway	Does Threat Exist to Potential Receptor(s) (Yes or No)	Explanation
Groundwater Exposure Pathways		
Drinking Water	Yes	Groundwater contamination exceeds DW criteria and the site contains/utilizes an onsite potable drinking water well.
GSI	No	Groundwater contamination exceeds GSI criteria however; Rifle Creek (nearest surface water) is located approximately 500 north of the site. Furthermore, the contaminant plume is defined to the site and groundwater contamination is located at 19 feet bgs.
Groundwater Volatilization to Indoor Air Inhalation	Yes	Groundwater contamination was identified in exceedance of vapor intrusion screening levels as defined in the MDEQ Vapor Intrusion Guidance Document dated May 2013; however, concentrations of contaminants were not detected at concentrations that exceed volatilization to indoor air RBSLs. Groundwater is located greater than 3 meters below the concrete floor of the existing structure and sub-slab soil gas sampling results indicate soil gas exceeding vapor intrusion screening levels are current not present at the site. Future sub-slab soil gas sampling activities are required until free product is remediated and/or confirmed to not represent a risk to human or environmental receptors.
Flammability and Explosivity, Acute Inhalation	Yes	Contaminant concentrations below screening levels; however, free product and/or NAPL is present at the site.
Direct Contact	No	Contaminant concentrations are below criteria and contamination is located at depths greater than future potential subsurface activities.

2. Transport and Exposure Pathways

The following tables outline the potential transport mechanisms for contaminants at the site:

Potential Transport Mechanisms

Potential Transport Mechanisms	Does Transport Mechanism Exist (Yes or No)	Applicability and Explanation
Wind Erosion and Atmospheric Dispersion	No	Impacted soil is located at depths greater than 14 feet bgs and is beneath concrete.
Volatilization and Atmospheric Dispersion	No	Not applicable - Concentrations of contaminants were not detected at concentrations that exceed volatilization to ambient air RBSLs.
Volatilization and Enclosed Space Accumulation	Yes	Concentrations of contaminants were not detected at concentrations that exceed volatilization to indoor air RBSLs; however, groundwater contamination was identified in exceedance of vapor intrusion screening levels as defined in the MDEQ Vapor Intrusion Guidance Document dated May 2013. These concentrations are present in groundwater greater at depths greater than 3 meters. Therefore, transport of impacted vapor to the existing structure is possible, but based on current sub-slab soil gas vapor results, the existing structure is not threatened by impacted soil or groundwater.
Leaching and Groundwater Transport	Yes	Groundwater at the site is continuous across the site and is in an aquifer.

Potential exposure routes at the site (i.e. dermal contact, ingestion, particulate inhalation, etc.) have been eliminated as exposure pathways at the site. Refer to Section C-1 for further discussion and an analysis of potential exposure pathways.

3. Current and Potential Future Use of the Site

The site is currently utilized for commercial warehouse purposes including business and administrative offices. Specifically, the site is occupied by Griffin Beverage Company, which is a beverage wholesaler and bulk distributer. Uses of the property are conforming to West Branch Township zoning. At this time, no other uses have been proposed.

The surrounding properties are utilized for residential, commercial and agricultural purposes. No surface waters are present on the site. The Rifle Creek is located approximately 500.0 feet north of the site and 700.0 feet west of the site. Regional groundwater is utilized for potable purposes. The site and surrounding properties obtain potable water from private potable drinking water wells. The nearest well is located on the site and is approximately 600.0 feet from the defined contaminant plume and is screened between 69.0 and 75.0 feet bgs. Offsite potable wells are located west and north of the site and are screened at depths ranging between 66.0 and 119.0 feet bgs. The CAP includes monitoring to evaluate the stability of the plume and determine if groundwater wells have the potential to be impacted by the release.

4. Geologic and Hydrogeologic Conditions and Characteristics

a. Depth to groundwater and method of determination

Groundwater was observed at the site at approximately 19.0 feet bgs. Groundwater appears to be continuous across the site. Monitoring wells installed to evaluate the nature and extent of the release are screened between 18.0 and 24.0 feet bgs.

In March 2015, AKT Peerless gauged onsite monitor wells utilizing a static water level indicator graduated to 0.1 feet. Groundwater elevations were observed between 18.5 and 20.0 feet below top of casing (ground surface). Groundwater Elevation measurements are provided in Table 5. Groundwater elevation, flow, and gradient are illustrated on Figure 6 (Groundwater Contour Map).

b. Whether groundwater is potable and/or not in an aquifer

Groundwater is in a perched, unconfined aquifer. Groundwater is continuous and is seasonally present. Native soils in the saturated zone at the site consist of well graded medium sand containing varying sizes of gravel, cobbles and pebbles. Groundwater is used regionally for potable purposes and varies in depth. Soil boring/monitor well logs are provided in Appendix A.

c. Current groundwater use (drinking water)

Groundwater is developed for use at the site. Onsite and regional drinking water is obtained from private potable wells. Private wells are located immediately adjacent to the site. These wells are screened at depths ranging between 50.0 and 240.0 feet bgs in an aquifer potentially in communication with the impacted groundwater unit. Water Well Records obtained from the MDEQ Scanned Water Well Records Database are provided in Appendix C.

d. Current groundwater use (non-drinking water uses)

Groundwater is not developed for any use at the site.

e. Number of groundwater units present beneath site

One groundwater unit was encountered at the site. The shallow unconfined groundwater unit is present between 18.0 and 21.0 feet bgs.

f. Depth to bottom of water-bearing layer

The thickness of groundwater at the site based on onsite potable well record is greater than 65.0 feet thick. Furthermore, based on the results of the subsurface investigations, in conjunction with published information, this groundwater unit appears to be present in an unconfined aquifer.

g. Predominant soil type in water-bearing stratum

Sand is the predominant soil type in the water bearing stratum.

h. Effective porosity of water-bearing stratum and method of determination

The predominant soil type in this water-bearing stratum is fine sand composition. Therefore, based on this soil type the estimated effective porosity is 0.30 $cm^3_{void}/cm^3_{matrix}$. Effected porosity was estimated based on values provided by Fetter, C.W., Applied Hydrogeology, Macmillan College Publishing, NY, 1994, pp. 467-469.

i. Hydraulic conductivity and method of determination

Based on the characteristics of the saturated sand (grain size), the hydraulic conductivity is estimated to be (3-120) 5 ft/day. Hydraulic conductivity was estimated based on values provided by Fetter, C.W., Applied Hydrogeology, Macmillan College Publishing, NY, 1994, pp. 467-469.

j. Groundwater flow rate and direction

Groundwater at the site is considered continuous in nature. An estimated predominant flow direction was determined based on the measured groundwater elevations for select wells (MW-2 through MW-5 and BB-1 through BB-3). It should be noted that groundwater elevations immediately proximal to the free product plume are not likely to represent regional groundwater characteristics. AKT Peerless anticipates the predominant direction of groundwater flow is to the southwest. This is also supported by contaminant distribution.

Groundwater flow rate is estimated to be 20.70 feet per year. Groundwater velocity was calculated using the following equation, which is provided in the ASTM Designation: E-1739-95 *Standard Guide for Risk-Based Corrective Action at Petroleum Release Sites*. Based on the extent of contamination, in conjunction with the time duration since the release, it is AKT Peerless opinion that the extent of contamination indicates the flow rate of 20.70 is a conservative estimate of the annual groundwater movement. Based on the extent of groundwater contamination, the leading edge of the plume is approximately 160-170 feet from the point of release.

$U = K_s I/\theta_s$

Where,

U = Groundwater Velocity

K_s = Sorption Coefficient (Horizontal Hydraulic Conductivity)

I = Groundwater Gradient (Site-Specific)

θ_s = Volumetric Water Content of Saturated Zone (Effective Porosity)

k. Lateral component of hydraulic gradient

The lateral hydraulic gradient was calculated to be 0.0005 feet/feet.

l. Hydrogeologic conditions influencing flow direction

AKT Peerless has not identified any hydrogeologic conditions influencing onsite groundwater flow and direction. Groundwater is located at depths greater than 10 feet bgs. Therefore, it is reasonable to assume that anthropogenic features such as onsite utilities and imported backfill will not have any influence on groundwater characteristics.

The Rifle Creek is located north and west of the site. The Rifle Creek flows to the south. Based on topography and flow of the Rifle Creek, groundwater flow is inferred to the west, southwest. Groundwater flow is confirmed through onsite groundwater measurements and hydrogeologic calculations.

m. Magnitude and direction of vertical component of hydraulic gradient

The subsurface geology consists of sand and gravel glacial till, with intermittent low permeability clay seams. The clay seems do not appear to be continuous or act as a confining layer to the groundwater unit underlying the region of the subject property. As provided within the CAP, groundwater monitoring will include the installation of nested wells screened at various vertical intervals to the terminus of the potential impacted groundwater unit.

C. Tier I RBSL Comparison

1. Exposure scenario evaluation

a. Potential sources

Potential Primary Sources	Potential Source of On-going Contamination (Yes or No)
USTs	No – the UST system has been removed from the site.
Dispensers	
Piping	

Potential Secondary Sources	Potential Source of On-going Contamination (Yes or No)
Affected Surface Soils	No – The area of impact is covered with concrete and is located greater than 14 feet bgs. Surface soils have not been affected.
Affected Subsurface Soils	Yes – Contaminants present in subsurface soil.
Dissolved Groundwater Plume	Yes – Impacted groundwater is present at the site proximal to the former UST basin. The dissolved groundwater plume is delineated and has not migrated offsite.
Free Phase Liquids	Yes – Free phase liquids were observed in subsurface soil and groundwater.
Affected Sediments	No – No sediment affected.
Affected Surface Water	No – No surface waters affected.

2. Potential transport mechanisms

Potential Transport Mechanisms	Does Transport Mechanism Exist (Yes or No)
Wind Erosion and Atmospheric Dispersion	No – Depth to impacted soil is at least one foot bgs and/or the area of impact is paved/covered.
Volatilization and Atmospheric Dispersion	No – VOCs in soil are not of sufficient concentration or volume.
Volatilization and Enclosed Space Accumulation	Yes – Enclosed spaces are proximal to the locale of impact. VOCs in soil and groundwater do not exceed generic nonresidential volatilization RBSL; however, known concentrations exceeds groundwater vapor intrusion screening levels. Contamination exceeding vapor intrusion screening levels are present at depths greater than 3 meters from the slab on grade structure. Future monitoring is proposed to evaluate the completeness of this pathway over time.
Leaching and Groundwater Transport	Yes – A dissolved contaminant plume has been identified proximal to the former UST basin. Groundwater is present at depths between 18.0 and 21.0 feet bgs. Currently, the contaminant plume has not migrated offsite.

3. Potential exposure routes

Exposure Routes	Is Exposure Route Potentially Complete (Yes or No)
Soil	
Dermal Contact	No
Ingestion	No
Groundwater	
Dermal Contact	No
Ingestion	Yes – Groundwater monitoring is necessary to evaluate plume stability, and determine if drinking water is threatened. The CAP includes the placement of institutional controls to prohibit well installation within the plume. In the event plume movement towards onsite or offsite wells, additional remediation will be necessary.
Sensitive Receptors	No
Air	
Particulate Inhalation	No
Vapor Inhalation	Yes – Based on the results of the sub-slab soil gas screening analytical results, indoor air quality was not threatened at the time of sampling. Impacted soil and groundwater is located a minimum of 18 feet beneath the concrete slab. As described in the CAP, additional soil gas sampling is proposed to evaluate this exposure pathway during seasonal conditions.

4. Potential receptors

Potential receptors include employees, commercial workers on the property and construction/utility workers that may perform subsurface excavation activities in the future.

D. Tier II Evaluation

A Tier II evaluation is not necessary and has not been completed for this site.

E. Tier III Evaluation

A Tier III evaluation is not necessary and has not been completed for this site.

F. Conceptual Site Model (CSM)

1. Site Characteristics

The site is located in the southwest ¼ of the southwest 1/4 Section 21 in West Branch Township (T.21N.-R.2E.), Ogemaw County, Michigan. The site is located at the northeastern intersection of Dam Road and M-55 and is approximately 40 acres in size.

The site is zoned commercial district (C) and is located in an area of the West Branch Township that is characterized by commercial, agricultural, and residential properties, surface roadways, private water and sewer, and municipal gas and electrical utilities.

General information regarding the on-site building is presented in the following table:

Existing Building Characteristics			
General Construction	Interior Finish:	Square Ft. (Floor plan)	Use
2-Story; flat roof; concrete and steel frame, aluminum and concrete exterior; concrete slab on grade foundation	Concrete floors, acoustical ceiling tiles, paint, wood, metal, glass, concrete etc.	116,000 square feet	Warehouse storage, product cold storage, shipping receiving areas, administrative offices, restrooms and associated office space
1-Story; steel roof; concrete and steel frame, aluminum and concrete exterior; concrete slab on grade foundation	Concrete floor, steel and aluminum exterior.	12,000 square feet	Equipment and miscellaneous material storage.

The subject building consists of a concrete slab on grade structure largely utilized for the bulk storage of beverage for retail sale. Specifically, the majority of the structure is unheated space with overhead doors, coolers, and shipping receiving areas. The western portion of the subject building contains a second story which includes administrative offices and associated office space with restrooms.

The subject property also contains a second structure on the northern portion of the property. This structure is unsecured and its constructed concrete slab on grade. This building is mostly utilized for equipment and miscellaneous material storage. This building is not occupied and does not include any habitable spaces.

Exterior portions of the subject property consist of parking areas for transport vehicles and employee parking, storage of transport trailers, concrete and asphalt paving, and open green space on the periphery of operational areas of the site.

A Conceptual Site Model (CSM) for the site is provided as Figure 7.

AKT Peerless identified the type and supplier of utilities provided to the site. These services are described in the following table:

Utility / Service	Type	Utility Company or Municipality	Comments/Historical Services
Heat	Natural Gas	Consumers Energy	Natural gas was connected to the subject property in 1989.
Municipal waste	General refuse	Private	General refuse generated is stored within an on-site dumpster.
Potable water	Municipal	Private	A private potable well is located in the south central portion of the site approximately 450 feet south of the warehouse.
Electricity	Electric lines	Consumers Energy	Consumers Energy provides electricity to the subject property.
Sewage disposal	Septic system	Private	The subject property utilizes an on-site septic tank with associated drain field located in the northwest corner of the site.
Storm water	Drain field	Private	A secondary drain field for the warehouse is located immediately west of the warehouse.

The following table describes the current uses of the adjoining properties, location in relation to the site, and identified occupants that were noted during AKT Peerless' site reconnaissance of the adjoining properties.

Direction	Address	Current Use / Occupant
North	1869 Dam Road 1855 Dam Road	Residential
East	None associated	Residential and Agricultural field
South	None associated	Commercial and Residential
Northwest	1910 Dam Road 1880 Dam Road	Residential
Southwest	1938 Dam Road 2014 M-55	Commercial

2. Release Information

The subject property formerly contained 3 USTs at the site for the purpose of fueling fleet transport vehicles. The USTs were located in the northern portion of the site, which is now occupied by a concrete

slab on grade structure. The USTs were installed in 1973 and consisted of the following: two, 8,000 gallon diesel USTs and one, 4,000 gallon gasoline UST. The USTS were removed from the ground in 1993. At that time, a release was identified (C-1437-93). The cause of the release was not identified in the 1996 FAR and additional information regarding the release was not readily obtained. Following removal of the UST system, an excavation occurred in which approximately 600.0 cubic yards of soil was stockpiled onsite for future disposal. In June 1996, CES conducted sampling activities to evaluate the condition of the stockpiled soil. At that time, sampling activities revealed soil contamination did not exceed Generic RBSLs, except for 2-methylnalhthalene. No information was obtained, which identified disposal and/or further assessment of the stockpiled soil.

As a result of the release, free product was identified within the excavation cavity. Furthermore, soil and groundwater contamination remains present in areas proximal to and within the former UST basin.

3. Contamination and Subsurface Characteristics

Contamination at the site was identified in soil and groundwater between 18.0 and 24.0 feet bgs and is limited to VOCs. A list of constituents exceeding regulatory criteria was presented in Section B. Impacted soil was identified proximal to the former UST basin extending in a south-southwesterly direction in exceedance of Part 213 Nonresidential RBSLs. Specifically; soil contamination exceeds Nonresidential DWP and GSIP Criteria. Soil contamination was not identified in any other location. Impacted groundwater was identified both within and adjacent (south-southwesterly) to the former UST basin in exceedance of Part 213 Nonresidential RBSLs. Specifically, groundwater contamination exceeds Nonresidential DW and GSI Criteria. Groundwater contamination was not identified in any other location. Based on site investigation activities and laboratory analytical results, soil and groundwater contamination has been delineated and is limited to within the property boundary of the site.

Subsurface soil consisted of sand beneath the surface cap (i.e. concrete and gravel) between 5.0 and 10.0 feet bgs. Sand contained interbedded lens of clay stringers between 5.0 and 10.0 feet bgs. Well graded sand was observed beneath the clay to 27.0 feet bgs (the maximum depth explored). The onsite well record indicates confining clay is present in the southern portion of the site between 15.0 and 28.0 feet bgs with sand underlain clay to at least 75.0 feet. Impacted groundwater was observed at approximately 20.0 feet bgs and is greater than 10.0 feet in thickness. Potable groundwater located in the southern portion of the site is located at depths greater than 40.0 feet bgs. The onsite potable well is screened between 69.0 and 75.0 feet bgs.

Water well records are provided in **Appendix C.**

4. Exposure Assessment

As discussed in previous sections, soil and groundwater contamination exceeds both the drinking water and groundwater surface water interface exposure pathways.

Drinking Water Pathway

The site obtains potable water from a private source located approximately 600.0 feet south of the warehouse. Therefore, the pathway is applicable, but for the following reasons is currently not complete.

A groundwater sample was collected from the potable well (DW well) on December 7, 2012, to evaluate for the presence of contamination within the potable aquifer. Analytical results were reported below laboratory target detection limits. Based on subsurface investigation activities, the impact groundwater unit is defined and is spatially separated from the southern edge of the contaminant plume by approximately 600 feet. Based on these conditions, the drinking water pathway is currently not complete and impacted soil and/or groundwater does not present any current exposure. However, a resource use restriction will be implemented to preclude the installation of the wells within a surveyed area that includes the defined contaminant plume, the existing warehouse and exterior portion of the site to ensure the drinking water pathway does not become complete in the future. Furthermore, future monitoring activities will include the collection of potable water samples to assess future drinking water quality. Refer to Figure 2, Site Map for an illustration of the proposed restricted area. This is further discussed in Section J.

Groundwater Surface Water Pathway
The groundwater surface water pathway is applicable, but is not complete for the following reasons.

The site does not contain a surface water. The nearest surface water is Rifle Creek located north of the site and approximately 300 feet north of the northern edge of the defined contaminant plume. Groundwater is located at approximately 20 feet bgs. Onsite storm water (runoff) is collected within a network of catch basins within the existing structure, including two located north of the warehouse in a parking/drive area. Storm water is conveyed to a drainage field located immediately east of the warehouse. Groundwater is not conveyed through this utility. Based on site infrastructure, the defined contaminant plume, groundwater present at depths greater than the onsite sewers, and the lack of a surface water, the groundwater surface water interface pathway is not complete and contamination at the site does not present any risk to sensitive receptors.

Vapor Intrusion Pathway
The site contains a large slab on grade structure (app. 116,000 sq. ft.) that is oriented immediately above the defined contaminant plume. Therefore, the pathway is applicable but for the following reasons is currently not complete.

Soil and groundwater samples were collected from areas immediately beneath the warehouse. Laboratory analytical results indicated soil and groundwater contamination is present exceeding drinking water and groundwater surface water RBSLs. Conversely, contaminant concentrations exceeded MDEQ Vapor Intrusion Screening Levels. This contamination was identified at depths greater than 3 meters bgs. As a result of these conditions, AKT Peerless conducted soil gas sampling activities to determine if contamination located beneath the warehouse is impacting indoor air quality. Specifically, 2 sub-slab shallow soil gas screening points were installed within areas of known free product (RC-2 and BB-2). Soil gas samples were collected for analysis of VOCs. Analytical results were reported below MDEQ Nonresidential Vapor Intrusion Shallow Soil Gas Screening Levels.

Based on these conditions, the vapor intrusion pathway is currently not complete and impacted soil and/or groundwater does not present any current exposure. However, a resource use restriction will be implemented to preclude the construction of additional structures within a surveyed area, which includes the existing warehouse and exterior portion of the site. This restriction will preclude construction unless further assessment of the vapor intrusion pathway is completed. Furthermore, future monitoring activities will include the collection of annual soil gas samples from SG-1 and SG-2 to assess future indoor air quality. This is further discussed in Section J.

Acute Risk Pathway – Free Product/LNAPL

Free product and LNPAL have been identified at the site. The defined free product and LNAPL plume is located beneath the northern portion of the existing structure at approximately 19.0 feet bgs. Based on subsurface investigation activities, source areas include: RC-1, RC-2, BB-2, BB-4, and BB-5 sample locations.

In December 2012, AKT Peerless conducted free product characterization activities to evaluate recharge rates and volume of recovery. At that time, free product was measured in both RC-1 and RC-2. Measured free product was 1.5 to 2.5 feet in thickness, respectively. Free product was then bailed from the wells until no longer present. Approximately, 3-gallons of free product was recovered from RC-2. Free recovery measurements are provided in **Table 1.** During these activities, it was determined that recharge of free product was 42% of the original thickness 180 minutes after initial bail down.

An evaluation of soil contaminant concentrations was performed to determine if gasoline range organics (GRO) are present at screening levels where soil volatilization to indoor air criteria is applicable. Soil analytical data obtained from the BB-4 and BB-5 sample locations were utilized for this assessment. This assessment indicated accumulative soil data (BTEX and TMBs) multiplied by 40 does not exceed GRO screening levels (350 ppm) where soil volatilization to indoor air criteria is applicable.

A conceptual site model was prepared to illustrate contaminant distribution with respect to site characteristics (i.e. groundwater elevation, lithology, site infrastructure). Refer to Figure 7, Conceptual Site Model.

5. Plan for Corrective Actions

Due to the conditions described within this FAR, it is necessary to conduct additional corrective actions at the site. Consequently, the results of the following activities will be provided in quarterly CAP Status reports for a minimum of 2 years. At the completion of 2 years, an amended CAP will be prepared and submitted to the MDEQ. The amended CAP will include future proposed activities (if necessary), site reclassification, and information/data to continue the proposed corrective actions or rationale to prepare a closure report.

Based on the aforementioned conditions, characteristics, and analytical results, AKT Peerless anticipates completing the following corrective actions in response to the release:

- Additional groundwater monitoring activities will be necessary to monitor natural attenuation to demonstrate the contaminant plume is stable and/or decreasing. Furthermore, groundwater monitoring events are necessary to ensure the onsite potable well is not threatened by the present of contamination and/or free product (mobile NAPL). Groundwater monitoring will be conducted quarterly for 2 years to monitor short term exposures at the site. At the end of this monitoring period, a revised CAP will be prepared that will include a revised sampling schedule to monitor for natural attention. The proposed groundwater monitoring will include evaluation of the vertical and lateral contamination characteristics within the groundwater unity.

- Additional soil gas monitoring activities will be necessary to evaluate the completeness of the indoor air pathway. Specifically, due to the presence of contamination exceeding Vapor Intrusion Soil and Groundwater Screening Levels, sub-slab soil gas samples will be collected semi-annually for 2 years. Soil gas samples will be collected from existing soil gas screening points (SG-1 and

SG-2). If at any time during monitoring activities an exceedance of vapor intrusion screening levels is reported, additional corrective actions will be required to mitigate impacted vapor migrating into the structure. Corrective actions to mitigate unacceptable exposures will be provided in the proposed quarterly CAP Status reports.

- Free product/LNAPL recovery and characterization is required until closure of the release. Specifically, free product will be recovered on a monthly basis. Due to low recharge rates, passive bailing will be utilized to recovery free product. Free product will be stored onsite in 55-gallon steel drums. Waste disposal manifests will be provided in future CAP Status reports. Free product characterization will also be conducted semi-annually to determine the effectiveness of recovery efforts. Characterization activities will include bail down tests and/or transmissivity testing. Results of characterization activities will be included in future CAP Status reports.

- Institutional controls are necessary to prohibit land and resource uses. Specifically, a resource restriction will be utilized to preclude the installation of wells, prohibit the development of the onsite groundwater, and the excavation and utilization of subsurface soil within a surveyed area (to be completed by a licensed surveyor). The surveyed area will include all impacted areas of the site. Additionally, a land use restriction is necessary to ensure the site will be utilized for Nonresidential purposes. Proof of filing an executed Restrictive Covenant will be provided in a CAP Status report.

G. Site Classification

AKT Peerless has conducted sampling activities at the site to determine the appropriate site classification based on known existing conditions and information contained in the MDEQ Remediation and Redevelopment Division's (RRD) Operational Memorandum No. 3. Land use, site conditions, and analytical results have been evaluated to develop potential Risk-Based Corrective Action (RBCA) scenarios for the site. The site was formerly classified as a Class 1 site, however due to information and data obtained during the aforementioned site characterization activities, the site is currently classified as a **Class 2** site.

At this time, Class 2 was chosen for this site since mobile and/or residual LNAPL is present where an unacceptable exposure may occur within two years based on the risk-based corrective action CSM. Furthermore, there is a potential for explosive vapor levels to accumulate in the existing structure due to the presence of free product and/or LNAPL at the site. Additionally, contaminated media (soil and groundwater) is present beneath the existing occupied structure. Soil and groundwater analytical results exceed MDEQ Vapor Intrusion Soil Gas Screening Levels.

H. Feasibility Analysis

1. Identification of potential corrective action alternatives

Based on the results of the investigation activities conducted to-date, corrective action alternatives have been evaluated for future potential execution. Site investigation activities have established the following:

Based on the results of the investigation activities conducted to-date, corrective action alternatives have been evaluated for future potential execution. Site investigation activities have established the following:

- Impacted groundwater is present at approximately 20.0 feet bgs and appears to be continuous across the site.
- Free Product and/or LNAPL is present at the site.
- Soil contamination levels exceed nonresidential drinking water and groundwater surface water interface criteria.
- Soil contamination is present in subsurface soil present within the vadose zone at depths ranging from approximately 14.0-20.0 feet bgs. Sand is the predominant soil type impacted by the release.
- Groundwater contamination levels exceed nonresidential drinking water and groundwater surface water interface criteria.

AKT Peerless has considered the following corrective action alternatives for remediation of impacted soil:

- Soil Vapor Extraction
- Passive Free Product Recovery
- Air Sparge
- Monitor Natural Attenuation
- In-situ Chemical Treatment
- Free product and groundwater extraction via vacuum enhanced recovery
- Impacted Soil Excavation, Transport, and Landfill Disposal (Dig and Haul)

In addition to the above corrective action alternatives, AKT Peerless considered the nature and extent of the soil contamination, in light of the current site features, characteristics, and operations to evaluate potentially complete exposure risks.

The following table summarizes the exposure pathways, which are exceeded, and the potential exposure risk evaluation.

Exposure Pathway	Exposure Pathway Considerations	Exposure Pathway Potentially Complete
Ingestion of Impacted Groundwater	Groundwater contamination has been identified at the site and potable water at the site, as well as surrounding properties, is obtained exclusively from private potable wells. Groundwater at the site is developed for potable purposes. The potable well is located approximately 700.0 feet directly south of the defined groundwater plume. Sampling of the potable well has been conducted to evaluate for the presence of contamination. Results were reported below laboratory target detection limits. A restrictive covenant will be filed to ensure exposure risks relating to groundwater ingestion are mitigated. During any future construction, Health and Safety procedures will be implemented, as	No

Exposure Pathway	Exposure Pathway Considerations	Exposure Pathway Potentially Complete
	well as soil management procedures to mitigate unsafe exposure risks or exacerbation of contaminants. Additionally, vertical characteristics of contamination to further evaluate this pathway.	
Direct Contact	Impacted soil containing contaminants exceeding Non-Residential Direct Contact Criteria were not identified at the site. Impacted soil is located beneath capped surfaces and is located at least 14 feet bgs. Although soil is located at depths that are not reasonably anticipated to be encountered during any foreseeable subsurface construction, AKT Peerless is proposing to prepare a land use restriction to keep land use consistent with non-residential use. Soil management will also be addressed within the restriction in the event subsurface construction for utility repair or other necessary activity becomes necessary. During any future construction Health and Safety procedures will be implemented, as well as soil management procedures to mitigate unsafe exposure risks or exacerbation of contaminants. The Direct Contact exposure pathway is not presently complete.	No
Acute Risks/Free Product and NAPL	Free product/LNAPL is present at the site. The mobile plume is present at approximately 20.0 feet bgs. Correction actions are planned to mitigate and further assess this pathway.	Yes
Groundwater Surface Water Interface Protection	Soil and groundwater impact exceeding GSI criteria is present at the subject property. However, storm (runoff) water is collected and transported through the private sewer system, which discharges to an onsite drainage field located immediately east of the warehouse. Onsite storm sewers do not convey groundwater to any surface water. Furthermore, groundwater is located at approximately 19.0 feet bgs.	No

Exposure Pathway	Exposure Pathway Considerations	Exposure Pathway Potentially Complete
	Therefore, GSI is not complete and sensitive receptors are not threatened by the release.	
Volatilization to Indoor Air Inhalation (Vapor Intrusion Risks)	Soil and groundwater contamination was not identified exceeding Part 213 volatilization to indoor air inhalation criteria. However, soil and groundwater contamination did exceed vapor intrusion screening levels as defined in the MDEQ vapor intrusion guidance document. Sub-slab soil gas sampling activities were conducted to evaluate for the potential of impacted soil gas to accumulate immediately beneath the structure. Results of these activities did not reveal the presence of contamination exceeding Vapor Intrusion Shallow Soil Gas Screening Levels. Due to the depth of impact and the results of sampling activities, the vapor intrusion pathway is currently not complete. Soil gas assessment activities are proposed to continue to monitor and evaluate for the presence of impacted soil vapor beneath the existing structure.	No
Soil Particulate Inhalation	Although no contamination was identified in soil at concentrations exceeding the MDEQ Particulate Inhalation Criteria, impacted soil is located beneath concrete paved areas or vegetated topsoil. Impacted soil is located at least 14 feet bgs. In the event excavation is necessary, soil will be handled in an appropriate manner to prevent dust generation.	No

2. Rationale for selection of corrective action alternative(s)

In consideration of the abovementioned alternatives, AKT Peerless has concluded the following:

- Due to contaminant concentrations, the presence of free product/LNAPL and the presence of impact at depth greater than 14.0 feet bgs in sand, soil vapor extraction activities would unlikely produce a comprehensive remediation of impacted soil to below applicable exposure pathways. Furthermore, this alternative is time intensive, intrusive to existing site operations, and costly.
- Continuous groundwater was observed during subsurface investigation activities. However, this groundwater unit is located at between 18.5 and 20.0 feet bgs. The defined impacted groundwater unit is located entirely beneath the existing warehouse structure. As a result of

these conditions, air sparge remediation would not be a cost effective option to remediate soil/groundwater contamination.

- The site contains free product/LNAPL. Recovery is necessary to mitigate acute risks, as well as reduce the potential for contaminants leaching to groundwater.
- The presence of significant contaminant concentrations are limited and located west and south of the current UST cavity and between two former dispensers that were centrally located at the site. Contamination from the UST cavity is migrating away (southwest) from the existing structure and UST system. AKT Peerless estimates an area smaller than 600 cubic yards of significant impact. Due to the nature and location of impacted soil, in conjunction with the site characteristics attenuation of soil impact is possible, if the proposed CAP sampling events continue to demonstrate that the remaining contamination does not threaten human or environmental receptors.
- Due to the presence of impact within a developed groundwater unit, chemical treatment of impact soil is not feasible. Furthermore, chemical treatment may increase mobility of the plume thus creating an adverse condition further threatening the onsite and nearby potable wells.

I. Corrective Action Plan (CAP)

Based on the feasibility analysis, free product/LNAPL recovery, soil gas monitoring, and groundweater monitoring is proposed as the initial corrective action. This will include the completion of quarter annual; groundwater monitoring to evulate if the potential exists for contamination to potentially impact onsite or nearby receptors (drinking water and vapor intrusion). In the event the groundwater contamination is determined to be stable and/or shrinking in nature, and data/conditions suggest drinking water and vapor intrusion (long term) exposure pathways are not complete; closure of the release would be appropriate.

As discussed in section 5, the following corrective actions are planned at the site:

- Additional groundwater monitoring activities will be necessary to monitor vertical and lateral groundwater conditions and evaluate if the contaminant plume is stable and/or decreasing in magnitude and extent. Furthermore, groundwater monitoring events are necessary to ensure the onsite potable well is not threatened by the present of contamination and/or free product (mobile NAPL). Groundwater monitoring will be conducted quarterly for a minimum of 2 years to monitor short term exposures at the site. At the end of this monitoring period, a revised CAP will be prepared that will include a revised sampling schedule to monitor for natural attention. In the event groundwater contamination is determined to be expanding in volume and contaminants concentrations, a revised CAP will be immediately prepared. The contingencies would include sampling the onsite and/or nearby potable wells on a monthly basis and implementation of additional corrective actions. However, based on the time since the release has occurred (approximately 22 years), the data from all onsite investigation activities suggests that the plume has remained relatively stable. However, the proposed groundwater monitoring for a minimum duration of 2 years will allow further evaluation of the potential long-term threats and determine if closure is feasible.
- Additional soil gas monitoring activities will be necessary to evaluate the completeness of the indoor air pathway. Specifically, due to the presence of contamination exceeding Vapor Intrusion Soil and Groundwater Screening Levels, sub-slab soil gas samples will be collected semi-annually

for 2 years. Soil gas samples will be collected from existing soil gas screening points (SG-1 and SG-2). If at any time during monitoring activities an exceedance of vapor intrusion screening levels is reported, additional corrective actions will be required to mitigate impacted vapor migrating into the structure. Corrective actions to mitigate unacceptable exposures will be provided in the proposed quarterly CAP Status reports.

- Free product/LNAPL recovery and characterization is required until closure of the release. Specifically, free product will be recovered on a monthly basis. Due to low recharge rates, passive bailing will be utilized to recovery free product. Free product will be stored onsite in 55-gallon steel drums. Waste disposal manifests will be provided in future CAP Status reports. Free product characterization will also be conducted semi-annually to determine the effectiveness of recovery efforts. Characterization activities will include bail down tests and/or transmissivity testing. Results of characterization activities will be included in future CAP Status reports.

- Institutional controls are necessary to prohibit land and resource uses. Specifically, a resource restriction will be utilized to preclude the installation of wells, prohibit the development of the onsite groundwater, and the excavation and utilization of subsurface soil within a surveyed area (to be completed by a licensed surveyor). The surveyed area will include all impacted areas of the site. Additionally, a land use restriction is necessary to ensure the site will be utilized for Nonresidential purposes. Proof of filing an executed Restrictive Covenant will be provided in a CAP Status report.

Groundwater monitoring activities will include quarterly groundwater monitoring events starting in June 2015 and ending in March 2017, which will be completed utilizing all existing permanent monitoring wells (MW-1 through MW-5, MW-9, BB-1, and BB-3) and 3 proposed additional permanent monitoring wells (located in the former AKTP-9 through AKTP-11 sample locations). Monitor wells are depicted in Figure 3. Samples will be submitted under chain of custody for laboratory analysis of VOCs. Laboratory analytical results will be compared to Part 213 RBSLs to determine the effectiveness of MNA.

Soil gas sampling activities will be conducted utilizing to existing permanent soil gas screening points (SG-1 and SG-2). Soil gas samples will be collected semi-annually for 2 years. Sampling activities will be conducted in September 2015, March 2016, and September 2016. In the event soil gas sampling activities indicate the pathway is complete through the presence of soil gas exceeding vapor intrusion screening levels, additional corrective action will be proposed to mitigate unacceptable exposures. Results of these activities and proposed corrective actions will be provided in the CAP Status report.

Free product/LNAPL recovery is required to mitigate acute risks. Free product /LNAPL recovery will be completed monthly until no longer present or until closure of the release is achieved. Free product recovery activities will include passive bailing. Recovered product will be stored in an onsite 55-gallon drum for future disposal. Waste disposal manifests will be provided in future CAP Status reports. In addition to these activities, characterization of free product will also be performed. Characterization activities will be conducted to evaluate plume recharge rates and effectiveness of the corrective actions. Characterization will occur semi-annually for 2 years starting in September 2015.

Institutional controls are necessary to address unacceptable exposures at the site. A restrictive covenant (RC) will be filed with the Ogemaw County Register of Deeds. Execution of the RC will be completed in the last quarter of 2015. Proof of the filed RC will be provided in quarterly CAP Status report.

The proposed corrective actions do not require operation and maintenance beyond inspection and if necessary, maintenance of the existing monitor wells.

Groundwater samples will be collected in accordance with the Low-Flow (Minimal Drawdown) sampling procedures for laboratory analysis of VOCs using US EPA/MDEQ Method 8260.

Either a Closure Report or an amended CAP Status Report will be submitted to the MDEQ upon completion of the proposed CAP. If conditions change in a manner that warrants additional corrective actions during the 2 year assessment period, an amended corrective action plan will be prepared and submitted to the MDEQ.

J. Notice of Corrective Actions, Institutional Controls, Restrictive Covenants, Alternative Mechanisms, Notice of Land & Use Restrictions

1. Land or Resource Use Restrictions

Concentrations of target parameters were identified above MDEQ Residential and Nonresidential RBSLs. Therefore, land and resource use restrictions are required. A Restrictive Covenant will be filed to ensure the site land use remains nonresidential in the future and to impose restrictions prohibiting the development of surface waters on the site, as well as prohibit the development of shallow groundwater resources for any purpose within a surveyed area, which will include the defined soil and groundwater contaminant plume. Notices and restrictions are likely to be filed in conjunction with or as a result of corrective actions. Proof of the future restrictive covenant will be provided in a CAP Status Report.

2. Notices

Contamination does not extend offsite and easements or public utilities are not present within the known extent of contamination. Therefore, a notice to impacted parties is not necessary.

A Notice of Corrective Action may be executed and filled with the Ogemaw County Register of Deeds contingent upon the results of corrective actions. All notices and deed restrictions will be provided in a future CAP Status report.

Qualifications

Jon A. Hirschenberger

Project Manager CPG

A member of AKT Peerless' senior staff, Mr. Hirschenberger has over 10 years of environmental consulting experience providing knowledgeable and economical solutions to its private, commercial, municipal, and regulatory clients.

PROFESSIONAL EXPERIENCE

Geologist/Project Manager
AKT Peerless Environmental Services

AREAS OF EXPERTISE

- Evaluating potential environmental and human exposure risks at commercial, industrial, and residential properties
- Preparation of and completion of Part 213 underground storage tank (LUST) reports
- Design, install, maintain and operate remediation systems for soil and groundwater cleanup
- Maintain direct correspondence with client and regulatory agency
- Preparation and completion of Phase II and Baseline Environmental Assessment (BEA) Reports
- Coordination and oversight of soil and groundwater field investigations
- Preparation of proposals, cost estimating and bids specifications
- Oversight of UST removal, cleanup, and drilling contractors
- Creating AutoCAD maps and figures
- Interpretation of laboratory analytical results

EDUCATION

BS: Environmental Geological Sciences, 2002
Michigan State University, East Lansing, MI

CERTIFICATIONS

American Institute of Professional Geologists (AIPG)
Certified Professional Geologist (C.P.G.)

OSHA 29CFR 1910.120
40 Hour Hazardous Waste Operation Training (with annual refreshers)

ASTM Risk-Based Corrective Action Training Applied at Petroleum Release Sites
(October 2005)

CPR and First Aid Certification

Certified Industrial Storm Water Management Operator by the Michigan Department of Environmental Quality (Certification No. I-09462)

SUMMARY OF SELECTED PROJECTS

Managed and conducted initial assessment and response activities resulting from a release of petroleum products from an aboveground storage tank at a residential property. Coordinated and provided technical oversight of cleanup excavation activities.

Conducted soil and groundwater investigation to evaluate the nature and extent of contamination. Prepared and completed a response activity report for submittal to Michigan Department of Environmental Quality (MDEQ).

Completed oversight, maintenance, and operation of vacuum enhanced free product recovery system at a municipal property where over three feet of light non-aqueous phase liquid (LNAPL) was historically observed on a shallow groundwater unit. Conducted soil investigations and groundwater monitoring activities. Provided technical consultation for compliance with MDEQ Regulations for City Manager and City Council Members.

Managed and conducted hydraulic conductivity testing, surface water sampling, remedial investigations, remediation activities and waste classification at a large landscaping stone and marble production facility.

Additional activities included preparation and submittal of a National Pollutant Discharge Elimination System (NPDES) Permit, monthly industrial storm water inspections, waste removal activities, and regulatory correspondence and compliance.

Assisted in sampling strategy of a Baseline Environmental Assessment (BEA), category "N" and "S" for an automotive supplier at a former industrial facility in Saginaw, Michigan. Conducted soil and groundwater investigations, data interpretation and report preparation to submit for exemption of liability to MDEQ.

Managed and conducted soil and groundwater investigations at a current bulk petroleum storage facility in Clare, Michigan. Coordinated response actions for remediation of impacted soils. Provided contractor oversight of excavation activities and conducted verification of soil remediation sampling.

Prepared job costing and specifications of off site remediation activities for the adjoining residential property. Coordination of remediation activities with off site parties, attorneys, and MDEQ. Prepared and submitted remedial action plan to MDEQ.

Assisted in management of an EPA Brownfield Assessment Grant for petroleum substances. Conducted soil and groundwater investigations at numerous sites where potential petroleum impact was identified. Prepared and completed Phase II Environmental Site Assessment Reports and Baseline Environmental Assessment Reports.

Managed and conducted soil remedial investigations at a large industrial manufacturing facility containing solvent impact in soil and groundwater. Investigations were designed to vertically profile contamination in soil and groundwater at depths reaching 40-feet below ground surface.

Completion of investigation activities included, liable party and current tenant correspondence, coordination of mobile laboratory setup, oversight of drilling activities, onsite data evaluation, onsite modifications to scope of work, and sample collection. Assisted with the installation of soil vapor extraction points and pilot testing to determine feasibility of remediation. Prepared remedial investigation reporting for submittal to MDEQ.

Managed over 100 subsurface investigations at gasoline stations and other petroleum storage facilities. Investigations were completed in accordance with Part 213 Regulations. Management of the investigations included scope of work development, contractor oversight, budget tracking, billing, report preparation, staff oversight, and client/regulatory agency correspondence.

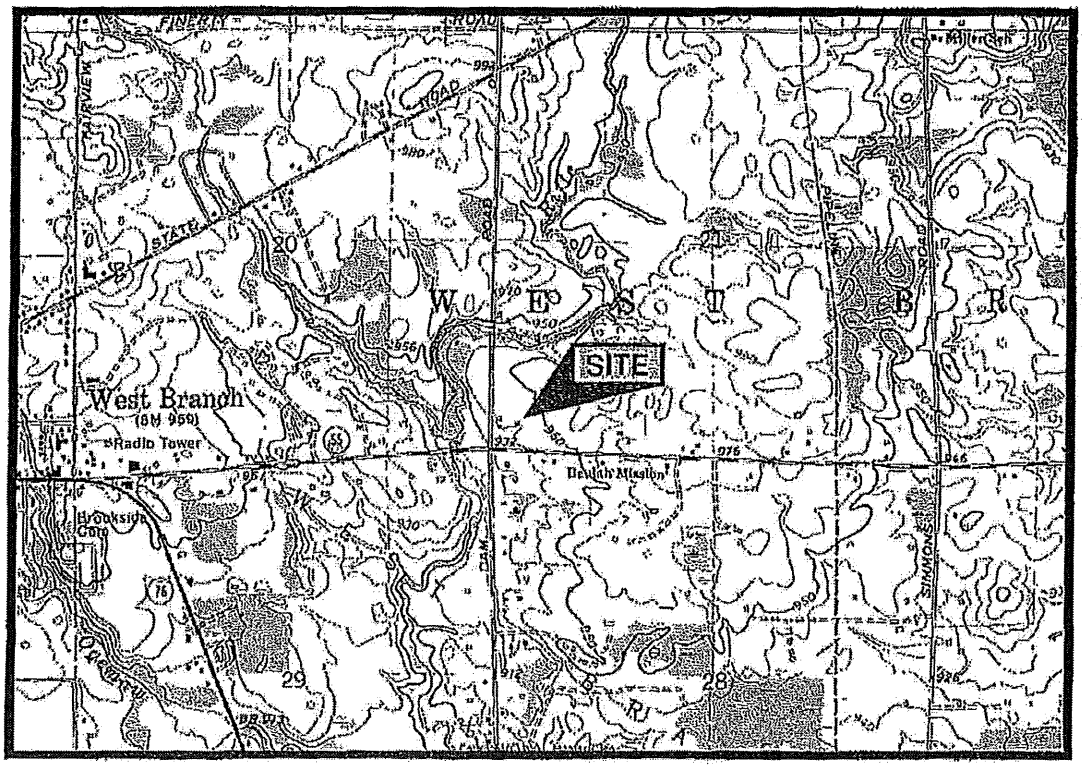
Assisted in the management of a large industrial property redevelopment in a riverfront/core downtown setting. Management involved the development of an environmental scope of work designed specifically for the intended future use of the property. Completed site characterization activities including soil, groundwater, sediment, soil gas sampling, data interpretation, report preparation, presentation of findings, and the development of due care responsibilities.

