

**Request for DEQ Review of No Further Action (NFA) Report**

This form is used for the submittal of a request for the DEQ to review a No Further Action Report, under Section 20114d, Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

**Section A: NFA Category (Check all that apply):**

Residential, unrestricted <input type="checkbox"/>	Restricted (limited) Residential <input type="checkbox"/>
	Restricted (limited) Non-Residential <input checked="" type="checkbox"/>
	Restricted (limited) Site Specific <input type="checkbox"/>

Does this NFA address the entire facility (as defined in Sec 20101 of Part 201):

*If the NFA does not cover the entire facility, please identify what is covered within the NFA report, (i.e. specific portion of facility, release(s), hazardous substance(s), media, or exposure pathway):*

**Section B: Facility Information:**

Facility Name: Former White Consolidated Industries – Belding Site (a.k.a. Belding Products)	County: Ionia
Street Address of Property: 100 East Main Street	City/Village/Township: Range: 8W Section: 11
City: Belding State: MI Zip: 48809	Town: 8N Quarter: NW Quarter-Quarter SW & SE
Property Tax ID (include all applicable IDs): 401-050-000-716-00	Decimal Degrees Latitude: 43.098375 Decimal Degrees Longitude: -85.227791
Status of submitter relative to the property (check all that apply): Former <input type="checkbox"/> Current <input checked="" type="checkbox"/> Prospective <input type="checkbox"/>	Reference point for latitude and longitude: Center of site <input checked="" type="checkbox"/> Main/front door <input type="checkbox"/> Front gate/main entrance <input type="checkbox"/> Other <input type="checkbox"/>
Owner <input type="checkbox"/> Operator <input type="checkbox"/>	Collection method: Itouchmap.com Survey <input type="checkbox"/> GPS <input type="checkbox"/> Interpolation <input type="checkbox"/>

**Section C: Submitter Information:**

Entity/person requesting review: Electrolux Home Products, Inc.

Contact Person (name and title): Andrew Stienecker,

Submitter's Address: 10200 David Taylor Drive

City: Charlotte State: NC Zip: 28262

Telephone: (980) 236-2848 E-Mail: Andrew.Stienecker@electrolux.com

Relationship of Contact Person to the Submitter: Assistant General Counsel to Electrolux

Owner Name, if different from Submitter: Company:

Owner Address: City State: Zip:

Telephone: E-Mail:

**Section D: Facility/Property Subject to (Check all that apply):**

Facility regulated under Part 201, other source, or source unknown Part 201 Site ID, if known: 34000083	<input checked="" type="checkbox"/>
Leaking Underground Storage Tank regulated pursuant to Part 213 Part 211/213. Facility ID, if known:	<input type="checkbox"/>
Oil or gas production and development regulated pursuant to Part 615 or 625	<input type="checkbox"/>
Licensed landfill regulated pursuant to Part 115	<input type="checkbox"/>

Licensed hazardous waste treatment, storage, or disposal facility regulated pursuant to Part 111

Consent Agreement or other legal agreement with the MDEQ

**Section E: Are/were the following present at the facility (Check all that apply):**

	Current	Previously	Unknown
Free product/Non aqueous phase liquids (NAPL)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soil contamination above residential criteria	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Soil contamination above non-residential criteria	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Soil aesthetic impacts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Groundwater contamination above residential criteria	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Groundwater contamination above non-residential criteria	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Groundwater contamination above the Acute Inhalation Screening Level	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Groundwater aesthetic impacts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soil Gas contamination above residential vapor intrusion (vi) screening levels	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soil Gas contamination above non-residential VI screening levels	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Conditions immediately dangerous to life or health (IDLH)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fire & Explosion hazards related to releases	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Contamination existing in drinking water supply	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Imminent threat to drinking water supply	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Impact to surface water	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Impact to surface water sediments above screening levels	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Section F: The following questions assist MDEQ in evaluating the No Further Action Report:**

Have other plans or reports, BEAs, DDCCs, NFAs, etc. been submitted for this facility?

Facility Name, if different than this submittal:

Date and Name of most recent submittal:

**Response Activities or Remedial Action that have been Implemented (Check all that apply):**

	Current	Previously
Excavation	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Physical or Engineered Exposure Barrier	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Active Soil Remediation System	<input type="checkbox"/>	<input type="checkbox"/>
In-situ Soil Remediation	<input type="checkbox"/>	<input type="checkbox"/>
Active Groundwater Remediation System	<input type="checkbox"/>	<input type="checkbox"/>
In-situ Groundwater Remediation	<input type="checkbox"/>	<input type="checkbox"/>
Groundwater Monitored Natural Attenuation	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Containment, Physical or Hydraulic	<input type="checkbox"/>	<input type="checkbox"/>
Vapor Intrusion Barrier	<input type="checkbox"/>	<input type="checkbox"/>
Vapor Intrusion Remediation System	<input type="checkbox"/>	<input type="checkbox"/>
Other, Specify: Several feet of soil cover over building slabs		

**Remedial Action Relies on (Check all that apply):**

Mixing Zone	<input checked="" type="checkbox"/>
Part 201 Section 20118(5) and (6)	<input type="checkbox"/>
Site-Specific Criteria Section 20120b	<input type="checkbox"/>
MIOSHA demonstration Section 20120a(19)	<input type="checkbox"/>

**Post Closure Plan and Components:**

Post Closure Plan Required?	Yes <input checked="" type="checkbox"/>	No (Residential, Unrestricted Category Only) <input type="checkbox"/>
Plan Includes:		
Permanent Markers	<input type="checkbox"/>	
Restrictive Covenant	<input checked="" type="checkbox"/>	
Institutional Controls	<input type="checkbox"/>	

**Post Closure Agreement and Components:**

Post Closure Agreement Required?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Agreement Includes:		
FAM	<input checked="" type="checkbox"/>	
FAM, de minimus	<input type="checkbox"/>	
Waiver of Permanent Marker	<input checked="" type="checkbox"/>	

**Section G: Attachments (Required):**

	Yes
Environmental Professional's Affidavit is attached:	<input checked="" type="checkbox"/>
Environmental Professional's Certificate of Insurance is attached:	<input checked="" type="checkbox"/>
Submitter's Affidavit is attached:	<input checked="" type="checkbox"/>

**Section H: Environmental Professional Signature:**

With my signature below, I certify that this plan and all related materials are true, accurate, and complete to the best of my knowledge and belief.

Signature: Bradley S. Johnson Date: 10/27/14

Printed Name: Bradley S. Johnson, Ph.D.

Company: Golder Associates Inc.

Mailing Address: 15851 South U.S. 27, Suite 50 City: Lansing State: MI Zip: 48906

Telephone: (517) 318-3250 E-mail: brad\_johnson@golder.com

**Section I: Submitter Signature:**

With my signature below, I certify that this plan and all related materials are true, accurate, and complete to the best of my knowledge and belief and I am legally authorized to sign for the submitter.

Signature: [Signature] Date: 10/21/14

(Person legally authorized to bind the legal entity)

Printed Name: Andrew Stienecker

Title and Relationship of signatory to submitter: Assistant General Counsel

Address: 10200 David Taylor Drive City: Charlotte State: NC Zip: 28262

Telephone: (980) 236-2848 E-Mail: Andrew.Stienecker@electrolux.com

This form and the no further action report should be submitted to the DEQ Remediation and Redevelopment Division District Office unless the response activity is related to a facility that is regulated by another DEQ Division. A district map is located at [www.michigan.gov/deqrrd](http://www.michigan.gov/deqrrd). If regulated by another division, contact should be made with that division for information on where to submit the form and report.

NFA Table of Contents  
Currently under development



**Affidavit of Person Submitting a No Further Action Report**

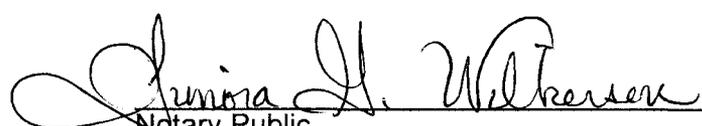
Required pursuant to Section 20114d(5) of Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act (NEREPA), 1994 PA 451, as amended, to be submitted by a person submitting a No Further action (NFA) report to Michigan DEQ. All terms found in this document which are defined in Part 3, Definitions, and Part 201, Environmental Remediation, of NREPA shall have the same meaning as in the statute.