Figures

WEST BRANCH QUADRANGLE

MICHIGAN - OGEMAW COUNTY

7.5 MINUTE SERIES (TOPOGRAPHIC)



T.22 N.-R.2 E.

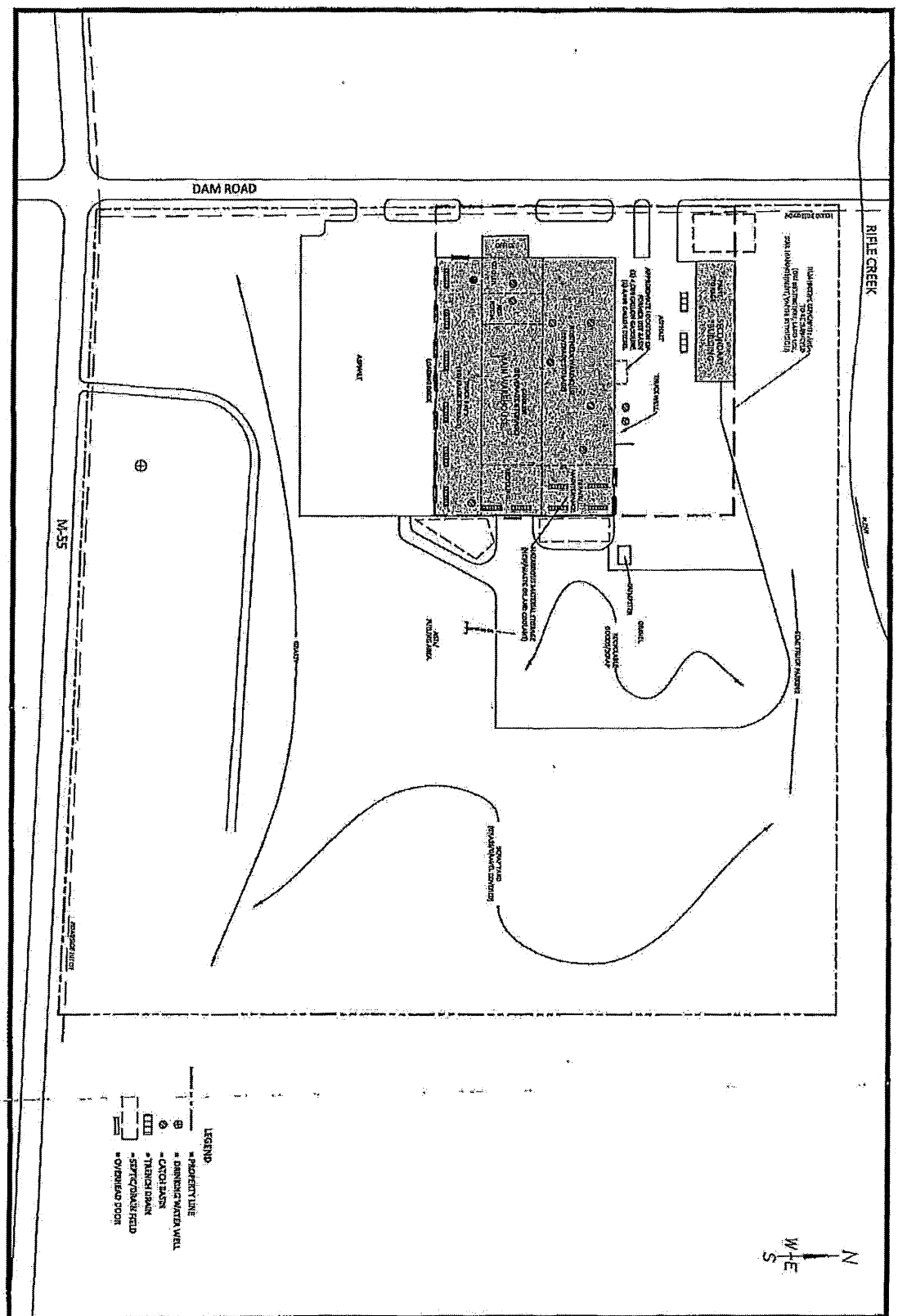
1 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 0 1 KILOMETER

IMAGE TAKEN FROM 1965 U.S.G.S. TOPOGRAPHIC MAP

AKTPEERLESS ILLINOIS MICHIGAN OHIO GEORGIA www.aktpeerless.com	TOPOGRAPHIC LOCATION MAP 1901 DAM ROAD WEST BRANCH, MICHIGAN PROJECT NUMBER : 7552s	DRAWN BY: OGO DATE: 03/30/2015 FIGURE 1



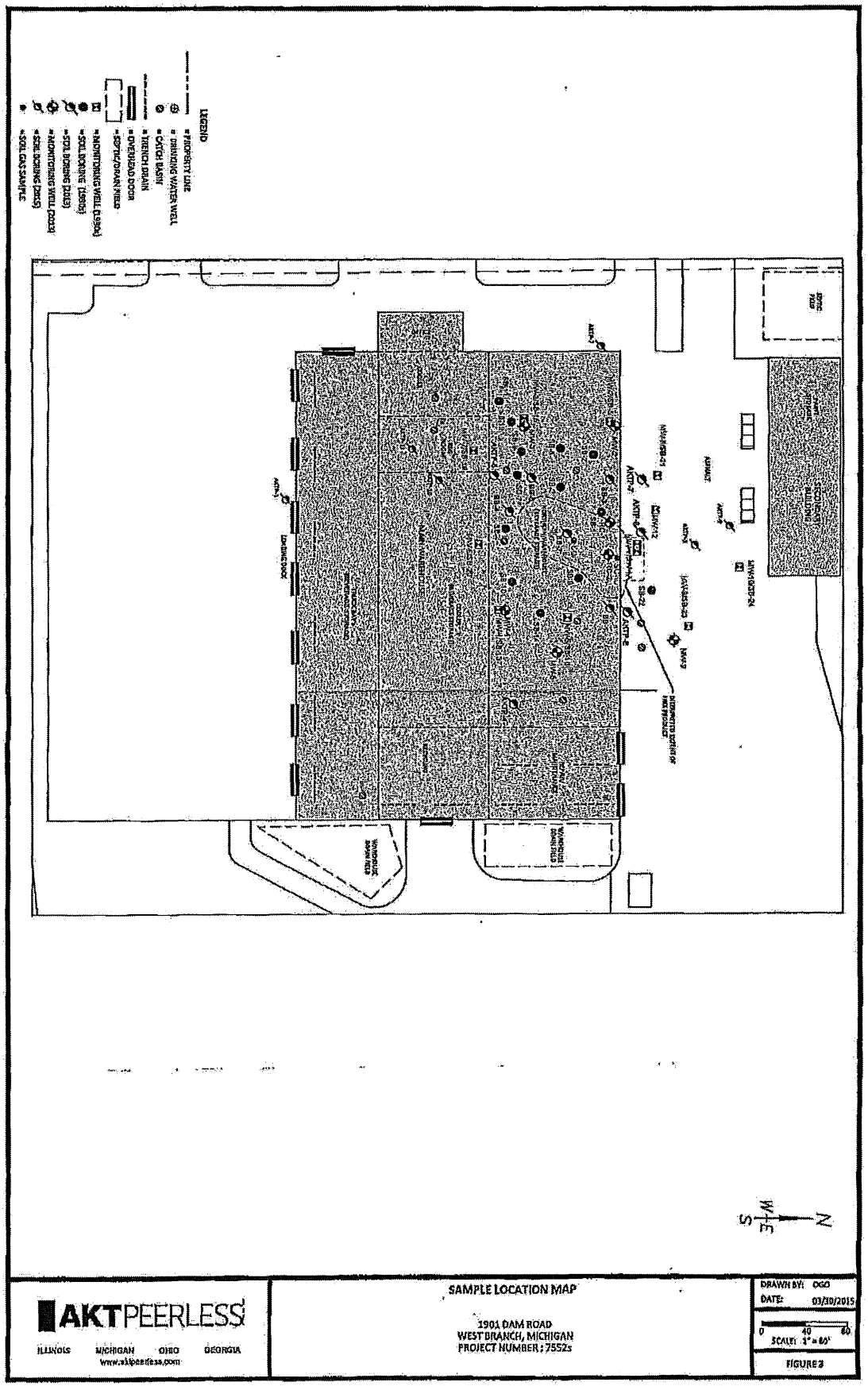
AKTPEERLESS

ILLINOIS MICHIGAN OHIO GEORGIA
www.aktpeerless.com

SITE MAP

1901 DAM ROAD
WEST BRANCH, MICHIGAN
PROJECT NUMBER : 75525

DRAWN BY: OGO
DATE: 01/30/2015
0 75 150
SCALE: 1" = 150'
FIGURE 2



AKTPEERLESS

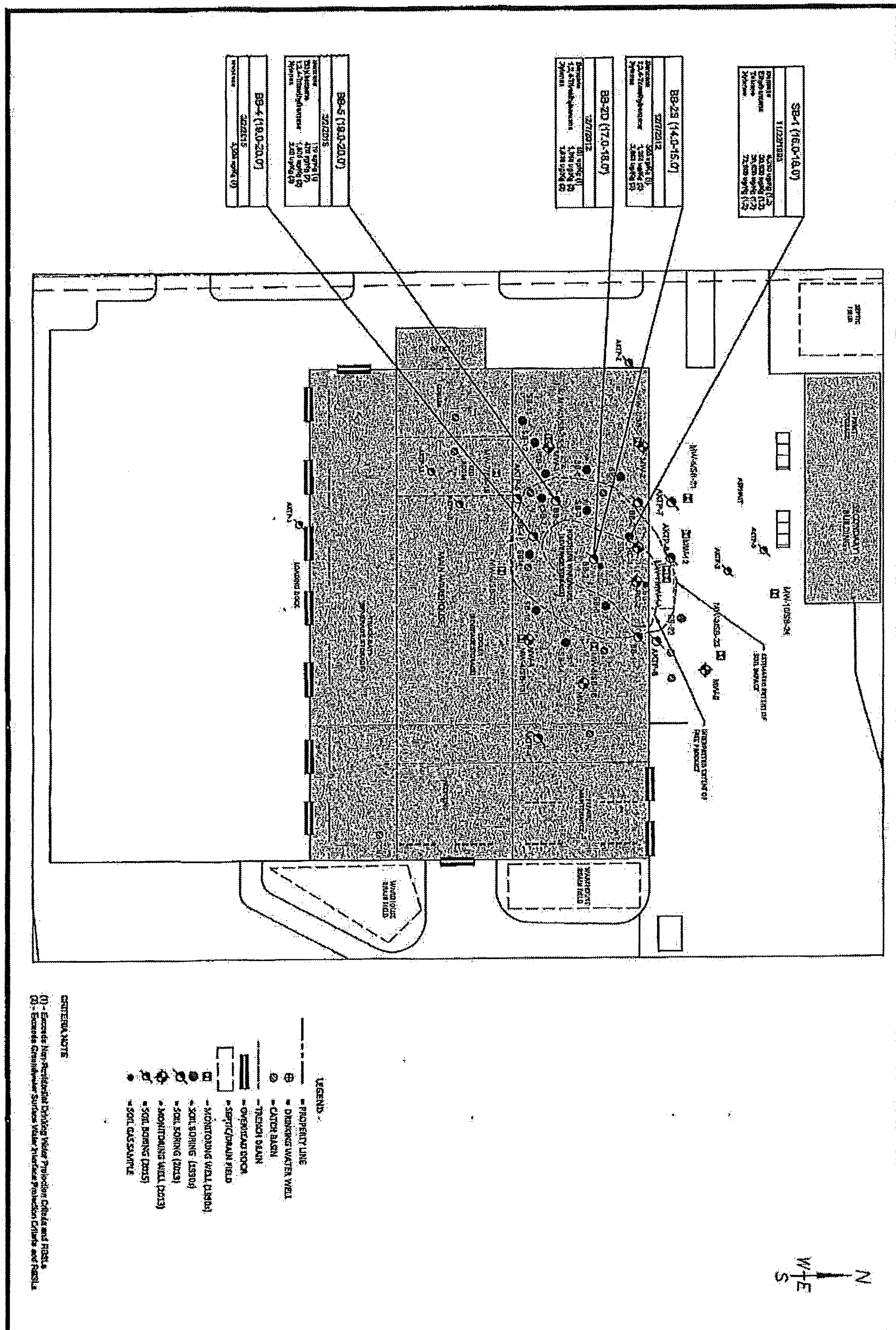
ILLINOIS MICHIGAN OHIO GEORGIA

www.aktpeerless.com

SAMPLE LOCATION MAP

1901 DAM ROAD
WEST BRANCH, MICHIGAN
PROJECT NUMBER: 7552s

DRAWN BY: DGO
DATE: 03/30/2015
0 40 80
SCALE: 1" = 80'
FIGURE 3



AKTPEERLESS

ILLINOIS MICHIGAN OHIO GEORGIA
www.aktpeerless.com

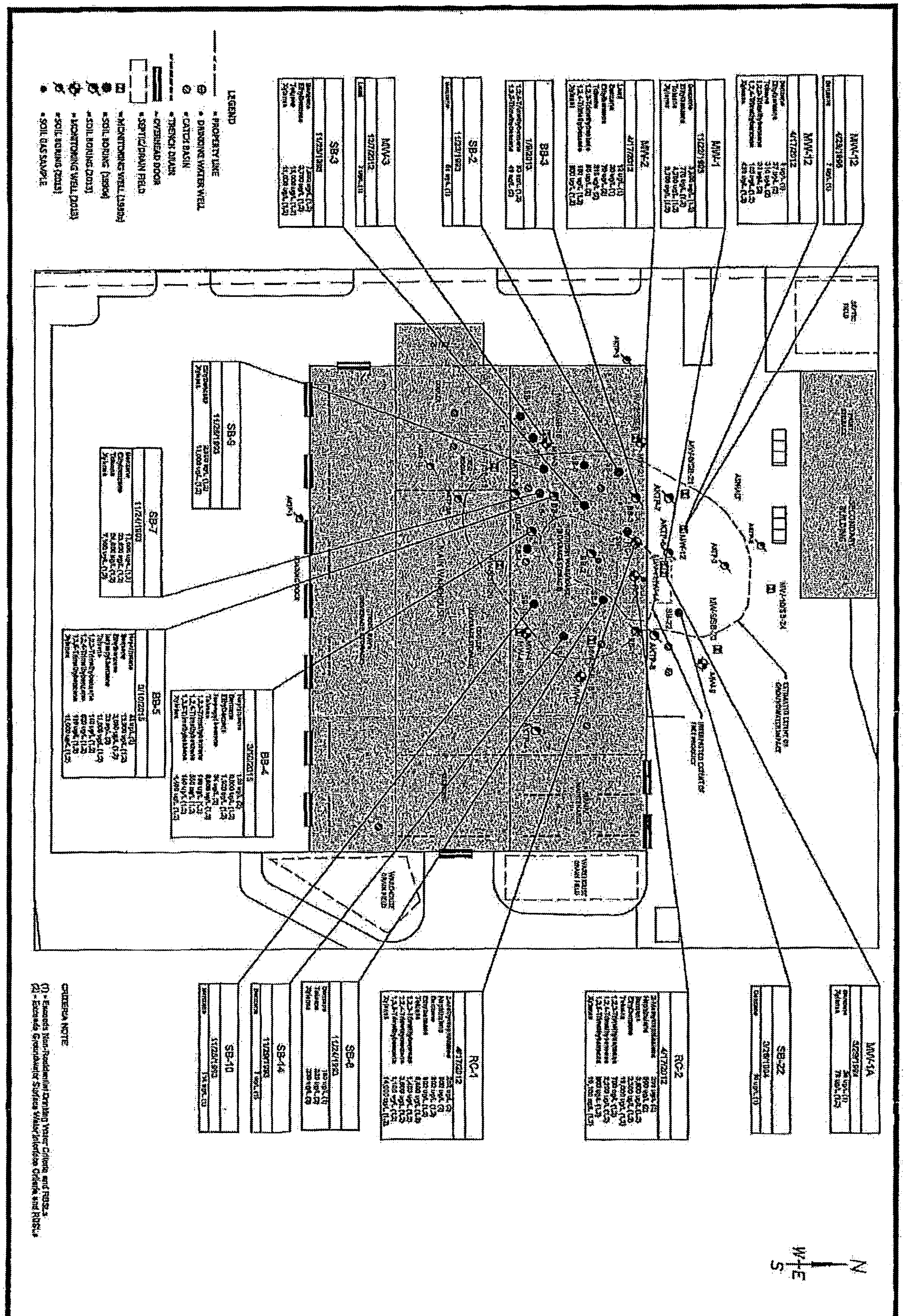
SOIL RESULTS EXCEEDING MDEQ CRITERIA MAP

1901 DAM ROAD
WEST BRANCH, MICHIGAN
PROJECT NUMBER : 7552s

DRAWN BY: OGO
DATE: 03/30/2015

SCALE: 1" = 80'

FIGURE 4



AKTPEERLESS

ILLINOIS MICHIGAN OHIO GEORGIA
www.aktpeerless.com

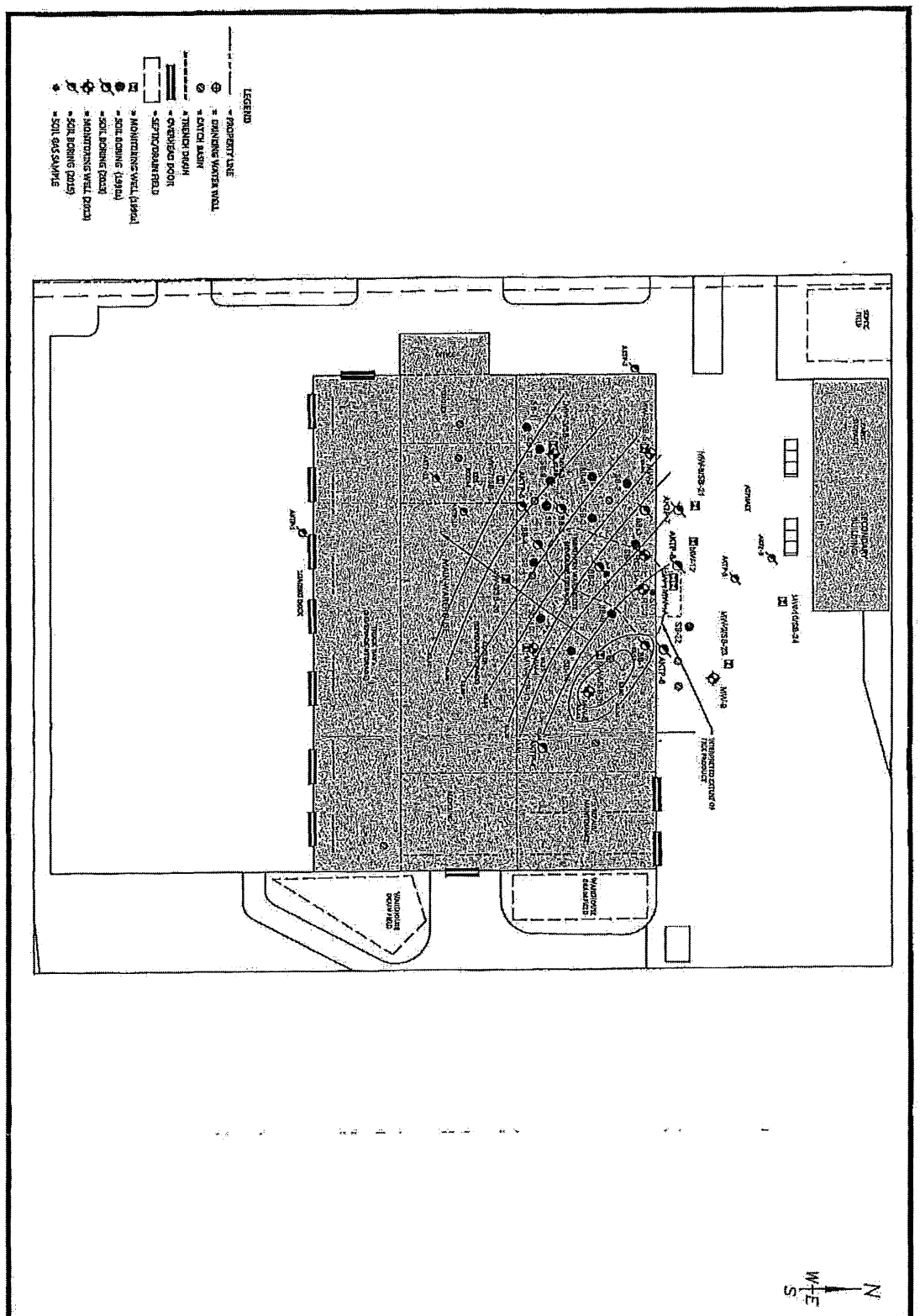
GROUNDWATER RESULTS EXCEEDING MDEQ CRITERIA MAP

1901 OAM ROAD
WEST BRANCH, MICHIGAN
PROJECT NUMBER: 7552s

DRAWN BY: OGO
DATE: 03/30/2015

0 40 80
SCALE: 1" = 80'

FIGURE 5



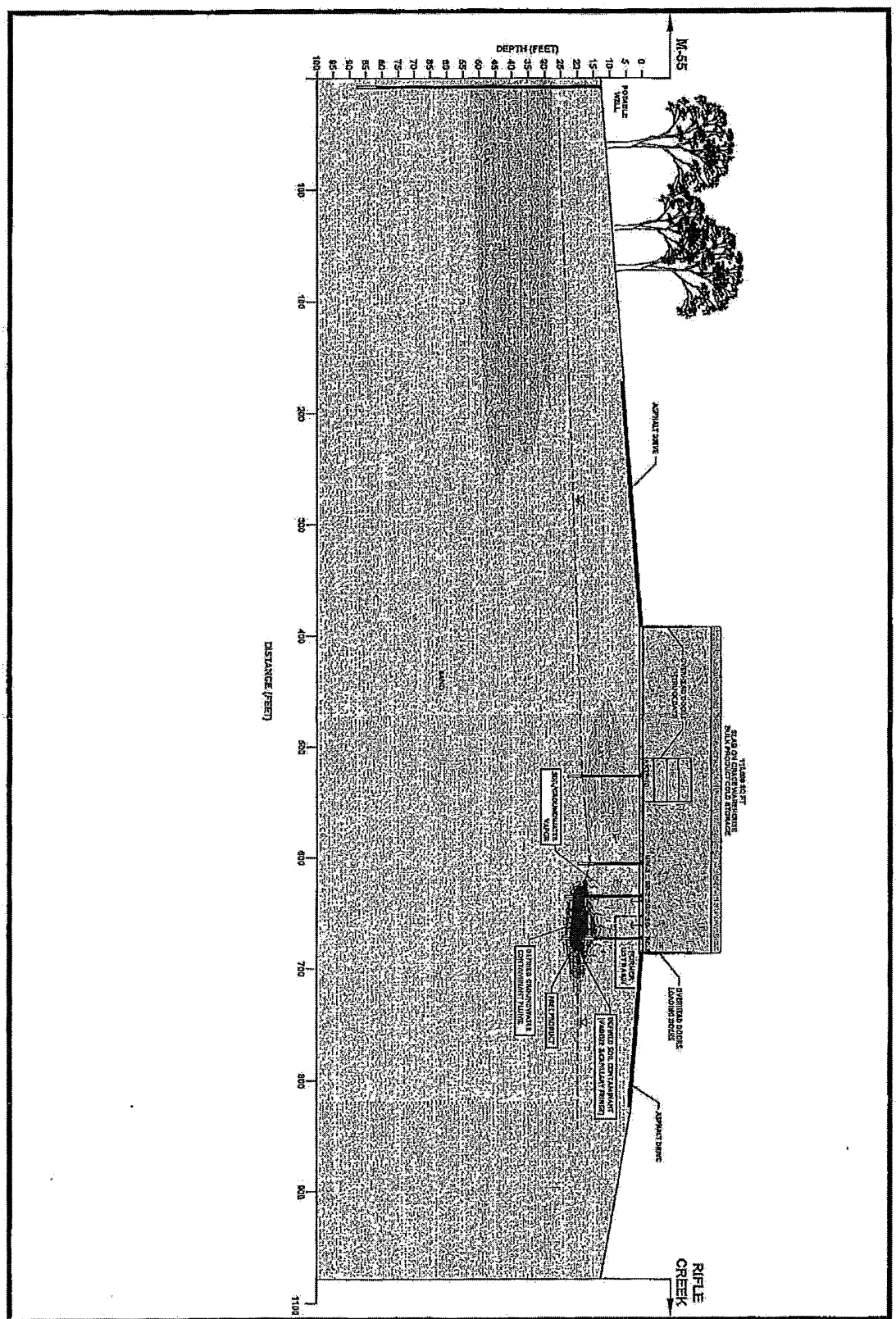
AKTPEERLESS

ILLINOIS MICHIGAN OHIO GEORGIA
www.aktpeerless.com

GROUNDWATER CONTOUR MAP

1901 DAM ROAD
WEST BRANCH, MICHIGAN
PROJECT NUMBER : 7552c

DRAWN BY: OGO
DATE: 03/30/2015
SCALE: 1" = 80'
FIGURE 6



AKTPEERLESS

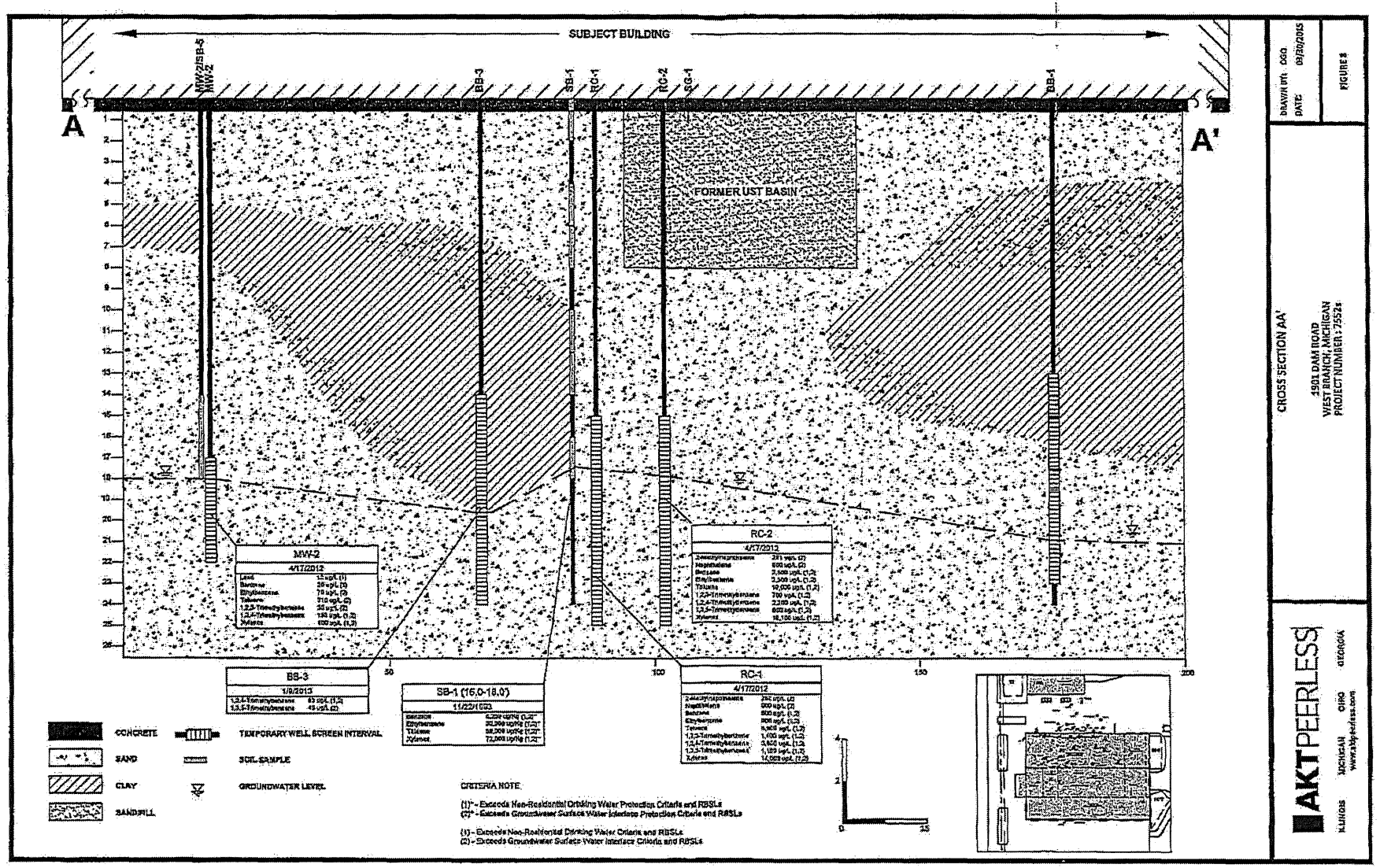
ILLINOIS MICHIGAN OHIO GEORGIA
www.aktpeerless.com

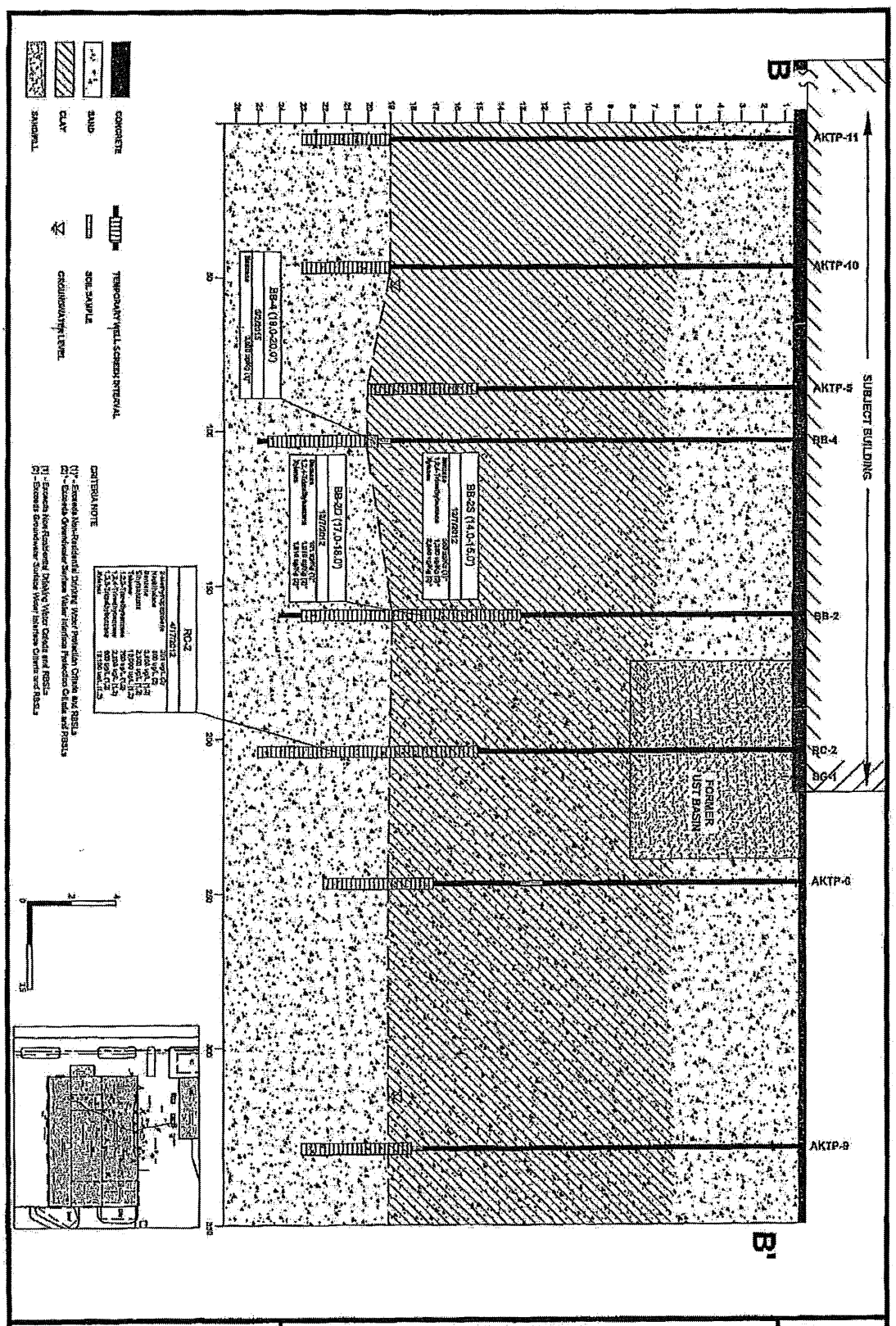
CONCEPTUAL SITE MODEL

1901 DAM ROAD
WEST BRANCH, MICHIGAN
PROJECT NUMBER: 7552s

DRAWN BY: OGO
DATE: 03/30/2015

FIGURE 7


SUBJECT BUILDING
A
A'
MW-2/SB-5
MW-2
BS-3
SB-1
RC-1
RC-2
SG-1
BB-1
FORMER UST BASIN
MW-2
4/17/2012
RC-2
4/17/2012
BS-3
1/9/2013
SB-1 (16.0-18.0')
11/22/1993
RC-1
4/17/2012
CONCRETE
SAND
CLAY
SANDFILL
TEMPORARY WELL SCREEN INTERVAL
SOIL SAMPLE
GROUNDWATER LEVEL
CRITERIA NOTE
(1)* - Exceeds Non-Residential Drinking Water Protection Criteria and RBSLs
(2)* - Exceeds Groundwater Surface Water Interface Protection Criteria and RBSLs
(1) - Exceeds Non-Residential Drinking Water Criteria and RBSLs
(2) - Exceeds Groundwater Surface Water Interface Criteria and RBSLs
CROSS SECTION AA'
1901 DAM ROAD
WEST BRANCH, MICHIGAN
PROJECT NUMBER: 75525
DRAWN BY: DGO
DATE: 09/30/2015
FIGURE 8
AKTPEERLESS
ILLINOIS MICHIGAN OHIO GEORGIA
www.aktpeerless.com



AKTPEERLESS

ILLINOIS MICHIGAN OHIO GEORGIA

www.aktpeerless.com

CROSS SECTION BB'

1901 DAM ROAD
WEST BRANCH, MICHIGAN
PROJECT NUMBER : 75525

DRAWN BY: DGD
DATE: 03/30/2015

FIGURE 9

Tables

AKTPEERLESS

Table 1
Free Product Recovery Table
1901 Dam Road
West Branch, Michigan
AKT Peerless Project No. 7552s

LOCATION OF FREE PRODUCT	FIELD OBSERVATION DATE	THICKNESS OF FREE PRODUCT	QUANTITY OF FREE PRODUCT MEASURED
	month/day/year	(Feet)	(Gallons)
RC-2	9/11/2012	2.00	3
RC-2	9/27/2012	2.4	3-4
RC-2	1/9/2013	1.5	2-3

Total Gallons Recovered to Date	10

AKTPEERLESS

Table 4
Summary of Sub-Slab Soil Gas Analytical Results
1901 Dam Road
West Branch, Michigan
AKT Peerless Project No. 7552s

Parameters* *(Refer to detailed laboratory report for method reference data)	Chemical Abstract Service Number	NonResidential Vapor Intrusion Shallow Soil Gas (sub-slab) Screening Levels (ug/m³)	(ppbv)[b]	Sample Location	SG-1	SG-2
				Collection Date	3/2/2015	3/2/2015
				Depth	1-1.5'	1-1.5'
Volatile Organic Compounds (VOCs)						
Acetone	67641	9.40E+06	1.40E+06		68	<70
Benzene	71432	2.20E+03	6.50E+02		0.73	1.6
2-Butanone (MEK)	78933	2.90E+06	9.40E+05		4.1	4.8
Cyclohexane	110827	3.50E+06	9.70E+05		<3.8	57
Dichlorodifluoromethane	75718	2.90E+07	5.60E+06		1.5	0.89
Ethylbenzene	100414	5.90E+04	1.30E+04		2.5	4.6
n-Heptane	142825	2.00E+06	4.70E+05		<3.8	3.9
n-Hexane	110543	4.10E+05	1.10E+05		<3.8	32
Tetrachloroethylene	127184	2.30E+04	3.30E+03		2.4	0.74
Toluene	108883	2.90E+06	7.40E+05		12	16
1,2,4-Trimethylbenzene	95636	1.30E+05	2.50E+04		6.7	<3.8
Xylenes	1330207	5.8E+04	1.30E+04		27	50
All Remaining VOCs	Varies	Varies	Varies		<MDL	<MDL

a) The IAC and SGC presented in this table are health-based values. The applicable IAC and SGC are based on the higher of the health-based value and the appropriate analytical reporting limit.

b) Conversion from ug/m3 to parts per billion by volume (ppbv) uses the equation: ppbv=[(ug/m3)x(298.15K)]/(12.187xMolecular Weight(g/mol))

c) If the calculated criterion is below the analytical target detection limit (TDL), the criterion defaults to the target detection limit.

d) If the calculated criterion is below State of Michigan Safe Drinking Water Standard established pursuant to Section 5 of 1976 PA 399, MCL 325.1005, the criterion defaults to the Safe Drinking Water Standard

"NLV" means a hazardous substance is "Not Likely to Volatilize". This designation is given to any hazardous substance with a Henry's Law Constant of less than 1.0 X 10-5 atm-m3/mol. However, any hazardous substance detected above a TDL in the vapor phase

in soil gas or indoor air shall be considered a VOC. A hazardous substance may not be excluded from consideration as a VOC if detection limites exceed the TDL in the vapor phase.

"ID" means "Insufficient Data" to develop a criterion at the date of publication of these tables.

"<MDL" means less than laboratory method detection limits.