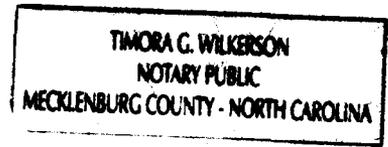
State of North Carolina )  
County of Mecklenburg )

1. I, Andrew Stienecker am authorized to submit this affidavit on behalf of Electrolux Home Products, Inc.
2. A No Further Action (NFA) report dated October 16, 2014 has been submitted for the facility referred to as Former White Consolidated Industries – Belding Site and located at 100 East Main Street in Belding, Ionia County, Michigan (the "Facility.")
3. The purpose of the NFA report is to detail the completion of remedial action at the Facility, and includes a postclosure plan and a postclosure agreement between Electrolux and MDEQ that will be submitted to MDEQ under separate cover.
4. The remedial action at the Facility described in the NFA report was conducted in compliance with all applicable local, state, and federal laws and regulations.
5. I affirm to the best of my knowledge and belief that the NFA report prepared for this Facility, and all information, data, documents and reports relied upon for this NFA report, are true, accurate and complete.

  
\_\_\_\_\_  
Signature of Affiant

Sworn to before me and subscribed in my presence this 27<sup>th</sup> day of October, 2014.

  
\_\_\_\_\_  
Notary Public



**ATTACHMENT A**  
**Consultant Qualifications**

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## PERSONNEL

**Bradley S. Johnson, PhD**

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### Education

- Ph.D., Soil Science/Soil Physics, Michigan State University, 1987
- MS, Soil Science, University of Minnesota, 1981
- BS, Biology, University of Minnesota, 1977

### Specialization

- Environmental Site Assessments
- Hydrogeological studies
- Compliance audits
- Storm water management
- Hydrologic modeling
- Statistical Analysis of Environmental data
- Wetland assessments, delineation, permitting
- Site demolition management

### Certifications/ Registrations

- OSHA 29 CFR 1920.1020, (e) (8) 8-Hour HAZWOPER Refresher
- Certified Trainer for FRA Track Workers Safety
- e-RAILSAFE Contractor
- OSHA 29 CFR 1926 10 Hour Construction Safety Certification
- U.S. Army Corps of Engineers Wetland Delineation (Certificate No. 247)
- OSHA 29 CFR 1920.1020, (e) (3) 40-Hour HAZWOPER Health & Safety Training

### Professional Affiliations

- Member, Michigan Manufacturer's Association

Dr. Johnson is a Senior Project Manager with Golder Associates and has been with the firm since 1998. Has approximately 30 years of experience performing field investigations as an agricultural researcher at Michigan State University and during the last 21 years as an environmental consultant. As an environmental consultant, has designed and implemented numerous hydrogeological studies, environmental site assessments, storm water studies, compliance audits, and hydrologic modeling of landfill containment systems. Has evaluated remedial alternatives for cleanup of petroleum-impacted soils and groundwater, and gathered site-specific data to support site closures.

### Relevant Experience

- Currently managing a site characterization study to gather data and information necessary to engineer, design, permit, and construct a low-permeability cut-off wall at an existing tailings pond in northern Michigan. The site characterization program includes overburden and bedrock drilling and testing programs. The bedrock testing was conducted to assess the stratigraphy, permeability, degree of fracturing, and possible faulting in the bedrock for wall key-in depths and modeling.
- Currently managing remedial assessment of an integrated limestone quarry and cement plant located in southeast Michigan. Remedial actions have been conducted by others at six discrete solid waste disposal areas containing cement kiln dust and at former RCRA hazardous waste management units. The overall objective for the remedial assessment is to prepare the 1,900-acre site for permanent closure by obtaining the additional site characterization data needed at known or suspected areas of concern to prepare an approvable Remedial Action Plan for the entire site.
- Currently managing O&M of a groundwater pump and treatment (P&T) system at a former manufacturing plant located in central Michigan. The groundwater P&T system has been in operation at the site since 1991. The manufacturing plant ceased operations in March 2006 and was demolished in 2007 making it necessary to relocate certain components of the P&T system that were housed within the footprint of the plant. Designed "post-demolition" P&T system modifications including renovations to an existing structure for use as the treatment building, and installation of new treatment equipment (air stripper, control boxes, motor starters, etc.).
- Management and execution of Phase I/II/III ESAs at railroad and manufacturing properties in numerous states.
- Management of a Storm Water System Survey (SWSS) of 300-acre manufacturing facility located in Cleveland, Ohio. The SWSS included confirmation of the storm water collection system network, collection of storm water and sediment samples, hydraulic modeling of storm water flow, evaluation of storm water treatment structures, and preparation of recommendations for system improvements.
- Served as Team Leader for pilot study of a combined "soil gas venting – biofilter treatment system" for remediation of contaminated site involving the Michigan Department of Environmental Quality and the Michigan Biotechnology Institute.

**ATTACHMENT B**

**Property Tax Identification and Legal Description**

**LEGAL DESCRIPTION OF PROPERTY**  
**Property Tax ID Number 401-050-000-716-00**

LOT 58, AND A PART OF LOT 197 OF SUPERVISOR MOON'S PLAT OF THE CITY OF BELDING, MORE PARTICULARLY DESCRIBED AS: COMMENCING AT THE SOUTHWEST CORNER OF SAID LOT 58; THENCE NORTH 117 FEET TO A POINT ON THE SOUTHERLY BOUNDARY LINE OF LAND HERETOFORE CONVEYED BY BELDING HEMINWAY COMPANY TO FIRST CONTINENTAL CORPORATION BY WARRANTY DEED NOW RECORDED IN THE OFFICE OF THE REGISTER OF DEEDS; THENCE EASTERLY ALONG THE SOUTHERLY BOUNDARY LINE OF SAID FIRST CONTINENTAL CORPORATION LAND 66 FEET MORE OR LESS TO A POINT ON SAID SOUTHERLY BOUNDARY LINE; THENCE SOUTH 117 FEET TO THE SOUTHEAST CORNER OF SAID LOT 58, SUPERVISOR MOON'S PLAT; THENCE WEST 66 FEET MORE OR LESS TO THE PLACE OF BEGINNING.

ALSO LOT 191 AND THE SOUTH PART OF LOT 195 OF SUPERVISOR MOON'S PLAT TO THE CITY OF BELDING, MORE PARTICULARLY DESCRIBED AS: COMMENCING AT A POINT AT THE SOUTHWEST CORNER OF LOT 191; THENCE ALONG THE WESTERLY BOUNDARY LINE OF SAID LOT 191 IF EXTENDED INTO LOT 195, 117 FEET MORE OR LESS TO A POINT WHERE SAID WESTERLY BOUNDARY LINE IF EXTENDED WOULD INTERSECT THE SOUTHERLY BOUNDARY LINE OF LANDS HERETOFORE CONVEYED BY BELDING HEMINWAY COMPANY TO FIRST CONTINENTAL CORPORATION BY WARRANTY DEED NOW RECORDED IN THE OFFICE OF THE REGISTER OF DEEDS FOR IONIA COUNTY; THENCE EASTERLY ALONG THE SOUTHERLY BOUNDARY LINE OF SAID FIRST CONTINENTAL CORPORATION LANDS 66 FEET MORE OR LESS TO A POINT WHERE THE EASTERLY BOUNDARY LINE OF LOT 191 IF EXTENDED INTO LOT 195 WOULD INTERSECT SAID SOUTHERLY BOUNDARY LINE OF SAID FIRST CONTINENTAL CORPORATION LANDS; THENCE SOUTHERLY ALONG THE EASTERLY BOUNDARY LINE OF SAID LOT 191 IF EXTENDED INTO LOT 195, 117 FEET MORE OR LESS TO THE SOUTHERLY BOUNDARY LINE OF SAID LOT 191; THENCE WEST ALONG THE SOUTHERLY BOUNDARY LINE OF SAID LOT 191, 66 FEET MORE OR LESS TO THE PLACE OF BEGINNING.