AKTPEERLESS

Table 5
Groundwater Elevation Data
March 2015
Griffin Beverage
1901 Dam Road
West Branch, Michigan
AKT Peerless Project No. 7552s

Monitoring Well	Ground Surface Elevation (Feet, BM[1])	Top of Casing Elevation (Feet, BM)	Well Screen Interval (Feet, bgs[2])	Depth to Groundwater (Feet, TOC[3])	Depth to Free Product (Feet, TOC)	Groundwater Elevation (Feet, BM)
MW-2	102.22	101.65	17-22'	19.16	NO	83.06
MW-3	102.09	101.80	15-20'	19.21	NO	82.88
MW-4	102.15	101.39	15-20'	19.00	NO	83.15
MW-5	102.01	101.15	15-20'	18.38	NO	83.63
RC-1	NM	NM	15-25'	18.55	NO	-
RC-2	NM	NM	15-25'	18.48	18.50	NA
BB-1	102.30	101.73	13-23'	18.77	NO	83.53
BB-2	102.04	101.55	13-23'	19.09	19.01	NA
BB-3	102.28	101.61	14-24'	19.06	NO	83.22
BB-4	NM	NM	19.5-24.5'	19.00	NO	-
BB-5	NM	NM	20-25'	18.75	NO	-
MW-9	NM	NM	15-20'	17.60	NO	-

NA - Not Available
NO - Not Observed
NM - Not Measured
[1] BM = Elevations measured using on-site bench mark
[2] bgs = Below Ground Surface
[3] TOC = Top of Casing
Groundwater Levels Measured in March 2015

AKTPEERLESS

Table 1: Summary of Soil Analytical Results
Griffin Beverage
1901 Dam Road
West Branch, Michigan
AKT Peerless Project No. 7552r

Parameter (Refer to attached laboratory report for method reference data)	Chemical Abstract Service Number	Statewide Default Background Levels	Non-Residential Drinking Water Protection Criteria and RBSLs	Groundwater Surface Water Interface Protection Criteria and RBSLs	Non-Residential Soil Volatilization to Indoor Air Inhalation Criteria and RBSLs	Non-Residential Infinite Source Volatile Soil Inhalation Criteria (VSIC) and RBSLs	Non-Residential Finite VSIC for 5 Meter Source Thickness	Non-Residential Finite VSIC for 2 Meter Source Thickness	Non-Residential Particulate Soil Inhalation Criteria and RBSLs	Non-Residential Direct Contact Criteria and RBSLs	Sample ID	BB-1S	BB-1D	BB-2S	BB-2D	BB-3S	BB-3D	AKTP-1	AKTP-2	AKTP-3	AKTP-4	AKTP-5	AKTP-6S	AKTP-6D	AKTP-7S	AKTP-7D	AKTP-8S
Guideline Number →		#18	#21	#22	#22	#23	#24	#25	#26	#27																	
											Collection Date	12/7/2012	12/7/2012	12/7/2012	12/7/2012	12/7/2012	12/7/2012	9/11/2012	9/11/2012	9/11/2012	9/11/2012	9/11/2012	12/7/2012	12/7/2012	12/7/2012	12/7/2012	12/7/2012
											Depth	14-15	17.5-18.5	14-15	17-18	12-13	15-16	6-7	5.5-6.5	6.5-7.5	7-8	26-27	12-13	17-18	22-23	26-27	30-31
Metals ug/Kg																											
Lead (B)	7439-92-1	21,000	7.0E+5	(G,X)	NLV	NLV	NLV	NLV	4.4E+7	9.0E+5 (DD)		NT	2,220	NT	3,000	NT	3,380	5,210	4,200	6,560	5,320	3,300	NT	NT	NT	NT	NT
Semivolatiles, PNAs ug/Kg																											
Acenaphthene	83-32-9	NA	4.1E+5	8,700	3.5E+8	8.1E+7	9.7E+7	2.3E+8	6.2E+10	1.3E+8		NT	<330	NT	<330	NT	<330	<330	<330	<330	<330	<330	NT	NT	NT	NT	NT
Acenaphthylene	208-96-8	NA	17,000	ID	2.5E+6	2.3E+6	2.7E+6	3.7E+6	1.0E+9	5.2E+6		NT	<330	NT	<330	NT	<330	<330	<330	<330	<330	<330	NT	NT	NT	NT	NT
Anthracene	120-12-7	NA	41,000	ID	1.0E+9 (D)	1.0E+9	1.4E+9	1.6E+9	2.9E+10	7.3E+8		NT	<330	NT	<330	NT	<330	<330	<330	<330	<330	<330	NT	NT	NT	NT	NT
Benzo(a)anthracene (Q)	56-55-3	NA	NLL	NLL	NLV	NLV	NLV	NLV	ID	80,000		NT	<330	NT	<330	NT	<330	<330	<330	<330	<330	<330	NT	NT	NT	NT	NT
Benzo(a)pyrene (Q)	50-32-8	NA	NLL	NLL	NLV	NLV	NLV	NLV	1.9E+6	8,000		NT	<330	NT	<330	NT	<330	<330	<330	<330	<330	<330	NT	NT	NT	NT	NT
Benzo(b)fluoranthene (Q)	205-99-2	NA	NLL	NLL	ID	ID	ID	ID	ID	80,000		NT	<330	NT	<330	NT	<330	<330	<330	<330	<330	<330	NT	NT	NT	NT	NT
Benzo(k)fluoranthene (Q)	207-08-9	NA	NLL	NLL	NLV	NLV	NLV	NLV	ID	8.0E+5		NT	<330	NT	<330	NT	<330	<330	<330	<330	<330	<330	NT	NT	NT	NT	NT
Benzo(g,h,i)perylene	191-24-2	NA	NLL	NLL	NLV	NLV	NLV	NLV	3.5E+8	7.0E+6		NT	<330	NT	<330	NT	<330	<330	<330	<330	<330	<330	NT	NT	NT	NT	NT
Chrysene (Q)	218-01-9	NA	NLL	NLL	ID	ID	ID	ID	ID	8.0E+6		NT	<330	NT	<330	NT	<330	<330	<330	<330	<330	<330	NT	NT	NT	NT	NT
Dibenzo(a,h)anthracene (Q)	53-70-3	NA	NLL	NLL	NLV	NLV	NLV	NLV	ID	8,000		NT	<330	NT	<330	NT	<330	<330	<330	<330	<330	<330	NT	NT	NT	NT	NT
Fluoranthene	206-44-0	NA	7.3E+5	5,500	1.0E+9 (D)	8.9E+8	8.9E+8	8.9E+8	4.1E+9	1.3E+8		NT	<330	NT	<330	NT	<330	<330	<330	<330	<330	<330	NT	NT	NT	NT	NT
Fluorene	86-73-7	NA	8.9E+5	5,300	1.0E+9 (D)	1.5E+8	1.5E+8	1.5E+8	4.1E+9	8.7E+7		NT	<330	NT	<330	NT	<330	<330	<330	<330	<330	<330	NT	NT	NT	NT	NT
Indeno(1,2,3-cd)pyrene (Q)	193-39-5	NA	NLL	NLL	NLV	NLV	NLV	NLV	ID	80,000		NT	<330	NT	<330	NT	<330	<330	<330	<330	<330	<330	NT	NT	NT	NT	NT
2-Methylnaphthalene	91-57-6	NA	1.7E+5	4,200	4.3E+6	2.8E+6	1.8E+6	1.8E+6	2.9E+8	2.6E+7		NT	<330	NT	<330	NT	<330	<330	<330	<330	<330	<330	NT	NT	NT	NT	NT
Naphthalene	91-20-3	NA	1.6E+5	730	4.7E+5	3.5E+5	3.5E+5	3.5E+5	8.8E+7	5.2E+7		NT	<330	NT	<330	NT	<330	<330	<330	<330	<330	<330	NT	NT	NT	NT	NT
Phenanthrene	85-01-8	NA	1.1E+5	2,100	3.3E+6	1.9E+5	1.9E+5	1.9E+5	2.9E+6	1.6E+8		NT	<330	NT	<330	NT	<330	<330	<330	<330	<330	<330	NT	NT	NT	NT	NT
Pyrene	129-00-0	NA	4.8E+5	ID	1.0E+9 (D)	7.2E+8	7.2E+8	7.2E+8	2.9E+9	8.4E+7		NT	<330	NT	<330	NT	<330	<330	<330	<330	<330	<330	NT	NT	NT	NT	NT
Volatiles, VOCs ug/Kg																											
Acetone (I)	67-64-1	NA	42,000	34,000	1.1E+8 (C)	1.6E+8	1.6E+8	1.6E+8	1.3E+11	2.3E+7		<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000
Benzene (I)	71-43-2	NA	[illegible]	[illegible]	8,400	45,000	99,000	2.3E+5	4.7E+8	4.0E+5 (C)		<50	<50	[illegible]	[illegible]	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Bromobenzene (I)	108-86-1	NA	1,500	NA	5.4E+5	5.4E+5	5.4E+5	1.4E+5	1.4E+9	7.6E+5 (C)		<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
Bromodichloromethane	75-27-4	NA	1,600 (W)	ID	4,400	31,000	41,000	37,000	3.1E+9	4.5E+5		<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
Bromoform	75-25-2	NA	1,600 (W)	ID	2.2E+5	3.1E+6	3.1E+6	3.3E+6	1.0E+9	8.7E+5 (C)		<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
Bromomethane	74-83-9	NA	200	700	2,000	18,000	27,000	1.4E+5	1.5E+8	1.6E+6		<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
2-Butanone (MEK) (I)	78-93-3	NA	7.6E+5	44,000	2.7E+7 (C)	3.5E+7	3.5E+7	3.5E+7	2.9E+10	2.7E+7 (C,DD)		<750	<750	<750	<750	<750	<750	<750	<750	<750	<750	<750	<750	<750	<750	<750	<750
n-Butylbenzene	104-51-8	NA	4,600	ID	ID	ID	ID	ID	2.3E+8	2.5E+6		<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
sec-Butylbenzene	135-98-8	NA	4,600	ID	ID	ID	ID	ID	1.3E+8	2.5E+6		<50	<50	170	330	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
tert-Butylbenzene (I)	98-06-6	NA	4,600	NA	ID	ID	ID	ID	1.0E+8	2.5E+6		<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Carbon disulfide (I,R)	75-15-0	NA	16,000	ID	1.4E+6	1.6E+6	2.0E+6	1.9E+7	2.1E+10	3.8E+5 (C,DD)		<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250
Carbon tetrachloride	56-23-5	NA	100	900 (X)	390	12,000	24,000	71,000	2.7E+8	3.8E+5 (C)		<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Chlorobenzene (I)	108-90-7	NA	2,000	500	2.2E+5	8.2E+5	1.1E+6	2.1E+6	2.1E+9	2.6E+5 (C)		<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Chlorodibromomethane	124-48-1	NA	1,600 (W)	ID	21,000	40,000	40,000	98,000	1.4E+9	5.4E+6		<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
Chloroethane	75-00-3	NA	34,000	22,000 (X)	3.1E+6 (C)	3.6E+7	1.3E+8	3.2E+8	2.9E+11	2.1E+5 (C)		<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250
2-Chlorotoluene (I)	95-49-8	NA	3,300	ID	8.6E+5 (C)	2.1E+6	2.2E+6	6.4E+6	2.1E+9	2.5E+5 (C)		<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Chloroform	67-66-3	NA	1,600 (W)	7,000	28,000	3.1E+5	3.4E+5	7.2E+5	1.4E+9	1.5E+6 (C)		<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Chloromethane (I)	74-87-3	NA	22,000	ID	30,000	3.1E+5	3.8E+5	2.5E+6	2.4E+9	1.1E+6 (C)		<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250
1,2-Dibromo-3-chloropropane	96-12-8	NA	10 (M); 4.0	ID	1,200 (C)	15,000	15,000	25,000	5.6E+6	1,200 (C)		<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
1,2-Dibromoethane (ethylene dibromide)	106-93-4	NA	20 (M); 1.0	110 (X)	2,600	7,400	7,400	9,800	3.9E+7	430		<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Dibromomethane	74-95-3	NA	4,600	NA	ID	ID	ID	ID	ID	2.5E+4 (C)		<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250
1,2-Dichlorobenzene	95-50-1	NA	14,000	280	2.1E+8 (C)	4.6E+7	4.6E+7	5.5E+7	4.4E+10	2.1E+6 (C)		<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
1,3-Dichlorobenzene	541-73-1	NA	430	680	46,000	94,000	34,000	3.1E+5	6.9E+7	1.7E+6 (C)		<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
1,4-Dichlorobenzene	106-46-7	NA	2,700	360	1.0E+6	2.4E+5	2.4E+5	2.4E+5	5.7E+8	1.3E+6		<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
Dichlorodifluoromethane	75-71-8	NA	2.7E+5	ID	1.3E+6	6.3E+7	5.5E+6	1.4E+8	1.5E+12	1.4E+6 (C)		<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
1,1-Dichloroethane	75-34-3	NA	50,000	15,000	4.3E+5	2.3E+6	6.4E+6	1.4E+7	1.5E+10	8.9E+5 (C)		<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
1,2-Dichloroethane (I)	107-06-2	NA	100	7,200 (X)	12,000	21,000	33,000	74,000	1.5E+8	4.2E+5		<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
1,1-Dichloroethylene (I)	75-35-4	NA	140	2,600	330	3,700	15,000	37,000	2.7E+9	5.7E+5 (C)		<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
cis-1,2-Dichloroethylene	156-59-2	NA	1,400	12,000	41,000	2.1E+5	4.3E+5	1.0E+6	1.3E+9	6.4E+5 (C)		<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
trans-1,2-Dichloroethylene	156-60-5	NA	2,000	30,000 (X)	43,000	3.7E+5	8.4E+5	2.0E+6	2.2E+9	1.4E+6 (C)		<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
1,2-Dichloropropane (I)	78-87-5	NA	100	4,600 (X)	7,400	30,000	31,000	1.2E+5	1.2E+9	5.5E+5 (C)		<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50

AKTPEERLESS

Table 1: Summary of Soil Analytical Results
Griffin Beverage
1901 Dam Road
West Branch, Michigan
AKT Peerless Project No.7552s

Guideline Number →		#18	#12	#13	#22	#23	#24	#25	#26	#27
Parameter	Chemical Abstract Service Number	Statewide Default Background Levels	Non-Residential Drinking Water Protection Criteria and RBSLs	Groundwater Surface Water Interface Protection Criteria and RBSLs	Non-Residential Soil Volatilization to Indoor Air Inhalation Criteria (SVIIC)	Non-Residential Infinite Source Volatile Soil Inhalation Criteria (VSIC) and RBSLs	Non-Residential Finite VSIC for 5 Meter Source Thickness	Non-Residential Finite VSIC for 2 Meter Source Thickness	Non-Residential Particulate Soil Inhalation Criteria and RBSLs	Non-Residential Direct Contact Criteria and RBSLs
1,3-Dichloropropane	142-28-9	NA	700	280 (X)	5,400	66,000	2.3E+5	4.7E+3	2.2E+8	2.4E+6
Ethylbenzene (I)	100-41-4	NA	[illegible]	[illegible]	1.4E+5 (C)	2.4E+6	2.1E+6	2.2E+6	1.0E+10	1.4E+5 (C)
2-Hexanone	591-78-6	NA	20,000	ID	2.8E+6	1.3E+6	1.3E+6	2.2E+6	1.1E+9	2.5E+6 (C)
Isopropylbenzene	98-82-8	NA	2.6E+5	3,200	3.9E+5 (C)	2.8E+6	2.8E+6	2.8E+6	2.8E+9	3.9E+5 (C)
Methylene chloride	75-09-2	NA	100	30,000 (X)	2.4E+5	7.8E+5	1.7E+6	4.0E+6	8.2E+9	2.3E+6 (C)
2-Methylnaphthalene	91-57-6	NA	1.7E+5	4,200	4.9E+6	1.8E+6	1.8E+6	2.4E+6	2.1E+8	2.3E+7
Methyl-tert-butyl ether (MTBE)	1634-04-4	NA	800	1.4E+5 (X)	5.3E+8 (C)	2.9E+7	4.1E+7	2.3E+7	2.8E+10	1.5E+6 (C)
4-Methyl-2-pentanone (MIBK) (I)	108-10-1	NA	1.8E+5	ID	2.7E+8 (C)	3.2E+7	3.2E+7	7.8E+7	4.0E+10	2.7E+6 (C)
Naphthalene	91-20-3	NA	1.0E+5	730	4.7E+5	2.5E+5	3.5E+5	3.5E+5	6.6E+7	5.2E+7
n-Propylbenzene (I)	103-65-1	NA	4,600	ID	ID	ID	ID	ID	3.9E+8	2.0E+6
Styrene	100-42-5	NA	2,700	2,100 (X)	5.2E+5 (C)	3.3E+6	3.3E+6	4.2E+6	5.5E+9	5.2E+5 (C)
1,1,1,2-Tetrachloroethane	630-20-6	NA	1,500	ID	33,000	2.2E+5	2.1E+5	3.1E+5	3.2E+8	4.4E+5 (C)
1,1,2,2-Tetrachloroethane	79-34-5	NA	170	1,600 (X)	23,000	34,000	34,000	34,000	4.3E+7	2.4E+5
Tetrachloroethylene	127-18-4	NA	100	1,200 (X)	60,000	6.6E+5	1.4E+6	2.1E+6	6.8E+9	88,000 (C)
Toluene (I)	108-88-3	NA	[illegible]	[illegible]	2.5E+5 (C)	3.3E+6	2.8E+7	2.8E+7	1.2E+10	2.5E+5 (C)
1,2,4-Trichlorobenzene	120-82-1	NA	4,200	5,900 (X)	1.1E+6 (C)	2.4E+7	2.4E+7	2.4E+7	2.2E+10	2.1E+6 (C,DD)
1,1,1-Trichloroethane	71-55-6	NA	4,000	1,800	4.6E+5	4.5E+6	1.5E+7	3.3E+7	2.0E+10	4.6E+5 (C)
1,1,2-Trichloroethane	79-00-5	NA	100	6,600 (X)	24,000	57,000	57,000	1.2E+5	3.5E+8	1.8E+5
Trichloroethylene	79-01-6	NA	100	4,000 (X)	37,000	2.0E+5	4.4E+5	1.1E+6	3.3E+9	5.0E+5 (C,DD)
Trichlorofluoromethane	75-69-4	NA	1.5E+6	NA	5.6E+5 (C)	1.3E+8	1.4E+11	1.4E+11	2.2E+12	5.6E+5 (C)
1,2,3-Trichloropropane	96-18-4	NA	2,400	NA	7,520	21,000	11,000	12,000	1.8E+6	4.3E+5 (C)
1,2,3-Trimethylbenzene	526-73-8	NA	2,100	570	94,000 (C)	2.1E+7	4.6E+8	4.0E+8	8.2E+10	94,000 (C)
1,2,4-Trimethylbenzene (I)	95-63-6	NA	2,100	[illegible]	1.1E+5 (C)	2.1E+7	8.2E+8	6.0E+8	8.2E+10	1.1E+5 (C)
1,3,5-Trimethylbenzene (I)	108-67-8	NA	1,800	[illegible]	94,000 (C)	2.6E+7	4.8E+8	4.6E+8	2.1E+10	94,000 (C)
Vinyl acetate (I)	108-05-4	NA	20,000	NA	1.3E+6	2.6E+6	2.7E+6	5.9E+6	2.5E+9	1.1E+6 (C,DD)
Vinyl chloride	75-01-4	NA	40	260 (X)	3,800	27,000	2.1E+5	4.2E+5	8.9E+8	34,000
Xylenes (I)	1330-20-7	NA	[illegible]	[illegible]	1.5E+5 (C)	5.4E+7	6.3E+7	1.3E+8	1.3E+12	1.5E+5 (C)

Sample ID	SB-15	SB-10	SB-15	SB-10	SB-21	SB-20	AKTP-1	AKTP-2	AKTP-3	AKTP-4	AKTP-5	AKTP-6S	AKTP-6D	AKTP-7S	AKTP-7D	AKTP-8S
Collection Date	12/7/2012	12/7/2012	12/7/2012	12/7/2012	12/7/2012	12/7/2012	3/13/2012	3/13/2012	3/13/2012	3/13/2012	3/13/2012	12/7/2012	12/7/2012	12/7/2012	12/7/2012	12/7/2012
Depth	14-15	17.5-18.5	14-15	17-18	12-13	19-20	6-7	5.5-6.5	6.5-7.5	7-8	16-17	12-13	13-14	13-14	16-17	10-11
1,3-Dichloropropane	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Ethylbenzene (I)	<50	<55	322	298	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
2-Hexanone	<2500	<2500	<2500	<2500	<2500	<2500	<2500	<2500	<2500	<2500	<2500	<2500	<2500	<2500	<2500	<2500
Isopropylbenzene	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250
Methylene chloride	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250
2-Methylnaphthalene	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250
Methyl-tert-butyl ether (MTBE)	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250
4-Methyl-2-pentanone (MIBK) (I)	<2500	<2500	<2500	<2500	<2500	<2500	<2500	<2500	<2500	<2500	<2500	<2500	<2500	<2500	<2500	<2500
Naphthalene	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250
n-Propylbenzene (I)	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
Styrene	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
1,1,1,2-Tetrachloroethane	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
1,1,2,2-Tetrachloroethane	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
Tetrachloroethylene	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Toluene (I)	<100	<100	1,190	805	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
1,2,4-Trichlorobenzene	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250
1,1,1-Trichloroethane	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
1,1,2-Trichloroethane	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Trichloroethylene	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Trichlorofluoromethane	<100	<100	<100	<100	<100	<100	<100	<100	125	<100	<100	<100	<100	<100	<100	<100
1,2,3-Trichloropropane	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
1,2,3-Trimethylbenzene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,2,4-Trimethylbenzene (I)	<100	<100	[illegible]	[illegible]	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
1,3,5-Trimethylbenzene (I)	<100	<100	415	442	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
Vinyl acetate (I)	<2500	<2500	<2500	<2500	<2500	<2500	<2500	<2500	<2500	<2500	<2500	<2500	<2500	<2500	<2500	<2500
Vinyl chloride	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40
Xylenes (I)	<150	<150	[illegible]	[illegible]	<150	<150	<150	<150	<150	<150	<150	<150	<150	<150	<150	<150

![AKTPEERLESS]

Table 1: Summary of Soil Analytical Results
Griffin Beverage
1901 Dam Road
West Branch, Michigan
AKT Peerless Project No.7552s

Column Number →		#16	#21	#12	#22	#23	#24	#25	#26	#27																	
Parameter (Refer to detailed laboratory report for analytes not shown)	Chemical Abstract Service Number	Statewide Default Background Levels	Non-Residential Drinking Water Protection Criteria and RBSLs	Groundwater Surface Water Interface Protection Criteria and RBSLs	Non-Residential Soil Volatilization to Indoor Air Inhalation Criteria (SVIIC) and RBSLs	Non-Residential Infinite Source Volatile Soil Inhalation Criteria (VSIC) and RBSLs	Non-Residential Finite VSIC for 5 Meter Source Thickness	Non-Residential Finite VSIC for 2 Meter Source Thickness	Non-Residential Particulate Soil Inhalation Criteria and RBSLs	Non-Residential Direct Contact Criteria and RBSLs	Sample ID	AKTP-SB	AKTP-8	SB-1	SB-2	1-C1	2-B2	3-B2	4-B1	5-C1	6-B1	7-B2	8-B3	9-B2	10-C2	11-C2	12-C1
											Collection Date	12/7/2012	3/2/2015	3/2/2015	3/2/2015	6/27/1996	6/27/1996	6/27/1996	6/27/1996	6/27/1996	6/27/1996	6/27/1996	6/27/1996	6/27/1996	6/27/1996	6/27/1996	6/27/1996
											Depth	22-24	17.5-18.5	19.0-20.0	19.0-20.0	2.0'	3.0'	2.0'	2.0'	4.0'	2.0'	2.0'	3.0'	2.0'	2.0'	2.0'	3.0'
Metals ug/Kg																											
Lead (B)	7439-92-1	21,000	7.0E+5	(G,X)	NLV	NLV	NLV	NLV	4.4E+7	9.0E+5 (DD)		NT	NT	NT	NT	4,000	3,600	5,000	2,800	4,800	5,000	3,000	5,000	5,000	4,000	2,000	6,800
Semivolatiles, PNAs ug/Kg																											
Acenaphthene	83-32-9	NA	8.8E+5	4,400	1.5E+8	8.7E+7	8.7E+7	8.7E+7	6.2E+9	1.3E+8		NT	NT	NT	NT	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330
Acenaphthylene	208-96-8	NA	27,000	ID	3.5E+6	2.7E+6	2.7E+6	2.7E+6	1.4E+9	5.2E+6		NT	NT	NT	NT	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330
Anthracene	120-12-7	NA	41,000	ID	1.0E+9 (D)	1.6E+9	1.6E+9	1.6E+9	2.9E+10	7.3E+8		NT	NT	NT	NT	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330
Benzo(a)anthracene (Q)	56-55-3	NA	NLL	NLL	NLV	NLV	NLV	NLV	ID	80,000		NT	NT	NT	NT	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330
Benzo(a)pyrene (Q)	50-32-8	NA	NLL	NLL	NLV	NLV	NLV	NLV	1.5E+6	8,000		NT	NT	NT	NT	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330
Benzo(b)fluoranthene (Q)	205-99-2	NA	NLL	NLL	ID	ID	ID	ID	ID	80,000		NT	NT	NT	NT	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330
Benzo(k)fluoranthene (Q)	207-08-9	NA	NLL	NLL	NLV	NLV	NLV	NLV	ID	8.0E+5		NT	NT	NT	NT	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330
Benzo(g,h,i)perylene	191-24-2	NA	NLL	NLL	NLV	NLV	NLV	NLV	3.5E+8	7.0E+6		NT	NT	NT	NT	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330
Chrysene (Q)	218-01-9	NA	NLL	NLL	ID	ID	ID	ID	ID	8.0E+6		NT	NT	NT	NT	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330
Dibenzo(a,h)anthracene (Q)	53-70-3	NA	NLL	NLL	NLV	NLV	NLV	NLV	ID	8,000		NT	NT	NT	NT	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330
Fluoranthene	206-44-0	NA	7.3E+5	5,500	2.1E+9 (D)	4.3E+9	4.4E+9	5.8E+9	4.1E+9	1.3E+8		NT	NT	NT	NT	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330
Fluorene	86-73-7	NA	8.9E+5	5,300	1.0E+9 (D)	3.5E+8	1.5E+8	1.5E+8	4.1E+9	8.7E+7		NT	NT	NT	NT	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330
Indeno(1,2,3-cd)pyrene (Q)	193-39-5	NA	NLL	NLL	NLV	NLV	NLV	NLV	ID	80,000		NT	NT	NT	NT	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330
2-Methylnaphthalene	91-57-6	NA	1.7E+5	4,200	4.5E+6	1.8E+6	2.8E+6	1.5E+6	2.9E+8	2.6E+7		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Naphthalene	91-20-3	NA	1.0E+5	730	4.7E+5	3.0E+5	3.5E+5	3.5E+5	8.8E+7	5.2E+7		NT	NT	NT	NT	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330
Phenanthrene	85-01-8	NA	1.6E+5	2,100	3.1E+6	1.0E+5	1.5E+5	1.9E+5	2.0E+6	5.2E+6		NT	NT	NT	NT	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330
Pyrene	129-00-0	NA	4.8E+5	ID	1.0E+9 (D)	7.8E+8	7.8E+8	7.8E+8	2.9E+9	8.4E+7		NT	NT	NT	NT	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330
Volatiles, VOCs ug/Kg																											
Acetone (I)	67-64-1	NA	42,000	34,000	1.1E+8 (C)	1.6E+9	1.6E+9	2.0E+9	1.7E+12	7.3E+7		<1000	<1000	<1000	<1000	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzene (I)	71-43-2	NA	[illegible]	[illegible]	8,400	45,000	19,000	2.3E+5	4.7E+8	4.0E+5 (C)		<50	<50	[illegible]	[illegible]	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Bromobenzene (I)	108-86-1	NA	1,500	NA	5.3E+5	3.4E+5	3.4E+5	5.4E+5	2.4E+8	7.5E+5 (C)		<100	<100	<100	<100	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Bromodichloromethane	75-27-4	NA	1,600 (W)	ID	4,400	31,000	31,000	57,000	1.3E+8	4.9E+5		<100	<100	<100	<100	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Bromoform	75-25-2	NA	1,600 (W)	ID	7.7E+5	3.3E+6	3.3E+6	3.1E+6	3.6E+9	3.7E+5 (C)		<100	<100	<100	<100	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Bromomethane	74-83-9	NA	330	700	1,500	20,000	27,000	3.4E+6	1.5E+8	1.4E+6		<200	<200	<200	<200	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
2-Butanone (MEK) (I)	78-93-3	NA	7.6E+5	44,000	2.7E+7 (C)	2.5E+9	2.5E+9	3.6E+9	2.9E+10	2.7E+7 (C,DD)		<750	<750	<750	<750	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
n-Butylbenzene	104-51-8	NA	4,600	ID	ID	ID	ID	ID	8.8E+8	2.6E+6		<50	<50	<50	54	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
sec-Butylbenzene	135-98-8	NA	4,600	ID	ID	ID	ID	ID	8.8E+8	2.6E+6		<50	<50	<50	<50	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
tert-Butylbenzene (I)	98-06-6	NA	4,600	NA	ID	ID	ID	ID	8.8E+8	4.0E+6		<50	<50	<50	<50	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Carbon disulfide (I,R)	75-15-0	NA	45,000	ID	3.4E+6	1.3E+6	1.6E+6	1.6E+7	2.1E+10	2.8E+6 (C,DD)		<250	<250	<250	<250	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Carbon tetrachloride	56-23-5	NA	100	900 (X)	300	12,000	14,000	79,000	3.7E+8	3.3E+5 (C)		<50	<50	<50	<50	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Chlorobenzene (I)	108-90-7	NA	2,000	220	2.2E+5	9.2E+5	1.1E+6	1.3E+6	2.1E+9	2.6E+5 (C)		<50	<50	<50	<50	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Chlorodibromomethane	124-48-1	NA	1,600 (W)	ID	21,000	30,000	30,000	30,000	1.0E+8	2.0E+5		<100	<100	<100	<100	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Chloroethane	75-00-3	NA	34,000	22,000 (X)	8.5E+5 (C)	2.9E+7	1.3E+8	1.9E+8	2.9E+11	9.5E+5 (C)		<250	<250	<250	<250	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
2-Chlorotoluene (I)	95-49-8	NA	9,300	ID	5.0E+5 (C)	1.6E+6	2.1E+6	6.4E+6	2.2E+10	5.0E+5 (C)		<50	<50	<50	<50	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Chloroform	67-66-3	NA	1,600 (W)	7,000	32,000	1.5E+5	3.4E+5	7.0E+5	1.8E+9	1.3E+6 (C)		<50	<50	<50	<50	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Chloromethane (I)	74-87-3	NA	22,000	ID	18,000	2.3E+5	1.1E+6	2.5E+6	3.6E+9	2.3E+6 (C)		<250	<250	<250	<250	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,2-Dibromo-3-Chloropropane	96-12-8	NA	10 (N); 4.0	ID	1,300 (C)	15,000	15,000	15,000	5.9E+6	2,300 (C)		<10	<10	<10	<10	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,2-Dibromoethane (Ethylene dibromide)	106-93-4	NA	20 (N); 1.0	110 (X)	7,100	5,300	5,300	9,300	3.3E+7	670		<20	<20	<20	<20	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Dibromomethane	74-95-3	NA	4,600	NA	ID	ID	ID	ID	ID	2.0E+6 (C)		<250	<250	<250	<250	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,2-Dichlorobenzene	95-50-1	NA	14,000	280	2.1E+5 (C)	4.6E+7	4.6E+7	3.3E+7	4.4E+10	2.1E+5 (C)		<100	<100	<100	<100	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,3-Dichlorobenzene	541-73-1	NA	480	520	48,000	95,000	96,000	1.3E+5	3.3E+7	1.7E+5 (C)		<100	<100	<100	<100	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,4-Dichlorobenzene	106-46-7	NA	1,700	360	1.4E+5	2.6E+6	2.6E+6	3.4E+6	3.7E+8	1.0E+6		<100	<100	<100	<100	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Dichlorodifluoromethane	75-71-8	NA	2.2E+6	ID	1.7E+6	6.3E+7	8.2E+8	1.4E+9	3.3E+12	1.0E+6 (C)		<100	<100	<100	<100	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,1-Dichloroethane	75-34-3	NA	51,000	15,000	4.3E+5	2.3E+6	4.0E+6	2.4E+7	2.3E+10	8.9E+5 (C)		<50	<50	<50	<50	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,2-Dichloroethane (I)	107-06-2	NA	100	7,200 (X)	11,000	21,000	21,000	74,000	1.2E+8	4.2E+5		<50	<50	<50	<50	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,1-Dichloroethylene (I)	75-35-4	NA	140	2,600	330	2,700	13,000	30,000	7.4E+7	5.7E+5 (C)		<50	<50	<50	<50	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
cis-1,2-Dichloroethylene	156-59-2	NA	1,400	12,000	41,000	2.3E+5	4.1E+5	1.0E+6	1.0E+9	6.4E+5 (C)		<50	<50	<50	<50	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
trans-1,2-Dichloroethylene	156-60-5	NA	2,000	30,000 (X)	43,000	2.2E+5	3.4E+5	1.4E+6	2.2E+9	1.4E+6 (C)		<50	<50	<50	<50	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,2-Dichloropropane (I)	78-87-5	NA	200	4,600 (X)	7,400	38,000	38,000	1.2E+5	1.3E+9	3.3E+5 (C)		<50	<50	<50	<50	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT

AKTPEERLESS

Table 1: Summary of Soil Analytical Results
Griffin Beverage
1901 Dam Road
West Branch, Michigan
AKT Peerless Project No.7552x

[illegible]	#	#18	#21	#22	#23	[illegible]	#24	#25	#26	#27	Sample ID	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Parameter (Refer to detailed laboratory report for method reference data)	Chemical Abstract Service Number	Statewide Default Background Levels	Nonresidential Drinking Water Protection Criteria and RBSLs	Groundwater Surface Water Interface Protection Criteria and RBSLs	Nonresidential Soil Volatilization to Indoor Air Inhalation Criteria and RBSLs	Nonresidential Infinite Source Volatile Soil Inhalation Criteria (VSIC) and RBSLs	Nonresidential Finite VSIC for 5 Meter Source Thickness	Nonresidential Finite VSIC for 2 Meter Source Thickness	Nonresidential Particulate Soil Inhalation Criteria and RBSLs	Nonresidential Direct Contact Criteria and RBSLs	Collection Date	12/7/2012	3/2/2015	3/2/2015	3/2/2015	6/27/1996	6/27/1996	6/27/1996	6/27/1996	6/27/1996	6/27/1996	6/27/1996	6/27/1996	6/27/1996	6/27/1996	6/27/1996	6/27/1996
											Depth	[illegible]	[illegible]	19.0-20.0	19.0-20.0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1,3-Dichloropropene	542-75-6	NA	700	180 (X)	3,400	49,000	2.8E+6	4.7E+6	3.3E+8	2.4E+5		<50	<50	<50	<50	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Ethylbenzene (I)	100-41-4	NA	1,500	360	1.4E+5 (C)	2.4E+6	4.1E+6	6.1E+6	1.3E+10	1.4E+5 (C)		<50	<50	<50	[illegible]	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
2-Hexanone	591-78-6	NA	20,000	ID	2.9E+6	1.1E+6	1.3E+6	2.1E+6	1.3E+9	2.5E+6 (C)		<2500	<2500	<2500	<2500	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Isopropyl benzene	98-82-8	NA	2.8E+4	3,200	3.9E+5 (C)	1.6E+6	2.5E+6	3.6E+6	2.6E+9	3.9E+5 (C)		<250	<250	<250	<250	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Methylene chloride	75-09-2	NA	100	30,000 (X)	2.4E+4	7.4E+5	1.7E+6	4.0E+6	8.1E+9	2.3E+6 (C)		<250	<250	<250	<250	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
2-Methylnaphthalene	91-57-6	NA	1.7E+5	4,200	4.9E+6	1.5E+6	1.8E+6	2.3E+6	2.1E+8	2.6E+7		<250	<250	<250	<250	NT	NT	NT	NT	NT	518	2,850	NT	NT	NT	NT	NT
Methyl-tert-butyl ether (MTBE)	1634-04-4	NA	800	1.4E+5 (X)	5.9E+6 (C)	3.8E+7	4.1E+7	3.8E+7	6.6E+10	5.9E+6 (C)		<250	<250	<250	<250	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
4-Methyl-2-pentanone (MIBK) (I)	108-10-1	NA	1.0E+5	ID	2.7E+6 (C)	5.3E+7	5.9E+7	7.0E+7	6.3E+10	2.7E+6 (C)		<2500	<2500	<2500	<2500	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Naphthalene	91-20-3	NA	35,000	730	4.7E+5	2.0E+5	2.5E+5	3.5E+5	8.8E+7	5.2E+7		<330	<330	<250	520	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
n-Propylbenzene (I)	103-65-1	NA	4,600	ID	ID	ID	ID	ID	1.3E+9	2.5E+6		<100	<100	<100	210	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Styrene	100-42-5	NA	2,700	2,100 (X)	5.2E+5 (C)	3.3E+6	3.3E+6	4.2E+6	6.5E+9	5.2E+5 (C)		<50	<50	<50	<50	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,1,1,2-Tetrachloroethane	630-20-6	NA	6,000	ID	33,000	1.2E+5	2.1E+5	3.3E+5	5.3E+8	4.4E+5 (C)		<100	<100	<100	<100	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,1,2,2-Tetrachloroethane	79-34-5	NA	700	3,600 (X)	23,000	34,000	34,000	34,000	4.3E+7	2.4E+4		<100	<100	<100	<100	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Tetrachloroethylene	127-18-4	NA	100	1,200 (X)	89,000	4.8E+5	1.4E+6	3.3E+6	8.8E+9	88,000 (C)		<50	<50	<50	<50	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Toluene (I)	108-88-3	NA	16,000	5,400	2.5E+5 (C)	3.3E+6	3.3E+7	3.6E+7	2.8E+10	2.5E+5 (C)		<150	<150	143	370	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
1,2,4-Trichlorobenzene	120-82-1	NA	4,200	5,900 (X)	1.1E+6 (C)	2.4E+7	2.4E+7	2.4E+7	1.3E+10	1.1E+6 (C,DD)		<250	<250	<250	<250	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,1,1-Trichloroethane	71-55-6	NA	4,000	1,800	4.6E+5	4.2E+6	1.2E+7	3.3E+7	2.9E+10	4.6E+5 (C)		<50	<50	<50	<50	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,1,2-Trichloroethane	79-00-5	NA	100	6,600 (X)	24,000	37,000	57,000	1.3E+5	2.5E+8	8.4E+5		<50	<50	<50	<50	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Trichloroethylene	79-01-6	NA	100	4,000 (X)	37,000	2.2E+5	4.4E+5	1.1E+6	2.1E+9	5.0E+5 (C,DD)		<50	<50	<50	<50	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Trichlorofluoromethane	75-69-4	NA	1.5E+5	NA	5.6E+5 (C)	1.1E+8	2.4E+11	2.4E+11	1.7E+12	5.6E+5 (C)		<100	<100	<100	<100	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,2,3-Trichloropropane	96-18-4	NA	2,400	NA	7,500	22,000	22,000	22,000	8.9E+8	8.3E+5 (C)		<100	<100	<100	<100	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,2,3-Trimethylbenzene	526-73-8	NA	1,900	570	94,000 (C)	3.1E+7	4.6E+8	4.6E+8	3.6E+10	94,000 (C)		NT	<100	<100	430	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,2,4-Trimethylbenzene (I)	95-63-6	NA	2,100	570	1.1E+5 (C)	2.1E+7	6.0E+8	6.0E+8	3.6E+10	1.1E+5 (C)		<100	<100	<100	2,800	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,3,5-Trimethylbenzene (I)	108-67-8	NA	1,800	1,100	94,000 (C)	2.6E+7	4.6E+8	4.6E+8	3.6E+10	94,000 (C)		<100	<100	<100	440	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Vinyl acetate (I)	108-05-4	NA	30,000	NA	1.2E+6	2.2E+6	2.7E+6	3.2E+6	3.9E+8	2.4E+6 (C,DD)		<2500	<2500	<2500	<2500	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Vinyl chloride	75-01-4	NA	40	260 (X)	2,800	29,000	1.7E+5	4.2E+5	8.8E+8	34,000		<40	<40	<40	<40	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Xylenes (I)	1330-20-7	NA	5,600	820	1.5E+5 (C)	6.4E+7	6.5E+7	1.3E+8	2.9E+11	1.5E+5 (C)		<150	<150	<150	2,900	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30

AKTPEERLESS

Table 1: Summary of Soil Analytical Results
Griffin Beverage
1901 Dam Road
West Branch, Michigan
AKT Peerless Project No.7552s

Datasheet Number →		#20	#21	#22	#22	#23	#24	#25	#26	#27
Parameter (Refer to attached laboratory report for method reference data)	Chemical Abstract Service Number	Statewide Default Background Levels	Residential Drinking Water Protection Criteria and RBSLs	Groundwater Surface Water Interface Protection Criteria and RBSLs	Non-Residential Soil Volatilization to Indoor Air Inhalation Criteria and RBSLs	Non-Residential Infinite Source Volatile Soil Inhalation Criteria (VSIC) and RBSLs	Non-Residential Finite VSIC for 5 Meter Source Thickness	Non-Residential Finite VSIC for 2 Meter Source Thickness	Non-Residential Particulate Soil Inhalation Criteria and RBSLs	Non-Residential Direct Contact Criteria and RBSLs
Metals µg/Kg										
Lead (B)	7439-92-1	21,000	7.0E+5	(G,X)	NLV	NLV	NLV	NLV	4.4E+7	9.0E+5 (DD)
Semivolatiles, PNAs µg/Kg										
Acenaphthene	83-32-9	NA	3.0E+5	8,700	3.3E+8	9.7E+7	9.7E+7	9.7E+7	6.2E+9	1.3E+8
Acenaphthylene	208-96-8	NA	17,000	ID	2.0E+6	2.7E+6	2.7E+6	2.7E+6	2.3E+9	5.2E+6
Anthracene	120-12-7	NA	41,000	ID	1.0E+9 (D)	1.6E+9	1.6E+9	1.6E+9	2.9E+10	7.3E+8
Benzo(a)anthracene (Q)	56-55-3	NA	NLL	NLL	NLV	NLV	NLV	NLV	ID	80,000
Benzo(a)pyrene (Q)	50-32-8	NA	NLL	NLL	NLV	NLV	NLV	NLV	1.5E+6	8,000
Benzo(b)fluoranthene (Q)	205-99-2	NA	NLL	NLL	ID	ID	ID	ID	ID	80,000
Benzo(k)fluoranthene (Q)	207-08-9	NA	NLL	NLL	NLV	NLV	NLV	NLV	ID	8.0E+5
Benzo(g,h,i)perylene	191-24-2	NA	NLL	NLL	NLV	NLV	NLV	NLV	3.5E+8	7.0E+6
Chrysene (Q)	218-01-9	NA	NLL	NLL	ID	ID	ID	ID	ID	8.0E+6
Dibenzo(a,h)anthracene (Q)	53-70-3	NA	NLL	NLL	NLV	NLV	NLV	NLV	ID	8,000
Fluoranthene	206-44-0	NA	7.3E+5	5,500	1.0E+9 (D)	8.9E+8	8.9E+8	8.9E+8	4.1E+9	1.3E+8
Fluorene	86-73-7	NA	3.9E+5	5,300	2.8E+9 (D)	1.5E+8	1.5E+8	1.5E+8	4.1E+9	8.7E+7
Indeno(1,2,3-cd)pyrene (Q)	193-39-5	NA	NLL	NLL	NLV	NLV	NLV	NLV	ID	80,000
2-Methylnaphthalene	91-57-6	NA	5.7E+4	4,200	4.5E+8	1.8E+6	1.8E+6	1.8E+6	2.2E+8	2.6E+7
Naphthalene	91-20-3	NA	3.5E+4	730	4.7E+5	3.5E+5	3.5E+5	3.5E+5	8.8E+7	5.2E+7
Phenanthrene	85-01-8	NA	1.1E+5	2,100	5.1E+6	1.6E+5	1.6E+5	1.6E+5	2.9E+8	5.2E+6
Pyrene	129-00-0	NA	4.8E+5	ID	1.0E+9 (D)	7.8E+8	7.8E+8	7.8E+8	2.9E+9	8.4E+7
Volatiles, VOCs µg/Kg										
Acetone (I)	67-64-1	NA	15,000	34,000	1.1E+8 (C)	1.4E+8	2.8E+8	3.0E+8	1.7E+11	7.3E+7
Benzene (I)	71-43-2	NA	100	4,000 (X)	8,400	45,000	90,000	2.1E+5	4.7E+8	4.0E+5 (C)
Bromobenzene (I)	108-86-1	NA	1,500	NA	5.3E+5	1.4E+5	1.4E+5	5.1E+5	2.4E+8	7.6E+5 (C)
Bromodichloromethane	75-27-4	NA	1,600 (W)	ID	8,400	31,000	31,000	37,000	1.3E+9	4.8E+5
Bromoform	75-25-2	NA	1,600 (W)	ID	2.9E+5	3.3E+6	3.3E+6	3.3E+6	3.0E+9	4.3E+6 (C)
Bromomethane	74-83-9	NA	200	700	1,300	13,000	17,000	1.4E+5	8.5E+8	1.1E+6
2-Butanone (MEK) (I)	78-93-3	NA	2.6E+5	44,000	1.7E+7 (C)	1.3E+8	2.5E+8	3.0E+7	2.6E+10	2.7E+8 (C,DD)
n-Butylbenzene	104-51-8	NA	1,600	ID	ID	ID	ID	ID	2.8E+8	8.0E+6
sec-Butylbenzene	135-98-8	NA	1,600	ID	ID	ID	ID	ID	1.8E+8	8.0E+6
tert-Butylbenzene (I)	98-06-6	NA	1,600	NA	ID	ID	ID	ID	2.0E+8	8.0E+6
Carbon disulfide (I,R)	75-15-0	NA	16,000	ID	1.4E+5	1.4E+6	2.8E+6	8.9E+7	1.3E+10	2.8E+6 (C,DD)
Carbon tetrachloride	56-23-5	NA	100	900 (X)	390	12,000	24,000	73,000	1.7E+8	3.9E+5 (C)
Chlorobenzene (I)	108-90-7	NA	2,000	500	2.2E+5	3.2E+5	1.1E+6	2.2E+6	2.1E+9	2.6E+5 (C)
Chlorodibromomethane	124-48-1	NA	1,600 (W)	ID	11,000	90,000	11,000	99,000	1.8E+9	5.0E+5
Chloroethane	75-00-3	NA	34,000	22,000 (X)	9.5E+5 (C)	3.6E+7	3.3E+7	1.0E+8	2.3E+11	3.3E+5 (C)
2-Chlorotoluene (I)	95-49-8	NA	3,300	ID	5.8E+5 (C)	1.3E+6	3.3E+6	8.0E+6	2.1E+9	5.0E+6 (C)
Chloroform	67-66-3	NA	1,600 (W)	7,000	28,000	1.3E+5	3.4E+5	2.1E+6	1.0E+9	1.5E+6 (C)
Chloromethane (I)	74-87-3	NA	22,000	ID	10,000	1.1E+5	1.2E+5	2.3E+6	2.0E+9	2.3E+6 (C)
1,2-Dibromo-3-chloropropane	96-12-8	NA	10 (M); 4.5	ID	1,300 (C)	15,000	15,000	15,000	5.9E+6	4,300 (C)
1,2-Dibromoethane (Ethylene dibromide)	106-93-4	NA	20 (M); 1.0	110 (X)	1,600	2,800	3,500	2,800	1.3E+7	420
Dibromomethane	74-95-3	NA	1,600	NA	ID	ID	ID	ID	ID	2.5E+6 (C)
1,2-Dichlorobenzene	95-50-1	NA	14,000	280	2.1E+8 (C)	4.4E+7	4.4E+7	3.9E+7	4.4E+10	2.1E+5 (C)
1,3-Dichlorobenzene	541-73-1	NA	430	980	48,000	94,000	94,000	2.3E+6	8.8E+7	1.7E+5 (C)
1,4-Dichlorobenzene	106-46-7	NA	1,700	360	1.0E+6	2.6E+5	2.6E+5	3.4E+5	3.3E+8	1.9E+6
Dichlorodifluoromethane	75-71-8	NA	1.7E+6	ID	1.2E+6	6.2E+7	2.5E+8	1.4E+9	2.2E+12	1.0E+6 (C)
1,1-Dichloroethane	75-34-3	NA	18,000	15,000	4.3E+5	2.1E+6	4.0E+6	1.4E+7	3.3E+10	8.9E+5 (C)
1,2-Dichloroethane (I)	107-06-2	NA	100	7,200 (X)	11,000	21,000	31,000	74,000	2.5E+8	4.2E+5
1,1-Dichloroethylene (I)	75-35-4	NA	140	2,600	330	2,700	35,000	37,000	7.2E+7	2.7E+5 (C)
cis-1,2-Dichloroethylene	156-59-2	NA	1,400	12,000	41,000	2.1E+5	4.3E+5	2.0E+6	2.3E+9	6.4E+5 (C)
trans-1,2-Dichloroethylene	156-60-5	NA	2,000	30,000 (X)	43,000	2.3E+5	8.4E+5	2.0E+6	2.3E+9	1.4E+6 (C)
1,2-Dichloropropane (I)	78-87-5	NA	100	4,600 (X)	7,400	36,000	51,000	2.2E+5	1.2E+9	5.5E+5 (C)