ALSO LOT 57 OF SUPERVISOR MOON'S FLAT TO THE CITY OF BELDING; AND ALSO THAT PART OF LOT 197 OF SAID SUPERVISOR MOON'S PLAT OF THE CITY OF BELDING, DESCRIBED AS FOLLOWS: COMMENCING AT A POINT ON THE EAST LINE OF BRIDGE STREET IN THE SAID CITY OF BELDING, WHICH SAID POINT IS 117 FEET MORE OR LESS NORTH OF THE SOUTHWEST CORNER OF SAID LOT 57 OF SAID SUPERVISOR MOON'S PLAT WITNESSED BY AN IRON STAKE; THENCE EAST 66 FEET, MORE OR LESS ALONG THE SOUTHERLY BOUNDARY LINE OF LANDS CONVEYED TO FIRST CONTINENTAL CORPORATION AUGUST 8, 1933 BY WARRANTY DEED RECORDED IN THE OFFICE OF THE REGISTER OF DEEDS FOR IONIA COUNTY, MICHIGAN IN LIBER 223 OF DEEDS ON PAGE 107, TO A POINT WHERE THE EAST LINE OF LOT 57, SUPERVISOR MOON'S PLAT, IF PROJECTED INTO SAID LOT 197 OF SAID SUPERVISOR MOON'S PLAT WOULD INTERSECT THE SOUTHERLY BOUNDARY LINE OF SAID LANDS CONVEYED TO SAID FIRST CONTINENTAL CORPORATION AFORESAID; THENCE SOUTH 7 FEET MORE OR LESS ALONG THE EAST LINE OF SAID LOT 57 OF SAID SUPERVISOR MOON'S PLAT IF PROJECTED INTO LOT 197 OF SAID SUPERVISOR MOON'S PLAT TO THE NORTHEAST CORNER OF LOT 57 OF SUPERVISOR MOON'S PLAT; THENCE WEST ALONG THE NORTH LINE OF SAID LOT 57 OF SAID SUPERVISOR MOON'S PLAT TO THE EAST LINE OF BRIDGE STREET; THENCE NORTH 7 FEET, MORE OR LESS TO THE PLACE OF BEGINNING.

ALSO LOT 61 AND A PORTION OF THE SOUTH PART OF LOT 195 OF SUPERVISOR MOON'S PLAT OF THE CITY OF BELDING, ACCORDING TO THE RECORDED PLAT, THE SAME BEING MORE PARTICULARLY DESCRIBED AS: COMMENCING AT THE SOUTHWEST CORNER OF LOT 61 OF SAID SUPERVISOR MOON'S PLAT; THENCE NORTH ALONG THE WESTERLY BOUNDARY LINE OF SAID LOT 61 AND THE EASTERLY BOUNDARY LINE OF LOT 196 OF SAID SUPERVISOR MOON'S PLAT, A TOTAL DISTANCE OF 117 FEET TO A POINT WHERE THE EASTERLY BOUNDARY LINE OF SAID LOT 196 INTERSECTS THE SOUTHERLY BOUNDARY LINE OF PROPERTY HERETOFORE CONVEYED BY BELDING HEMINWAY COMPANY TO FIRST CONTINENTAL CORPORATION BY DEED NOW OF

RECORD IN THE REGISTER OF DEEDS OFFICE FOR IONIA COUNTY; THENCE EAST ALONG THE SOUTHERLY BOUNDARY LINE OF SAID FIRST CONTINENTAL CORPORATION LAND 66 FEET MORE OR LESS TO A POINT; THENCE SOUTH ALONG THE EASTERLY BOUNDARY LINE OF SAID LOT 61 AS PROJECTED NORTHERLY INTO LOT 195 OF SUPERVISOR MOON'S PLAT AND ALONG THE EASTERLY BOUNDARY LINE OF SAID LOT 61 A TOTAL DISTANCE OF 117 FEET MORE OR LESS TO A POINT WHERE THE EASTERLY BOUNDARY LINE OF SAID LOT 61 INTERSECTS THE SOUTHERLY BOUNDARY LINE OF LOT 61; THENCE WESTERLY ALONG THE SOUTHERLY BOUNDARY LINE OF LOT 61; TO THE PLACE OF BEGINNING.

ALSO, LOT 59 OF SUPERVISOR MOON'S PLAT OF THE CITY OF BELDING, AND THAT OF LOT 197 OF SUPERVISOR MOON'S PLAT DESCRIBED AS: COMMENCING AT THE NORTHWEST CORNER OF LOT 59 OF SAID PLAT; THENCE NORTH 7 FEET MORE OR LESS TO A POINT ON THE SOUTH BOUNDARY LINE OF LAND HERETOFORE CONVEYED BY BELDING HEMINWAY COMPANY TO THE FIRST CONTINENTAL CORPORATION BY WARRANTY DEED RECORDED IN LIBER 223 OF DEED AT PAGE 107 IN THE OFFICE OF THE REGISTER OF DEEDS FOR IONIA COUNTY ON AUGUST 16, 1993; THENCE EAST ALONG SAID SOUTHERLY BOUNDARY LINE OF SAID LAND OF SAID FIRST CONTINENTAL CORPORATION AFORESAID, 66 FEET MORE OR LESS TO A POINT ON SAID SOUTHERLY BOUNDARY LINE OF SAID LAND OF FIRST CONTINENTAL CORPORATION WHICH IS 7 FEET MORE OR LESS NORTH OF THE NORTHEAST CORNER OF SAID LOT 59; THENCE SOUTH 7 FEET MORE OR LESS TO THE NORTHEAST CORNER OF SAID LOT 59; THENCE WEST ALONG THE NORTHERLY BOUNDARY LINE OF SAID LOT 59; 66 FEET MORE OR LESS TO THE PLACE OF BEGINNING.

ALSO, LOT 60 OF SUPERVISOR MOON'S PLAT OF THE CITY OF BELDING, ACCORDING TO THE RECORDED PLAT THEREOF, AND THAT PART OF LOT 197 OF SUPERVISOR MOON'S PLAT TO THE CITY OF BELDING, DESCRIBED AS; COMMENCING AT A POINT AT THE NORTHWEST CORNER OF SAID LOT 60 OF SAID PLAT; THENCE NORTH 7 FEET MORE OR LESS TO THE SOUTHERLY BOUNDARY LINE OF LANDS HERETOFORE CONVEYED TO THE FIRST CONTINENTAL CORPORATION BY WARRANTY DEED FROM BELDING HEMINWAY COMPANY IN AUGUST 1933, SAID DEED BEING RECORDED IN THE OFFICE OF THE REGISTER OF DEEDS FOR IONIA COUNTY, IN LIBER 223 PAGE 107; THENCE EASTERLY ALONG THE SOUTHERLY BOUNDARY LINE OF SAID FIRST CONTINENTAL CORPORATION LAND, 66 FEET MORE OR LESS TO A POINT WHERE THE SAID SOUTHERLY BOUNDARY LINE OF SAID FIRST CONTINENTAL CORPORATION LAND INTERSECTS THE EASTERLY BOUNDARY LINE OF LOT 197 OF SUPERVISOR MOON'S PLAT; THENCE SOUTH 7 FEET MORE OR LESS TO THE NORTHEAST CORNER OF LOT 60 OF SUPERVISOR MOON'S PLAT; THENCE WESTERLY 66 FEET MORE OR LESS TO THE PLACE OF BEGINNING.