Sample ID	Sample #1	Sample #2	Sample #3	Sample #4	SB-1	SB-1	SB-1	SB-1	SB-2	SB-2	SB-2	SB-2	SB-2	SB-3	SB-3	SB-3
Collection Date	11/22/1993	11/22/1993	11/22/1993	11/22/1993	11/22/1993	11/22/1993	11/22/1993	11/22/1993	11/22/1993	11/22/1993	11/23/1993	11/23/1993	11/23/1993	11/23/1993	11/23/1993	11/23/1993
Depth	12"	12"	NA	12"	0-2'	4-6'	6-8'	10-12'	12-14'	16-18'	5-7'	10-12'	15-17'	9-11'	11-13'	15-17'
Metals µg/Kg																
Lead (B)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Semivolatiles, PNAs µg/Kg																
Acenaphthene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Acenaphthylene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Anthracene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(a)anthracene (Q)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(a)pyrene (Q)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(b)fluoranthene (Q)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(k)fluoranthene (Q)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(g,h,i)perylene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Chrysene (Q)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Dibenzo(a,h)anthracene (Q)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Fluoranthene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Fluorene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Indeno(1,2,3-cd)pyrene (Q)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
2-Methylnaphthalene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Naphthalene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Phenanthrene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Pyrene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Volatiles, VOCs µg/Kg																
Acetone (I)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzene (I)	<10	<10	<10	15	<10	35	<10	38	29	<260	<10	<10	<10	<10	<10	42
Bromobenzene (I)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Bromodichloromethane	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Bromoform	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Bromomethane	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
2-Butanone (MEK) (I)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
n-Butylbenzene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
sec-Butylbenzene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
tert-Butylbenzene (I)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Carbon disulfide (I,R)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Carbon tetrachloride	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Chlorobenzene (I)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Chlorodibromomethane	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Chloroethane	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
2-Chlorotoluene (I)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Chloroform	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Chloromethane (I)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,2-Dibromo-3-chloropropane	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,2-Dibromoethane (Ethylene dibromide)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Dibromomethane	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,2-Dichlorobenzene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,3-Dichlorobenzene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,4-Dichlorobenzene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Dichlorodifluoromethane	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,1-Dichloroethane	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,2-Dichloroethane (I)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,1-Dichloroethylene (I)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
cis-1,2-Dichloroethylene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
trans-1,2-Dichloroethylene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,2-Dichloropropane (I)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT

AKTPEERLESS

Table 1: Summary of Soil Analytical Results
Griffin Beverage
1981 Dam Road
West Branch, Michigan
AKT Peerless Project No.7552s

Statutory Number →	#	#19	#21	#22	#32	#23	#24	#25	#26	#27	Sample ID	Sample #1	Sample #2	Sample #3	Sample #4	SB-1	SB-1	SB-1	SB-2	SB-2	SB-2	SB-3	SB-3	SB-3	SB-4	SB-4	SB-4
Parameter	Chemical Abstract Service Number	Statewide Default Background Levels	Nonresidential Drinking Water Protection Criteria and RBSLs	Groundwater Surface Water Interface Protection Criteria and RBSLs	Nonresidential Soil Volatilization to Indoor Air Inhalation Criteria and RBSLs	Non-Residential Infinite Source Volatile Soil Inhalation Criteria (VSIC) and RBSLs	Non-Residential Finite VSIC for 5 Meter Source Thickness	Non-Residential Finite VSIC for 2 Meter Source Thickness	Non-Residential Particulate Soil Inhalation Criteria and RBSLs	Non-Residential Direct Contact Criteria and RBSLs	Collection Date	11/22/1993	11/22/1993	11/22/1993	11/22/1993	11/22/1993	11/22/1993	11/22/1993	11/22/1993	11/22/1993	11/22/1993	11/23/1993	11/23/1993	11/23/1993	11/23/1993	11/23/1993	11/23/1993
(Type of detailed laboratory report forms and recommended)											Depth	11'	12'	NA	10'	0-2	4-6	8-10	10-12	12-14	15-16	6-7	10-12	15-17	8-10	13-15	15-17
1,3-Dichloropropene	542-75-6	NA	700	240 (X)	1,400	40,000	3.3E+5	4.2E+5	2.3E+8	2.4E+6		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Ethylbenzene (I)	100-41-4	NA	[illegible]	[illegible]	1.4E+5 (C)	2.4E+5	3.2E+6	6.5E+6	1.3E+10	1.4E+5 (C)		<10	<10	25	38	<10	<10	<10	31	48	32,000	<10	<10	<10	<10	<10	70
2-Hexanone	591-78-6	NA	20,000	20	1.0E+6	1.3E+6	1.3E+6	2.5E+6	2.2E+9	2.2E+6 (C)		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Isopropyl benzene	98-82-8	NA	2.6E+5	3,200	3.9E+5 (C)	2.8E+6	2.8E+8	1.8E+6	2.2E+9	3.9E+5 (C)		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Methylene chloride	75-09-2	NA	100	30,000 (X)	2.4E+5	7.8E+6	1.7E+6	4.6E+6	8.2E+8	2.3E+5 (C)		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
2-Methylnaphthalene	91-57-6	NA	1.7E+5	4,200	4.9E+6	1.5E+6	1.1E+6	1.8E+6	2.0E+8	2.6E+7		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Methyl-tert-butyl ether (MTBE)	1634-04-4	NA	800	1.4E+5 (X)	5.9E+5 (C)	3.0E+7	4.1E+7	1.3E+7	8.8E+10	5.8E+6 (C)		<50	<50	<50	<50	<50	<50	<50	<50	<100	<5000	<50	<50	<50	<50	<50	<50
4-Methyl-2-pentanone (MIBK) (I)	108-10-1	NA	1.0E+5	13	2.7E+5 (C)	3.3E+7	1.3E+7	7.0E+7	4.4E+10	2.7E+6 (C)		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Naphthalene	91-20-3	NA	1.0E+5	730	4.7E+5	3.3E+5	2.2E+6	3.5E+5	2.0E+7	5.2E+7		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
n-Propylbenzene (I)	103-65-1	NA	4,600	ID	ID	ID	ID	ID	1.0E+8	3.0E+6		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Styrene	100-42-5	NA	2,700	2100 (X)	5.2E+5 (C)	3.3E+6	2.3E+6	4.2E+6	6.0E+9	5.2E+5 (C)		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,1,1,2-Tetrachloroethane	630-20-6	NA	2,100	10	13,000	1.1E+5	2.1E+5	3.3E+5	5.3E+8	4.4E+5 (C)		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,1,2,2-Tetrachloroethane	79-34-5	NA	700	3,400 (X)	23,000	14,000	34,000	34,000	4.9E+7	2.4E+5		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Tetrachloroethylene	127-18-4	NA	100	1,200 (X)	60,000	6.6E+5	1.4E+6	3.3E+5	8.8E+9	88,000 (C)		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Toluene (I)	108-88-3	NA	[illegible]	[illegible]	2.5E+6 (C)	3.3E+6	3.4E+7	3.6E+7	1.2E+10	2.5E+5 (C)		<10	<10	36	225	<10	48	25	187	129	234,000	<10	<10	<10	<10	<10	269
1,2,4-Trichlorobenzene	120-82-1	NA	4,200	5,900 (X)	1.1E+6 (C)	1.4E+7	4.4E+7	2.4E+7	1.1E+10	1.1E+6 (C,DD)		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,1,1-Trichloroethane	71-55-6	NA	4,000	1,800	4.6E+5	4.3E+6	1.0E+7	2.5E+7	2.9E+10	4.6E+5 (C)		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,1,2-Trichloroethane	79-00-5	NA	100	6,600 (X)	34,000	57,000	57,000	1.3E+5	2.2E+6	8.4E+5		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Trichloroethylene	79-01-6	NA	100	4,000 (X)	57,000	2.2E+6	4.1E+5	1.1E+8	2.1E+9	2.0E+5 (C,DD)		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Trichlorofluoromethane	75-69-4	NA	1.5E+5	NA	3.8E+5 (C)	3.3E+8	1.4E+11	1.4E+11	1.7E+12	3.8E+5 (C)		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,2,3-Trichloropropane	96-18-4	NA	2,400	NA	7,900	11,000	12,000	12,000	8.8E+6	8.3E+5 (C)		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,2,3-Trimethylbenzene	526-73-8	NA	1,600	570	94,000 (C)	1.0E+7	4.6E+6	4.6E+8	2.8E+10	94,000 (C)		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,2,4-Trimethylbenzene (I)	95-63-6	NA	2,100	[illegible]	2.1E+5 (C)	2.1E+7	4.0E+6	5.9E+8	2.2E+10	1.1E+5 (C)		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,3,5-Trimethylbenzene (I)	108-67-8	NA	1,800	[illegible]	94,000 (C)	1.6E+7	4.1E+6	4.2E+8	2.2E+10	94,000 (C)		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Vinyl acetate (I)	108-05-4	NA	20,000	NA	3.3E+6	1.0E+6	2.7E+6	5.9E+8	1.2E+9	2.4E+6 (C,DD)		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Vinyl chloride	75-01-4	NA	40	260 (X)	7,900	22,000	2.7E+6	4.2E+5	8.3E+8	31,000		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Xylenes (I)	1330-20-7	NA	[illegible]	[illegible]	1.5E+5 (C)	5.4E+7	6.5E+7	2.3E+8	1.2E+11	1.5E+5 (C)		<10	<10	30	168	<10	<10	23	142	206	72,000	<10	<10	<10	<10	<10	222

AKTPEERLESS

Table 1: Summary of Soil Analytical Results
Griffin Beverage
1901 Dam Road
West Branch, Michigan
AKT Peerless Project No.7552s

Guidesheet Number	→	#10	#21	#22	#23	#23	#24	#25	#26	#27	Sample ID	SB-4	SB-4	SB-5	SB-5	SB-6	SB-7	SB-7	SB-7	SB-8	SB-8	SB-9	SB-9	SB-10	SB-20	SB-11	SB-11
Parameters ("(Z)" for detected in laboratory report; for method reference data)	Chemical Abstract Service Number	Statewide Default Background Levels	Residential Drinking Water Protection Criteria and RBSLs	Groundwater Surface Water Interface Protection Criteria and RBSLs	Non-Residential Soil Volatilization to Indoor Air Inhalation Criteria and RBSLs	Non-Residential Infinite Source Volatile Soil Inhalation Criteria (VSIC) and RBSLs	Non-Residential Finite VSI for 5 Meter Source Thickness	Non-Residential Finite VSI for 2 Meter Source Thickness	Non-Residential Particulate Soil Inhalation Criteria RBSL	Non-Residential Direct Contact Criteria and RBSLs	Collection Date	11/23/1993	11/23/1993	11/23/1993	11/23/1993	11/24/1993	11/24/1993	11/24/1993	11/24/1993	11/24/1993	11/24/1993	11/24/1993	11/24/1993	11/26/1993	11/26/1993	11/26/1993	11/26/1993
											Depth	12-14	14-16	14-16	16-18	14-16	8-10	13-15	15-17	13-15	15-17	8-10	13-15	13-15	16-18	8-10	16-18
Metals ug/Kg																											
Lead (B)	7439-92-1	21,000	7.0E+5	(G,X)	NLV	NLV	NLV	NLV	4.4E+7	9.0E+5 (DD)		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Semivolatiles, PNAs ug/Kg																											
Acenaphthene	83-32-9	NA	3.0E+5	8,700	1.2E+8	8.7E+7	8.2E+7	8.1E+9	2.2E+10	1.3E+8		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Acenaphthylene	208-96-8	NA	17,000	ID	2.0E+6	2.7E+6	2.7E+6	2.7E+6	1.0E+9	2.2E+6		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Anthracene	120-12-7	NA	41,000	ID	1.6E+9 (D)	1.6E+9	1.6E+9	1.6E+9	2.9E+10	7.3E+8		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(a)anthracene (Q)	56-55-3	NA	NLL	NLL	NLV	NLV	NLV	NLV	ID	80,000		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(a)pyrene (Q)	50-32-8	NA	NLL	NLL	NLV	NLV	NLV	NLV	1.5E+6	8,000		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(b)fluoranthene (Q)	205-99-2	NA	NLL	NLL	ID	ID	ID	ID	ID	80,000		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(k)fluoranthene (Q)	207-08-9	NA	NLL	NLL	NLV	NLV	NLV	NLV	ID	8.0E+5		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(g,h,i)perylene	191-24-2	NA	NLL	NLL	NLV	NLV	NLV	NLV	3.5E+8	7.0E+6		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Chrysene (Q)	218-01-9	NA	NLL	NLL	ID	ID	ID	ID	ID	8.0E+6		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Dibenzo(a,h)anthracene (Q)	53-70-3	NA	NLL	NLL	NLV	NLV	NLV	NLV	ID	8,000		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Fluoranthene	206-44-0	NA	7.3E+5	5,500	1.0E+9 (D)	8.9E+8	8.9E+8	8.9E+8	4.1E+9	1.3E+8		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Fluorene	86-73-7	NA	3.9E+5	5,300	1.0E+9 (D)	1.5E+8	1.5E+8	1.5E+8	4.1E+9	8.7E+7		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Indeno(1,2,3-cd)pyrene (Q)	193-39-5	NA	NLL	NLL	NLV	NLV	NLV	NLV	ID	80,000		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
2-Methylnaphthalene	91-57-6	NA	57,000	4,200	4.9E+6	2.8E+6	2.8E+6	1.8E+6	2.9E+8	2.6E+7		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Naphthalene	91-20-3	NA	35,000	730	4.7E+5	3.5E+5	3.5E+5	3.5E+5	8.8E+7	5.2E+7		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Phenanthrene	85-01-8	NA	56,000	2,100	5.3E+6	2.9E+5	2.9E+5	2.9E+5	2.0E+6	5.2E+6		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Pyrene	129-00-0	NA	4.8E+5	ID	1.0E+9 (D)	7.8E+8	7.8E+8	7.8E+8	2.9E+9	8.4E+7		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Volatiles, VOCs ug/Kg																											
Acetone (I)	67-64-1	NA	15,000	34,000	1.1E+8 (C)	1.6E+8	1.6E+8	1.6E+8	1.7E+11	7.3E+7		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzene (I)	71-43-2	NA	100	4,000 (X)	8,400	45,000	80,000	2.1E+5	4.7E+8	4.0E+5 (C)		NT	NT	<10	<10	<10	<10	<16	28	<10	75	<10	<10	<10	<10	<10	<10
Bromobenzene (I)	108-86-1	NA	550	NA	5.8E+5	3.4E+5	5.8E+5	5.8E+5	3.4E+8	7.5E+6 (C)		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Bromodichloromethane	75-27-4	NA	1,600 (W)	ID	6,800	31,000	31,000	57,000	3.1E+8	4.3E+5		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Bromoform	75-25-2	NA	1,600 (W)	ID	7.7E+5	2.1E+6	2.1E+6	2.1E+6	3.6E+9	4.7E+6 (C)		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Bromomethane	74-83-9	NA	200	700	1,900	13,000	37,000	1.4E+5	1.2E+8	3.2E+5		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
2-Butanone (MEK) (I)	78-93-3	NA	2.6E+5	44,000	2.7E+7 (C)	3.5E+7	3.5E+7	3.0E+7	2.9E+10	2.7E+7 (C,DD)		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
n-Butylbenzene	104-51-8	NA	4,600	ID	ID	ID	ID	ID	2.3E+8	8.0E+6		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
sec-Butylbenzene	135-98-8	NA	1,600	ID	ID	ID	ID	ID	1.3E+8	8.0E+6		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
tert-Butylbenzene (I)	98-06-6	NA	4,600	NA	ID	ID	ID	ID	2.3E+8	8.0E+6		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Carbon disulfide (I,R)	75-15-0	NA	16,000	ID	1.4E+5	1.6E+6	2.0E+6	1.3E+7	2.2E+10	2.8E+5 (C,DD)		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Carbon tetrachloride	56-23-5	NA	100	930 (X)	590	12,000	24,000	79,000	1.3E+8	3.5E+5 (C)		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Chlorobenzene (I)	108-90-7	NA	2,000	500	2.2E+5	5.2E+5	1.1E+6	2.3E+6	3.1E+9	2.6E+5 (C)		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Chlorodibromomethane	124-48-1	NA	1,600 (W)	ID	22,000	80,000	80,000	56,000	1.5E+8	3.6E+5		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Chloroethane	75-00-3	NA	34,000	22,000 (X)	9.5E+5 (C)	2.0E+7	1.2E+8	1.1E+9	2.6E+12	9.5E+5 (C)		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
2-Chlorotoluene (I)	95-49-8	NA	3,300	ID	5.0E+5 (C)	1.5E+6	3.3E+6	6.6E+6	2.1E+9	5.0E+5 (C)		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Chloroform	67-66-3	NA	1,600 (W)	7,000	28,000	1.5E+6	3.6E+6	7.5E+6	1.0E+9	1.5E+6 (C)		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Chloromethane (I)	74-87-3	NA	5,200	ID	45,000	1.2E+6	1.3E+6	2.5E+6	2.0E+9	1.1E+6 (C)		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,2-Dibromo-3-Chloropropane	96-12-8	NA	10 (M); 4.0	32	1,200 (C)	15,000	15,000	15,000	3.9E+6	1,200 (C)		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,2-Dibromoethane (ethylene dibromide)	106-93-4	NA	20 (M); 1.0	110 (X)	1,600	5,100	5,100	9,300	3.3E+7	410		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Dibromomethane	74-95-3	NA	4,600	NA	ID	ID	ID	ID	ID	1.0E+6 (C)		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,2-Dichlorobenzene	95-50-1	NA	14,000	280	2.1E+5 (C)	4.6E+7	4.6E+7	1.5E+8	4.4E+10	2.1E+5 (C)		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,3-Dichlorobenzene	541-73-1	NA	480	680	48,000	84,000	84,000	3.3E+5	4.0E+7	1.7E+5 (C)		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,4-Dichlorobenzene	106-46-7	NA	1,700	360	1.9E+5	2.5E+5	2.6E+5	3.4E+5	6.7E+8	1.9E+6		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Dichlorodifluoromethane	75-71-8	NA	1.7E+5	ID	2.7E+6	6.3E+7	5.5E+7	1.4E+9	1.5E+12	1.0E+6 (C)		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,1-Dichloroethane	75-34-3	NA	18,000	15,000	4.3E+5	2.5E+6	6.8E+6	3.4E+7	3.3E+10	8.9E+5 (C)		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,2-Dichloroethane (I)	107-06-2	NA	100	7,200 (X)	21,000	22,000	32,000	34,000	2.1E+9	4.2E+5		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,1-Dichloroethylene (I)	75-35-4	NA	140	2,600	270	3,700	15,000	27,000	2.4E+7	5.7E+5 (C)		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
cis-1,2-Dichloroethylene	156-59-2	NA	1,400	12,000	41,000	2.1E+5	4.3E+5	2.0E+6	1.0E+9	6.4E+5 (C)		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
trans-1,2-Dichloroethylene	156-60-5	NA	2,000	30,000 (X)	43,000	3.1E+5	8.4E+5	2.0E+6	2.2E+9	1.4E+6 (C)		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,2-Dichloropropane (I)	78-87-5	NA	100	4,000 (X)	7,400	38,000	51,000	2.1E+5	1.2E+9	2.1E+5 (C)		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT

AKTPEERLESS

Table 1: Summary of Soil Analytical Results
Griffin Beverage
1901 Dam Road
West Branch, Michigan
AKT Peerless Project No.7552s

Guideline Number →		#18	#21	#22	#23	#23	#24	#25	#26	#27
Parameters (Refer to the table's reference key for detailed explanation of notes)	Chemical Abstract Service Number	Statewide Default Background Levels	Non-Residential Drinking Water Protection Criteria and RBSLs	Groundwater Surface Water Interface Protection Criteria and RBSLs	Non-Residential Soil Volatilization to Indoor Air Inhalation Criteria and RBSLs	Non-Residential Infinite Source Volatile Soil Inhalation Criteria (VSIC) and RBSLs	Non-Residential Finite VSIC for 5 Meter Source Thickness	Non-Residential Finite VSIC for 2 Meter Source Thickness	Non-Residential Particulate Soil Inhalation Criteria and RBSLs	Non-Residential Direct Contact Criteria and RBSLs
1,3-Dichloropropene	542-75-6	NA	700	210 (X)	5,400	68,000	2.0E+5	4.2E+6	2.9E+8	2.4E+5
Ethylbenzene (I)	100-41-4	NA	1,500	360	1.4E+5 (C)	2.4E+6	5.1E+6	5.5E+6	3.5E+10	2.4E+6 (C)
2-Hexanone	591-78-6	NA	20,000	ID	1.8E+6	2.5E+6	1.3E+6	1.5E+6	3.1E+9	2.5E+6 (C)
Isopropyl benzene	98-82-8	NA	9.1E+5	3,200	3.9E+6 (C)	2.0E+6	2.0E+6	2.0E+6	5.8E+9	3.9E+6 (C)
Methylene chloride	75-09-2	NA	100	30,000 (X)	2.1E+5	7.8E+5	1.7E+6	4.0E+6	6.3E+9	2.3E+6 (C)
2-Methylnaphthalene	91-57-6	NA	5.7E+5	4,200	4.8E+6	2.8E+6	2.8E+6	1.8E+6	6.7E+8	2.6E+7
Methyl-tert-butyl ether (MTBE)	1634-04-4	NA	800	7.1E+5 (X)	5.9E+6 (C)	3.4E+7	4.1E+7	2.5E+7	8.8E+10	1.5E+6 (C)
4-Methyl-2-pentanone (MIBK) (I)	108-10-1	NA	1.8E+5	ID	2.7E+6 (C)	3.3E+7	3.3E+7	7.0E+7	6.6E+10	2.7E+6 (C)
Naphthalene	91-20-3	NA	3.5E+5	730	4.7E+5	3.5E+6	3.5E+6	2.3E+6	8.8E+7	5.2E+7
n-Propylbenzene (I)	103-65-1	NA	4,600	ID	ID	ID	ID	ID	1.3E+8	2.0E+6
Styrene	100-42-5	NA	2,700	2,100 (X)	5.2E+5 (C)	3.3E+6	3.3E+6	4.2E+6	6.8E+9	5.2E+5 (C)
1,1,1,2-Tetrachloroethane	630-20-6	NA	6,100	ID	22,000	1.2E+5	2.1E+5	2.1E+5	1.7E+9	4.4E+5 (C)
1,1,2,2-Tetrachloroethane	79-34-5	NA	300	1,600 (X)	23,000	34,000	34,000	34,000	5.2E+7	2.4E+5
Tetrachloroethylene	127-18-4	NA	100	1,200 (X)	48,000	5.0E+5	3.4E+6	3.3E+6	8.8E+9	88,000 (C)
Toluene (I)	108-88-3	NA	16,000	5,400	2.5E+5 (C)	2.8E+8	3.6E+7	3.6E+7	2.7E+10	2.5E+5 (C)
1,2,4-Trichlorobenzene	120-82-1	NA	4,200	5,900 (X)	1.1E+6 (C)	9.4E+7	1.4E+7	3.4E+7	2.1E+10	1.1E+6 (C,DD)
1,1,1-Trichloroethane	71-55-6	NA	4,000	1,800	6.8E+5	4.5E+6	1.5E+7	3.2E+7	2.3E+10	4.6E+5 (C)
1,1,2-Trichloroethane	79-00-5	NA	300	6,600 (X)	14,000	37,000	17,000	2.2E+5	2.2E+8	9.4E+5
Trichloroethylene	79-01-6	NA	100	4,000 (X)	37,000	2.4E+5	4.4E+5	1.3E+6	2.2E+8	5.0E+5 (C,DD)
Trichlorofluoromethane	75-69-4	NA	1.5E+5	NA	5.5E+6 (C)	1.1E+8	1.4E+11	2.4E+11	1.7E+12	3.8E+5 (C)
1,2,3-Trichloropropane	96-18-4	NA	2,400	NA	7,500	11,000	12,000	12,000	8.8E+6	4.3E+6 (C)
1,2,3-Trimethylbenzene	526-73-8	NA	1,800	570	94,000 (C)	2.5E+7	6.6E+8	4.6E+8	3.8E+10	94,000 (C)
1,2,4-Trimethylbenzene (I)	95-63-6	NA	2,100	570	1.1E+5 (C)	2.5E+7	6.6E+8	6.0E+8	3.8E+10	1.1E+5 (C)
1,3,5-Trimethylbenzene (I)	108-67-8	NA	1,800	1,100	94,000 (C)	1.9E+7	4.0E+8	4.6E+8	2.6E+10	94,000 (C)
Vinyl acetate (I)	108-05-4	NA	15,000	NA	1.3E+6	2.0E+6	2.2E+6	5.5E+5	3.8E+9	2.4E+6 (C,DD)
Vinyl chloride	75-01-4	NA	40	260 (X)	1,600	29,000	3.3E+5	4.2E+5	1.1E+8	34,000
Xylenes (I)	1330-20-7	NA	5,600	980	1.5E+5 (C)	5.4E+7	6.5E+7	3.9E+8	3.3E+11	1.5E+5 (C)

Sample ID	SB-4	SB-4	SB-5	SB-5	SB-6	SB-7	SB-7	SB-7	SB-8	SB-8	SB-9	SB-9	SB-10	SB-11	SB-11	SB-12
Collection Date	11/23/1993	11/23/1993	11/23/1993	11/23/1993	11/24/1993	11/24/1993	11/24/1993	11/24/1993	11/24/1993	11/24/1993	11/24/1993	11/24/1993	11/26/1993	12/16/1993	11/10/1993	11/28/1993
Depth	12-14'	14-15'	14-16'	15-16'	14-15'	8-10'	13-15'	15-17'	13-15'	15-17'	8-10'	13-15'	13-15'	14-16'	8-10'	16-18'
1,3-Dichloropropene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Ethylbenzene (I)	NT	NT	<10	<10	<10	<10	<10	<10	30	30	<10	<10	<10	<10	<10	<10
2-Hexanone	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Isopropyl benzene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Methylene chloride	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
2-Methylnaphthalene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Methyl-tert-butyl ether (MTBE)	<50	<50	<50	<50	<50	NT	<50	<50	<50	NT	NT	<50	NT	<50	<50	<50
4-Methyl-2-pentanone (MIBK) (I)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Naphthalene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
n-Propylbenzene (I)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Styrene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,1,1,2-Tetrachloroethane	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,1,2,2-Tetrachloroethane	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Tetrachloroethylene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Toluene (I)	NT	NT	<10	<10	<10	<10	<10	56	87	147	<10	<10	<10	22	<10	<10
1,2,4-Trichlorobenzene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,1,1-Trichloroethane	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,1,2-Trichloroethane	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Trichloroethylene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Trichlorofluoromethane	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,2,3-Trichloropropane	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,2,3-Trimethylbenzene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,2,4-Trimethylbenzene (I)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,3,5-Trimethylbenzene (I)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Vinyl acetate (I)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Vinyl chloride	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Xylenes (I)	NT	NT	<10	<10	<10	<10	<10	83	118	154	<10	<10	<10	<10	<10	<10

AKTPEERLESS

Table 1: Summary of Soil Analytical Results
Griffin Beverage
1901 Dam Road
West Branch, Michigan
AKT Peerless Project No.7552s

Criteria/Part 201 Number	#9	#10	#11	#12	#22	#23	#24	#25	#26	#27
Parameter (Refer to original laboratory report for analytical reporting limits)	Chemical Abstract Service Number	Statewide Default Background Levels	Non-Residential Drinking Water Protection Criteria and RBSLs	Groundwater Surface Water Interface Protection Criteria and RBSLs	Non-Residential Soil Volatilization to Indoor Air Inhalation Criteria and RBSLs	Non-Residential Infinite Source Volatile Soil Inhalation Criteria (VSIC) and RBSLs	Non-Residential Finite VSIC 5 Meter Source Thickness	Non-Residential Finite VSIC 2 Meter Source Thickness	Non-Residential Particulate Soil Inhalation Criteria and RBSLs	Non-Residential Direct Contact Criteria and RBSLs
Metals ug/Kg										
Lead (B)	7439-92-1	21,000	7.0E+5	(G,X)	NLV	NLV	NLV	NLV	4.4E+7	9.0E+5 (DD)
Semivolatiles, PNAs ug/Kg										
Acenaphthene	83-32-9	NA	8.8E+5	8,700	3.5E+8	3.3E+7	2.7E+7	5.3E+7	6.2E+9	1.3E+8
Acenaphthylene	208-96-8	NA	27,000	ID	5.8E+6	2.7E+6	2.7E+6	2.7E+6	1.0E+9	5.2E+6
Anthracene	120-12-7	NA	41,000	ID	1.0E+10 (D)	1.4E+10	1.4E+9	1.4E+9	2.9E+10	7.3E+8
Benzo(a)anthracene (Q)	56-55-3	NA	NLL	NLL	NLV	NLV	NLV	NLV	ID	80,000
Benzo(a)pyrene (Q)	50-32-8	NA	NLL	NLL	NLV	NLV	NLV	NLV	1.5E+6	8,000
Benzo(b)fluoranthene (Q)	205-99-2	NA	NLL	NLL	ID	ID	ID	ID	ID	80,000
Benzo(k)fluoranthene (Q)	207-08-9	NA	NLL	NLL	NLV	NLV	NLV	NLV	ID	8.0E+5
Benzo(g,h,i)perylene	191-24-2	NA	NLL	NLL	NLV	NLV	NLV	NLV	3.5E+8	2.5E+6
Chrysene (Q)	218-01-9	NA	NLL	NLL	ID	ID	ID	ID	ID	8.0E+6
Dibenzo(a,h)anthracene (Q)	53-70-3	NA	NLL	NLL	NLV	NLV	NLV	NLV	ID	8,000
Fluoranthene	206-44-0	NA	7.3E+6	5,500	1.0E+9 (D)	8.9E+9	8.8E+9	8.8E+9	4.1E+9	1.3E+8
Fluorene	86-73-7	NA	8.9E+5	5,300	1.0E+9 (D)	1.3E+9	1.3E+9	1.5E+9	4.1E+9	8.7E+7
Indeno(1,2,3-cd)pyrene (Q)	193-39-5	NA	NLL	NLL	NLV	NLV	NLV	NLV	ID	80,000
2-Methylnaphthalene	91-57-6	NA	1.7E+5	4,200	4.5E+6	1.2E+6	1.2E+6	1.8E+6	2.9E+8	2.6E+7
Naphthalene	91-20-3	NA	1.0E+5	730	4.7E+5	3.5E+5	3.5E+5	3.5E+5	8.8E+7	5.2E+7
Phenanthrene	85-01-8	NA	1.6E+5	2,100	5.1E+6	1.9E+5	1.9E+5	1.6E+5	2.9E+8	1.6E+8
Pyrene	129-00-0	NA	4.8E+5	ID	1.0E+9 (D)	7.8E+8	7.8E+8	7.8E+8	2.9E+9	8.4E+7
Volatiles, VOCs ug/Kg										
Acetone (I)	67-64-1	NA	42,000	34,000	1.1E+8 (C)	1.6E+8	1.6E+8	2.5E+8	1.7E+11	7.3E+7
Benzene (I)	71-43-2	NA	100	4,000 (X)	8,400	45,000	98,000	2.3E+5	4.7E+8	4.0E+5 (C)
Bromobenzene (I)	108-86-1	NA	1,500	NA	2.8E+5	5.4E+5	5.4E+5	5.4E+5	2.4E+8	7.8E+5 (C)
Bromodichloromethane	75-27-4	NA	1,600 (W)	ID	6,800	11,000	11,000	17,000	1.1E+8	4.5E+5
Bromoform	75-25-2	NA	1,600 (W)	ID	3.3E+5	2.2E+6	1.1E+6	1.1E+6	3.4E+8	8.7E+5 (C)
Bromomethane	74-83-9	NA	580	700	1,000	11,000	57,000	1.4E+5	2.5E+8	1.6E+6
2-Butanone (MEK) (I)	78-93-3	NA	7.6E+5	44,000	2.7E+7 (C)	3.5E+7	3.5E+7	3.5E+7	3.5E+10	2.7E+7 (C,DD)
n-Butylbenzene	104-51-8	NA	4,600	ID	ID	ID	ID	ID	8.8E+8	8.0E+6
sec-Butylbenzene	135-98-8	NA	4,200	ID	ID	ID	ID	ID	1.5E+8	8.0E+6
tert-Butylbenzene (I)	98-06-6	NA	4,600	NA	ID	ID	ID	ID	2.5E+8	8.0E+6
Carbon disulfide (I,R)	75-15-0	NA	16,000	ID	1.4E+5	1.1E+6	8.8E+6	1.3E+7	1.4E+11	2.8E+6 (C,DD)
Carbon tetrachloride	56-23-5	NA	100	900 (X)	330	12,000	14,000	21,000	1.7E+8	3.9E+5 (C)
Chlorobenzene (I)	108-90-7	NA	2,000	500	2.2E+5	1.2E+6	1.2E+6	2.1E+6	2.1E+9	2.6E+5 (C)
Chlorodibromomethane	124-48-1	NA	1,600 (W)	ID	21,000	88,000	88,000	94,000	2.6E+8	3.2E+5
Chloroethane	75-00-3	NA	34,000	22,000 (X)	9.5E+5 (C)	3.5E+7	1.3E+8	2.8E+8	2.3E+11	9.5E+5 (C)
2-Chloroethylvinylether (I)	75-45-6	NA	5,200	ID	5.0E+5 (C)	1.5E+6	1.2E+6	6.4E+6	2.1E+9	6.8E+5 (C)
Chloroform	67-66-3	NA	1,600 (W)	7,000	32,000	1.5E+5	3.4E+5	7.5E+5	1.5E+9	1.5E+6 (C)
Chloromethane (I)	74-87-3	NA	22,000	ID	39,000	1.3E+5	1.0E+6	2.5E+6	2.3E+9	1.1E+6 (C)
1,2-Dibromo-3-Chloropropane	96-12-8	NA	10 (M); 4.0	ID	1,300 (C)	15,000	15,000	15,000	3.3E+6	1,200 (C)
1,2-Dibromoethane (Ethylene dibromide)	106-93-4	NA	20 (M); 1.0	110 (X)	2,600	5,800	5,800	6,200	1.8E+7	450
Dibromomethane	74-95-3	NA	4,000	NA	ID	ID	ID	ID	ID	2.4E+6 (C)
1,2-Dichlorobenzene	95-50-1	NA	14,000	280	2.1E+7 (C)	4.1E+7	4.1E+7	5.5E+7	4.4E+10	2.1E+7 (C)
1,3-Dichlorobenzene	541-73-1	NA	410	520	42,000	94,000	94,000	2.2E+5	8.8E+7	1.7E+6 (C)
1,4-Dichlorobenzene	106-46-7	NA	1,700	360	1.0E+5	2.6E+5	2.6E+5	7.4E+5	5.7E+8	1.1E+6
Dichlorodifluoromethane	75-71-8	NA	2.7E+5	ID	1.7E+6	6.8E+7	1.5E+8	3.4E+8	1.5E+11	1.0E+6 (C)
1,1-Dichloroethane	75-34-3	NA	50,000	15,000	4.3E+5	1.5E+6	6.0E+6	1.4E+7	1.5E+10	8.9E+5 (C)
1,2-Dichloroethane (I)	107-06-2	NA	100	7,200 (X)	11,000	21,000	33,000	74,000	2.3E+8	4.2E+5
1,1-Dichloroethylene (I)	75-35-4	NA	140	2,600	330	2,700	15,000	37,000	7.8E+7	5.7E+5 (C)
cis-1,2-Dichloroethylene	156-59-2	NA	1,400	12,000	41,000	2.1E+5	4.3E+5	1.9E+6	1.0E+9	6.4E+5 (C)
trans-1,2-Dichloroethylene	156-60-5	NA	2,000	30,000 (X)	43,000	1.3E+5	2.6E+5	2.0E+6	2.1E+9	1.4E+6 (C)
1,2-Dichloropropane (I)	78-87-5	NA	100	4,600 (X)	2,600	36,000	33,000	1.2E+5	1.2E+8	5.5E+5 (C)

Sample ID	SB-12	SB-14	SB-24	SB-25	SB-15	SB-18	SB-13	SB-19	SB-20	SB-28	SB-22	SB-23	SB-10	MW-1	MW-2	MW-3
Collection Date	11/16/1993	11/23/1993	11/16/1993	11/23/1993	11/23/1993	11/23/1993	3/28/1994	3/28/1994	3/28/1994	3/28/1994	3/28/1994	3/28/1994	3/29/1994	11/22/1993	11/22/1993	11/22/1993
Depth	11-12'	13-15'	16-18'	9-10'	13-15'	16-18'	13-15'	17-19'	13-15'	15-17'	15-17'	15-17'	15-17'	8-10'	12-14'	14-16'
Metals ug/Kg																
Lead (B)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Semivolatiles, PNAs ug/Kg																
Acenaphthene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Acenaphthylene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Anthracene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(a)anthracene (Q)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(a)pyrene (Q)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(b)fluoranthene (Q)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(k)fluoranthene (Q)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(g,h,i)perylene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Chrysene (Q)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Dibenzo(a,h)anthracene (Q)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Fluoranthene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Fluorene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Indeno(1,2,3-cd)pyrene (Q)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
2-Methylnaphthalene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Naphthalene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Phenanthrene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Pyrene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Volatiles, VOCs ug/Kg																
Acetone (I)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzene (I)	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	16
Bromobenzene (I)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Bromodichloromethane	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Bromoform	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Bromomethane	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
2-Butanone (MEK) (I)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
n-Butylbenzene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
sec-Butylbenzene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
tert-Butylbenzene (I)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Carbon disulfide (I,R)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Carbon tetrachloride	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Chlorobenzene (I)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Chlorodibromomethane	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Chloroethane	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
2-Chloroethylvinylether (I)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Chloroform	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Chloromethane (I)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,2-Dibromo-3-Chloropropane	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,2-Dibromoethane (Ethylene dibromide)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Dibromomethane	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,2-Dichlorobenzene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,3-Dichlorobenzene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,4-Dichlorobenzene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Dichlorodifluoromethane	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,1-Dichloroethane	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,2-Dichloroethane (I)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,1-Dichloroethylene (I)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
cis-1,2-Dichloroethylene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
trans-1,2-Dichloroethylene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,2-Dichloropropane (I)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT

AKTPEERLESS

Table 1: Summary of Soil Analytical Results
Griffin Beverage
1901 Dam Road
West Branch, Michigan
AKT Peerless Project No.7552r

Guideline Number →		#30	#21	#12	#32	#22	#24	#25	#26	#27																	
Parameter	Chemical Abstract Service Number	Statewide Default Background Levels	Non-Residential Drinking Water Protection Criteria and RBSLs	Groundwater Surface Water Interface Protection Criteria and RBSLs	Non-Residential Soil Volatilization to Indoor Air Inhalation Criteria and RBSLs	Non-Residential Infinite Source Volatile Soil Inhalation Criteria (VSIC) and RBSLs	Non-Residential Finite VSIC for 5 Meter Source Thickness	Non-Residential Finite VSIC for 2 Meter Source Thickness	Non-Residential Particulate Soil Inhalation Criteria and RBSLs	Non-Residential Direct Contact Criteria and RBSLs	Sample ID	SB-12	SB-14	SB-14	SB-15	SB-16	SB-16	SB-18	SB-19	SB-20	SB-21	SB-22	SB-23	SB-30	MW-1	MW-2	MW-3
											Collection Date	11/24/1993	11/29/1993	11/29/1993	11/29/1993	11/29/1993	11/29/1993	3/28/1994	3/28/1994	3/28/1994	3/28/1994	3/28/1994	3/28/1994	3/29/1994	11/22/1993	11/22/1993	11/22/1993
(Refer to notes (as of the following report for detailed reference data)											Depth	16-18	13-15	16-18	6-10	13-15	16-18	13-15	17-19	13-15	15-17	15-17	15-17	15-17	8-10	12-14	14-16
1,3-Dichloropropene	542-75-6	NA	720	180 (X)	5,400	48,000	2.6E+5	4.7E+5	5.5E+8	2.4E+5		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Ethylbenzene (I)	100-41-4	NA	1,500	360	2.4E+5 (C)	2.4E+6	2.1E+6	2.2E+6	1.3E+10	2.4E+5 (C)		<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	22	30
2-Hexanone	591-78-6	NA	20,000	ID	1.1E+8	1.3E+8	1.3E+8	1.5E+8	1.3E+9	2.5E+8 (C)		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Isopropyl benzene	98-82-8	NA	2.0E+5	3,200	7.0E+5 (C)	1.0E+6	2.0E+6	2.8E+6	2.2E+9	2.5E+5 (C)		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Methylene chloride	75-09-2	NA	100	30,000 (X)	2.4E+5	7.8E+5	1.7E+6	4.0E+6	3.3E+9	2.3E+6 (C)		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
2-Methylnaphthalene	91-57-6	NA	1.7E+5	4,200	4.5E+6	1.8E+6	1.1E+6	1.1E+6	2.9E+8	2.6E+7		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Methyl-tert-butyl ether (MTBE)	1634-04-4	NA	800	1.4E+5 (X)	5.9E+6 (C)	3.0E+7	4.3E+7	8.8E+7	8.8E+10	5.9E+6 (C)		<50	NT	<50	<50	NT	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
4-Methyl-2-pentanone (MIBK) (I)	108-10-1	NA	1.8E+5	ID	2.7E+6 (C)	3.3E+7	2.2E+7	7.2E+7	6.0E+10	2.7E+6 (C)		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Naphthalene	91-20-3	NA	1.0E+5	730	4.7E+5	3.5E+5	3.3E+5	3.3E+6	8.8E+7	5.2E+7		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
n-Propylbenzene (I)	103-65-1	NA	4,600	ID	ID	ID	ID	ID	3.3E+8	8.0E+6		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Styrene	100-42-5	NA	2,700	2,100 (X)	5.2E+5 (C)	3.3E+6	3.3E+6	4.1E+6	6.8E+9	5.2E+5 (C)		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,1,1,2-Tetrachloroethane	630-20-6	NA	6,400	ID	22,000	1.2E+5	2.2E+5	3.3E+5	5.3E+8	4.4E+5 (C)		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,1,2,2-Tetrachloroethane	79-34-5	NA	700	1,600 (X)	22,000	36,000	36,000	36,000	4.8E+7	2.4E+5		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Tetrachloroethylene	127-18-4	NA	100	1,200 (X)	60,000	1.9E+5	2.9E+5	3.2E+6	5.8E+9	88,000 (C)		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Toluene (I)	108-88-3	NA	16,000	5,400	2.5E+5 (C)	3.3E+6	3.5E+7	3.6E+7	1.2E+10	2.5E+5 (C)		<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	64	202
1,2,4-Trichlorobenzene	120-82-1	NA	4,200	5,900 (X)	1.1E+6 (C)	8.4E+7	3.4E+7	3.4E+7	1.2E+9	1.1E+6 (C,DD)		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,1,1-Trichloroethane	71-55-6	NA	4,000	1,800	4.6E+5	4.2E+6	2.5E+7	3.1E+7	2.2E+10	4.6E+5 (C)		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,1,2-Trichloroethane	79-00-5	NA	100	6,600 (X)	24,000	37,000	37,000	1.2E+6	2.1E+8	2.4E+5		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Trichloroethylene	79-01-6	NA	100	4,000 (X)	37,000	2.8E+5	4.4E+5	1.1E+6	2.1E+8	5.0E+5 (C,DD)		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Trichlorofluoromethane	75-69-4	NA	1.1E+5	NA	3.8E+5 (C)	1.1E+8	2.4E+11	1.4E+11	1.7E+12	5.0E+5 (C)		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,2,3-Trichloropropane	96-18-4	NA	2,400	NA	7,500	22,000	22,000	22,000	8.8E+6	8.3E+5 (C)		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,2,3-Trimethylbenzene	526-73-8	NA	1,800	570	94,000 (C)	1.9E+7	4.2E+6	4.6E+6	3.6E+10	94,000 (C)		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,2,4-Trimethylbenzene (I)	95-63-6	NA	2,100	570	1.1E+5 (C)	2.5E+7	5.0E+6	5.0E+6	3.6E+10	1.1E+5 (C)		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,3,5-Trimethylbenzene (I)	108-67-8	NA	1,800	1,100	94,000 (C)	2.9E+7	4.1E+6	4.6E+6	3.6E+10	94,000 (C)		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Vinyl acetate (I)	108-05-4	NA	31,000	NA	1.5E+6	2.8E+6	3.7E+6	5.3E+6	5.3E+9	2.4E+6 (C,DD)		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Vinyl chloride	75-01-4	NA	40	260 (X)	2,800	29,000	1.7E+5	4.2E+5	6.7E+8	34,000		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Xylenes (I)	1330-20-7	NA	5,600	820	1.5E+5 (C)	5.4E+7	6.3E+7	1.3E+8	1.3E+11	1.5E+5 (C)		<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	71	116

AKTPEERLESS

Table 1: Summary of Soil Analytical Results
Griffin Beverage
1901 Dam Road
West Branch, Michigan
AKT Peerless Project No.7552z

Criteria Footnote Number →		#18	#21	#22	#23	#23	#24	#25	#26	#27	Sample ID	MW-1	Cavity South Wall	Cavity West Wall
Parameter* (*Refer to detailed laboratory report for most analytical data)	Chemical Abstract Service Number	Statewide Default Background Levels	Non-Residential Drinking Water Protection Criteria and RBSLs	Groundwater Surface Water Interface Protection Criteria and RBSLs	Non-Residential Soil Volatilization to Indoor Air Inhalation Criteria and RBSLs	Non-Residential Infinite Source Volatile Soil Inhalation Criteria (VSIC) and RBSLs	Non-Residential Finite VSIC for 5 Meter Source Thickness	Non-Residential Finite VSIC for 2 Meter Source Thickness	Non-Residential Particulate Soil Inhalation Criteria and RBSLs	Non-Residential Direct Contact Criteria and RBSLs	Collection Date	11/22/1999	11/30/1999	11/30/1999
											Depth	15-18'	6.0'	6.0'
Metals ug/kg														
Lead (B)	7439-92-1	21,000	7.0E+5	(G,X)	NLV	NLV	NLV	NLV	4.4E+7	9.0E+5 (DD)		NT	2210	3250
Semivolatiles, PNAs ug/kg														
Acenaphthene	83-32-9	NA	8.8E+5	8,700	3.5E+8	9.7E+7	9.7E+7	9.7E+7	6.2E+9	1.3E+8		NT	<330	<330
Acenaphthylene	208-96-8	NA	17,000	ID	5.4E+6	2.7E+6	2.7E+6	2.7E+6	2.3E+9	5.2E+6		NT	<330	<330
Anthracene	120-12-7	NA	41,000	ID	1.0E+9 (D)	1.4E+9	1.6E+9	1.6E+9	2.9E+10	7.3E+8		NT	<330	<330
Benzo(a)anthracene (Q)	56-55-3	NA	NLL	NLL	NLV	NLV	NLV	NLV	ID	80,000		NT	<330	<330
Benzo(a)pyrene (Q)	50-32-8	NA	NLL	NLL	NLV	NLV	NLV	NLV	1.5E+6	8,000		NT	<330	<330
Benzo(b)fluoranthene (Q)	205-99-2	NA	NLL	NLL	ID	ID	ID	ID	ID	80,000		NT	<330	<330
Benzo(k)fluoranthene (Q)	207-08-9	NA	NLL	NLL	NLV	NLV	NLV	NLV	ID	8.0E+5		NT	<330	<330
Benzo(g,h,i)perylene	191-24-2	NA	NLL	NLL	NLV	NLV	NLV	NLV	3.5E+8	2.0E+6		NT	<330	<330
Chrysene (Q)	218-01-9	NA	NLL	NLL	ID	ID	ID	ID	ID	8.0E+6		NT	<330	<330
Dibenzo(a,h)anthracene (Q)	53-70-3	NA	NLL	NLL	NLV	NLV	NLV	NLV	ID	8,000		NT	<330	<330
Fluoranthene	206-44-0	NA	7.3E+5	5,500	1.0E+9 (D)	8.9E+8	8.9E+8	8.9E+8	4.1E+9	2.3E+8		NT	<330	<330
Fluorene	86-73-7	NA	8.9E+5	5,300	1.0E+9 (D)	1.5E+8	1.5E+8	1.5E+8	4.1E+9	8.7E+7		NT	<330	<330
Indeno(1,2,3-cd)pyrene (Q)	193-39-5	NA	NLL	NLL	NLV	NLV	NLV	NLV	ID	80,000		NT	<330	<330
2-Methylnaphthalene	91-57-6	NA	1.7E+5	4,200	4.5E+6	1.8E+6	1.8E+6	1.8E+6	2.9E+8	2.6E+7		NT	NT	NT
Naphthalene	91-20-3	NA	1.0E+5	730	4.7E+5	3.3E+5	3.5E+5	3.5E+5	2.0E+7	5.2E+7		NT	<330	<330
Phenanthrene	85-01-8	NA	1.6E+5	2,100	5.1E+6	2.8E+5	1.8E+5	2.4E+5	2.9E+6	3.2E+6		NT	<330	<330
Pyrene	129-00-0	NA	4.8E+5	ID	1.0E+9 (D)	7.8E+8	7.8E+8	7.8E+8	2.9E+9	8.4E+7		NT	<330	<330
Volatiles, VOCs ug/kg														
Acetone (I)	67-64-1	NA	42,000	34,000	1.1E+8 (C)	1.6E+8	1.6E+8	2.0E+8	1.7E+11	7.3E+7		NT	NT	NT
Benzene (I)	71-43-2	NA	100 (M)	4,000 (X)	8,400	45,000	39,000	2.2E+5	4.7E+8	4.0E+5 (C)		32	<10	<10
Bromobenzene (I)	108-86-1	NA	1,500	NA	3.1E+5	2.4E+5	3.4E+6	3.1E+5	2.4E+8	7.2E+5 (C)		NT	NT	NT
Bromodichloromethane	75-27-4	NA	1,600 (W)	ID	8,400	31,000	31,000	27,000	2.3E+9	4.9E+5		NT	NT	NT
Bromoform	75-25-2	NA	1,600 (W)	ID	7.2E+5	3.2E+6	3.2E+6	3.2E+6	2.6E+8	8.2E+5 (C)		NT	NT	NT
Bromomethane	74-83-9	NA	310	700	1,440	33,000	27,000	1.4E+7	1.5E+8	3.2E+6		NT	NT	NT
2-Butanone (MEK) (I)	78-93-3	NA	7.6E+5	44,000	2.7E+7 (C)	3.5E+7	3.5E+7	3.4E+7	2.1E+10	2.7E+7 (C,DD)		NT	NT	NT
n-Butylbenzene	104-51-8	NA	4,600	ID	ID	ID	ID	ID	4.8E+8	8.0E+6		NT	NT	NT
sec-Butylbenzene	135-98-8	NA	4,600	ID	ID	ID	ID	ID	1.8E+8	8.0E+6		NT	NT	NT
tert-Butylbenzene (I)	98-06-6	NA	4,600	NA	ID	ID	ID	ID	2.9E+8	8.0E+6		NT	NT	NT
Carbon disulfide (I,R)	75-15-0	NA	16,000	ID	1.4E+5	1.4E+6	8.0E+6	1.3E+7	2.2E+10	1.3E+5 (C,DD)		NT	NT	NT
Carbon tetrachloride	56-23-5	NA	100	900 (X)	390	12,000	34,000	79,000	1.7E+8	1.9E+5 (C)		NT	NT	NT
Chlorobenzene (I)	108-90-7	NA	2,000	500	2.2E+5	3.7E+5	1.3E+6	2.1E+6	2.1E+9	2.6E+5 (C)		NT	NT	NT
Chlorodibromomethane	124-48-1	NA	1,600 (W)	ID	21,000	30,000	80,000	98,000	1.4E+8	5.8E+6		NT	NT	NT
Chloroethane	75-00-3	NA	34,000	22,000 (X)	9.5E+5 (C)	3.0E+7	1.2E+8	2.9E+8	2.9E+11	9.5E+5 (C)		NT	NT	NT
2-Chlorotoluene (I)	95-49-8	NA	3,300	ID	2.8E+5 (C)	1.5E+6	3.3E+6	6.4E+6	2.1E+9	5.3E+5 (C)		NT	NT	NT
Chloroform	67-66-3	NA	1,600 (W)	7,000	34,000	1.5E+5	3.4E+5	3.3E+5	1.0E+9	1.3E+6 (C)		NT	NT	NT
Chloromethane (I)	74-87-3	NA	22,000	ID	18,000	1.7E+5	2.0E+6	2.5E+6	3.4E+9	1.3E+6 (C)		NT	NT	NT
1,2-Dibromo-3-Chloropropane	96-12-8	NA	20 (M); 4.9	ID	1,300 (C)	13,000	13,000	13,000	5.8E+6	1,200 (C)		NT	NT	NT
1,2-Dibromoethane (Ethylene dibromide)	106-93-4	NA	20 (M); 1.0	330 (X)	3,600	5,400	5,100	5,400	2.6E+7	430		NT	NT	NT
Dibromomethane	74-95-3	NA	4,000	NA	ID	ID	ID	ID	ID	2.2E+6 (C)		NT	NT	NT
1,2-Dichlorobenzene	95-50-1	NA	14,000	280	2.1E+5 (C)	4.6E+7	4.6E+7	3.3E+7	4.4E+10	2.1E+5 (C)		NT	NT	NT
1,3-Dichlorobenzene	541-73-1	NA	430	680	41,000	94,000	94,000	1.2E+5	8.8E+7	1.7E+5 (C)		NT	NT	NT
1,4-Dichlorobenzene	106-46-7	NA	1,700	360	1.0E+5	2.0E+5	2.5E+5	3.4E+5	1.7E+8	1.1E+6		NT	NT	NT
Dichlorodifluoromethane	75-71-8	NA	2.7E+5	ID	1.7E+6	6.3E+7	5.1E+8	1.4E+9	3.1E+11	1.0E+6 (C)		NT	NT	NT
1,1-Dichloroethane	75-34-3	NA	50,000	15,000	4.1E+5	2.3E+6	6.0E+6	1.4E+7	3.3E+10	8.9E+5 (C)		NT	NT	NT
1,2-Dichloroethane (I)	107-06-2	NA	100	7,200 (X)	11,000	22,000	33,000	74,000	1.3E+8	4.2E+5		NT	NT	NT
1,1-Dichloroethylene (I)	75-35-4	NA	140	2,600	330	2,700	15,000	37,000	2.8E+7	5.7E+5 (C)		NT	NT	NT
cis-1,2-Dichloroethylene	156-59-2	NA	1,400	22,000	41,000	2.3E+5	4.3E+5	1.8E+6	3.9E+9	6.4E+5 (C)		NT	NT	NT
trans-1,2-Dichloroethylene	156-60-5	NA	2,000	30,000 (X)	43,000	3.3E+5	8.8E+5	2.0E+6	3.3E+9	1.4E+6 (C)		NT	NT	NT
1,2-Dichloropropane (I)	78-87-5	NA	100	4,600 (X)	7,400	30,000	33,000	3.2E+5	1.2E+8	5.5E+5 (C)		NT	NT	NT

AKTPEERLESS

Table 1: Summary of Soil Analytical Results
Griffin Beverage
1901 Dam Road
West Branch, Michigan
AKT Peerless Project No. 7552r

Guideline Number →		#10	#21	#22	#27	#31	#34	#35	[illegible]	[illegible]	Sample ID	[illegible]	Cavity South Wall	[illegible] Wall
Parameter / (Volatile Organic Compounds)	Chemical Abstract Service Number	Statewide Default Background Levels	Non-Residential Drinking Water Protection Criteria and RBSLs	Groundwater Surface Water Interface Protection Criteria and RBSLs	Non-Residential Soil Volatilization to Indoor Air Inhalation Criteria and RBSLs	Non-Residential Infinite Source Volatile Soil Inhalation Criteria (VSIC) and RBSLs	Non-Residential Finite VSIC (2 Meter Source Thickness)	Non-Residential Finite VSIC (5 Meter Source Thickness)	Non-Residential Particulate Soil Inhalation Criteria and RBSLs	Non-Residential Direct Contact Criteria and RBSLs	Collection Date / Depth	11/22/2023 / [illegible]	11/30/2023 / [illegible]	11/30/2023 / [illegible]
1,2-Dichloropropane	78-87-5	NA	100	180 (X)	5,400	60,000	3.0E+5	4.7E+3	3.3E+4	1.4E+3		NT	NT	NT
Ethylbenzene [I]	100-41-4	NA	1,500	360	1.4E+5 (C)	2.4E+6	7.1E+6	4.5E+6	1.3E+10	1.4E+5 (C)		56	<10	<10
2-Hexanone	591-78-6	NA	20,000	ID	1.3E+6	1.3E+6	1.3E+6	2.5E+6	1.1E+9	2.5E+6 (C)		NT	NT	NT
Isopropyl benzene	98-82-8	NA	2.5E+5	3,200	3.9E+5 (C)	2.0E+8	2.0E+8	2.0E+6	2.2E+8	3.9E+5 (C)		NT	NT	NT
Methylene chloride	75-09-2	NA	100	30,000 (X)	2.4E+5	7.8E+5	2.1E+6	4.1E+10	8.2E+8	2.3E+6 (C)		NT	NT	NT
2-Methylnaphthalene	91-57-6	NA	1.7E+5	4,200	4.8E+6	1.5E+6	1.5E+6	1.8E+8	2.9E+8	8.1E+7		NT	NT	NT
Methyl-tert-butyl ether (MTBE)	1634-04-4	NA	800	1.4E+5 (X)	5.9E+6 (C)	2.0E+7	4.5E+7	8.3E+7	8.8E+10	5.9E+6 (C)		<50	NT	NT
4-Methyl-2-pentanone (MIBK) [I]	108-10-1	NA	3.6E+4	ID	2.7E+6 (C)	3.3E+7	3.3E+7	7.0E+7	4.0E+10	2.7E+6 (C)		NT	NT	NT
Naphthalene	91-20-3	NA	1.0E+5	730	4.7E+6	2.5E+5	2.5E+5	3.5E+7	3.8E+7	5.2E+7		NT	NT	NT
n-Propylbenzene [I]	103-65-1	NA	4,300	ID	ID	ID	ID	ID	5.5E+8	2.5E+6		NT	NT	NT
Styrene	100-42-5	NA	2,700	2,100 (X)	5.2E+5 (C)	3.3E+8	3.3E+8	4.2E+8	4.3E+9	5.2E+5 (C)		NT	NT	NT
1,1,1,2-Tetrachloroethane	630-20-6	NA	6,400	ID	11,000	1.2E+5	2.3E+6	8.3E+5	3.3E+6	4.4E+5 (C)		NT	NT	NT
1,1,2,2-Tetrachloroethane	79-34-5	NA	700	1,600 (X)	23,000	34,000	34,000	34,000	4.1E+7	2.6E+5		NT	NT	NT
Tetrachloroethylene	127-18-4	NA	100	1,200 (X)	54,000	5.0E+5	1.4E+6	3.3E+6	8.8E+8	88,000 (C)		NT	NT	NT
Toluene [I]	108-88-3	NA	16,000	5,400	2.5E+5 (C)	3.3E+6	1.2E+7	3.2E+7	2.7E+10	2.5E+5 (C)		164	<10	<10
1,2,4-Trichlorobenzene	120-82-1	NA	4,200	5,900 (X)	1.1E+6 (C)	1.4E+7	1.4E+7	3.4E+7	1.1E+10	1.1E+6 (C,DD)		NT	NT	NT
1,1,1-Trichloroethane	71-55-6	NA	4,000	1,800	4.8E+5	4.1E+6	2.2E+7	3.3E+7	2.3E+10	4.6E+5 (C)		NT	NT	NT
1,1,2-Trichloroethane	79-00-5	NA	100	6,600 (X)	24,000	37,000	57,000	1.2E+5	2.2E+6	8.4E+5		NT	NT	NT
Trichloroethylene	79-01-6	NA	100	4,000 (X)	37,000	2.5E+5	4.4E+5	3.1E+6	2.2E+9	5.0E+5 (C,DD)		NT	NT	NT
Trichlorofluoromethane	75-69-4	NA	1.5E+5	NA	5.5E+5 (C)	3.1E+8	1.4E+11	1.4E+11	1.7E+12	5.0E+5 (C)		NT	NT	NT
1,2,3-Trichloropropane	96-18-4	NA	2,400	NA	7,300	11,000	71,000	32,000	3.3E+6	8.3E+5 (C)		NT	NT	NT
1,2,3-Trimethylbenzene	526-73-8	NA	1,800	570	94,000 (C)	2.5E+7	4.6E+8	4.8E+8	2.8E+12	94,000 (C)		NT	NT	NT
1,2,4-Trimethylbenzene [I]	95-63-6	NA	2,100	570	1.1E+5 (C)	2.1E+7	6.0E+8	6.0E+8	2.1E+10	1.1E+5 (C)		NT	NT	NT
1,3,5-Trimethylbenzene [I]	108-67-8	NA	1,800	1,100	94,000 (C)	1.6E+7	4.4E+8	4.4E+8	2.1E+12	94,000 (C)		NT	NT	NT
Vinyl acetate [I]	108-05-4	NA	16,000	NA	1.5E+6	2.0E+8	2.7E+6	5.0E+6	5.0E+8	2.4E+6 (C,DD)		NT	NT	NT
Vinyl chloride	75-01-4	NA	40	260 (X)	2,900	22,000	3.7E+4	4.2E+5	3.9E+8	34,000		NT	NT	NT
Xylenes [I]	1330-20-7	NA	5,600	820	1.5E+5 (C)	5.4E+7	6.5E+7	3.3E+8	2.2E+12	1.5E+5 (C)		211	<10	<10

AKTPEERLESS

Table 2: Summary of Groundwater Analytical Results
Griffin Beverage
1901 Dam Road
West Branch, Michigan
AKT Peerless Project No. 7552s

Guidesheet Number →		#1	#3	#5	#7	#8																
Parameters (Refer to detailed laboratory report for method reference data)	Chemical Abstract Service Number	Non-Residential Drinking Water Criteria and RBSLs	Groundwater Surface Water Interface Protection Criteria and RBSLs	Non-Residential Groundwater Volatilization to Indoor Air Inhalation Criteria and RBSLs	Water Solubility	Flammability and Explosivity Screening Level	Sample Location	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
							Depth	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
							Collection Date	11/23/22	3/29/94	3/23/94	3/23/94	3/23/94	3/23/94	4/7/22	4/7/22	12/10/03	4/29/96	4/17/22	12/7/22	3/10/15	12/20/03	4/29/96
Metals ug/L																						
Lead (B)	7439-92-1	4.0 (L)	(G,X)	NLV	NA	ID		13	NT	NT	NT	NT	NT	<3	<3	NT	NT	[illegible]	NT	NT	<1	NT
Semivolatiles, PNAs, ug/L																						
Acenaphthene	83-32-9	1,300	38	4,200 (S)	4,240	ID		NT	NT	NT	NT	NT	NT	NT	NT	<5	NT	NT	<5	<5	NT	NT
Acenaphthylene	208-96-8	150	ID	3,900 (S)	3,930	ID		NT	NT	NT	NT	NT	NT	NT	NT	<5	NT	NT	<5	<5	<5	NT
Anthracene	120-12-7	43 (S)	ID	43 (S)	43.4	ID		NT	NT	NT	NT	NT	NT	NT	NT	<5	NT	NT	<5	<5	<5	NT
Benzo(a)anthracene (Q)	56-55-3	8.5	ID	NLV	9.4	ID		NT	NT	NT	NT	NT	NT	NT	NT	<5	NT	NT	<1	<1	<5	NT
Benzo(a)pyrene (Q)	50-32-8	5.0 (A)	ID	NLV	1.62	ID		NT	NT	NT	NT	NT	NT	NT	NT	<5	NT	NT	<1	<1	<5	NT
Benzo(b)fluoranthene (Q)	205-99-2	1.5 (S,AA)	ID	ID	1.5	ID		NT	NT	NT	NT	NT	NT	NT	NT	<5	NT	NT	<1	<1	<5	NT
Benzo(g,h,i)perylene	191-24-2	1.0 (M); 0.26 (S)	ID	NLV	0.26	ID		NT	NT	NT	NT	NT	NT	NT	NT	<5	NT	NT	<1	<1	<5	NT
Benzo(k)fluoranthene (Q)	207-08-9	1.0 (M); 0.8 (S)	NA	NLV	0.8	ID		NT	NT	NT	NT	NT	NT	NT	NT	<5	NT	NT	<1	<1	<5	NT
Chrysene (Q)	218-01-9	1.6 (S)	ID	ID	1.6	ID		NT	NT	NT	NT	NT	NT	NT	NT	<5	NT	NT	<1	<1	<5	NT
Dibenzo(a,h)anthracene (Q)	53-70-3	2.0 (M); 0.85	ID	NLV	2.49	ID		NT	NT	NT	NT	NT	NT	NT	NT	<5	NT	NT	<2	<2	<5	NT
Fluoranthene	206-44-0	210 (S)	1.6	210 (S)	206	ID		NT	NT	NT	NT	NT	NT	NT	NT	<5	NT	NT	<1	<1	<5	NT
Fluorene	86-73-7	2,000 (S)	12	2,000 (S)	1,990	ID		NT	NT	NT	NT	NT	NT	NT	NT	<5	NT	NT	<5	<5	<5	NT
Indeno(1,2,3-cd)pyrene (Q)	193-39-5	2.0 (M); 0.022 (S)	ID	NLV	0.022	ID		NT	NT	NT	NT	NT	NT	NT	NT	<5	NT	NT	<2	<2	<5	NT
2-Methylnaphthalene	91-57-6	[illegible]	[illegible]	25,000 (S)	24,600	ID		NT	NT	NT	NT	NT	NT	[illegible]	[illegible]	NT	NT	NT	8	<5	NT	NT
Naphthalene	91-20-3	1,500	[illegible]	31,000 (S)	31,000	NA		NT	NT	NT	NT	NT	NT	[illegible]	[illegible]	<5	NT	NT	11	<5	<5	NT
Phenanthrene	85-01-8	150	2.0 (M); 1.4	1,000 (S)	1,000	ID		NT	NT	NT	NT	NT	NT	NT	NT	<5	NT	NT	<2	<2	<5	NT
Pyrene	129-00-0	140 (S)	ID	140 (S)	135	ID		NT	NT	NT	NT	NT	NT	NT	NT	<5	NT	NT	<5	<5	<5	NT
Volatiles, VOCs ug/L																						
Acetone (I)	67-64-1	2,100	1,700	1.0E+9 (D,S)	1.0E+9	2.5E+7		NT	NT	NT	NT	NT	NT	<500	<500	NT	NT	<500	<25	<25	NT	NT
Acrylonitrile (I)	107-13-1	11	2.0 (M); 1.2	1.3E+5	7.50E+7	6.4E+6		NT	NT	NT	NT	NT	NT	<2	<2	NT	NT	<2	<1	<1	NT	NT
Benzene (I)	71-43-2	5.0 (A)	200 (X)	35,000	1.75E+6	68,000		[illegible]	4	5	[illegible]	<1	<1	[illegible]	[illegible]	<1	<5	[illegible]	<1	<1	<1	<5
Bromobenzene (I)	108-86-1	30	NA	3.3E+5	4.13E+5	ID		NT	NT	NT	NT	NT	NT	<10	<10	NT	NT	<10	<1	<1	NT	NT
Bromochloromethane	74-97-5							NT	NT	NT	NT	NT	NT	<10	<10	NT	NT	<10	<1	<1	NT	NT
Bromodichloromethane	75-27-4	80 (A,W)	ID	37,000	6.74E+6	ID		NT	NT	NT	NT	NT	NT	<10	<10	NT	NT	<10	<1	<1	NT	NT
Bromoform	75-25-2	80 (A,W)	ID	1.1E+6 (S)	3.10E+6	ID		NT	NT	NT	NT	NT	NT	<10	<10	NT	NT	<10	<1	<1	NT	NT
Bromomethane	74-83-9	23	35	2,000	1.45E+7	ID		NT	NT	NT	NT	NT	NT	<50	<50	NT	NT	<50	<5	<5	NT	NT
2-Butanone (MEK) (I)	78-93-3	38,000	2,200	2.4E+8 (S)	2.40E+8	ID		NT	NT	NT	NT	NT	NT	<25	<25	NT	NT	<25	<1	<1	NT	NT
n-Butylbenzene	104-51-8	230	ID	ID	NA	ID		NT	NT	NT	NT	NT	NT	100	2.0	NT	NT	<1	<1	<1	NT	NT
sec-Butylbenzene	135-98-8	230	ID	ID	NA	ID		NT	NT	NT	NT	NT	NT	<1	<1	NT	NT	<1	<1	<1	NT	NT
tert-Butylbenzene (I)	98-06-6	230	ID	ID	NA	ID		NT	NT	NT	NT	NT	NT	<1	<1	NT	NT	<1	<1	<5	NT	NT
Carbon disulfide (I,R)	75-15-0	1,300	ID	5.5E+5	1.19E+6	13,000		NT	NT	NT	NT	NT	NT	<50	<50	NT	NT	<50	<5	<5	NT	NT
Carbon tetrachloride	56-23-5	5.0 (A)	45 (X)	2,400	7.93E+5	ID		NT	NT	NT	NT	NT	NT	<10	<10	NT	NT	<10	<1	<1	NT	NT
Chlorobenzene (I)	108-90-7	100 (A)	25	4.7E+5 (S)	4.72E+5	1.6E+5		NT	NT	NT	NT	NT	NT	<10	<10	NT	NT	<10	<1	<1	NT	NT
Chloroethane	75-00-3	1,700	1,100 (X)	5.7E+6 (S)	5.74E+6	1.1E+5		NT	NT	NT	NT	NT	NT	<50	<50	NT	NT	<50	<1	<1	NT	NT
Chloroform	67-66-3	80 (A,W)	350	1.8E+5	7.92E+6	ID		NT	NT	NT	NT	NT	NT	<10	<10	NT	NT	<10	<1	<1	NT	NT
Chloromethane (I)	74-87-3	1,100	ID	45,000	6.34E+6	36,000		NT	NT	NT	NT	NT	NT	<1	<1	NT	NT	<1	<1	<1	NT	NT
Dibromochloromethane	124-48-1	80 (A,W)	ID	1.1E+5	2.60E+6	ID		NT	NT	NT	NT	NT	NT	<1	<1	NT	NT	<1	<1	<1	NT	NT
1,2-Dibromo-3-Chloropropane								NT	NT	NT	NT	NT	NT	<1	<1	NT	NT	<1	<1	<1	NT	NT
Dibromomethane	74-95-3	250	NA	ID	1.10E+7	ID		NT	NT	NT	NT	NT	NT	<0.2	<0.2	NT	NT	<0.2	<0.2	<0.2	NT	NT
1,2-Dichlorobenzene	95-50-1	600 (A)	13	1.6E+5 (S)	1.56E+5	NA		NT	NT	NT	NT	NT	NT	<0.2	<0.2	NT	NT	<0.2	<0.2	<0.2	NT	NT
1,3-Dichlorobenzene	541-73-1	58	28	41,000	1.11E+5	ID		NT	NT	NT	NT	NT	NT	<5	<5	NT	NT	<5	<5	<5	NT	NT
1,4-Dichlorobenzene	106-46-7	75 (A)	17	74,000 (S)	73,800	NA		NT	NT	NT	NT	NT	NT	<1	<1	NT	NT	<1	<1	<1	NT	NT
Dichlorodifluoromethane	75-71-8	4,800	ID	3.0E+5 (S)	3.00E+5	ID		NT	NT	NT	NT	NT	NT	<1	<1	NT	NT	<1	<1	<1	NT	NT
1,1-Dichloroethane	75-34-3	2,500	740	2.2E+6	5.06E+6	3.8E+5		NT	NT	NT	NT	NT	NT	<1	<1	NT	NT	<1	<1	<1	NT	NT
1,2-Dichloroethane (I)	107-06-2	5.0 (A)	360 (X)	51,000	8.52E+6	2.5E+6		NT	NT	NT	NT	NT	NT	<2	<1	NT	NT	<1	<1	<1	NT	NT
1,1-Dichloroethylene (I)	75-35-4	7.0 (A)	130	1,300	2.25E+6	57,000		NT	NT	NT	NT	NT	NT	<1	<1	NT	NT	<1	<1	<1	NT	NT

AKTPEERLESS

Table 2: Summary of Groundwater Analytical Results
Griffin Beverage
1901 Dam Road
West Branch, Michigan
AKT Peerless Project No. 7552s

Guidesheet number →		#2	#3	#5	#7	#8																
Parameters (Refer to detailed laboratory report for method reference data)	Chemical Abstract Service Number	Non-Residential Drinking Water Criteria and RBSL	Groundwater Surface Water Interface Protection Criteria and RBSL	Non-Residential Groundwater Volatilization to Indoor Air Inhalation Criteria and RBSL	Water Solubility	Flammability and Explosivity Screening Level	Sample Location	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
							Depth	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
							Collection Date	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
cis-1,2-Dichloroethylene	156-59-2	70 (A)	620	2.1E+6	3.50E+6	5.3E+5		NT	NT	NT	NT	NT	NT	<1	<1	NT	NT	<1	<1	<1	NT	NT
trans-1,2-Dichloroethylene	156-60-5	100 (A)	1,500 (X)	2.0E+5	6.30E+6	2.3E+5		NT	NT	NT	NT	NT	NT	<1	<1	NT	NT	<1	<1	<1	NT	NT
1,2-Dichloropropane (I)	78-87-5	5.0 (A)	230 (X)	36,000	2.80E+6	5.5E+5		NT	NT	NT	NT	NT	NT	<1	<1	NT	NT	<1	<1	<1	NT	NT
Ethylbenzene (I)	100-41-4	74 (E)	[illegible]	1.7E+5 (S)	1.69E+5	43,000		775	5	4	15	<1	<1	500	2000	<1	<1	79	<1	<1	<1	<1
Ethylene dibromide	106-93-4	0.05 (A)	5.7 (X)	15,000	4.20E+6	ID		NT	NT	NT	NT	NT	NT	<10	<10	NT	NT	<10	<1	<1	NT	NT
2-Hexanone	591-78-6	2,600	ID	8.7E+5	1.60E+7	NA		NT	NT	NT	NT	NT	NT	<10	<10	NT	NT	<10	<1	<1	NT	NT
Isopropyl benzene	98-82-8	2,300	[illegible]	56,000 (S)	56,000	25,000		NT	NT	NT	NT	NT	NT	<10	<10	NT	NT	<10	<1	<1	NT	NT
4-Methyl-2-pentanone (MIBK) (I)	108-10-1	5,200	ID	2.0E+7 (S)	2.00E+7	ID		NT	NT	NT	NT	NT	NT	<10	<10	NT	NT	<10	<0.2	<0.2	NT	NT
Methyl-tert-butyl ether (MTBE)	1634-04-4	40 (E)	7,100 (X)	4.7E+7 (S)	4.80E+7	ID		<5000	<50	<50	<50	<50	<50	<10	<10	<50	<50	<50	<50	<50	<50	<50
n-Propylbenzene (I)	103-65-1	250	ID	ID	NA	ID		NT	NT	NT	NT	NT	NT	100	200	NT	NT	<10	<1	<1	NT	NT
Styrene	100-42-5	100 (A)	80 (X)	3.1E+5 (S)	3.10E+5	2.6E+5		NT	NT	NT	NT	NT	NT	<10	<10	NT	NT	<10	<5	<5	NT	NT
1,1,1,2-Tetrachloroethane	630-20-6	330	30 (X)	36,000	1.10E+6	ID		NT	NT	NT	NT	NT	NT	<10	<10	NT	NT	<10	<5	<5	NT	NT
1,1,2,2-Tetrachloroethane	79-34-5	35	78 (X)	77,000	2.97E+6	ID		NT	NT	NT	NT	NT	NT	<10	<10	NT	NT	<10	<5	<5	NT	NT
Tetrachloroethylene	127-18-4	5.0 (A)	60 (X)	1.7E+5	2.0E+5	ID		NT	NT	NT	NT	NT	NT	<10	<10	NT	NT	<10	<5	<5	NT	NT
Toluene (I)	108-88-3	[illegible]	[illegible]	5.3E+5 (S)	5.26E+5	61,000		4,700	14	14	58	<1	<1	[illegible]	[illegible]	<1	<1	810	<50	<50	<1	<1
1,2,4-Trichlorobenzene	120-82-1	70 (A)	99 (X)	3.0E+5 (S)	3.00E+5	NA		NT	NT	NT	NT	NT	NT	<10	<10	NT	NT	<10	<5	<5	NT	NT
1,1,1-Trichloroethane	71-55-6	200 (A)	89	1.3E+6 (S)	1.33E+6	ID		NT	NT	NT	NT	NT	NT	<10	<10	NT	NT	<10	<1	<1	NT	NT
1,1,2-Trichloroethane	79-00-5	5.0 (A)	330 (X)	1.2E+5	4.42E+6	NA		NT	NT	NT	NT	NT	NT	<10	<10	NT	NT	<10	<1	<1	NT	NT
Trichloroethylene	79-01-6	5.0 (A)	200 (X)	37,000	1.10E+6	ID		NT	NT	NT	NT	NT	NT	<10	<10	NT	NT	<10	<1	<1	NT	NT
Trichlorofluoromethane	75-69-4	7,300	NA	1.1E+6 (S)	1.10E+6	ID		NT	NT	NT	NT	NT	NT	<10	<10	NT	NT	<10	<1	<1	NT	NT
1,2,3-Trichloropropane	96-18-4	120	NA	18,000	1.80E+6	NA		NT	NT	NT	NT	NT	NT	<10	<10	NT	NT	<10	<1	<1	NT	NT
1,2,3-Trimethylbenzene	526-73-8	[illegible]	[illegible]	56,000 (S)	55,890	56,000 (S)		NT	NT	NT	NT	NT	NT	[illegible]	[illegible]	NT	NT	250	NT	<1	NT	NT
1,2,4-Trimethylbenzene (I)	95-63-6	63 (E)	[illegible]	56,000 (S)	55,890	56,000 (S)		NT	NT	NT	NT	NT	NT	[illegible]	[illegible]	NT	NT	150	<1	<1	NT	NT
1,3,5-Trimethylbenzene (I)	108-67-8	[illegible]	[illegible]	61,000 (S)	61,150	ID		NT	NT	NT	NT	NT	NT	[illegible]	[illegible]	NT	NT	40	<1	<5	NT	NT
Vinyl chloride	75-01-4	2.0 (A)	13 (X)	33,000	2.76E+6	33,000		NT	NT	NT	NT	NT	NT	<10	<10	NT	NT	<10	<1	<1	NT	NT
Xylenes (I)	1330-20-7	280 (E)	[illegible]	1.9E+5 (S)	1.86E+5	70,000		[illegible]	25	25	[illegible]	<1	<1	[illegible]	19,100	<1	<3	800	<3	<3	<1	<3

AKTPEERLESS

Table 2: Summary of Groundwater Analytical Results
Griffin Beverage
1901 Dam Road
West Branch, Michigan
AKT Peerless Project No. 7552s

Guidesheet Number:	→	#2	#3	#5	#7	#8																
Parameter(s)* / *Refer to data table/laboratory report for method reference data	Chemical Abstract Service Number	Non-Residential Drinking Water Criteria and RBSLs	Groundwater Surface Water Interface Protection Criteria and RBSLs	Non-Residential Groundwater Volatilization to Indoor Air Inhalation Criteria and RBSLs	Water Solubility	Flammability and Explosivity Screening Level	Sample Location	[illegible]	[illegible]	MW-4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
							Depth	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
							Collection Date	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Metals ug/L																						
Lead (B)	7439-92-1	[illegible]	(G,X)	NLV	NA	ID		[illegible]	NT	1	NT	NT	NT	1.3	NT	NT	NT	NT	NT	NT	NT	NT	NT
Semivolatiles, PNAs, ug/L																						
Acenaphthene	83-32-9	1,300	38	4,200 (S)	4,240	ID		<5	<5	NT	NT	<5	<5	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Acenaphthylene	208-96-8	150	ID	3,800 (S)	3,930	ID		<5	<5	<5	NT	<5	<5	<5	NT	NT	NT	NT	NT	NT	NT	NT	NT
Anthracene	120-12-7	43 (S)	ID	43 (S)	43.4	ID		<5	<5	<5	NT	<5	<5	<5	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(a)anthracene (Q)	56-55-3	8.5	ID	NLV	9.4	ID		<1	<1	<5	NT	<1	<1	<5	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(a)pyrene (Q)	50-32-8	5.0 (A)	ID	NLV	1.62	ID		<1	<1	<5	NT	<1	<1	<5	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(b)fluoranthene (Q)	205-99-2	1.5 (S, AA)	ID	ID	1.5	ID		<1	<1	<5	NT	<1	<1	<5	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(g,h,i)perylene	191-24-2	1.0 (M); 0.26 (S)	ID	NLV	0.26	ID		<1	<1	<1	NT	<1	<1	<1	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(k)fluoranthene (Q)	207-08-9	2.0 (M); 0.8 (S)	NA	NLV	0.8	ID		<1	<1	<5	NT	<1	<1	<5	NT	NT	NT	NT	NT	NT	NT	NT	NT
Chrysene (Q)	218-01-9	1.6 (S)	ID	ID	1.6	ID		<1	<1	<5	NT	<1	<1	<5	NT	NT	NT	NT	NT	NT	NT	NT	NT
Dibenzo(a,h)anthracene (Q)	53-70-3	2.0 (M); 0.85	ID	NLV	2.49	ID		<2	<2	<5	NT	<2	<2	<5	NT	NT	NT	NT	NT	NT	NT	NT	NT
Fluoranthene	206-44-0	210 (S)	1.6	210 (S)	206	ID		<1	<1	<5	NT	<1	<1	<5	NT	NT	NT	NT	NT	NT	NT	NT	NT
Fluorene	86-73-7	2,000 (S)	12	2,000 (S)	1,980	ID		<5	<5	<5	NT	<5	<5	<5	NT	NT	NT	NT	NT	NT	NT	NT	NT
Indeno(1,2,3-cd)pyrene (Q)	193-39-5	2.0 (M); 0.022 (S)	ID	NLV	0.022	ID		<2	<2	<5	NT	<2	<2	<5	NT	NT	NT	NT	NT	NT	NT	NT	NT
2-Methylnaphthalene	91-57-6	[illegible]	[illegible]	25,000 (S)	24,600	ID		<5	<5	NT	NT	<5	<5	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Naphthalene	91-20-3	1,500	[illegible]	31,000 (S)	31,000	NA		<5	<5	<5	NT	<5	<5	<5	NT	NT	NT	NT	NT	NT	NT	NT	NT
Phenanthrene	85-01-8	150	2.0 (M); 1.4	1,000 (S)	1,000	ID		<2	<2	<5	NT	<2	<2	<5	NT	NT	NT	NT	NT	NT	NT	NT	NT
Pyrene	129-00-0	140 (S)	ID	140 (S)	135	ID		<5	<5	<5	NT	<5	<5	<5	NT	NT	NT	NT	NT	NT	NT	NT	NT
Volatiles, VOCs ug/L												<1	<1										
Acetone (I)	67-64-1	2,100	1,700	1.0E+8 (D,S)	1.0E+9	1.5E+7		<25	<25	NT	NT	<25	<25	NT	NT	<25	<25	NT	<25	NT	<25	<25	NT
Acrylonitrile (I)	107-13-1	11	2.0 (M); 1.2	1.9E+5	7.50E+7	9.4E+6		<1	<1	NT	NT	<1	<1	NT	NT	<1	<1	NT	<1	NT	<1	<1	NT
Benzene (I)	71-43-2	5.0 (A)	[illegible]	35,000	1.75E+6	68,000		<1	<1	<1	<5	<1	<1	<1	<5	<1	<1	<5	<1	<5	<1	<1	[illegible]
Bromobenzene (I)	108-86-1	18	NA	3.9E+5	4.13E+5	ID		<1	<1	NT	NT	<1	<1	NT	NT	<1	<1	NT	<1	NT	<1	<1	NT
Bromochloromethane	74-97-5							<1	<1	NT	NT	<1	<1	NT	NT	<1	<1	NT	<1	NT	<1	<1	NT
Bromodichloromethane	75-27-4	80 (A,W)	ID	37,400	6.74E+6	ID		<1	<1	NT	NT	<1	<1	NT	NT	<1	<1	NT	<1	NT	<1	<1	NT
Bromoform	75-25-2	80 (A,W)	ID	3.2E+6 (S)	3.10E+6	ID		<1	<1	NT	NT	<1	<1	NT	NT	<1	<1	NT	<1	NT	<1	<1	NT
Bromomethane	74-83-9	25	35	3,000	1.45E+7	ID		<25	<25	NT	NT	<25	<25	NT	NT	<25	<25	NT	<25	NT	<25	<25	NT
2-Butanone (MEK) (I)	78-93-3	38,000	2,200	2.4E+8 (S)	2.40E+8	ID		<1	<1	NT	NT	<1	<1	NT	NT	<1	<1	NT	<1	NT	<1	<1	NT
n-Butylbenzene	104-51-8	230	ID	ID	NA	ID		<1	<1	NT	NT	<1	<1	NT	NT	<1	<1	NT	<1	NT	<1	<1	NT
sec-Butylbenzene	135-98-8	230	ID	ID	NA	ID		<1	<1	NT	NT	<1	<1	NT	NT	<1	<1	NT	<1	NT	<1	<1	NT
tert-Butylbenzene (I)	98-06-6	230	ID	ID	NA	ID		<5	<5	NT	NT	<5	<5	NT	NT	<5	<5	NT	<5	NT	<5	<5	NT
Carbon disulfide (I,R)	75-15-0	2,300	ID	5.5E+5	1.19E+6	13,000		<1	<1	NT	NT	<1	<1	NT	NT	<1	<1	NT	<1	NT	<1	<1	NT
Carbon tetrachloride	56-23-5	5.0 (A)	45 (X)	2,400	7.93E+5	ID		<1	<1	NT	NT	<1	<1	NT	NT	<1	<1	NT	<1	NT	<1	<1	NT
Chlorobenzene (I)	108-90-7	100 (A)	25	4.7E+5 (S)	4.72E+5	1.2E+5		<1	<1	NT	NT	<1	<1	NT	NT	<1	<1	NT	<1	NT	<1	<1	NT
Chloroethane	75-00-3	1,700	1,100 (X)	5.7E+6 (S)	5.74E+6	1.1E+5		<1	<1	NT	NT	<1	<1	NT	NT	<1	<1	NT	<1	NT	<1	<1	NT
Chloroform	67-66-3	80 (A,W)	350	1.8E+5	7.91E+6	ID		<1	<1	NT	NT	<1	<1	NT	NT	<1	<1	NT	<1	NT	<1	<1	NT
Chloromethane (I)	74-87-3	1,100	ID	45,000	5.34E+6	16,000		<1	<1	NT	NT	<1	<1	NT	NT	<1	<1	NT	<1	NT	<1	<1	NT
Dibromochloromethane	124-48-1	80 (A,W)	ID	2.1E+5	2.60E+6	ID		<1	<1	NT	NT	<1	<1	NT	NT	<1	<1	NT	<1	NT	<1	<1	NT
1,2-Dibromo-3-Chloropropane								<1	<1	NT	NT	<1	<1	NT	NT	<1	<1	NT	<1	NT	<1	<1	NT
Dibromomethane	74-95-3	80	NA	13	1.19E+7	ID		<0.2	<0.2	NT	NT	<0.2	<0.2	NT	NT	<0.2	<0.2	NT	<0.2	NT	<0.2	<0.2	NT
1,2-Dichlorobenzene	95-50-1	600 (A)	13	1.6E+5 (S)	1.56E+5	NA		<0.2	<0.2	NT	NT	<0.2	<0.2	NT	NT	<0.2	<0.2	NT	<0.2	NT	<0.2	<0.2	NT
1,3-Dichlorobenzene	541-73-1	19	28	41,000	1.11E+5	ID		<5	<5	NT	NT	<5	<5	NT	NT	<5	<5	NT	<5	NT	<5	<5	NT
1,4-Dichlorobenzene	106-46-7	75 (A)	17	74,000 (S)	73,800	NA		<1	<1	NT	NT	<1	<1	NT	NT	<1	<1	NT	<1	NT	<1	<1	NT
Dichlorodifluoromethane	75-71-8	4,800	ID	3.0E+5 (S)	3.00E+5	ID		<1	<1	NT	NT	<1	<1	NT	NT	<1	<1	NT	<1	NT	<1	<1	NT
1,1-Dichloroethane	75-34-3	2,500	740	2.3E+6	5.06E+6	3.3E+5		<1	<1	NT	NT	<1	<1	NT	NT	<1	<1	NT	<1	NT	<1	<1	NT
1,2-Dichloroethane (I)	107-06-2	5.0 (A)	360 (X)	59,000	8.52E+6	2.5E+6		<1	<1	NT	NT	<1	<1	NT	NT	<1	<1	NT	<1	NT	<1	<1	NT
1,1-Dichloroethylene (I)	75-35-4	7.0 (A)	130	1,300	2.25E+6	57,000		<1	<1	NT	NT	<1	<1	NT	NT	<1	<1	NT	<1	NT	<1	<1	NT