ALSO, THE SOUTH 117 FEET MORE OR LESS OF LOT 196 OF SUPERVISOR MOON'S PLAT OF THE CITY OF BELDING, MORE PARTICULARLY DESCRIBED AS: COMMENCING AT A POINT AT THE SOUTHEAST CORNER OF LOT 60 SAID SUPERVISOR MOON'S PLAT ; THENCE NORTH 117 FEET MORE OR LESS ALONG THE EASTERLY BOUNDARY LINE OF LOT 60 OF SUPERVISOR MOON'S PLAT AND THE EASTERLY BOUNDARY OF LOT 197 OF SUPERVISOR MOON'S PLAT TO A POINT THEREON WHERE THE SAME INTERSECTS THE SOUTHERLY BOUNDARY LINE OF LAND HERETOFORE CONVEYED BY BELDING HEMINWAY COMPANY TO FIRST CONTINENTAL CORPORATION BY WARRANTY DEED RECORDED IN LIBER 223 OF DEED AT PAGE 107 IN THE OFFICE OF THE REGISTER OF DEEDS FOR IONIA COUNTY ON AUGUST 16, 1933; THENCE EAST ALONG SAID SOUTHERLY BOUNDARY LINE OF FIRST CONTINENTAL CORPORATION LAND 66 FEET MORE OR LESS TO A POINT WHERE SAID SOUTHERLY BOUNDARY LINE INTERSECTS THE EASTERLY BOUNDARY LINE OF LOT 196; THENCE SOUTH ALONG THE EASTERLY BOUNDARY LINE OF LOT 196, 117 FEET MORE OR LESS TO THE SOUTHERLY BOUNDARY LINE OF LOT 196; THENCE WEST ALONG THE SOUTHERLY BOUNDARY LINE OF SAID LOT 196, 66 FEET MORE OR LESS TO THE PLACE OF BEGINNING. ALL OF THE ABOVE DESCRIBED PROPERTY BEING RECORDED IN THE REGISTER OF DEEDS OFFICE, FOR IONIA COUNTY, MICHIGAN IN LIBER 1 OF PLATS PAGE 60. SUBJECT TO WAREHOUSE LEASES RECORDED IN LIBER 327 ON PAGE 287 AND LIBER 328 ON PAGE 172, IONIA COUNTY RECORDS.

ALSO, COMMENCING AT AN IRON STAKE SET IN THE EASTERLY LINE OF BRIDGE STREET IN THE

CITY OF BELDING, MICHIGAN, WHICH SAID IRON STAKE IS 362 FEET NORTHERLY ALONG THE EAST LINE OF BRIDGE STREET IN THE SAID CITY OF BELDING, MICHIGAN FROM THE SOUTHWEST CORNER OF LOT 57 OF SUPERVISOR MOON'S PLAT OF THE VILLAGE (NOW CITY) OF BELDING; THENCE SOUTH 82 DEG 25' EAST 70 FEET TO AN IRON STAKE; THENCE SOUTH 69 DEG 35' EAST 90 FEET TO AN IRON STAKE; THENCE SOUTH 75 DEG 40' EAST 28.5 FEET TO AN IRON STAKE; THENCE SOUTH 84 DEG 25' EAST 46 FEET TO AN IRON STAKE; THENCE DUE EAST 126.5 FEET, MORE OR LESS TO THE HIGH WATER LINE ON THE SOUTHERLY BANK OF FLAT RIVER IN THE CITY OF BELDING; THENCE IN A NORTHWESTERLY DIRECTION FOLLOWING THE HIGH WATER LINE ALONG THE SOUTHERLY BANK OF FLAT RIVER IN THE CITY OF BELDING TO THE INTERSECTION OF SAID HIGH WATER LINE WITH A POINT ON THE SOUTHERLY BOUNDARY LINE OF THE PERE MARQUETTE RAILROAD COMPANY RIGHT-OF-WAY AS DEFINED IN THOSE TWO CERTAIN DEEDS NOW RECORDED IN THE REGISTER OF DEEDS FOR IONIA COUNTY IN LIBER 108 OF DEEDS, PAGE 355 AND LIBER 182; PAGE 585 OF DEEDS; THENCE FOLLOWING THE SOUTHERLY BOUNDARY LINE OF SAID RIGHT-OF-WAY OF SAID PERE MARQUETTE RAILWAY COMPANY AS DEFINED IN SAID DEEDS LAST AFORESAID TO A POINT ON THE EASTERLY LINE OF BRIDGE STREET, IN SAID CITY OF BELDING, MICHIGAN WHERE THE SAID SOUTHERLY BOUNDARY LINE OF SAID RIGHT-OF-WAY INTERSECTS SAID EASTERLY LINE OF BRIDGE STREET IN SAID CITY OF BELDING, MICHIGAN, THENCE SOUTHERLY ALONG THE EASTERLY LINE OF BRIDGE STREET IN THE SAID CITY OF BELDING, MICHIGAN 8 FEET TO THE PLACE OF BEGINNING, IN TOWN 8 NORTH, RANGE 8 WEST, SUBJECT TO FLOWAGE, BOOMAGE AND WATER RIGHT AS ESTABLISHED BY DECREE RECORDED IN LIBER 227 OF DEEDS ON PAGE 35, IONIA COUNTY RECORDS.