AKTPEERLESS

Table 2: Summary of Groundwater Analytical Results
Griffin Beverage
1901 Dam Road
West Branch, Michigan
AKT Peerless Project No. 7552s

Guidesheet Number →		#2	#3	#5	#7	#8																	
Parameter* (*Refer to detailed laboratory report for method reference data)	Chemical Abstract Service Number	Part 201 Residential Drinking Water Criteria and RBSL	Groundwater Surface Water Interface Protection Criteria and RBSL	Non-Residential Groundwater Volatilization to Indoor Air Inhalation Criteria and RBSL	Water Solubility	Flammability and Explosivity Screening Level	Sample Location / Depth / Collection Date	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	AKTP-7 Former MW [illegible]	[illegible]	[illegible]	[illegible]	[illegible]
cis-1,2-Dichloroethylene	156-59-2	70 (A)	620	2.1E+5	3.50E+6	5.3E+5		<1	<1	NT	NT	<1	<1	NT	NT	<1	<1	NT	<1	NT	<1	<1	NT
trans-1,2-Dichloroethylene	156-60-5	100 (A)	1,500 (X)	2.0E+5	6.30E+6	2.3E+5		<1	<1	NT	NT	<1	<1	NT	NT	<1	<1	NT	<1	NT	<1	<1	NT
1,2-Dichloropropane (I)	78-87-5	5.0 (A)	230 (X)	36,000	2.80E+6	5.5E+5		<1	<1	NT	NT	<1	<1	NT	NT	<1	<1	NT	<1	NT	<1	<1	NT
Ethylbenzene (I)	100-41-4	74 (E)	18	1.7E+5 (S)	1.69E+5	43,000		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Ethylene dibromide	106-93-4	0.05 (A)	5.7 (X)	15,000	4.20E+6	ID		<1	<1	NT	NT	<1	<1	NT	NT	<1	<1	NT	<1	NT	<1	<1	NT
2-Hexanone	591-78-6	2,900	ID	8.7E+6	1.50E+7	NA		<1	<1	NT	NT	<1	<1	NT	NT	<1	<1	NT	<1	NT	<1	<1	NT
Isopropyl benzene	98-82-8	2,300	28	56,000 (S)	56,000	29,000		<1	<1	NT	NT	<1	<1	NT	NT	<1	<1	NT	<1	NT	<1	<1	NT
4-Methyl-2-pentanone (MIBK) (I)	108-10-1	5,200	ID	2.0E+7 (S)	2.00E+7	ID		<0.2	<0.2	NT	NT	<0.2	<0.2	NT	NT	<0.2	<0.1	NT	<0.2	NT	<0.2	<0.2	NT
Methyl-tert-butyl ether (MTBE)	1634-04-4	40 (E)	7,100 (X)	4.7E+7 (S)	4.80E+7	ID		<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
n-Propylbenzene (I)	103-65-1	230	ID	ID	NA	ID		<1	<1	NT	NT	<1	<1	NT	NT	<1	<1	NT	<1	NT	<1	<1	NT
Styrene	100-42-5	100 (A)	80 (X)	3.1E+5 (S)	3.10E+5	1.4E+5		<5	<5	NT	NT	<5	<5	NT	NT	<5	<5	NT	<5	NT	<5	<5	NT
1,1,1,2-Tetrachloroethane	630-20-6	330	20 (X)	56,000	1.10E+6	ID		<5	<5	NT	NT	<5	<5	NT	NT	<5	<5	NT	<5	NT	<5	<5	NT
1,1,2,2-Tetrachloroethane	79-34-5	35	78 (X)	77,000	2.97E+6	ID		<5	<5	NT	NT	<5	<5	NT	NT	<5	<5	NT	<5	NT	<5	<5	NT
Tetrachloroethylene	127-18-4	5.0 (A)	60 (X)	1.7E+5	2.0E+5	ID		<5	<5	NT	NT	<5	<5	NT	NT	<5	<5	NT	10	NT	<5	<5	NT
Toluene (I)	108-88-3	790 (E)	140	5.3E+5 (S)	5.26E+5	61,000		<50	<50	<1	<1	<50	<50	<1	<1	<50	<50	<1	<50	<1	<50	<50	12
1,2,4-Trichlorobenzene	120-82-1	70 (A)	99 (X)	3.0E+5 (S)	3.00E+5	NA		<5	<5	NT	NT	<50	<50	NT	NT	<5	<5	NT	<5	NT	<5	<5	NT
1,1,1-Trichloroethane	71-55-6	200 (A)	89	1.3E+6 (S)	1.33E+6	ID		<1	<1	NT	NT	<5	<5	NT	NT	<1	<1	NT	<1	NT	<1	<1	NT
1,1,2-Trichloroethane	79-00-5	5.0 (A)	330 (X)	1.1E+5	4.42E+6	NA		<1	<1	NT	NT	<1	<1	NT	NT	<1	<1	NT	<1	NT	<1	<1	NT
Trichloroethylene	79-01-6	5.0 (A)	200 (X)	37,000	1.10E+6	ID		<1	<1	NT	NT	<1	<1	NT	NT	<1	<1	NT	<1	NT	<1	<1	NT
Trichlorofluoromethane	75-69-4	7,200	NA	1.1E+6 (S)	1.10E+6	ID		<1	<1	NT	NT	<1	<1	NT	NT	<1	<1	NT	<1	NT	<1	<1	NT
1,2,3-Trichloropropane	96-18-4	120	NA	18,000	1.90E+6	NA		<1	<1	NT	NT	<1	<1	NT	NT	<1	<1	NT	<1	NT	<1	<1	NT
1,2,3-Trimethylbenzene	526-73-8	63 (E)	17	56,000 (S)	55,890	56,000 (S)		NT	<1	NT	NT	NT	<1	NT	NT	NT	<1	NT	NT	NT	NT	<1	NT
1,2,4-Trimethylbenzene (I)	95-63-6	63 (E)	17	56,000 (S)	55,890	56,000 (S)		<1	<1	NT	NT	2	<1	NT	NT	<1	<1	NT	<1	NT	<1	<1	NT
1,3,5-Trimethylbenzene (I)	108-67-8	72 (E)	45	61,000 (S)	61,150	ID		<5	<5	NT	NT	1	<5	NT	NT	<5	<5	NT	<5	NT	<5	<5	NT
Vinyl chloride	75-01-4	2.0 (A)	13 (X)	13,000	2.70E+6	33,000		<5	<5	NT	NT	<5	<5	NT	NT	<5	<5	NT	<5	NT	<5	<5	NT
Xylenes (I)	1330-20-7	280 (E)	41	1.9E+5 (S)	1.86E+5	70,000		<1	<1	<1	<1	4	<1	<1	5	<1	<1	<1	<1	<1	<1	<1	<1

Table 2: Summary of Groundwater Analytical Results
Griffin Beverage
1901 Dam Road
West Branch, Michigan
AKT Peerless Project No. 7552s

Guidesheet Number	→	#2	#3	#5	#7	#8																	
Parameter (Refer to data key/laboratory report for detailed reference data)	Chemical Abstract Service Number	Non-Residential Drinking Water Criteria and RBSLs	Groundwater Surface Water Interface Protection Criteria and RBSLs	Non-Residential Groundwater Volatilization to Indoor Air Inhalation Criteria and RBSLs	Water Solubility	Flammability and Explosivity Screening Level	Sample Location	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
							Depth	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
							Collection Date	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Metals ug/L																							
Lead (A)	7439-92-1	4.0 (L)	(G,X)	NLV	NA	ID		<1	NT	NT	<1	<1	<1	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Semivolatiles, PNAs, ug/L																							
Acenaphthene	83-32-9	1,300	38	4,200 (S)	4,240	ID		<5	NT	NT	NT	NT	<5	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Acenaphthylene	208-96-8	150	ID	3,900 (S)	3,930	ID		<5	NT	NT	NT	NT	<5	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Anthracene	120-12-7	43 (S)	ID	43 (S)	43.4	ID		<5	NT	NT	NT	NT	<5	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(a)anthracene (Q)	56-55-3	8.5	ID	NLV	9.4	ID		<1	NT	NT	NT	NT	<5	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(a)pyrene (Q)	50-32-8	5.0 (A)	ID	NLV	1.62	ID		<1	NT	NT	NT	NT	<5	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(b)fluoranthene (Q)	205-99-2	1.5 (S, AA)	ID	ID	1.5	ID		<1	NT	NT	NT	NT	<5	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(g,h,i)perylene	191-24-2	1.0 (M); 0.26 (S)	ID	NLV	0.26	ID		<1	NT	NT	NT	NT	<5	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(k)fluoranthene (Q)	207-08-9	1.0 (M); 0.8 (S)	NA	NLV	0.8	ID		<1	NT	NT	NT	NT	<5	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Chrysene (Q)	218-01-9	1.6 (S)	ID	ID	1.6	ID		<1	NT	NT	NT	NT	<5	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Dibenzo(a,h)anthracene (Q)	53-70-3	2.0 (M); 0.25	ID	NLV	2.49	ID		<2	NT	NT	NT	NT	<5	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Fluoranthene	206-44-0	210 (S)	1.6	210 (S)	206	ID		<1	NT	NT	NT	NT	<5	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Fluorene	86-73-7	2,000 (S)	12	2,000 (S)	1,980	ID		<5	NT	NT	NT	NT	<5	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Indeno(1,2,3-cd)pyrene (Q)	193-39-5	2.0 (M); 0.022 (S)	ID	NLV	0.022	ID		<2	NT	NT	NT	NT	<5	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
2-Methylnaphthalene	91-57-6	750	19	25,000 (S)	24,600	ID		<5	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Naphthalene	91-20-3	1,500	[illegible]	31,000 (S)	31,000	NA		7	NT	NT	NT	NT	<5	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Phenanthrene	85-01-8	150	2.0 (M); 1.4	1,000 (S)	1,000	ID		<2	NT	NT	NT	NT	<5	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Pyrene	129-00-0	140 (S)	ID	140 (S)	135	ID		<5	NT	NT	NT	NT	<5	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Volatiles, VOCs ug/L																							
Acetone (I)	67-64-1	2,100	1,700	1.0E+9 (D,S)	1.0E+9	1.5E+7		<50	<25	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Acrylonitrile (I)	107-13-1	11	2.0 (M); 1.2	1.3E+5	7.90E+7	6.4E+6		<2	<1	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzene (I)	71-43-2	[illegible]	[illegible]	35,000	1.75E+6	68,000		[illegible]	<1	[illegible]	[illegible]	NT	<1	[illegible]	[illegible]	<15000	[illegible]	NT	<1	[illegible]	<1	<1	<1
Bromobenzene (I)	108-86-1	18	NA	3.3E+5	4.46E+5	ID		<1	<1	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Bromochloromethane	74-97-5							<1	<1	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Bromodichloromethane	75-27-4	80 (A,W)	ID	17,000	6.74E+6	ID		<1	<1	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Bromoform	75-25-2	80 (A,W)	ID	3.1E+6 (S)	3.10E+6	ID		<10	<1	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Bromomethane	74-83-9	29	35	9,000	1.45E+7	ID		<50	<25	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
2-Butanone (MEK) (I)	78-93-3	38,000	2,200	2.4E+8 (S)	2.40E+8	ID		<25	<1	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
n-Butylbenzene	104-51-8	230	ID	ID	NA	ID		2	<1	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
sec-Butylbenzene	135-98-8	230	ID	ID	NA	ID		<1	<1	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
tert-Butylbenzene (I)	98-06-6	230	ID	ID	NA	ID		<1	<5	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Carbon disulfide (I,R)	75-15-0	2,300	ID	5.2E+5	1.19E+6	13,000		<50	<1	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Carbon tetrachloride	56-23-5	5.0 (A)	45 (X)	2,400	7.93E+5	ID		<10	<1	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Chlorobenzene (I)	108-90-7	100 (A)	25	4.7E+5 (S)	4.72E+5	1.6E+5		<10	<1	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Chloroethane	75-00-3	1,700	1,100 (X)	5.7E+6 (S)	5.74E+6	1.1E+5		<50	<1	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Chloroform	67-66-3	80 (A,W)	350	1.8E+5	7.92E+6	ID		<10	<1	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Chloromethane (I)	74-87-3	1,100	ID	45,000	5.34E+6	36,000		<1	<1	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Dibromochloromethane	124-48-1	80 (A,W)	ID	1.1E+5	2.60E+6	ID		<1	<1	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,2-Dibromo-3-Chloropropane								<1	<1	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Dibromomethane	74-95-3	230	NA	ID	1.19E+7	ID		<0.2	<0.2	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,2-Dichlorobenzene	95-50-1	600 (A)	13	1.6E+5 (S)	1.56E+5	NA		<0.2	<0.2	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,3-Dichlorobenzene	541-73-1	19	28	41,000	1.33E+5	ID		<5	<5	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,4-Dichlorobenzene	106-46-7	75 (A)	17	74,000 (S)	73,800	NA		<1	<1	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Dichlorodifluoromethane	75-71-8	4,400	ID	3.0E+5 (S)	3.00E+5	ID		<1	<1	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,1-Dichloroethane	75-34-3	2,500	740	2.3E+6	5.06E+6	3.8E+5		<1	<1	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,2-Dichloroethane (I)	107-06-2	5.0 (A)	360 (X)	59,000	8.52E+6	2.5E+6		<1	<1	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,1-Dichloroethylene (I)	75-35-4	7.0 (A)	130	1,300	2.25E+6	37,000		<1	<1	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT

AKTPEERLESS

Table 2: Summary of Groundwater Analytical Results
Griffin Beverage
1901 Dam Road
West Branch, Michigan
AKT Peerless Project No. 7552s

Parameters (Refer to detailed laboratory report for method reference limit)	Chemical Abstract Service Number	Residential Drinking Water Criteria and RBSLs (#2)	Groundwater Surface Water Interface Protection Criteria and RBSLs (#3)	Non-Residential Groundwater Volatilization to Indoor Air Inhalation Criteria and RBSLs (#5)	Water Solubility (#7)	Flammability and Explosivity Screening Level (#8)	Sample Location / Depth / Collection Date	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
cis-1,2-Dichloroethylene	156-59-2	70 (A)	620	2.1E+5	3.50E+6	5.3E+5		<1	<1	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
trans-1,2-Dichloroethylene	156-60-5	100 (A)	1,500 (X)	2.0E+5	6.30E+6	2.3E+5		<1	<1	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,2-Dichloropropane (I)	78-87-5	5.0 (A)	230 (X)	26,000	2.80E+6	5.3E+5		<1	<1	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Ethylbenzene (I)	100-41-4	74 (E)	[illegible]	1.7E+5 (S)	1.69E+5	43,000		[illegible]	<1	<1	3,700	NT	<1	23,000	<100	2,500	3	NT	<1	1	<1	<1	<1
Ethylene dibromide	106-93-4	0.05 (A)	5.7 (X)	15,000	4.20E+6	ID		<10	<1	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
2-Hexanone	591-78-6	2,900	ID	2.7E+6	1.60E+7	NA		<10	<1	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Isopropyl benzene	98-82-8	2,100	[illegible]	56,000 (S)	56,000	23,000		<10	<1	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
4-Methyl-2-pentanone (MIBK) (I)	108-10-1	5,200	ID	2.0E+7 (S)	2.00E+7	ID		<10	<0.2	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Methyl-tert-butyl ether (MTBE)	1634-04-4	40 (E)	7,100 (X)	4.7E+7 (S)	4.60E+7	ID		<20	<50	<50	<2000	<50	<50	<25000	NT	<5000	<50	<50	<50	<50	<50	<50	<50
n-Propylbenzene (I)	103-65-1	230	ID	ID	NA	ID		6.0	<1	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Styrene	100-42-5	100 (A)	80 (X)	3.1E+5 (S)	3.10E+5	1.4E+5		<10	<5	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,1,1,2-Tetrachloroethane	630-20-6	320	10 (X)	96,000	1.10E+6	ID		<10	<5	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,1,2,2-Tetrachloroethane	79-34-5	35	78 (X)	77,000	2.97E+6	ID		<10	<1	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Tetrachloroethylene	127-18-4	5.0 (A)	60 (X)	1.7E+5	2.0E+5	ID		<10	28	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Toluene (I)	108-88-3	790 (E)	[illegible]	5.3E+5 (S)	5.26E+5	61,000		[illegible]	<50	5	15,000	NT	<1	24,000	[illegible]	<20000	10	NT	1	6	<1	<1	<1
1,2,4-Trichlorobenzene	120-82-1	70 (A)	99 (X)	3.0E+5 (S)	3.00E+5	NA		<10	<5	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,1,1-Trichloroethane	71-55-6	200 (A)	89	1.3E+6 (S)	1.33E+6	ID		<10	<1	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,1,2-Trichloroethane	79-00-5	5.0 (A)	330 (X)	1.1E+5	4.42E+6	NA		<10	<1	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Trichloroethylene	79-01-6	5.0 (A)	200 (X)	97,000	1.10E+6	ID		<10	<1	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Trichlorofluoromethane	75-69-4	2,600	NA	1.1E+6 (S)	1.10E+6	ID		<10	<1	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,2,3-Trichloropropane	96-18-4	110	NA	18,000	1.90E+6	NA		<10	<1	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,2,3-Trimethylbenzene	526-73-8	[illegible]	[illegible]	56,000 (S)	55,850	56,000 (S)		[illegible]	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,2,4-Trimethylbenzene (I)	95-63-6	63 (E)	[illegible]	56,000 (S)	55,850	56,000 (S)		[illegible]	<1	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,3,5-Trimethylbenzene (I)	108-67-8	72 (E)	[illegible]	61,000 (S)	61,250	ID		30	<5	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Vinyl chloride	75-01-4	2.0 (A)	13 (X)	13,000	2.76E+6	33,000		<1	<5	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Xylenes (I)	1330-20-7	280 (E)	[illegible]	1.9E+5 (S)	1.86E+5	70,000		[illegible]	<1	<1	33,000	NT	<1	[illegible]	[illegible]	[illegible]	3	NT	1	3	<1	<1	<1

AKTPEERLESS

Table 2: Summary of Groundwater Analytical Results
Griffin Beverage
1901 Dam Road
West Branch, Michigan
AKT Peerless Project No. 7552s

Guidesheet Number →		#2	#3	#5	#7	#8																	
Parameters*; */#: Refer to detailed laboratory report for method reference data	Chemical Abstract Service Number	Non-Residential Drinking Water Criteria and RBSLs	Groundwater Surface Water Interface Protection Criteria and RBSLs	Non-Residential Groundwater Volatilization to Indoor Air Inhalation Criteria and RBSLs	Water Solubility	Flammability and Explosivity Screening Level	Sample Location	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Excavation Cavity	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
							Depth	[illegible]	[illegible]	[illegible]	[illegible]	NA	NA	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
							Collection Date	3/28/94	3/28/94	3/28/94	3/29/94	3/29/94	3/18/94	2/9/15	2/10/15	2/9/15	3/10/15	[illegible]	3/18/15	2/10/15	3/10/15	3/10/15	3/10/15
Metals ug/L																							
Lead (B)	7439-92-1	4.0 (L)	(G,X)	NLV	NA	ID		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	<3	NT	NT	NT	NT	NT
Semivolatiles, PNAs, ug/L																							
Acenaphthene	83-32-9	1,300	38	4,200 (S)	4,240	ID		NT	NT	NT	NT	NT	NT	<5	<5	<5	<5	NT	NT	NT	NT	NT	NT
Acenaphthylene	208-96-8	130	ID	3,900 (S)	3,930	ID		NT	NT	NT	NT	NT	NT	<5	<5	<5	<5	NT	NT	NT	NT	NT	NT
Anthracene	120-12-7	43 (S)	ID	43 (S)	43.4	ID		NT	NT	NT	NT	NT	NT	<5	<5	<5	<5	NT	NT	NT	NT	NT	NT
Benzo(a)anthracene (Q)	56-55-3	8.5	ID	NLV	9.4	ID		NT	NT	NT	NT	NT	NT	<1	<1	<1	<1	NT	NT	NT	NT	NT	NT
Benzo(a)pyrene (Q)	50-32-8	5.0 (A)	ID	NLV	1.62	ID		NT	NT	NT	NT	NT	NT	<1	<1	<1	<1	NT	NT	NT	NT	NT	NT
Benzo(b)fluoranthene (Q)	205-99-2	1.5 (S, AA)	ID	ID	1.5	ID		NT	NT	NT	NT	NT	NT	<1	<1	<1	<1	NT	NT	NT	NT	NT	NT
Benzo(g,h,i)perylene	191-24-2	1.0 (M); 0.26 (S)	ID	NLV	0.26	ID		NT	NT	NT	NT	NT	NT	<1	<1	<1	<1	NT	NT	NT	NT	NT	NT
Benzo(k)fluoranthene (Q)	207-08-9	1.0 (M); 0.8 (S)	NA	NLV	0.8	ID		NT	NT	NT	NT	NT	NT	<1	<1	<1	<1	NT	NT	NT	NT	NT	NT
Chrysene (Q)	218-01-9	1.6 (S)	ID	ID	1.6	ID		NT	NT	NT	NT	NT	NT	<1	<1	<1	<1	NT	NT	NT	NT	NT	NT
Dibenz(a,h)anthracene (Q)	53-70-3	2.0 (M); 0.25	ID	NLV	2.49	ID		NT	NT	NT	NT	NT	NT	<2	<2	<2	<1	NT	NT	NT	NT	NT	NT
Fluoranthene	206-44-0	210 (S)	1.6	210 (S)	206	ID		NT	NT	NT	NT	NT	NT	<1	<1	<1	<1	NT	NT	NT	NT	NT	NT
Fluorene	86-73-7	2,000 (S)	12	2,000 (S)	1,990	ID		NT	NT	NT	NT	NT	NT	<5	<5	<5	<5	NT	NT	NT	NT	NT	NT
Indeno(1,2,3-cd)pyrene (Q)	193-39-5	2.0 (M); 0.022 (S)	ID	NLV	0.022	ID		NT	NT	NT	NT	NT	NT	<2	<2	<2	<2	NT	NT	NT	NT	NT	NT
2-Methylnaphthalene	91-57-6	[illegible]	[illegible]	25,000 (S)	24,600	ID		NT	NT	NT	NT	NT	NT	<5	<5	<5	<5	NT	16	<5.0	NT	NT	NT
Naphthalene	91-20-3	1,500	[illegible]	31,000 (S)	31,000	NA		NT	NT	NT	NT	NT	NT	<5	<5	8	<5.0	NT	[illegible]	[illegible]	<5.0	<5.0	<5.0
Phenanthrene	85-01-8	150	2.0 (M); 1.4	1,000 (S)	1,000	ID		NT	NT	NT	NT	NT	NT	<2	<2	<2	<2	NT	NT	NT	NT	NT	NT
Pyrene	129-00-0	140 (S)	ID	140 (S)	135	ID		NT	NT	NT	NT	NT	NT	<5	<5	<5	<5	NT	NT	NT	NT	NT	NT
Volatiles, VOCs ug/L																							
Acetone (I)	67-64-1	2,100	1,700	1.0E+9 (D,S)	1.0E+9	1.5E+7		NT	NT	NT	NT	NT	NT	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
Acrylonitrile (I)	107-13-1	11	2.0 (M); 1.2	1.9E+5	7.50E+7	6.4E+6		NT	NT	NT	NT	NT	NT	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Benzene (I)	71-43-2	[illegible]	200 (X)	35,000	1.75E+6	68,000		<1	<1	[illegible]	<10	<10	<1	<1	<1	<1	<1	<1	[illegible]	[illegible]	<1	<1	<1
Bromobenzene (I)	108-86-1	50	NA	3.9E+5	4.13E+5	ID		NT	NT	NT	NT	NT	NT	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromochloromethane	74-97-5							NT	NT	NT	NT	NT	NT	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromodichloromethane	75-27-4	80 (A,W)	ID	37,000	6.74E+6	ID		NT	NT	NT	NT	NT	NT	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromoform	75-25-2	80 (A,W)	ID	3.1E+6 (S)	3.10E+6	ID		NT	NT	NT	NT	NT	NT	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromomethane	74-83-9	29	35	5,000	1.45E+7	ID		NT	NT	NT	NT	NT	NT	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
2-Butanone (MEK) (I)	78-93-3	13,000	2,200	2.4E+8 (S)	2.40E+8	ID		NT	NT	NT	NT	NT	NT	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
n-Butylbenzene	104-51-8	230	ID	ID	NA	ID		NT	NT	NT	NT	NT	NT	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
sec-Butylbenzene	135-98-8	230	ID	ID	NA	ID		NT	NT	NT	NT	NT	NT	1	1	1	1	1	1	1	1	1	1
tert-Butylbenzene (I)	98-06-6	230	ID	ID	NA	ID		NT	NT	NT	NT	NT	NT	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Carbon disulfide (I,R)	75-15-0	2,300	ID	5.5E+5	1.19E+6	13,000		NT	NT	NT	NT	NT	NT	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Carbon tetrachloride	56-23-5	5.0 (A)	45 (X)	2,400	7.93E+5	ID		NT	NT	NT	NT	NT	NT	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chlorobenzene (I)	108-90-7	100 (A)	25	4.7E+5 (S)	4.72E+5	1.0E+5		NT	NT	NT	NT	NT	NT	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloroethane	75-00-3	2,700	1,100 (X)	5.7E+6 (S)	5.74E+6	1.1E+5		NT	NT	NT	NT	NT	NT	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloroform	67-66-3	80 (A,W)	350	1.8E+5	7.92E+6	ID		NT	NT	NT	NT	NT	NT	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloromethane (I)	74-87-3	1,100	ID	45,000	5.33E+6	36,000		NT	NT	NT	NT	NT	NT	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dibromochloromethane	124-48-1	80 (A,W)	ID	1.1E+5	2.60E+6	ID		NT	NT	NT	NT	NT	NT	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dibromo-3-Chloropropane								NT	NT	NT	NT	NT	NT	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dibromomethane	74-95-3	350	NA	ID	1.19E+7	ID		NT	NT	NT	NT	NT	NT	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
1,2-Dichlorobenzene	95-50-1	600 (A)	13	1.6E+5 (S)	1.56E+5	NA		NT	NT	NT	NT	NT	NT	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
1,3-Dichlorobenzene	541-73-1	19	28	41,000	1.11E+5	ID		NT	NT	NT	NT	NT	NT	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,4-Dichlorobenzene	106-46-7	75 (A)	17	74,000 (S)	73,800	NA		NT	NT	NT	NT	NT	NT	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dichlorodifluoromethane	75-71-8	4,400	ID	3.0E+5 (S)	3.00E+5	ID		NT	NT	NT	NT	NT	NT	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	75-34-3	2,500	740	2.3E+6	5.06E+6	3.8E+5		NT	NT	NT	NT	NT	NT	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloroethane (I)	107-06-2	5.0 (A)	360 (X)	19,000	8.52E+6	2.5E+6		NT	NT	NT	NT	NT	NT	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethylene (I)	75-35-4	7.0 (A)	130	1,300	2.25E+6	97,000		NT	NT	NT	NT	NT	NT	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1

AKTPEERLESS

Table 2: Summary of Groundwater Analytical Results
Griffin Beverage
1901 Dam Road
West Branch, Michigan
AKT Peerless Project No. 7552s

Guidesheet Number →		#1	#3	#5	#7	#8																			
Parameter	Chemical Abstract Service Number	Non-Residential Drinking Water Criteria and RBSLs	Groundwater Surface Water Interface Protection Criteria and RBSLs	Non-Residential Groundwater Volatilization to Indoor Air Inhalation Criteria and RBSLs	Water Solubility	Flammability and Explosivity Screening Level	Sample Location	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
							Depth	[illegible]	[illegible]	[illegible]	[illegible]	NA	NA	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
							Collection Date	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
cis-1,2-Dichloroethylene	156-59-2	70 (A)	620	2.2E+5	3.50E+6	5.3E+5		NT	NT	NT	NT	NT	NT	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
trans-1,2-Dichloroethylene	156-60-5	100 (A)	1,500 (X)	2.0E+5	6.30E+6	2.3E+5		NT	NT	NT	NT	NT	NT	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloropropane (I)	78-87-5	5.0 (A)	230 (X)	36,000	2.80E+6	5.5E+5		NT	NT	NT	NT	NT	NT	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Ethylbenzene (I)	100-41-4	74 (E)	18 (X)	1.7E+5 (S)	1.69E+5	43,000		<1	<1	<10	<10	<10	<1	<1	<1	7	<1	<1	2100	1900	<1	<1	<1
Ethylene dibromide	106-93-4	0.05 (A)	5.7 (X)	25,000	4.20E+6	ID		NT	NT	NT	NT	NT	NT	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2-Hexanone	591-78-6	2,900	ID	8.7E+6	1.60E+7	NA		NT	NT	NT	NT	NT	NT	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Isopropyl benzene	98-82-8	2,100	28	56,000 (S)	56,000	56,000		NT	NT	NT	NT	NT	NT	<1	<1	<1	<1	<1	[illegible]	[illegible]	<1	<1	<1
4-Methyl-2-pentanone (MIBK) (I)	108-10-1	5,200	ID	2.0E+7 (S)	2.00E+7	ID		NT	NT	NT	NT	NT	NT	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methyl-tert-butyl ether (MTBE)	1634-04-4	40 (E)	7,100 (X)	4.7E+7 (S)	4.68E+7	ID		<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
n-Propylbenzene (I)	103-65-1	230	ID	ID	NA	ID		NT	NT	NT	NT	NT	NT	<1	<1	3	3	<1	73	44	<1	<1	<1
Styrene	100-42-5	100 (A)	80 (X)	3.1E+5 (S)	3.10E+5	1.4E+5		NT	NT	NT	NT	NT	NT	<5	<5	<5	<5	<5	5.3	3.6	<5	<5	<5
1,1,1,2-Tetrachloroethane	630-20-6	120	10 (X)	96,000	1.10E+6	ID		NT	NT	NT	NT	NT	NT	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	79-34-5	35	78 (X)	77,000	2.97E+6	ID		NT	NT	NT	NT	NT	NT	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Tetrachloroethylene	127-18-4	5.0 (A)	60 (X)	1.7E+5	2.0E+5	ID		NT	NT	NT	NT	NT	NT	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Toluene (I)	108-88-3	790 (E)	140 (X)	5.3E+5 (S)	5.26E+5	61,000		<1	<1	17	<10	<10	<1	2	<10	<50	<50	2	8200	12000	2	2	2
1,2,4-Trichlorobenzene	120-82-1	70 (A)	99 (X)	3.0E+5 (S)	3.00E+5	NA		NT	NT	NT	NT	NT	NT	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,1,1-Trichloroethane	71-55-6	200 (A)	89	1.3E+6 (S)	1.33E+6	ID		NT	NT	NT	NT	NT	NT	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2-Trichloroethane	79-00-5	5.0 (A)	330 (X)	1.1E+5	4.42E+6	NA		NT	NT	NT	NT	NT	NT	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trichloroethylene	79-01-6	5.0 (A)	200 (X)	97,000	1.10E+6	ID		NT	NT	NT	NT	NT	NT	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trichlorofluoromethane	75-69-4	7,300	NA	1.1E+6 (S)	1.10E+6	ID		NT	NT	NT	NT	NT	NT	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2,3-Trichloropropane	96-18-4	120	NA	18,000	1.80E+6	NA		NT	NT	NT	NT	NT	NT	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2,3-Trimethylbenzene	526-73-8	63 (E)	17 (X)	56,000 (S)	55,900	56,000 (S)		NT	NT	NT	NT	NT	NT	<1	<1	15	<1	NT	1,000	2,400	<1	<1	<1
1,2,4-Trimethylbenzene (I)	95-63-6	63 (E)	17 (X)	56,000 (S)	55,890	56,000 (S)		NT	NT	NT	NT	NT	NT	<1	<1	83	<1	<1	2,500	620	<1	<1	<1
1,3,5-Trimethylbenzene (I)	108-67-8	72 (E)	45 (X)	61,000 (S)	61,150	ID		NT	NT	NT	NT	NT	NT	<5	<5	140	4	<5	1,250	1,100	<5	<5	<5
Vinyl chloride	75-01-4	2.0 (A)	13 (X)	13,000	2.76E+6	33,000		NT	NT	NT	NT	NT	NT	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Xylenes (I)	1330-20-7	280 (E)	41 (X)	1.9E+5 (S)	1.86E+5	70,000		<1	<1	<10	<10	<10	<1	<1	<1	25	<5	<1	14,400	12,000	<1	<1	<1

AKTPEERLESS

R 299.49 FOOTNOTES
(as last revised by MDEQ on December 30, 2013)
FOR GENERIC CLEANUP CRITERIA TABLES
Cleanup Criteria Requirements for Response Activity (formerly the Part 201 Generic Cleanup Criteria and Screening Levels)

(A) Criterion is the state of Michigan drinking water standard established pursuant to Section 5 of 1976 PA 399, MCL 325.1005.
(B) Background, as defined in R 299.1(b), may be substituted if higher than the calculated cleanup criterion. Background levels may be less than criteria for some inorganic compounds.
(C) The criterion developed under R 299.20 to R 299.26 exceeds the chemical-specific soil saturation screening level (C_{sat}). The person proposing or implementing response activity shall document whether additional response activity is required to control free-phase liquids or NAPL to protect against risks associated with free-phase liquids by using methods appropriate for the free-phase liquids present. Development of a site-specific C_{sat} or methods presented in R 299.22, R 299.24(5), and R 299.26(8) may be conducted for the relevant exposure pathways.
(D) Calculated criterion exceeds 100 percent, hence it is reduced to 100 percent or 1.0E+9 parts per billion (ppb).
(E) Criterion is the aesthetic drinking water value, as required by Section 20120a(5) of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA). A notice of aesthetic impact may be employed as an institutional control mechanism if groundwater concentrations exceed the aesthetic drinking water criterion, but do not exceed the applicable health-based drinking water value (as provided in the table in Footnote (E) in R 299.49).
(F) Criterion is based on adverse impacts to plant life and phytotoxicity.
(G) Groundwater surface water interface (GSI) criterion depends on the pH or water hardness, or both, of the receiving surface water. The final chronic value (FCV) for the protection of aquatic life shall be calculated based on the pH or hardness of the receiving surface water. Where water hardness exceeds 400 mg $CaCO_3$/L, use 400 mg $CaCO_3$/L for the FCV calculation. The FCV formula provides values in units of ug/L or ppb. The generic GSI criterion is the lesser of the calculated FCV, the wildlife value (WV), and the surface water human non-drinking water value (HNDV). The soil GSI protection criteria for these hazardous substances are the greater of 20 times the GSI criterion or the GSI soil-water partition values using the GSI criteria developed with the procedure described in this footnote. [See table in Footnote (G) in R 299.49]
(H) Valence-specific chromium data (Cr III and Cr VI) shall be compared to the corresponding valence-specific cleanup criteria. If both Cr III and Cr VI are present in groundwater, the total concentration of both cannot exceed the drinking water criterion of 100 ug/L. If analytical data are provided for total chromium only, they shall be compared to the cleanup criteria for Cr VI. Cr III soil cleanup criterion for protection of drinking water can only be used at sites where groundwater is prevented from being used as a public water supply, currently and in the future, through an approved land or resource use restriction.

(I) Hazardous substance may exhibit the characteristic of ignitability as defined in 40 C.F.R. §261.21 (revised as of July 1, 2001), which is adopted by reference in these rules.
(J) Hazardous substance may be present in several isomer forms. Isomer-specific concentrations shall be added together for comparison to criteria.
(K) Hazardous substance may be flammable or explosive, or both.
(L) Criteria for lead are derived using a biologically based model, as allowed for under Section 20120a(9) of the NREPA, and are not calculated using the algorithms and assumptions specified in pathway-specific rules. The generic residential drinking water criterion of 4 ug/L is linked to the generic residential soil direct contact criterion of 400 mg/kg. A higher concentration in the drinking water, up to the state action level of 15 ug/L, may be allowed as a site-specific remedy and still allow for drinking water use, under Section 20120a(2) of the NREPA if soil concentrations are appropriately lower than 400 mg/kg. If a site-specific criterion is approved based on this subdivision, a notice shall be filed on the deed for all property where the groundwater concentrations will exceed 4 ug/L to provide notice of the potential for unacceptable risk if soil or groundwater concentrations increase. Acceptable concentrations of site-specific soil and drinking water concentrations are presented in the [table in Footnote (L) in R 299.49].

(M) Calculated criterion is below the analytical target detection limit, therefore, the criterion defaults to the target detection limit.
(N) The concentrations of all potential sources of nitrate-nitrogen (e.g., ammonia-N, nitrite-N, nitrate-N) in groundwater that is used as a source of drinking water shall not, when added together, exceed the nitrate drinking water criterion of 10,000 ug/L. Where leaching to groundwater is a relevant pathway, soil concentrations of all potential sources of nitrate-nitrogen shall not, when added together, exceed the nitrate drinking water protection criterion of 2.0E+5 ug/kg.
(O) The concentration of all polychlorinated and polybrominated dibenzodioxin and dibenzofuran homers present at a facility, expressed as an equivalent concentration of 2,3,7,8-tetrachlorodibenzo-p-dioxin based upon their relative potency, shall be added together and compared to the criteria for 2,3,7,8-tetrachlorodibento-p-dioxin. The generic cleanup criteria for 2,3,7,8-tetrachlorodibenzo-p-dioxin are not calculated according to the algorithms presented in R 299.14 to R 299.26. The generic cleanup criteria are being held at the values that the DEQ has used since August 1998, in recognition of the fact that national efforts to reassess risks posed by dioxin are not yet complete. Until these studies are complete, it is premature to select a revised slope factor and/or reference dose for calculation of generic cleanup criteria.
(P) Amenable cyanide methods or method OIA-1677 shall be used to quantify cyanide concentrations for compliance with all groundwater criteria. Total cyanide methods or method OIA-1677 shall be used to quantify cyanide concentrations for compliance with soil criteria. Nonresidential direct contact criteria may not be protective of the potential for release of hydrogen cyanide gas. Additional land or resource use restrictions may be necessary to protect for the acute inhalation concerns associated with hydrogen cyanide gas.
(Q) Criteria for carcinogenic polycyclic aromatic hydrocarbons were developed using relative potential potencies to benzo(a)pyrene.
(R) Hazardous substance may exhibit the characteristic of reactivity as defined in 40 C.F.R. §261.23 (revised as of July 1, 2001), which is adopted by reference in these rules.
(S) Criterion defaults to the hazardous substance-specific water solubility limit.
(T) Refer to the federal Toxic Substances Control Act (TSCA), 40 C.F.R. §761, subpart D and 40 C.F.R. §761, Subpart G, to determine the applicability of TSCA cleanup standards. Subpart D and subpart G of 40 C.F.R. §761 (July 1, 2001) are adopted by reference in these rules. Alternatives to compliance with the TSCA standards listed below are possible under 40 C.F.R. §761 Subpart D. New releases may be subject to the standards identified in 40 C.F.R. §761, Subpart G. Use Part 201 soil direct contact cleanup criteria in the following table if TSCA standards are not applicable. [See table in Footnote (T) in R 299.49].

(U) Hazardous substance may exhibit the characteristic of corrosivity as defined in 40 C.F.R. §261.22 (revised as of July 1, 2001), which is adopted by reference in these rules.
(V) Criterion is the aesthetic drinking water value as required by Section 20120(a)(5) of the NREPA. Concentrations up to 200 ug/L may be acceptable, and still allow for drinking water use, as part of a site-specific cleanup under Section 20120a(2) and 20120b of the NREPA.
(W) Concentrations of trihalomethanes in groundwater shall be added together to determine compliance with the Michigan drinking water standard of 80 ug/L. Concentrations of trihalomethanes in soil shall be added together to determine compliance with the drinking water protection criterion of 1,800 ug/kg.
(X) The GSI criterion shown in the generic cleanup criteria tables is not protective for surface water that is used as a drinking water source. For a groundwater discharge to the Great Lakes and their connecting waters or discharge in close proximity to a water supply intake in inland surface waters, the generic GSI criterion shall be the surface water human drinking water value (HDV) listed in the [table in Footnote (X) in R 299.49], except for those HDV indicated with an asterisk. For HDV with an asterisk, the generic GSI criterion shall be the lowest of the HDV, the WV, and the calculated FCV. See formulas in [the table in Footnote (G) in R 299.49]. Soil protection criteria based on the HDV shall be as listed in the [table in Footnote (X) in R 299.49], except for those values with an asterisk. Soil GSI protection criteria based on the HDV shall be as listed in the [table in Footnote (X) in R 299.49], except for those values with an asterisk. Soil GSI protection criteria for compounds with an asterisk shall be the greater of 20 times the GSI criterion or the GSI soil-water partition values using the GSI criteria developed with the procedure described in this footnote.

(Y) Source size modifiers shown in the [table in Footnote (Y) in R 299.49] shall be used to determine soil inhalation criteria for ambient air when the source size is not one-half acre. The modifier shall be multiplied by the generic soil inhalation criteria shown in the table of generic cleanup criteria to determine the applicable criterion. See Footnote (C) in R 299.49.
(Z) Mercury is typically measured as total mercury. The generic cleanup criteria, however, are based on data for different species of mercury. Specifically, data for elemental mercury, chemical abstract service (CAS) number 7439976, serve as the basis for the soil volatilization to indoor air criteria, groundwater volatilization to indoor air, and soil inhalation criteria. Data for methyl mercury, CAS number 22967926, serve as the basis for the GSI criterion; and data for mercuric chloride, CAS number 7487947, serve as the basis for the drinking water, groundwater contact, soil direct contact, and the groundwater protection criteria. Comparison to criteria shall be based on species-specific analytical data only if sufficient facility characterization has been conducted to rule out the presence of other species of mercury.

(AA) Use 10,000 ug/L where groundwater enters a structure through the use of a water well, sump or other device. Use 28,000 ug/L for all other uses.
(BB) The state drinking water standard for asbestos (fibers greater than 10 micrometers in length) is in units of a million fibers per liter of water (MFL). Soil concentrations of asbestos are determined by polarized light microscopy.
(CC) Groundwater: The generic GSI criteria are based on the toxicity of unionized ammonia (NH_3); the criteria are 20 ug/L and 53 ug/L for cold water and warm water surface water, respectively. As a result, the GSI criterion shall be compared to the percent of the total ammonia concentration in the groundwater that will become NH_3 in the surface water. This percent NH_3 is a function of the pH and temperature of the receiving surface water and can be estimated using the [table in Footnote (CC) in R 299.49], taken from Emerson, et al., (Journal of the Fisheries Research Board of Canada, Volume 32(12):2382, 1975). The generic approach for estimating NH_3 assumes a default pH of 8 and default temperatures of 68 °F and 85 °F for cold water and warm water surface water, respectively. The resulting NH_3 is 3.8 percent and 7.1 percent for cold water and warm water, respectively. This default percentage shall be multiplied by the total ammonia nitrogen (NH_3-N) concentration in the groundwater and the resulting NH_3 concentration compared to the applicable GSI criterion. As an alternative, the maximum pH and temperature data from the specific receiving surface water can be used to estimate, from the [table in Footnote (CC) in R 299.49], a lower percent unionized ammonia concentration for comparison to the generic GSI.
Soil: The generic soil GSI protection criteria for unionized ammonia are 580 ug/kg and 1,100 ug/kg for cold water and warm water surface water, respectively.
(DD) Hazardous substance causes developmental effects. Residential direct contact criteria are protective of both prenatal and postnatal exposure. Nonresidential direct contact criteria are protective for a pregnant adult receptor.
(EE) The [values listed in the table in Footnote (EE) in R 299.49] are applicable generic GSI criteria as required by Section 20120a of the NREPA.
(FF) The chloride GSI criterion shall be 125 mg/L when the discharge is to surface waters of the state designated as public water supply sources or 50 mg/L when the discharge is to the Great Lakes or connecting waters. Chloride GSI criteria shall not apply for surface waters of the state that are not designated as a public water supply source, however, the total dissolved solids criterion is applicable.

(GG) Risk-based criteria are not available for methane due to insufficient toxicity data. An acceptable soil gas concentration (presented for both residential and nonresidential land uses) was derived utilizing 25 percent of the lower explosive level for methane. This equates to 1.25 percent or 8.4E+6 ug/m^3.
(HH) The residential criterion for sodium is 220,000 ug/L in accordance with the Sodium Advisory Council recommendation and revised Groundwater Discharge Standards.
ID Insufficient data to develop criterion.
NA A criterion or value is not available or, in the case of background and CAS numbers, not applicable.
NLL Hazardous substance is not likely to leach under most soil conditions.
NLV Hazardous substance is not likely to volatilize under most conditions.
ug/kg Micrograms per kilogram
ug/L Micrograms per liter
NS Not sampled
BDL Below Laboratory Method Detection Limits
BOLD Exceeds highlighted criteria.

Appendix B

Laboratory Analytical Report

Reports not included due to size

Can be found in Saginaw Bay District Office

Remediation and Redevelopment Division file

Appendix C

Water Well Records

DEQ MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
DRINKING WATER & RADIOLOGICAL PROTECTION DIVISION

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978
Failure to comply is a misdemeanor

TAX NO: 65-014-021-013-00

PERMIT NO: W65-0324

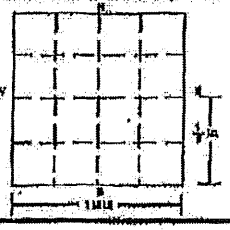
1. LOCATION OF WELL

County	Township Name	Fraction	Section No.	Town No.	Range No.
Ogemaw	West Branch	1/4 1/4 1/4	21	T22N	R2E

Distance and Direction from Road Intersection: Corner of Dam Road and M-55

Street Address & City of Well Location

Locate with "X" in Section Below — Sketch Map



3. OWNER OF WELL: Robert Griffin
Address: 4019 South Stark (Pioneer Power Club) West Branch, MI. 48661
Address Same as Well Location: ☐ Yes ☒ No

4. WELL DEPTH: 75 ft. | Date Completed: 6 / 21 / 99 | ☒ New Well ☐ Replacement Well

5. ☐ Cable Tool ☒ Rotary ☐ Driven ☐ Dug ☐ Hollow Rod ☐ Auger/Bored ☐ Jetted ☐

6. USE: ☐ Household ☐ Type I Public ☒ Type III Public ☐ Irrigation ☐ Type IIa Public ☐ Heat Pump ☐ Test Well ☐ Type IIb Public ☐

7. CASING: ☐ Steel ☐ Threaded ☒ Plastic ☐ Welded ☐ Other
Height: Above ~~Grade~~ Surface: 1 ft
Diameter: 5 in. to 69 ft. depth; ___ in. to ___ ft. depth
Weight: SDR 21 lbs./ft.
BOREHOLE: Diameter: 8 in. to 75 ft. depth; ___ in. to ___ ft. depth
☐ Drive Shoe ☐ Shale Packer

8. SCREEN: ☐ Not Installed ☒ Gravel-Packed
Type: Plastic Diameter: 5"
Slot/Gauze: .012 Length: 6'
Set Between: 690 ft. and 75 ft.
FITTINGS: ☐ K-Packer ☐ Bremer Check ☐ Blank Above Screen ___ ft. ☐ Other

9. STATIC WATER LEVEL: 10 ft. Below Land Surface ☐ Flowing

10. PUMPING LEVEL: Below Land Surface: 40 ft. After 1 hrs. Pumping at 30 G.P.M.
☐ Plunger ☐ Baller ☒ Air ☐ Test Pump

11. WELLHEAD COMPLETION: ☒ Pitless Adapter ☐ 12" Above Grade ☐ Basement Offset ☐ Well House

12. WELL GROUTED? ☐ No ☒ Yes From 0 to 69 ft.
☐ Neat Cement ☒ Bentonite ☐ Other
No. of Bags: 4 Additives

13. NEAREST SOURCE OF POSSIBLE CONTAMINATION:
Type ___ Distance ___ ft. Direction ___
Type ___ Distance ___ ft. Direction ___

2. FORMATION DESCRIPTION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Sand		13
Clay	13	28
Clay/stones/sand	12	40
Sand	35	75

USE A 2ND SHEET IF NEEDED

14. PUMP: ☐ Not Installed ☒ Pump Installation Only
Manufacturer's Name: Goulds
Model Number: ___ HP: 1½ Volts: 240
Length of Drop Pipe: 40 ft. Capacity: 18 G.P.M.
TYPE: ☒ Submersible ☐ Jet ☐ Other
PRESSURE TANK:
Manufacturer's Name: Goulds
Model Number: V-100 Capacity: 30 Gallons: 10

15. ABANDONED WELL PLUGGED? ☐ Yes ☒ No
Casing Diameter ___ in. Depth ___ ft.
PLUGGING MATERIAL: ☐ Neat Cement ☐ Bentonite Slurry ☐ Cement/Bentonite Slurry ☐ Concrete Grout ☐ Bentonite Chips
No. of Bags ___ Casing Removed? ☐ Yes ☐ No

16. REMARKS: (Elevation, Source of Data, etc.)

17. DRILLING MACHINE OPERATOR:
☒ Employee ☐ Subcontractor
Name: Robert C. Hancock

18. WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
Roy Simmons & Son Well Drilling — REGISTERED BUSINESS NAME — 65-1906 REGISTRATION NO.
Address: 976 East M-55, West Branch, MI 48661
Signed: [signature] — AUTHORIZED REPRESENTATIVE — Date: 8/22/99

AUG 23 1999

GEOLOGICAL SURVEY COPY

EQP 2017 (12/96)

TAX NO:

MICHIGAN DEPARTMENT OF PUBLIC HEALTH
WATER WELL AND PUMP RECORD

PERMIT NO:

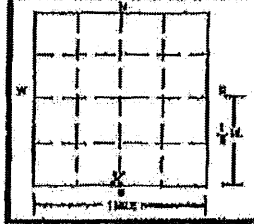
1. LOCATION OF WELL

County	Township Name	Fraction	Section No.	Town No.	Range No.
OGEMAW	WEST BRANCH	SE 1/4 SW 1/4	27	22 N	2 E

Distance and Direction from Road Intersection

Street Address & City of Well Location

Locate with 'X' in Section Below — Sketch Map



3. OWNER OF WELL
Address: Ben D'Arcy
1804 W. M-55
West Branch, MI 48661
Address Same as Well Location ☒ Yes ☐ No

4. WELL DEPTH: 66 ft. — Date Completed 5 / 30 / 97 — ☐ New Well ☒ Replacement Well

5. ☐ Cable Tool ☐ Rotary ☐ Driven ☐ Dug
☒ Hollow Rod ☐ Auger/Bored ☐ Jetted ☐

6. USE: ☒ Household ☐ Type I Public ☐ Type III Public
☐ Irrigation ☐ Type IIa Public ☐ Heat Pump
☐ Test Well ☐ Type IIb Public ☐

7. CASING: ☒ Steel ☒ Threaded ☐ Plastic ☐ Welded ☐ Other
Diameter: 2 in. to 61 ft. depth; ____ in. to ____ ft. depth
Height: Above Surface: 1 ft
Weight: 3.75 lbs./ft.
BORE HOLE: Diameter: 5 in. to 66 ft. depth; ____ in. to ____ ft. depth
☐ Drive Shoe ☐ Shale Packer

8. SCREEN: ☐ Not Installed ☐ Gravel-Packed
Type PVC Diameter 1 1/4"
Slot/Screen Size 10 Length: 5'
Set Between 61 ft. and 66 ft.
FITTINGS: ☒ K-Packer ☒ Bramer Check
☒ Blank Above Screen 1 ft. Other

2. FORMATION DESCRIPTION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Top Soil	1'	1'
Yellow Clay	14'	15'
Gray Clay	25'	40'
Gray Clay & Stone	10'	50'
Water Sand	16'	66'

USE ADDITIONAL SHEET IF NEEDED

9. STATIC WATER LEVEL: 40 ft. Below Land Surface ☐ Flowing

10. PUMPING LEVEL: Below Land Surface
55 ft. After 1 hrs. Pumping at 15 G.P.M.
☒ Plunger ☐ Bailer ☐ Air ☐ Test Pump

11. WELL HEAD COMPLETION:
☐ Pitless Adaptor ☒ 12" Above Grade
☐ Basement Offset ☐ Well House

12. WELL GROUTED? ☐ No ☒ Yes From 0 to 58 ft.
☐ Neat Cement ☒ Bentonite ☐ Other
No. of Bags 4 Additives

13. NEAREST SOURCE OF POSSIBLE CONTAMINATION:
Type Septic Distance 65 ft. Direction North
Type ____ Distance ____ ft. Direction ____

14. PUMP: ☒ Not Installed ☐ Pump Installation Only
Manufacturer's Name
Model Number HP Volts
Length of Drop Pipe ft. Capacity G.P.M.
TYPE: ☐ Submersible ☐ Jet ☐ Other
PRESSURE TANK:
Manufacturer's Name
Model Number Capacity Gallons

15. ABANDONED WELL PLUGGED? ☒ Yes ☐ No
Casing Diameter 2 in. Depth 50 ft.
PLUGGING MATERIAL: ☐ Neat Cement ☐ Bentonite Slurry
☐ Cement/Bentonite Slurry ☐ Concrete Grout ☒ Bentonite Chips
No. of Bags 1 Casing Removed? ☐ Yes ☒ No

16. REMARKS: (Elevation, Source of Data, etc.)
Home Owner Abandoned Well.

17. DRILLING MACHINE OPERATOR:
☒ Employee ☐ Subcontractor
Name Arlen Katzenman

18. WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
R. Webb & Son Well Drilling — 35-0593
REGISTERED BUSINESS NAME — REGISTRATION NO.
Address [illegible] 48739
Signed [signature] AUTHORIZED REPRESENTATIVE
Date June 3, 1997

GW-2223 9/93

GEOLOGICAL SURVEY COPY

Authority: Act 368 P.A. 1978 as amended. Penalty: Conviction of a violation of any provision is a misdemeanor.

MICHIGAN DEPARTMENT OF PUBLIC HEALTH
WATER WELL AND PUMP RECORD

PERMIT NUMBER:

1 LOCATION OF WELL 65887881001

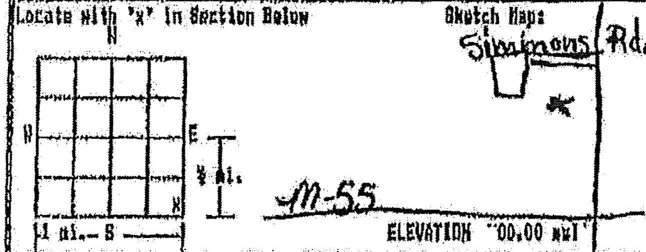
Tax Parcel No.

County	Township Name	Fraction	Section No.	Town No.	Range No.
OGEMAW	WEST BRANCH	SE 1/4 SE 1/4 SE 1/4	21	22 N	02 E

Distance And Direction From Road Intersection
EAST ON M-55,NW CORNER OF INTERSEC. SIMMONS RD. &M-55
M-55, WEST BRANCH 48661
Street Address & City of Well Location

Locate with "x" in Section Below

Sketch Map:



ELEVATION 00.00 msl

3 OWNER OF WELL CHRIS MIER
Address 1496 W. M-55
WEST BRANCH, MI 48661
Address Same As Well Location? [ ] Yes [x] No

4 WELL DEPTH: 79.0 ft.
Date Completed 10/06/97
[x] New Well
[ ] Replacement Well

5 [ ] Cable tool [x] Rotary [ ] Driven [ ] Dug
[ ] Hollow rod [ ] Auger/Bored [ ] Jetted

6 USE [x]Domestic [ ]Type I Public [ ]Type III Public
[ ]Irrigation [ ]Type II Public [ ]Heat Pump
[ ]Test Well [ ]Type IIb Public [ ]

7 CASING: [ ] Steel [ ] Threaded
[x] Plastic [ ] Welded
Diameter
6.00 in. to 74.0 ft. depth
0.00 in. to 0.0 ft. depth
Grouted Drill Hole Diameter
7.88 in. to 79.0 ft. depth
0.00 in. to 0.0 ft. depth

Height: Above Surface 1.0 ft.
Weight SDR-21 lbs/ft.
Drive Shoe [ ] Yes [x] No

2 FORMATION DESCRIPTION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
CLAY	68.0	68.0
WATER SAND	11.0	79.0

RECEIVED
MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
OCT 30 97
D.W.R.P.D.
GROUND WATER SUPPLIES SEC.

8 SCREEN Gravel-Packed [ ] Not Installed
Type Plastic/PVC Diameter 5.00
SLOT 0.018 Length 5.0
Set between 74.00 ft. and 79.00 ft.
FITTINGS: [x]K-Packer [ ]Lead Packer [ ]Bremmer Check
[x] Blank above screen 8.0 ft. [ ]Other

9 STATIC WATER LEVEL:
15.00 ft. below land surface [ ] Flow

10 PUMPING LEVEL: below land surface Developed w/air
0 ft.after 0.0 hrs.pumping at 35 G.P.M.
0 ft.after 0.0 hrs.pumping at 0 G.P.M.

11 WELL HEAD COMPLETION: [x]Pitless adaptor [x]12" above grade
[ ]Basement offset [ ]Approved pit

12 WELL GROUTED? [ ]No [x]Yes From 70.0 to 0.0 ft.
[ ]Neat cement [x]Bentonite [ ]Other
No. of bags of cement 7 Additives

13 Nearest source of possible contamination
Type Septic Distance 100 ft. Direction E
Well disinfected upon completion? [x]Yes [ ]No
Was old well plugged? [ ]Yes [x]No

14 PUMP: [x]Not Installed [ ]Pump Installation Only
Manufacturer's name See remarks
Model number HP Volts
Length of Drop Pipe 0 ft. Capacity 0 G.P.M.
TYPE: [x]Submersible [ ]Jet
PRESSURE TANK:
Manufacturers name
Model number Capacity Gallons

15 Remarks,elevation,source of data,etc.
CUSTOMER IS GOING TO INSTALL THE PUMP AND TANK

Data Source: MDNR

16 WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

SIMMONS, KEN WELL DRILLING 1115
REGISTERED BUSINESS NAME REGISTRATION NO.

Address 1633 GRAY ROAD WEST BRANCH, MI 48661

Signed [signature] Date 10.17.97
AUTHORIZED REPRESENTATIVE

17 Rig Operator's Name:
STEVEN JAMES SIMMONS

AUTHORITY: Act 368 PA 1978 COMPLETION: Required PENALTY: Conviction of a violation of any provision is a misdemeanor

GEOLOGICAL SURVEY NO. [ ]

MICHIGAN DEPARTMENT OF PUBLIC HEALTH
WATER WELL AND PUMP RECORD

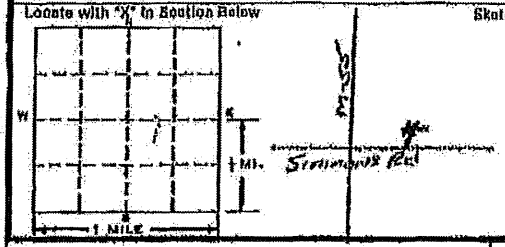
PERMIT NUMBER [ ][ ][ ][ ][ ][ ][ ][ ]

1 LOCATION OF WELL

County	Township Name	Fraction	Section Number	Town Number	Range Number
Oscoda	West Branch	SE ¼ NE ¼ NE ¼	21	N/S	E/W

Distance And Direction From Road Intersection
¼ mile North of M55
100' west of Simmons Rd
Street Address & City of Well Location

Locate with "X" in Section Below — Sketch Map:



2 FORMATION DESCRIPTION

FORMATION DESCRIPTION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
clay		25
Sandy clay	12	37
clay	38	75
Water Sand	10	85

USE A 2ND SHEET IF NEEDED

3 OWNER OF WELL: Seventh Day Adventist
Address: P.O. Box 362, West Branch, MI 48661
Address Same As Well Location? ☐ Yes ☒ No

4 WELL DEPTH: 85 Ft. — Date Completed: MO. 7 DAY 21 YEAR 85 — ☐ New Well ☒ Replacement Well

5 ☐ Cable tool ☒ Rotary ☐ Driven ☐ Dug ☐ Hollow rod ☐ Auger ☐ Jetted ☐

6 USE: ☒ Domestic ☐ Type I Public ☐ Type III Public ☐ Irrigation ☐ Type IIa Public ☐ Heat pump ☐ Test Well ☐ Type IIb Public ☐

7 CASING: Diameter ☐ Steel ☐ Threaded ☒ Plastic ☐ Welded
5 in. to 80 ft. depth
___ in. to ___ ft. depth
Grouted Drill Hole Diameter
8 in. to 80 ft. depth
___ in. to ___ ft. depth
Height: Above/~~Below~~ Surface 1 ft.
Weight SDR 21 lbs./ft.
Drive Shoe ☐ Yes ☒ No

8 SCREEN: ☐ Not Installed
Type Johnson W.W.P. Diameter 5"
Slot/~~Perf~~ .010 Length 5'
Set between 80 ft. and 85 ft.
FITTINGS: ☐ K-Packer ☐ Lead Packer ☐ Bremer Check ☐ Blank above screen ___ ft. Other ___

9 STATIC WATER LEVEL: 38 ft. below land surface ☐ Flow

10 PUMPING LEVEL: below land surface
50 ft. after 1 hrs. pumping at 30 G.P.M.
___ ft. after ___ hrs. pumping at ___ G.P.M.

11 WELL HEAD COMPLETION: ☒ Pitless adaptor ☐ 12" above grade ☐ Basement offset ☐ Approved pit

12 WELL GROUTED? ☐ No ☒ Yes From 5 to 70 ft.
☒ Neat cement ☒ Bentonite ☐ Other ___
No. of bags of cement 17 Additives ___

13 Nearest source of possible contamination
Type Buried Fuel Oil Distance 25 ft. Direction SW
Well disinfected upon completion? ☒ Yes ☐ No
Was old well plugged? ☒ Yes ☐ No

14 PUMP: ☐ Not Installed ☐ Pump Installation Only
Manufacturer's name Red Jacket
Model number ___ HP ½ Volts 115
Length of Drop Pipe 63 ft. Capacity 10 G.P.M.
TYPE: ☒ Submersible ☐ Jet
PRESSURE TANK:
Manufacturer's name Previously Installed
Model number ___ Capacity ___ Gallons

15. Remarks, elevation, source of data, etc.
See Attached For Direction For Fuel Oil Tank.

16. WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
Roy Simmons Sons Well Drilling 65-7806
REGISTERED BUSINESS NAME — REGISTRATION NO.
Address 9766 W. M-55 West Branch MI
Signed [signature] AUTHORIZED REPRESENTATIVE Date 7-24-85

17. Rig Operator's Name: Same

Authority: Act 368 PA 1978
Completion: Required
Penalty: Conviction of a violation of any provision is a misdemeanor.

D87d 12/88

GEOLOGICAL SURVEY COPY

☐ ACT 61, PA 1939.
☐ ACT 315 PA 1969

STATE OF MICHIGAN
DEPARTMENT OF NATURAL RESOURCES

GEOLOGICAL SURVEY DIVISION
P.O. BOX 30028
LANSING, MICHIGAN-48909

LOG OF OIL, GAS OR MINERAL WELL WATER WELL

SUBMIT IN TRIPLICATE WITHIN 30 DAYS AFTER WELL COMPLETION

1. LOCATION DATA

NAME(S) & ADDRESS OF OWNER(S) SHOWN ON PERMIT
Marathon Oil Company.
2251 Simmons Rd P.O. Box 518
West Branch, Mich. 48661

NAME & ADDRESS OF DRILLING CONTRACTOR(S)

LEASE NAME(S) & WELL NUMBER SHOWN PERMIT: Mier 2-21.

PERMIT NUMBER: 48871

COUNTY	TOWNSHIP	FRACTION	SECTION NO.	TOWN NO.	RANGE NO.
Ogemaw	West Branch	SE 1/4 NE 1/4 SW 1/4	21	22 N/S	2 E/W

2. FORMATION DESCRIPTION

FORMATION DESCRIPTION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Red Clay	34	34
Gray Clay	6	40
Coarse Brown Water Sand	70	110

(USE A 2ND SHEET IF NEEDED)

3. WELL DEPTH (completed): 110 ft — Date of Completion: 12/15/94

4. ☐ Cable tool ☒ Rotary ☐ Driven ☐ Dug ☐ Hollow rod ☐ Auger ☐ Jetted ☐

5. CASING Diameter ☐ Steel ☐ Threaded ☒ Plastic ☐ Welded
4 in to 90 ft depth
in to ft depth
Grouted Dril Hole Diameter
7 in to 110 ft depth
in to ft depth
Height Above/Below
Surface 2 ft
Weight lbs./ft
Drive Shoe ☐ Yes ☐ No

6. SCREEN ☐ Not Installed
Type PVC Diameter 4"
Slot/Gauge 10 Length 20'
Set between 90 ft and 110 ft
FITTINGS ☐ K-Packer ☐ Load Packer ☐ Bottom Check
☐ Blank above screen ft Other

7. STATIC WATER LEVEL
42 ft below land surface ☐ Flow

8. PUMPING LEVEL, below land surface
45 ft after 1 hrs pumping at 60 GPM
ft after hrs pumping at GPM

9. WELL DISINFECTED? ☐ No ☒ Yes From 0 to 75 ft
☐ Neat cement ☐ Bentonite ☒ Other Benseal
No. of bags of cement Additives

10. PUMP ☐ Not Installed ☐ Pump Installation Only
Manufacturer's name
Model number HP Volts
Length of Drop Pipe ft capacity GPM
TYPE ☐ Submersible ☐ Jet

11. REMARKS (ELEVATION, SOURCE OF DATA, WATER QUALITY, ETC.)

GEOLOGICAL SURVEY
MAY 0 1 1995
Permits & Bonding Unit

(USE A 2ND SHEET OR ATTACH SUPPLEMENTS IF NEEDED)

12. AUTHORIZED REPRESENTATIVE CERTIFICATION. (THIS WELL WAS DRILLED UNDER MY AUTHORITY AND THIS REPORT IS TRUE TO THE BEST OF MY KNOWLEDGE AND BELIEF.)

NAME L & R Well Drilling Inc. (PRINT OR TYPE)
ADDRESS 10255 Olds Rd Elmira, Mich. 49730
SIGNED Ron Shreve DATE 12/31/94

GEOLOGICAL SURVEY NO. [ ]

MICHIGAN DEPARTMENT OF PUBLIC HEALTH
WATER WELL AND PUMP RECORD

PERMIT NUMBER [ ][ ][ ][ ][ ][ ][ ][ ]

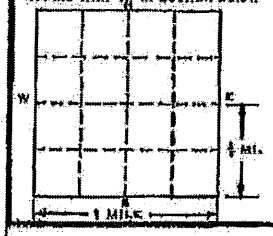
1 LOCATION OF WELL

County	Township Name	Fraction	Section Number	Town Number	Range Number
Ogemaw	West Branch	SW ¼ SE ¼ SW ¼	21	22 N	2 W

Distance And Direction From Road Intersection: Approximately ½ mile East of Dam Road

Street Address or City of Well Location: 1876 W. M-55 - West Branch, MI

Locate with "X" in Section Below



Sketch Map:

3 OWNER OF WELL: Griffin Land & Leasing
Address: 2699 S. First Street, West Branch, MI 48661
Address Same As Well Location? ☐ Yes ☒ No

4 WELL DEPTH: 95 FT. | Date Completed: MO. 7 DAY 27 YEAR 90 | ☒ New Well ☐ Replacement Well

5 ☐ Cable tool ☒ Rotary ☐ Driven ☐ Dug ☐ Hollow rod ☐ Auger ☐ Jetted ☐

6 USE: ☒ Domestic ☐ Type I Public ☐ Type III Public ☐ Irrigation ☐ Type IIa Public ☐ Heat pump ☐ Test Well ☐ Type IIb Public ☐

7 CASING: Diameter ☐ Steel ☐ Threaded ☒ Plastic ☐ Welded
5 in. to 91 ft. depth
___ in. to ___ ft. depth
Grouted Drill Hole Diameter
___ in. to ___ ft. depth
___ in. to ___ ft. depth
Height: Above/Below Surface 1 ft.
Weight 3D1221 lbs./ft.
Drive Shoe ☐ Yes ☒ No

8 SCREEN: ☐ Not Installed
Type S/S Diameter 3"
Slotting 7 Length 4'
Set between 86 ft. and 95 ft.
FITTINGS: ☒ K-Packer ☐ Lead Packer ☐ Bremer Check
☒ Blank above screen 3 ft. Other

9 STATIC WATER LEVEL: 80 ft. below land surface ☐ Flow

10 PUMPING LEVEL: below land surface
80 ft. after 2 hrs. pumping at 15 G.P.M.
___ ft. after ___ hrs. pumping at ___ G.P.M.

11 WELL HEAD COMPLETION: ☒ Pitless adapter ☐ 12" above grade ☐ Basement offset ☐ Approved pit

12 WELL GROUTED? ☐ No ☒ Yes From 0 to 25 ft.
☐ Neat cement ☒ Bentonite ☐ Other
No. of bags of cement ___ Additives

13 Nearest source of possible contamination
Type Septic Distance 50 ft. Direction N
Well disinfected upon completion? ☒ Yes ☐ No
Was old well plugged? ☐ Yes ☐ No

14 PUMP: ☐ Not Installed ☐ Pump Installation Only
Manufacturer's name Burks
Model number 2W56N9B HP ½ Volts 230
Length of Drop Pipe 70 ft. capacity 10 G.P.M.
TYPE: ☒ Submersible ☐ Jet
PRESSURE TANK:
Manufacturer's name Well X-Trol
Model number WX202 Capacity 5.5 Gallons

2 FORMATION DESCRIPTION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Clay	50'	50'
Sand	10'	60'
Clay	20'	80'
Water Sand	15'	95'

USE A 2ND SHEET IF NEEDED

RECEIVED
Mich. Dept. of Public Health
FEB 25 1991
BUREAU OF ENVIRONMENTAL AND OCCUPATIONAL HEALTH-GWQS

15. Remarks, elevation, source of data, etc.

16. WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
Ken Simmons Well Drilling — REGISTERED BUSINESS NAME — 1115 REGISTRATION NO.
Address 1633 Gray Road - West Branch, MI 48661
Signed Ken Simmons — AUTHORIZED REPRESENTATIVE — Date 8/31/90

17. Rig Operator's Name: Ken Simmons

D87d 12/88

Authority: Act 368 PA 1978
Completion: Required
Penalty: Conviction of a violation of any provision is a misdemeanor.

GEOLOGICAL SURVEY COPY

GEOLOGICAL SURVEY NO. [ ]

MICHIGAN DEPARTMENT OF PUBLIC HEALTH
WATER WELL AND PUMP RECORD

PERMIT NUMBER [ ][ ][ ][ ][ ][ ][ ]

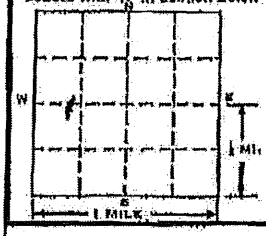
1 LOCATION OF WELL

County	Township Name	Fraction	Section Number	Town Number	Range Number
Ogemaw	West Branch	1/4 1/4 1/4	21	22 N/S	02 E/W

Distance And Direction From Road Intersection

Street Address Or City of Well Location

Locate with "X" In Section Below — Sketch Map:



3 OWNER OF WELL: Leon Rau

Address 1875 Finerty Road West Branch, MI 48661

Address Same As Well Location? [X] Yes [ ] No

4 WELL DEPTH: 105 FT. — Date Completed: MO. 10 DAY 3 YEAR 90 — [X] New Well [ ] Replacement Well

5 [ ] Cable tool [X] Rotary [ ] Driven [ ] Dug [ ] Hollow rod [ ] Auger [ ] Jetted [ ]

6 USE: [X] Domestic [ ] Type I Public [ ] Type III Public [ ] Irrigation [ ] Type IIa Public [ ] Heat pump [ ] Test Well [ ] Type IIb Public [ ]

7 CASING: Diameter [ ] Steel [ ] Threaded [X] Plastic [ ] Welded
5 in. to 98 ft. depth
___ in. to ___ ft. depth
Ground Drill Hole Diameter
98 in. to ___ ft. depth
___ in. to ___ ft. depth
Height: Above/Below Surface 1 ft.
Weight SDR 21 lb./ft.
Drive Shoe [ ] Yes [X] No

2 FORMATION DESCRIPTION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Clay & Gravel	6	6
Gray clay	69	75
clay & Gravel	12	87
Gray clay	6	93
Water Sand	12	105

8 SCREEN: [ ] Not Installed
Type Flush Diameter 3"
Slot/Gauge .007 Length 10'
Set between 98 ft. and 105 ft.
FITTINGS: [X] K-Packer [ ] Lead Packer [ ] Bramer Check [ ] Blank above screen ___ ft. Other ___

9 STATIC WATER LEVEL: 10 ft. below land surface [ ] Flow

10 PUMPING LEVEL: below land surface
30 ft. after 1 hrs. pumping at 10 G.P.M.
___ ft. after ___ hrs. pumping at ___ G.P.M.

11 WELL HEAD COMPLETION: [X] Pitless adapter [ ] 12" above grade [ ] Basement offset [ ] Approved pit

12 WELL GROUTED? [ ] No [X] Yes From 0 to 50 ft.
[ ] Neat cement [X] Bentonite [ ] Other ___
No. of bags of cement ___ Additives ___

13 Nearest source of possible contamination
Type Septic Distance 60 ft. Direction N
Well disinfected upon completion? [X] Yes [ ] No
Was old well plugged? [ ] Yes [ ] No

14 PUMP: [ ] Not Installed [ ] Pump Installation Only
Manufacturer's name Red Jacket
Model number ___ HP 1/2 Volts 230
Length of Drop Pipe 42 ft. capacity 10 G.P.M.
TYPE: [X] Submersible [ ] Jet
PRESSURE TANK:
Manufacturer's name Well-Mate
Model number WM-9 Capacity 30 Gallons

USE A 2ND SHEET IF NEEDED

RECEIVED
Mich. Dept. of Public Health
NOV 29 1990
BUREAU OF ENVIRONMENTAL AND OCCUPATIONAL HEALTH-GWDS

15. Remarks, elevation, source of data, etc.

16. WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
Roy Simmons Sons LTD 1986
REGISTERED BUSINESS NAME REGISTRATION NO.
Address 976 W. M-55 West Branch, MI 48661
Signed [signature] Date 10-15-90
AUTHORIZED REPRESENTATIVE

17. Rig Operator's Name:

D87d 2/89

Authority: Act 368 PA 1978
Completion: Required
Penalty: Conviction of a violation of any provision is a misdemeanor.

GEOLOGICAL SURVEY COPY

GEOLOGICAL SURVEY NO. [ ]

MICHIGAN DEPARTMENT OF PUBLIC HEALTH
WATER WELL AND PUMP RECORD

PERMIT NUMBER [ ][ ][ ][ ][ ][ ][ ]

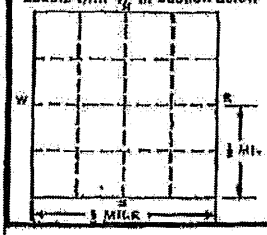
1 LOCATION OF WELL

County	Township Name	Fraction	Section Number	Town Number	Range Number
Ogemaw	West Branch	¼ ¼ ¼	21	22 N/S	2 E/W

Distance And Direction From Road Intersection: 1797 W State Rd, West Branch, MI 48661

Street Address & City of Well Location

Locate with "X" in Section Below — Sketch Map:



2 FORMATION DESCRIPTION

FORMATION DESCRIPTION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Clay	107	107
Water Sand	10	117

USE A 2ND SHEET IF NEEDED

3 OWNER OF WELL: Cedar Ln. Dairy Farm
Address: 1797 W. State Rd, West Branch, MI 48661
Address Same As Well Location? [X] Yes [ ] No

4 WELL DEPTH: 117 FT. — Date Completed: MO 8 DAY 1 Year 90 — [X] New Well [ ] Replacement Well

5 [ ] Cable tool [X] Rotary [ ] Driven [ ] Dug [ ] Hollow rod [ ] Auger [ ] Jetted [ ]

6 USE: [ ] Domestic [ ] Type I Public [ ] Type III Public [ ] Irrigation [ ] Type IIa Public [ ] Heat pump [ ] Test Well [ ] Type IIb Public [X] Dairy Farm

7 CASING: Diameter [X] Steel [X] Threaded [ ] Plastic [ ] Welded
4 in. to 111 ft. depth
___ in. to ___ ft. depth
Grouted Drill Hole Diameter 6 3/4 in. to 120 ft. depth
___ in. to ___ ft. depth
Height: Above/Below Surface 1 ft.
Weight 11 lbs./ft.
Drive Shoe [X] Yes [ ] No

8 SCREEN: [ ] Not Installed
Type Flush — Diameter 3"
Slot/Gauge .008 — Length 8"
Set between 111 ft. and 117 ft.
FITTINGS: [X] K-Packer [ ] Lead Packer [ ] Bremer Check
[X] Blank above screen 2 ft. — Other ___

9 STATIC WATER LEVEL: 30 ft. below land surface [ ] Flow

10 PUMPING LEVEL: below land surface
63 ft. after 1 hrs. pumping at 10 G.P.M.
___ ft. after ___ hrs. pumping at ___ G.P.M.

11 WELL HEAD COMPLETION: [X] Pitless adapter [ ] 12" above grade [ ] Basement offset [ ] Approved pit

12 WELL GROUTED? [ ] No [X] Yes From 0 to 35 ft.
[ ] Neat cement [X] Bentonite [ ] Other ___
No. of bags of cement ___ Additives ___

13 Nearest source of possible contamination
Type Fuel Tank Distance 15½ ft. Direction N
Well disinfected upon completion? [X] Yes [ ] No
Was old well plugged? [ ] Yes [ ] No

14 PUMP: [ ] Not Installed [ ] Pump Installation Only
Manufacturer's name Red Jacket
Model number ___ HP 3/4 Volts 240
Length of Drop Pipe 63 ft. Capacity 10 G.P.M.
TYPE: [X] Submersible [ ] Jet
PRESSURE TANK: Manufacturer's name Well Mate
Model number ___ Capacity ___ Gallons

RECEIVED
Mich. Dept. of Public Health
NOV 29 1990
BUREAU OF ENVIRONMENTAL AND OCCUPATIONAL HEALTH-GWDS

15. Remarks, elevation, source of date, etc.

16. WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
Roy Simmons & Son, WD — 1906
REGISTERED BUSINESS NAME — REGISTRATION NO.
Address 276 W. M-55 West Branch, MI
Signed Steven L Simmons — AUTHORIZED REPRESENTATIVE — Date 5-7-90

17. Rig Operator's Name:

D57d 2/89

Authority: Act 368 PA 1978
Completion: Required
Penalty: Conviction of a violation of any provision is a misdemeanor.

GEOLOGICAL SURVEY COPY

ACT 61 PA 1939
ACT 315 PA 1969

GEOLOGICAL SURVEY DIVISION
P.O. BOX 30028
LANSING, MICHIGAN 48909

STATE OF MICHIGAN
DEPARTMENT OF NATURAL RESOURCES

LOG OF OIL, GAS OR MINERAL WELL WATER WELL

SUBMIT IN TRIPLICATE WITHIN 30 DAYS AFTER WELL COMPLETION

1. LOCATION DATA

NAME(S) & ADDRESS OF OWNER(S) SHOWN ON PERMIT: Marathon oil Co. 539 S. Main St, Findlay, Ohio 45840

NAME & ADDRESS OF DRILLING CONTRACTOR(S):

LEASE NAME(S) & WELL NUMBER SHOWN PERMIT: Meir 2-21

PERMIT NUMBER: 40068

COUNTY	TOWNSHIP	FRACTION	SECTION NO.	TOWN NO.	RANGE NO.
Ogemaw	W. Branch	SE 1/4 NE 1/4 SW 1/4	21	22 N/S	2 E/W

2. FORMATION DESCRIPTION

FORMATION DESCRIPTION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
sd.	5	5
Clay (Br.)	55	60
Gray Clay & gravel	25	85
sm gravel	20	105

(USE A 2ND SHEET IF NEEDED)

3. WELL DEPTH (completed): 105 ft. Date of Completion: 11-19-86

4. [ ] Cable tool [X] Rotary [ ] Driven [ ] Dug [ ] Hollow rod [ ] Auger [ ] Jetted [ ]

5. CASING Diameter: [ ] Steel [ ] Threaded [X] Plastic [ ] Welded. ___ in. to ___ ft. depth; ___ in. to ___ ft. depth. Borehole Drill Hole Diameter: 7 in. to 105 ft. depth; ___ in. to ___ ft. depth. Height: Above/Below Surface 2 ft. Weight ___ lbs/ft. Drive Shoe [ ] Yes [ ] No

6. SCREEN [ ] Not Installed. Type Johnson S.S. Diameter 4". Slot/Gauze 20. Length 10'. Set between 95 ft. and 105 ft. FITTINGS [ ] K Packer [ ] Lead Packer [ ] Bronze Check [ ] Blank above screen ___ ft. Other ___

7. STATIC WATER LEVEL: 80 ft. below land surface [ ] Flow

8. PUMPING LEVEL below land surface: 30 ft. after 1 hrs. pumping at 20 G.P.M.; ___ ft. after ___ hrs. pumping at ___ G.P.M.

9. WELL GROUTED [ ] No [X] Yes From 0 to 25 ft. [ ] Neat cement [X] Bentonite [ ] Other ___. No. of bags of cement ___ Additives ___

10. PUMP [ ] Not Installed [ ] Pump Installation Only. Manufacturer's name ___ Model number ___ HP ___ Volts ___ Length of Drop Pipe ___ ft. capacity ___ G.P.M. TYPE [ ] Submersible [ ] Jet ___

11. REMARKS (ELEVATION, SOURCE OF DATA, WATER QUALITY, ETC.)

RECEIVED JAN 28 1987 Geological Survey Division

(USE A 2ND SHEET OR ATTACH SUPPLEMENTS IF NEEDED)

12. AUTHORIZED REPRESENTATIVE CERTIFICATION (THIS WELL WAS DRILLED UNDER MY AUTHORITY AND THIS REPORT IS TRUE TO THE BEST OF MY KNOWLEDGE AND BELIEF.)

NAME: L & H Well Drilling (PRINT OR TYPE)

ADDRESS: Rt. 1 Rose City, Mich. 48730

SIGNED: [signature] DATE: 12-10-86

1ST LANSING, PERMIT FILE [COPY GROUNDWATER] [COPY DISTRICT FILE]

PR-7200 (Rev.)

GEOLOGICAL SURVEY NO.

MICHIGAN DEPARTMENT OF PUBLIC HEALTH
WATER WELL AND PUMP RECORD

PART 127 ACT 368, P.A. 1978

PERMIT NUMBER

1 LOCATION OF WELL

County	Township Name	Fraction	Section Number	Town Number	Range Number
OGEMAW	WEST BRANCH	1/4 1/4 1/4	21	22 N/S	2 E/W

Distance And Direction From Road Intersection: 1915' W. M55 WEST BRANCH

Street Address & City of Well Location

Locate with "X" in Section Below — Sketch Map: W E N S — 1 MILE

3 OWNER OF WELL: Tom Thorson
Address: 690 W. M-55 WEST BRANCH MICH
Address Same As Well Location? ☐ Yes ☒ No

4 WELL DEPTH: (completed) 84ft. Date of Completion 4-18-84

5 ☐ Cable tool ☐ Rotary ☐ Driven ☐ Dug ☒ Hollow rod ☐ Auger ☐ Jetted ☐

6 USE: ☒ Domestic ☐ Type I Public ☐ Type III Public ☐ Irrigation ☐ Type IIa Public ☐ Heat pump ☐ Test Well ☐ Type IIb Public ☐

7 CASING: Diameter ☒ Steel ☒ Plastic ☒ Threaded ☐ Welded
2 in. to 76 ft. depth
___ in. to ___ ft. depth
Grouted Drill Hole Diameter ___ in. to ___ ft. depth; ___ in. to ___ ft. depth
Height: Above/Below Surface 1 ft.
Weight 3.75 lbs./ft.
Drive Shoe ☒ Yes ☐ No

2 FORMATION DESCRIPTION

FORMATION DESCRIPTION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
SAND	6	6
CLAY	30	36
CLAY AND SAND	38	74
WATER SAND	10	84

USE A 2ND SHEET IF NEEDED

8 SCREEN: ☐ Not Installed
Type Plastic Diameter 1¼"
Slot/Gauze 7 Length 8'
Set between 76 ft. and 84 ft.
FITTINGS: ☐ K-Packer ☐ Lead Packer ☒ Bronze Check ☐ Blank above screen 2 ft. Other: 1¼ RR 2 1¼ coupler [illegible]

9 STATIC WATER LEVEL: 35 ft. below land surface ☐ Flow

10 PUMPING LEVEL: below land surface
35 ft. after 1 hrs. pumping at 10 G.P.M.
___ ft. after ___ hrs. pumping at ___ G.P.M.

11 WELL HEAD COMPLETION: ☐ Pitless adapter ☐ 12" above grade ☐ Basement offset ☐ Approved pit

12 WELL GROUTED? ☐ No ☐ Yes From ___ to ___ ft.
☐ Neat cement ☐ Bentonite ☐ Other
No. of bags of cement ___ Additives ___

13 Nearest source of possible contamination
Type ___ Distance ___ ft. Direction ___
Well disinfected upon completion? ☒ Yes ☐ No

14 PUMP: ☐ Not Installed ☒ Pump Installation Only
Manufacturer's name STA-RITE
Model number 1 HP 25 [illegible] Volts
Length of Drop Pipe 46 ft. capacity 10 G.P.M.
TYPE: ☐ Submersible ☒ Jet
PRESSURE TANK:
Manufacturer's name ___
Model number ___ Capacity ___ Gallons

RECEIVED
Mich. Dept. of Public Health
NOV 16 1984
Bureau of Environmental and Occupational Health - GWQS

15. Remarks, elevation, source of data, etc.

16. WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Roy Simmons — 1106
REGISTERED BUSINESS NAME — REGISTRATION NO.
Address 2375 S M 30 WEST BRANCH MICH
Signed Roy Simmons (AUTHORIZED REPRESENTATIVE) Date 5/31/84

D87d (Rev. 10-80)

GEOLOGICAL SURVEY COPY

N

GEOLOGICAL SURVEY SAMPLE No.

JAN 3 1977

(2)

WATER WELL RECORD

ACT 294 PA 1965

MICHIGAN DEPARTMENT OF PUBLIC HEALTH

NE NE NW

1 LOCATION OF WELL

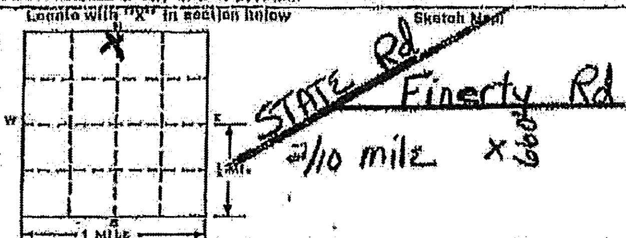
County	Township Name	Fraction	Section Number	Town Number	Range Number
Ogemaw	West Branch	¼NE ¼NE ¼NW ¼	21	T22N N/S.	R2E E/W.

Distance And Direction from Road Intersections

660' south of Finerty Rd/
2/10 mile east of State Rd.

Street address & City of Well Location

Locate with "X" in section below — Sketch Map



3 OWNER OF WELL:
Address: Amoco Production Company
Grandview Plaza, Suite 2201
08Traverse Hwy., Traverse City, Michigan 4968
49684

4 WELL DEPTH: (completed) 104' ft. **Date of Completion** 12/6/76

5 ☐ Cable tool ☒ Rotary ☐ Driven ☐ Dug
☐ Hollow rod ☐ Jetted ☐ Bored ☐

6 USE: ☐ Domestic ☐ Public Supply ☐ Industry
☐ Irrigation ☐ Air Conditioning ☐ Commercial
☐ Test Well ☐ Water Supply to Oil Rig

7 CASING: Threaded ☒ Welded ☐ Height: Above/Below
Diam. Black — Surface 2' ft.
4" in. to 99' ft. Depth — Weight 11 lbs./ft.
___ in. to ___ ft. Depth — Drive Shoe? Yes ☒ No ☐

2 FORMATION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Sandy Clay & Gravel	6	6
Gray Clay	69	75
Gray Clay & Gravel Stripes	12	87
Gray Clay	9	96
Gravel	8	104

USE A 2ND SHEET IF NEEDED

8 SCREEN:
Type: Stainless Steel Dia.: 4"
Slot/Gauze: 35 Slot Length: 4'
Set between 99 ft. and 104 ft.
Fittings: 3' riser and K Packer

9 STATIC WATER LEVEL
___ ft. below land surface

10 PUMPING LEVEL below land surface
90' ft. after ___ hrs. pumping 80 w/air g.p.m.
___ ft. after ___ hrs. pumping ___ g.p.m.

11 WATER QUALITY in Parts Per Million:
Iron (Fe) ___ Chlorides (Cl) ___
Hardness ___ Other ___

12 WELL HEAD COMPLETION: ☐ In Approved Pit
☐ Pitless Adapter ☒ 12" Above Grade

13 Well Grouted? ☒ Yes ☐ No
☐ Neat Cement ☒ Bentonite ☐ ___
Depth: From ___ ft. to ___ ft.

14 Nearest Source of possible contamination
___ feet ___ Direction ___ Type
Well disinfected upon completion ☒ Yes ☐ No

15 PUMP: ☐ Not Installed
Manufacturer's Name: temporary
Model Number ___ HP ___ Volts ___
Length of Drop Pipe ___ ft. capacity ___ G.P.M.
Type: ☐ Submersible
☐ Jet ☐ Reciprocating

16 Remarks, elevation, source of data, etc.

* used 4" coupling

ADDED INFO BY DRILLER, ITEM NO.
*CORRECTED BY 7/4/83
**ADDITION BY
ELEVATION ~1260'
DEPTH TO ROCK

17 WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Hart Well Drilling Co. — 522
REGISTERED BUSINESS NAME — REGISTRATION NO.

Address: 1156 S. Jefferson St., Mason, Michigan 48854

Signed: S.W. Hart — Date: 12/13/76
AUTHORIZED REPRESENTATIVE

D67d 100M (Rev. 12-68)

GEOLOGICAL SURVEY COPY

3. GEOLOGICAL SURVEY SAMPLE No. NW NE sec. 16 S/2 SE SW

JAN 3 1977

WATER WELL RECORD

ACT 294 PA 1965

MICHIGAN DEPARTMENT OF PUBLIC HEALTH

(1-3) NE NW NW

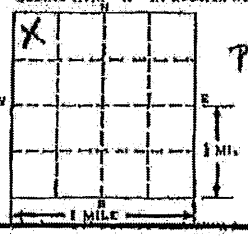
1 LOCATION OF WELL

County	Township Name	Fraction	Section Number	Town Number	Range Number
OGEMAW	WEST BRANCH	NW NE ¼	21	22 N/S.	2 E/W.

Distance And Direction from Road Intersections

Street address & City of Well Location

Locate with "X" in section below — Sketch Map: Plat Book ok



3 OWNER OF WELL

Address ROBERT RAU 1791 STATE RD. WEST BRANCH, MI 48661

4 WELL DEPTH: (completed) 119 ft. Date of Completion 11-10-76

6 ☐ Cable tool ☐ Rotary ☐ Driven ☐ Dug ☒ Hollow rod ☐ Jetted ☐ Bored ☐

6 USE ☒ Domestic ☐ Public Supply ☐ Industry ☐ Irrigation ☐ Air Conditioning ☐ Commercial ☐ Test Well ☐

7 CASING: Threaded ☒ Welded ☐ Diam. 2 in. to 110 ft. Depth; ____ in. to ____ ft. Depth. Height: Above/Below Surface 1 ft. Weight 3.75 lbs./ft. Drive Shoe? Yes ☐ No ☐

2 FORMATION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
CLAY & STONE	80	80
SAND (SOME WATER)	8	88
CLAY	17	105
GRAVEL	14	119

8 SCREEN: TWO Type: MIDWEST Dia.: 1¼" Slot/Gauze 80 Length 8' Set between 110 ft. and 119 ft. Fittings: 4' - 1¼" PIPE 2 - 1¼" COUPLINGS

9 STATIC WATER LEVEL 24 ft. below land surface

10 PUMPING LEVEL below land surface 24 ft. after 2 hrs. pumping 15 G.P.M. ____ ft. after ____ hrs. pumping ____ G.P.M.

11 WATER QUALITY in Parts Per Million: Iron (Fe) ____ Chlorides (Cl) ____ Hardness ____ Other ____

12 WELL HEAD COMPLETION: ☐ In Approved Pit ☐ Pitless Adapter ☐ 12" Above Grade

13 Well Grouted? ☐ Yes ☐ No ☐ Neat Cement ☐ Bentonite ☐ ____ Depth: From ____ ft. to ____ ft.

14 Nearest Source of possible contamination BARN 100 feet W Direction ~~SEPTIC TANK~~ Type

Well disinfected upon completion ☒ Yes ☐ No

15 PUMP: ☒ Not Installed Manufacturer's Name ____ Model Number ____ HP ____ Volts ____ Length of Drop Pipe ____ ft. capacity ____ G.P.M. Type: ☐ Submersible ☐ Jet ☐ Reciprocating

USE A 2ND SHEET IF NEEDED

16 Remarks, elevation, source of data, etc.

ADDED INFO BY DRILLER, ITEM #14
CORRECTED BY JWB
**ADDITION BY
ELEVATION
DEPTH TO ROCK

17 WATER WELL CONTRACTOR'S CERTIFICATION: This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

EHINGER & BOLYARD — REGISTERED BUSINESS NAME — 0396 REGISTRATION NO.

Address WEST BRANCH, MI 48661

Signed [signature] AUTHORIZED REPRESENTATIVE Date 12-9-76

D47d 100M (Rev. 12-68)

GEOLOGICAL SURVEY COPY

GEOLOGICAL SURVEY SAMPLE No. 54 (D.V.)

WATER WELL RECORD
ACT 294 PA 1965

MICHIGAN DEPARTMENT OF PUBLIC HEALTH

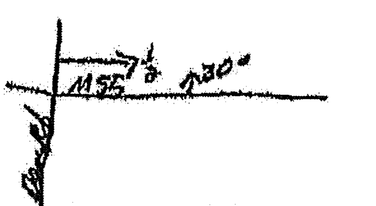
1 LOCATION OF WELL

County	Township Name	Fraction	Section Number	Town Number	Range Number
Ogemaw	West Branch	SW ¼ SE ¼ SE ¼	21	22 N.	2 E.

Distance And Direction from Road Intersections: About ½ mile E - Dam Rd - 30' - N - M55

Street address & City of Well Location: 1794 M55 - West Branch, Mich

Locate with "X" in section below — Sketch Map:



3 OWNER OF WELL: Leo Mier

Address 1794 M55 West Branch, Mich

4 WELL DEPTH: (completed) 70 ft. Date of Completion 8-26-69

5 ☐ Cable tool ☒ Rotary ☐ Driven ☐ Dug ☐ Hollow rod ☐ Jetted ☐ Bored ☐

6 USE: ☒ Domestic ☐ Public Supply ☐ Industry ☐ Irrigation ☐ Air Conditioning ☐ Commercial ☐ Test Well ☐

7 CASING: Threaded ☒ Welded ☐ Diam. 2 in. to 62 ft. Depth; ___ in. to ___ ft. Depth. Height Above/Below Surface 1 ft. Weight 3.75 lbs./ft. Drive Shoe? Yes ☒ No ☐

2 FORMATION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Clay	40	40
Red Sand Coarse	20	60
Fine Sand	2	62
Water Sand	8	70

USE A 2ND SHEET IF NEEDED

8 SCREEN: Type: Gauze Dia.: 1¼" Slot/Gauze 080 Length 4' Set between 66 ft. and 70 ft. Fittings: 2" Check valve

9 STATIC WATER LEVEL 47 ft. below land surface

10 PUMPING LEVEL below land surface 47 ft. after 1 hrs. pumping 10 g.p.m.; ___ ft. after ___ hrs. pumping ___ g.p.m.

11 WATER QUALITY in Parts Per Million: Iron (Fe) ___ Chlorides (Cl) ___ Hardness ___ Other ___

12 WELL HEAD COMPLETION: ☐ In Approved Pit ☐ Pitless Adaptor ☐ 12" Above Grade

13 Well Grouted? ☐ Yes ☒ No ☐ Neat Cement ☐ Bentonite ☐ ___ Depth: From ___ ft. to ___ ft.

14 Nearest Source of possible contamination 55 feet N Direction Septic tank Type. Well disinfected upon completion ☒ Yes ☐ No

15 PUMP: ☒ Not Installed. Manufacturer's Name ___ Model Number ___ HP ___ Volts ___ Length of Drop Pipe ___ ft. capacity ___ G.P.M. Type: ☐ Submersible ☐ Jet ☐ Reciprocating

16 Remarks, elevation, source of data, etc.

ADDED INFO. BY DRILLER, ITEM NO.

CORRECTED BY: [illegible]

ADDITION BY: [illegible] elev 997'

17 WATER WELL CONTRACTOR'S CERTIFICATION: This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Vitterhoe Water Well Drilling — REGISTERED BUSINESS NAME — 0031 REGISTRATION NO.

Address 608 Hwy Sts West Branch

Signed A. R. Vitterhoe AUTHORIZED REPRESENTATIVE Date 8-26-69

D87d 100M (Rev. 12-68)

DEC 22 1969 GEOLOGICAL SURVEY COPY

GEOLOGICAL SURVEY SAMPLE No.

SEP 21 1981

WATER WELL RECORD

ACT 294 PA 1965

MICHIGAN DEPARTMENT OF PUBLIC HEALTH

1 LOCATION OF WELL

County	Township Name	Fraction	Section Number	Town Number	Range Number
Ogemaw	West Branch	SE ¼ SW ¼ SE ¼	21	22 N/S.	2 E/W.

Distance And Direction from Road Intersections

Street address & City of Well Location

Locate with "X" in section below — Sketch Map:

W — E — 1 Mi. — S — 1 MILE

3 OWNER OF WELL: Robert Ehinger
Address 1658 West M-55
West Branch, MI 48661

4 WELL DEPTH: (completed) 73 ft. Date of Completion 6-10-81

5 ☒ Cable tool ☐ Rotary ☐ Driven ☐ Dug
☒ Hollow rod ☐ Jetted ☐ Bored ☐

6 USE: ☒ Domestic ☐ Public Supply ☐ Industry
☐ Irrigation ☐ Air Conditioning ☐ Commercial
☐ Test Well ☐

7 CASING: Threaded ☒ Welded ☐
Diam. 2 in. to 69 ft. Depth
___ in. to ___ ft. Depth
Height: Above/Below Surface 1 ft.
Weight 3.75 lbs./ft.
Drive Shoe? Yes ☒ No ☐

2

FORMATION	THICKNESS OF STRATUM	DEPTH TO BOTTOM OF STRATUM
Clay	18	18
Sandy Clay	28	46
Clay	14	60
Water Sand	13	73

USE A 2ND SHEET IF NEEDED

8 SCREEN:
Type: Plastic Dia.: 1¼"
Slot/Gauze 80 Length 4'
Set between 69 ft. and 73 ft.
Fittings: 2"-1¼" pipe 2-1¼ [illegible] check valve

9 STATIC WATER LEVEL
40 ft. below land surface

10 PUMPING LEVEL below land surface
___ ft. after ___ hrs. pumping ___ g.p.m.
___ ft. after ___ hrs. pumping ___ g.p.m.

11 WATER QUALITY in Parts Per Million:
Iron (Fe) ___ Chlorides (Cl) ___
Hardness ___ Other ___

12 WELL HEAD COMPLETION: ☐ In Approved Pit
☒ Pitless Adaptor ☐ 12" Above Grade

13 Well Grouted? ☐ Yes ☐ No
☐ Neat Cement ☐ Bentonite ☐
Depth: From ___ ft. to ___ ft.

14 Nearest Source of possible contamination
50 feet [illegible] Direction Septic Tank Type
Well disinfected upon completion ☒ Yes ☐ No

15 PUMP: ☒ Not Installed
Manufacturer's Name ___
Model Number ___ HP ___ Volts ___
Length of Drop Pipe ___ ft. capacity ___ G.P.M.
Type: ☐ Submersible ☐ Jet ☐ Reciprocating

16 Remarks, elevation, source of data, etc.

ADDED INFO. BY DRILLER, ITEM NO.
CORRECTED BY:
ADDITION BY: [illegible]

17 WATER WELL CONTRACTOR'S CERTIFICATION:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
Ehinger Drilling — 0396
REGISTERED BUSINESS NAME — REGISTRATION NO.
Address West Branch, MI 48661
Signed [signature] Date 7 1 81
AUTHORIZED REPRESENTATIVE

067d 100M (Rev. 12-68)

GEOLOGICAL SURVEY COPY

AKT PEERLESS

July 6, 2015

Mr. Larry Engelhart
Michigan Department of Environmental Quality
Remediation and Redevelopment Division
401 Ketchum Street, Suite B
Bay City, Michigan

Subject: Final Assessment Report Addendum
Griffin Beverage Co.
1901 Dam Road
West Branch, Michigan
Facility ID #: 00014295

Mr. Engelhart:

AKT Peerless Environmental & Energy Services (AKT Peerless) has prepared this addendum in response to a telephone conversation on June 29, 2015, between the Michigan Department of Environmental Quality (MDEQ) and AKT Peerless. The purpose of the conversation was to review questions the MDEQ had with respect to a Final Assessment Report (FAR) dated March 25, 2015. The FAR was prepared by AKT Peerless on behalf of Griffin Beverage and was submitted to the MDEQ on April 1, 2015. As a result of the June 29, 2015 conversation, AKT Peerless and the MDEQ agreed to a FAR audit deadline extension allowing for the submittal of this addendum and its subsequent review. The audit extension was granted with a revised deadline of July 31, 2015.

During the June 29, 2015 conversation between the MDEQ and AKT Peerless, it was noted that two separate items needed further clarification within the FAR. Consequently, AKT Peerless is providing the following information as an addendum to the previously submitted FAR.

1. Vertical delineation of groundwater impact is in question based on a historical data point (SB-9) collected down gradient from the source area (former underground storage tank basin). As presented on pages 61 and 62 of the FAR, SB-9 which was collected between 35 and 40 feet below ground surface, contained ethylbenzene and xylenes exceeding Nonresidential Drinking Water and Groundwater Surface Water Interface Criteria. Deeper samples were not collected in this or down gradient from this area.

In response to this statement, AKT Peerless reviewed historical data to determine where vertical delineation is complete. While deeper groundwater samples proximal to or down

gradient from SB-9 were not collected during initial site characterization activities, one sample location (MW-1A) was advanced to 49 feet below ground surface. This location was advanced within the former UST basin. Laboratory data indicated groundwater samples collected from 2 intervals (43.0-44.0 and 48.0-49.0) were reported below laboratory detection limits.

Based on historical analytical data collected from MW-1A between 43.0 and 49.0 feet below ground surface, vertical delineation of the source area is complete. However, due to the presence of groundwater contamination at SB-9, AKT Peerless concurs that vertical assessment proximal to or down gradient from the SB-9 sample location is warranted. Consequently, the Corrective Action Plan (CAP) discussed in Section I on Page 27 of the FAR should include the collection of a deep groundwater sample(s) to verify the contaminant plume is vertically characterized in the down gradient direction. Therefore, CAP activities will include installation of a groundwater monitoring well at a to be determined depth (greater than 35-40 feet below ground surface) proximal to or down gradient from the former SB-9 sample location. Vertical definition may be determined through vertical profiling efforts to establish depth of installed screen interval or through the installation of a nested well. These activities will be completed in conjunction with other CAP activities.

2. The CAP in Section I on Page 28 indicates additional groundwater monitoring will occur in which quarterly groundwater samples will be collected from all existing monitoring wells. As discussed in this section, samples will be collected from MW-1 through MW-5, MW-9, BB-1, and BB-3. Two additional groundwater monitoring points (BB-4 and BB-5) were installed to evaluate for the presence of light non-aqueous phase liquid (LNAPL) and/or for the collection of groundwater samples. It will be necessary to include these additional points during quarterly groundwater monitoring activities.

In response to these statements, the CAP will also include BB-4 and BB-5 during quarterly monitoring activities of the above specified existing monitoring wells. Specifically, BB-4 and BB-5 will be accessed to evaluate for the presence of LNAPL. In the event LNAPL is not observed, groundwater samples will be collected to evaluate the stability of the dissolved contaminant plume. BB-4 and BB-5 sampling activities will coincide with sampling of the remaining monitoring wells.

At this time, activities outlined within the CAP have not been authorized nor have been initiated. Therefore, the following revised schedule is provided to replace the schedule as specified within the FAR.

AKT PEERLESS

Revised Corrective Action Plan Schedule

Activity	Schedule as Indicated in FAR	Revised Schedule
Quarterly Groundwater Monitoring	June 2015 through March 2017	September 2015 through June 2017
Installation of permanent wells	June 2015	September 2015
Semi-Annual Soil Gas Sampling	September 2015, March and September 2016	No Change
LNAPL Recovery	Monthly until no longer observed	No Change
LNAPL Characterization	September 2015, March and September 2016	No Change
Restrictive Covenant	Last quarter 2015	March 2016

AKT Peerless will provide the MDEQ with appropriate notification of on-site work activity upon authorization of the abovementioned proposed corrective actions.

This addendum is intended to supplement and/or replace information provided in the previously submitted FAR. Consider the information contained within and in conjunction with the FAR for compliance with Part 213 pf the Leaking Underground Storage Tanks, of the Natural Resources and Environmental Protection Act, 1994 PA 451 as amended.

If you have any questions or need additional information please contact Ryan Londrigan or me at 989-754-9896.

Sincerely,

AKT Peerless Environmental & Energy Services

Jon A. Hirschenberger, CPG
Project Manager

JAH

Cc: Tom Spencer, Griffin Beverage
Rhonda Klann, MDEQ

December 11, 2015

Griffin Beverage – 1901 Dam Road, West Branch
FAR/CAP Scope of Work and Schedule

A Final Assessment Report (FAR) and proposed Corrective Action Plan (CAP) was previously submitted to the Michigan Department of Environmental Quality (MDEQ) on April 1, 2015. An Addendum was submitted on July 6, 2015. This document is now submitted to supplement and amend the proposed scope of work in accordance with Part 213 of the Natural Resources and Environmental Protection Act (NREPA), as amended, and is intended to achieve regulatory compliance of the petroleum release at 1901 Dam Road, West Branch, Michigan (the subject property).

Previous site investigations have identified the presence of non-aqueous phase liquid (NAPL) and a dissolved contaminant plume which potentially threaten occupants of the subject property. As a result of these investigations, soil and groundwater contamination has been delineated generally. However, further evaluation is necessary to demonstrate that long term exposures are not complete.

The following scope of work has been established to further evaluate the nature and extent of groundwater contamination and further evaluate potential exposure pathways. The scope of work was established in light of the following considerations:

1. Soil and groundwater data has been collected at the site since the mid to late 1990s and as recently as 2012 through 2015. Specifically, multiple events of groundwater monitoring activities have been completed in 2012, 2013 and 2015.
2. NAPL has been identified within and southwest of the former UST basin. The presence of NAPL indicates source material is present in these areas. Recent monitoring activities have indicated the plume is currently stable. Specifically, recent recovery efforts indicate NAPL is being recovered within RC-2 at approximately 1/3 gallon per event. However, this volume fluctuates to no recovery at various times. Lastly, NAPL is delineated and is located onsite with no risk of short term off-site migration.
3. Groundwater was identified in all borings, at depths ranging from 18.5 to 20.0 feet bgs. Therefore, groundwater is likely part of a unconfined potable aquifer possibly in communication with the groundwater unit utilized by the onsite drinking water well located in the southern portion of the subject property.
4. Although contaminant concentrations indicate drinking water at the subject property may be threatened by the release, groundwater monitoring data (1993 to 2015) indicates the contaminant plume is localized to the subject property and is more than 450 feet from the private well. Contamination is delineated, and long term exposure is not likely based on existing data. Additional monitoring activities are proposed further rule out the completeness of the drinking water pathway.

5. Free product/NAPL was encountered at 18.0 feet bgs within the warehouse structure. Contaminants in soil and groundwater do not exceed the generic Non-Residential Volatilization to Indoor Air Inhalation RBSLs. Furthermore, initial sub-slab soil gas samples have been collected at the subject property to evaluate the completeness of this pathway. Soil gas samples were reported below Nonresidential vapor intrusion shallow soil gas screening levels. Additional monitoring is proposed to rule out the potential completeness of the vapor intrusion exposure pathway.

Based on the above considerations, the following scope of work was developed to implement and establish compliance with the proposed CAP.

TASK 1

Based on historical analytical data collected from MW-1A between 43.0 and 49.0 feet below ground surface, vertical delineation of the source area is complete. However, due to the presence of groundwater contamination at SB-9 (downgradient from the source area) between 35 and 40 feet below ground surface, the MDEQ has requested additional vertical definition activities. Vertical definition may be determined through vertical profiling efforts to establish depth of installed screen interval or through the installation of a nested well.

Installation of permanent downgradient monitoring wells will also be completed in conjunction with vertical delineation activities. As proposed in the CAP, two additional shallow monitoring wells will be installed in the vicinity of AKTP-10 and 11 to complete monitoring of the lateral extent of groundwater contamination.

Scope of Work

Installation of permanent groundwater monitoring wells will be completed utilizing a track mount hollow stem drill rig. Due to accessibility conditions and known soil types, smaller augers will be utilized during installation activities. One deep (screened between 35 and 45 feet bgs) and two shallow (screened between 18 and 23 feet bgs) will be installed at the prescribed locations. A diagram attached as figure 1 shows the intended well locations.

TASK 2

Additional groundwater monitoring activities are proposed to monitor vertical and lateral groundwater conditions and evaluate if the contaminant plume is stable and/or decreasing in magnitude and extent. Furthermore, groundwater monitoring events are necessary to ensure the onsite potable well is not threatened by the present of contamination and/or NAPL. Groundwater monitoring will be conducted quarterly for one year to monitor short term exposures at the site. Based on previously completed sampling events (2012-2015) and the proposed quarterly monitoring, data should be sufficient for considering long term exposures. At the end of this monitoring period, a Closure Report will be prepared unless the client opts to prepare a revised CAP which will include a revised sampling schedule (if necessary) to monitor for natural attenuation. In the event groundwater contamination is determined, however, to be expanding in volume and contaminant concentrations, a revised CAP will be timely prepared. The contingencies would include sampling the onsite and/or nearby potable wells on a monthly

or quarterly basis and implementation of possible additional corrective actions. However, based on the time since the release has occurred (approximately 22 years), the data from all onsite investigation activities suggests that the plume has remained relatively stable. However, the proposed quarterly groundwater monitoring for a minimum of one year will allow further evaluation of the potential long-term threats and determine if closure is feasible.

Scope of Work

Conduct 4 quarterly groundwater monitoring events (consecutively) over a 1 year period. To complete this task, it is necessary to install 3 additional permanent monitoring wells in locations where temporary monitoring wells were installed (as previously discussed). Upon completion of installation, quarterly groundwater monitoring will be initiated. During each event, 11 groundwater samples will be collected from existing monitoring wells (MW-2 through MW-5, MW-9, BB-1, BB-3, BB-4, BB-5, and three new wells as set forth in Task 1) and submitted for laboratory analysis of VOCs. Monitoring wells will be sampled using low-flow sampling techniques in accordance with US EPA publication *"Low-Flow (Minimal Drawdown) Ground-Water Sampling Procedures"* published in April 1996. Static water levels will be measured with an oil/water interface probe graduated 0.01 feet capable of detecting free product prior to sample collection to determine groundwater elevations. During this task, quarterly CAP Status Reports will be prepared and submitted to the MDEQ. CAP Status reports will contain an evaluation of groundwater monitoring data, free product information including recovery and characterization data, soil gas data and an exposure analysis.

TASK 3

Additional soil gas monitoring activities will be necessary to evaluate the completeness of the indoor air pathway. Specifically, due to the presence of contamination exceeding Nonresidential Vapor Intrusion Soil and Groundwater Screening Levels, sub-slab soil gas samples will be collected for 3 additional quarters starting in January 2016. Soil gas samples will be collected from existing soil gas screening points (SG-1 and SG-2). If at any time during monitoring activities an exceedance of vapor intrusion screening levels is reported, additional corrective actions will be evaluated to determine whether an action is needed to mitigate impacted vapor migrating into the structure or whether appropriate indoor air testing is indicated. Corrective actions to mitigate unacceptable exposures will be provided in the proposed quarterly CAP Status reports.

Scope of Work

Soil gas sampling activities are proposed for 3 additional quarters. Soil gas samples will be collected from existing sub-slab soil vapor points (SG-1 and SG-2). Soil gas sampling will be conducted during quarterly groundwater monitoring events to limit costs. A total of 6 soil gas samples will be collected and submitted for laboratory analysis of VOCs following USEPA Method TO-15. Soil gas results and evaluation information will be presented in quarterly CAP Status Reports.

TASK 4

Free product/LNAPL recovery and characterization is planned until a Closure Report is submitted. Specifically, free product will be recovered on a monthly basis. Due to low recharge rates, passive bailing or pumping will be utilized to recovery NAPL. NAPL will be stored onsite in 55-gallon steel drums. Waste disposal manifests will be provided in future CAP Status reports. NAPL characterization will also be conducted semi-annually to determine the effectiveness of recovery efforts. Characterization activities will include bail down tests and/or transmissivity testing. Results of characterization activities will be included in future CAP Status reports.

Scope of Work

Free product/LNAPL recovery is an initial component of the CAP. Recovery efforts will be conducted on a monthly basis. Recovery data will be provided for inclusion in the quarterly CAP Status Reports. In addition to recovery, free product/LNAPL characterization is proposed semi-annually for 1 year (second and forth quarter testing events). The purpose of characterization activities is to determine the effectiveness of recovery efforts and to perform a feasibility of recovery or other alternatives. Characterization activities include but are not limited to bail down tests and/or transmissivity tests. Results of characterization activities will be included in future CAP Status Reports.

TASK 5

Institutional controls are necessary to prohibit land and resource uses based on the presence of NAPL and soil/groundwater contamination. Specifically, a resource restriction will be utilized to preclude the installation of wells, maintain existing surface covers to minimize infiltration, prohibit the development of the onsite groundwater and the excavation and utilization of subsurface soil within a surveyed area (to be completed by a licensed surveyor). The surveyed area will include all impacted areas of the site. Additionally, a land use restriction is necessary to ensure the site will be utilized for Nonresidential purposes. Proof of filing an executed Restrictive Covenant will be provided in a CAP Status report and Closure Report.

Scope of Work

A professional survey contractor will be utilized to perform survey activities for the purpose of defining a boundary within the property to be utilized for a restrictive covenant. The surveyed boundary is a required component of the restrictive covenant. The restrictive covenant is necessary to eliminate potential drinking water exposures in operational areas of the subject property. The survey will consist of a map and legal description to be included in the restrictive covenant. In addition, monitor well elevations will be surveyed to calculate groundwater elevation data. It is anticipated that up to 11 monitor wells will be surveyed for top-of-casing and groundwater surface elevations.

Proposed sample locations are depicted on Figure 7 of the FAR.

Also, it should be noted that based on the findings of the above proposed investigation, additional investigation activities may become warranted for various reasons including, but not limited to: (1) identification of yet unknown preferential migration pathways, (2) identification

of greater contamination concentrations, requiring further source evaluation and exposure pathway evaluation, (3) identification of groundwater impact, requiring additional lateral delineation and/or characterization, and (4) identification of contamination with the potential to threaten indoor air quality nearer the onsite buildings, requiring additional soil, groundwater, and/or soil gas evaluation.

Upon completion of the proposed investigation activities, an evaluation of analytical data will be completed to determine the completeness of CAP activities. These results may be utilized to support the preparation of a Closure Report or an amended CAP which is required for compliance with Part 213 of the Natural Resources and Environmental Protection Act (NREPA), as amended Part 213 of the NREPA, as amended.

SCHEDULE

The proposed CAP activities discussed within will be scheduled promptly. At this time, it is anticipated that drilling activities for installation of the 3 permanent monitoring wells will be completed in January 2016. Thereafter, groundwater monitoring and sub-slab soil gas sampling will be completed. As currently planned, quarterly sampling will be conducted as proposed and will be initiated in February 2016 and include 3 additional consecutive quarters for groundwater and 2 additional consecutive quarters for soil gas. NAPL characterization will occur during the second and fourth quarter testing. Milestone dates for reporting activities include March 31, 2016, July 29, 2015, November 30, 2016 and March 31, 2017.

It is anticipated that drilling and sampling activities will follow the proposed schedule. However, in the event drilling activities or analytical results reveal the presence of contamination which necessitates additional drilling and/or sampling activities, a revised CAP with schedule will be prepared and submitted to the MDEQ for approval.

ATTACHMENT B

ESCROW AGREEMENT

This Escrow Agreement is entered into by and between Griffin Beverage Co.; ***[insert name of Escrow Agent]***; and the Michigan Department of Environmental Quality to hold payment of past corrective action in abeyance as provided in the Administrative Order by Consent for Corrective Actions and Payment of Costs, MDEQ Reference No. AOC-RRD-16-001 for the confirmed release from underground storage tanks at 1901 Dam Road, West Branch, Ogemaw County, Michigan, Facility ID 00014295 (the Site).

Whereas, the Grantor has agreed to establish an Escrow to meet the provisions of Paragraphs 5.1 and 5.2 of the AOC and further specified in this Escrow Agreement; and

Whereas, the Grantor, acting through its duly authorized officers, has proposed an Escrow Agent under this Escrow Agreement; and

Whereas, the Beneficiary approves the Escrow Agent proposed by the Grantor; and

Whereas, the Escrow Agent is willing to act as the Escrow Agent;

NOW, THEREFORE, the Grantor and Escrow Agent agree as follows:

I. DEFINITIONS

"AOC" means the Administrative Order by Consent for Corrective Actions and Payment of Costs, MDEQ Reference No. AOC-RRD-213-16-001 entered into by and between Griffin Beverage Co., Michigan Department of Environmental Quality, and Michigan Department of Attorney General.

"Beneficiary" means the Michigan Department of Environmental Quality, its successor entities and those authorized persons or entities acting on its behalf.

"Escrow Agent" means the escrow agent who enters this Escrow Agreement and any successor or assigns of the Escrow Agent.

"Escrow Agreement" means this Escrow Agreement executed between Griffin Beverage Co., the Escrow Agent and the Michigan Department of Environmental Quality.

"Escrow Assets" means cash and/or direct obligations of the United States of America (U.S.A.) or the State of Michigan, or obligations for which the principal and interest are unconditionally guaranteed by the U.S.A. or the State of Michigan, or certificates of deposit of any financial institution to the extent insured by an agency of the United States Government.

"Fiduciary" means any person who exercises any power of control, management, or disposition, or renders investment advice for a fee or other compensation, direct or indirect, with respect to any monies or other property of this Escrow, or has any authority or responsibility to do so, or who has any authority or responsibility in the administration of this Escrow.

"Fund" or "Escrow" means the account by which deposits and earnings are maintained.

"Grantor" means Griffin Beverage Co., and any successors.

All other terms used in this Escrow Agreement which are defined in Part 213, Leaking Underground Storage Tanks, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, MCL 324.21301a, *et seq.*, (Part 213) shall have the same meaning as in Part 213.

II. AMOUNT OF ESCROW FUND

The Grantor shall deposit funds for past corrective action costs in an Escrow as required by the AOC. The Escrow shall be secured in the amount of thirty thousand dollars ($30,000) and be maintained consistent with the provisions of the AOC.

III. NOTICES

All notices, deliveries, or other communications required or permitted hereunder shall be deemed given when sent by facsimile transmission or electronic mail and confirmed by certified or registered mail addressed as follows:

(A) For Escrow Agent:

[insert Escrow Agent name]
ATTN: ***[insert contact person's name]***
[Address or P.O. Box]
[City], ***[State]*** ***[Zip Code]***
Telephone No.: ***[insert telephone no.]***
FAX No.: ***[insert fax no.]***

(B) For Beneficiary:

(1) For questions regarding provisions of the AOC:

Carrie Olmsted
Compliance and Enforcement Section
Remediation and Redevelopment Division
Michigan Department of Environmental Quality
P.O. Box 30426
Lansing, Michigan 48909-7926
Telephone No.: 517-284-5137
FAX No.: 517-241-9581
E-mail: Olmstedc@michigan.gov

(2) For payments sent to the Beneficiary:

Accounting Services Center
Cashier's Office for MDEQ
P.O. Box 30657
Lansing, Michigan 48909-8157

(Via Courier)

Accounting Services Center
Cashier's Office for MDEQ
Van Wagoner Building, 1st Floor
425 West Ottawa Street
Lansing, Michigan 48933-2125

(C) For Grantor:

[SUBMITTER]
ATTN: ***[insert contact person's name]***
[Address or P.O. Box]
[City], ***[State]*** ***[Zip Code]***
Telephone No.: ***[insert telephone no.]***
FAX No.: ***[insert fax no.]***

Griffin Beverage Co., MDEQ Reference No.AOC-RRD-16-001, and Facility ID 00014295 shall be included on any notices sent to the Beneficiary.

IV. ESTABLISHMENT OF FUND

The Grantor and the Escrow Agent hereby establish the Fund to assure implementation of corrective actions and payment of past corrective action costs to the Beneficiary as described in the AOC. The Fund is established initially as consisting of the Escrow Assets described in Exhibit A of this Escrow Agreement, all of which are acceptable to the Escrow Agent. Such Escrow Assets or any other assets subsequently transferred to the Escrow Agent are collectively referred to as the Fund, together with all earnings and profits thereon, less any payments or distributions made by the Escrow Agent pursuant to this Escrow Agreement. The Escrow will be held by the Escrow Agent, as hereinafter provided. The Escrow Agent undertakes no responsibility for the amount or adequacy of, nor any duty to collect from the Grantor, any payments required to be made by the Grantor to the Escrow Agent or for payments required of the Grantor.

V. SECURE PERFORMANCE

The Fund so established shall be used to reimburse the Beneficiary for past corrective action costs in accordance with the provisions of Paragraphs 5.1 and 5.2 of the AOC based on Grantor's performance of corrective actions as required in the AOC. Upon receipt of a notice of request for reimbursement from the Beneficiary, the Escrow Agent shall reimburse the Beneficiary and the Grantor, if appropriate, the amount specified in the notice. All notices of request for disbursement, except for the Escrow Agent's fee which is to be paid to the Escrow Agent directly by the Grantor, are to be made by the Beneficiary to the Escrow Agent with a copy sent to the Grantor. The Escrow Agent shall remit payment to the Beneficiary, and the Grantor if specified, within thirty (30) days of receipt of the notice. Funds disbursed to the parties under this Paragraph shall be delivered to the address indicated in Section III (Notices).

VI. PAYMENTS COMPRISING THE FUND

The Escrow Assets placed with the Escrow Agent by the Grantor shall consist of cash and/or direct obligations of the U.S.A. or the State of Michigan, or obligations for which the

principal and interest are unconditionally guaranteed by the U.S.A. or the State of Michigan, or certificates of deposit of any financial institution to the extent insured by an agency of the United States Government.

VII. ESCROW AGENT MANAGEMENT

The Escrow Agent shall invest and reinvest the principal and income of the Fund and keep the Fund invested as a single fund, without distinction between principal and income, in accordance with prudent investment guidelines. In investing, reinvesting, exchanging, selling, and managing the Fund, the Escrow Agent or any other fiduciary will discharge its/his/her duties with respect to the Fund solely in the interest of the participants and the Beneficiary and with the care, skill, prudence, and diligence under the circumstances then prevailing which persons of prudence, acting in a like capacity and familiar with such matter, would use in the conduct of an enterprise of like character and with like aims, except that:

(A) Securities or other obligations of the Grantor or any other owner or operator of the Facility, or any of their affiliates as defined in the Investment Companies and Advisors Act of 1940, as amended, 15 U.S.C. Section 80a-2(a), shall not be acquired or held on behalf of the Fund unless they are securities or other obligations of the U.S.A. or the State of Michigan;

(B) The Escrow Agent is authorized to invest the Fund in time or demand deposits of the Escrow Agent or any other financial institution to the extent such Escrow Assets are insured by an agency of the United States Government and to the extent such time and demand deposits shall mature not later than one (1) year from the date of the investment;

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

VIII. COMMINGLING AND INVESTMENTS

The Escrow Agent is expressly authorized in its/his/her discretion and in accordance with the investment policies and guidelines transmitted to the Escrow Agent pursuant to this Escrow Agreement to transfer from time to time any or all of the assets of the Fund to any common, commingled, or collective fund created by the Escrow Agent in which the Fund is eligible to participate, subject to all of the provisions thereof, to be commingled with the assets of other escrows participating therein so long as such management does not conflict with the requirements of this Fund. To the extent of the equitable share of the Fund in any such commingled fund, such commingled funds will be part of the Fund.

IX. EXPRESS POWERS OF ESCROW AGENT

Without in any way limiting the powers and discretions conferred upon the Escrow Agent by the other provisions of this Escrow Agreement by law, the Escrow Agent is expressly authorized and empowered:

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

(B) To register any securities held in the Fund in its own name or in the name of a nominee and to hold any security in bearer form or in book entry, or to deposit or arrange for the deposit of such securities in a qualified central depository even though, when so deposited, such securities may be merged and held in bulk in the name of the nominee of such depository with other securities deposited therein by another person, or to deposit or arrange for the deposit of any securities issued by the United States Government, or any agency or instrumentality thereof, with a Federal Reserve Bank, but the books and records of the Escrow Agent will at all times show that all such securities are part of the Fund;

(C) To deposit any cash in the Fund maintained in interest-bearing accounts or saving certificates issued by the Escrow Agent, in its separate corporate capacity, or in any other banking institution affiliated with the Escrow Agent, to the extent insured by an agency of the U.S.A. Government;

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

(E) To comprise or otherwise adjust all claims in favor of or against the Fund.

X. TAXES AND EXPENSES

All taxes of any kind that may be assessed or levied against or in respect to the Fund and monthly maintenance fee (such fee shall include any necessary advice of counsel) incurred by the Escrow Agent or Fund will be paid directly by the Grantor.

XI. ACCOUNTING FOR THE FUND

The Escrow Agent shall annually, at least thirty (30) days prior to the anniversary date of establishment of the Fund; furnish to the Grantor and the Beneficiary a written statement of the current value of the Fund. Any securities in the Fund shall be valued at market value as of no more than sixty (60) days prior to the anniversary date established for the Fund.

The accounting shall show in reasonable detail the following:

(A) The total funds deposited into the Fund;

(B) Accrued earnings on the funds deposited into the Fund;

(C) The amount of the funds that have been paid out of the Fund; and

(D) The remaining balance of the Fund.

XII. ADVICE OF COUNSEL

The Escrow Agent may from time to time consult with counsel, who may be counsel to the Beneficiary, with respect to any questions arising as to the construction of this Escrow Agreement or any action to be taken hereunder. The Escrow Agent shall be fully protected, to the extent permitted by law, in acting upon the advice of its/his/her own counsel.

XIII. ESCROW AGENT COMPENSATION

The Escrow Agent will be entitled to reasonable compensation for its/his/her services as agreed upon in writing from time to time with the Grantor. Payment shall be made directly by the Grantor and not from the Fund.

XIV. SUCCESSOR ESCROW AGENT

The Escrow Agent may be replaced upon providing ninety (90) days written notice to the Escrow Agent from the Beneficiary or the Grantor. The Escrow Agent may resign after giving ninety (90) days written notice to the Grantor and the Beneficiary. In either event, upon written concurrence of the Beneficiary, the Grantor will appoint a successor Escrow Agent who will have the same powers and duties as those conferred upon the Escrow Agent hereunder. Upon acceptance of the appointment of a successor Escrow Agent by the Beneficiary, the successor Escrow Agent and the Grantor will sign a new Escrow Agreement with identical terms as this Escrow Agreement and forward it to the Beneficiary for signature. Upon signature of the Beneficiary, the Escrow Agent will assign, transfer, and pay over to the successor Escrow Agent, the funds then constituting the Fund. If for any reason the Grantor cannot or does not act in the event of the resignation of the Escrow Agent, the Escrow Agent may apply to a court of competent jurisdiction for the appointment of a successor Escrow Agent or for instructions. The successor Escrow Agent shall notify the Beneficiary, the Grantor, and the present Escrow Agent in writing by certified mail of the date upon which it will assume administration of the Fund ten at least ten (10) days before such change becomes effective. Any expenses incurred by the Escrow Agent as a result of any of the actions performed under this Section will be paid as provided in Section X (Taxes and Expenses).

XV. INSTRUCTIONS TO THE ESCROW AGENT

All orders, requests, and instructions by the Beneficiary to the Escrow Agent will be in writing and signed by the Beneficiary. The Escrow Agent shall act and, in so acting, will be fully protected if acting in accordance with such orders, requests, and instructions. The Escrow Agent will have no duty to act in the absence of such orders, requests, and instructions from the Beneficiary, except as provided for herein.

XVI. AMENDMENT OF THE ESCROW AGREEMENT

This Escrow Agreement may be amended by an instrument in writing executed by the Escrow Agent, Grantor, and the Beneficiary; or by the Escrow Agent and the Beneficiary if the Grantor ceases to exist.

XVII. IRREVOCABILITY AND TERMINATION

Subject to the right of the parties to amend this Escrow Agreement as provided in Sections XIV (Successor Escrow Agent) and XVI (Amendment of the Escrow Agreement), this Fund will be irrevocable and continue until terminated by the written notification of the Beneficiary.

The Escrow Agreement shall be terminated when the Escrow Agent receives written notice from the Beneficiary that all of the Funds are to be disbursed and the Fund is no longer necessary.

XVIII. IMMUNITY AND INDEMNIFICATION

The Escrow Agent will not incur personal liability of any nature in connection with any act or omission made in good faith in the administration of this Fund, or in carrying out any directions by the Beneficiary issued in accordance with this Escrow Agreement.

The Escrow Agent will be indemnified and saved harmless by the Grantor, from and against any personal liability to which the Escrow Agent may be subjected by reason of any act or conduct in its official capacity, including all expenses reasonably incurred in its defense.

XIX. CHOICE OF LAW

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

XX. INTERPRETATION

As used in this Escrow Agreement, words in the singular include the plural and words in the plural include the singular. The descriptive headings for each section of this Escrow Agreement will not affect the interpretation or the legal efficacy of this Escrow Agreement.

The parties herein enter into and duly execute this Escrow Agreement. Furthermore, the Grantor and Escrow Agent below certify that the wording of this Escrow Agreement is identical to the wording specified by the Beneficiary as of the effective date of this Escrow Agreement which is the date it is entered by the last signatory.

[This space left intentionally blank]

FOR GRIFFIN BEVERAGE CO., THE GRANTOR

By: _____ _____
Signature Date

Name: _____
Print or Type

Title: _____
Print or Type

STATE OF _____)
) SS
COUNTY OF _____)

The foregoing instrument was acknowledged before me this ____ day of _____, 2____, by ***[insert name of Grantor's authorized representative]***, the ***[insert title of Grantor's authorized representative]*** of ***[insert name of Grantor]***, a ***[insert state of incorporation]*** corporation, on behalf of the corporation, the Grantor named in the foregoing instrument.

_____
Signature of Notary

Commission Expires: _____

FOR [*insert the name of the Escrow Agent*], THE ESCROW AGENT

By: _____ _____
Signature Date

Name: _____
Print or Type

Title: _____
Print or Type

STATE OF _____)
) SS
COUNTY OF _____)

The foregoing instrument was acknowledged before me this ____ day of _____, 2____, by **[*insert name of Escrow Agent's authorized representative*]**, the **[*insert title of Escrow Agent's authorized representative*]** of **[*insert name of Escrow Agent*]**, a **[*insert state of incorporation*]** corporation, on behalf of the corporation, the Escrow Agent named in the foregoing instrument.

_____
Signature of Notary

Commission Expires: _____

FOR THE MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY,
THE BENEFICIARY

By: _____ _____
Signature Date

Name: _____
Print or Type

Title: _____
Print or Type

STATE OF _____)
) SS
COUNTY OF _____)

The foregoing instrument was acknowledged before me this ____ day of _____, 2____, by Robert Wagner, Chief, Remediation and Redevelopment Division, on behalf of the Beneficiary named in the foregoing instrument.

_____
Signature of Notary

Commission Expires: _____

EXHIBIT A

Escrow Assets

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

[Describe the nature and amount(s) of the Escrow Assets.]

By their signatures below, the parties agree that this Exhibit A is incorporated into and made a part of the Escrow Agreement dated ***[insert effective date of Escrow Agreement]***.

FOR *[insert name of Grantor]*, THE GRANTOR

By: _____ _____
Signature Date

Name: _____
Print or Type

Title: _____
Print or Type

FOR *[insert name of Escrow Agent]*, THE ESCROW AGENT

By: _____ _____
Signature Date

Name: _____
Print or Type

Title: _____
Print or Type

FOR THE MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, THE BENEFICIARY

By: _____ _____
Signature Date

Name: _____
Print or Type

Title: _____
Print or Type