ALSO, PARTS OF LOTS 195, 196, 197, 199 AND ALL OF LOTS 198, 53, 54, 55 AND 56 OF SUPERVISOR MOON'S PLAT OF THE VILLAGE, NOW CITY OF BELDING, IONIA COUNTY AND STATE OF MICHIGAN WHICH SAID PLAT IS NOW RECORDED IN THE OFFICE OF THE REGISTER OF DEEDS FOR IONIA COUNTY, MICHIGAN AND MORE PARTICULARLY DESCRIBED AS: COMMENCING AT A POINT ON THE EAST LINE OF BRIDGE STREET IN THE CITY OF BELDING, 7 FEET NORTH OF THE SOUTHWEST CORNER OF LOT 197 OF SUPERVISOR MOON'S PLAT; THENCE NORTH ON THE EAST LINE OF BRIDGE STREET 245 FEET TO A POINT ON THE EAST LINE OF BRIDGE STREET; THENCE SOUTH 82 DEG 25' EAST 70 FEET; THENCE SOUTH 69 DEG 35' EAST 90 FEET; THENCE SOUTH 75 DEG 40' EAST 28.5 FEET; THENCE SOUTH 84 DEG 25' EAST 46 FEET; THENCE EAST 126.5 FEET MORE OR LESS TO THE HIGH WATER LINE ON THE SOUTHERLY BANK OF FLAT RIVER IN THE CITY OF BELDING; THENCE SOUTHEASTERLY FOLLOWING THE HIGH WATER LINE ALONG THE SOUTHERLY BANK OF FLAT RIVER IN THE CITY OF BELDING 235.4 FEET MORE OR LESS TO A POINT THAT IS 7 FEET NORTH AND 36 FEET EAST OF THE NORTHWEST CORNER OF LOT 193 SUPERVISOR MOON'S PLAT; THENCE WEST 564 FEET TO THE PLACE OF BEGINNING, IN TOWN 8 NORTH, RANGE 8 WEST, SUBJECT TO FLOWAGE, BOOMAGE AND WATER RIGHTS ESTABLISHED BY DECREE RECORDED IN LIBER 227 OF DEEDS ON PAGE 35, IONIA COUNTY RECORDS.

ALSO, COMMENCING AT A POINT 101.057 FEET NORTH OF THE SOUTHWEST CORNER OF LOT 192 OF SUPERVISOR MOON'S PLAT TO THE CITY OF BELDING, SECTION 10 TOWN 8 NORTH, RANGE 8 WEST; THENCE NORTH 15.943 FEET ALONG THE WEST LINE AND THE EXTENSION THEREOF, OF SAID LOT 192 TO A POINT 117 FEET NORTH OF THE SOUTHWEST CORNER OF SAID LOT 192; THENCE EAST AND PARALLEL WITH THE NORTH LOT LINE OF SAID LOT 192, A DISTANCE OF 33.66 FEET; THENCE IN A NORTHWESTERLY DIRECTION A DISTANCE OF 37.2 FEET MORE OR LESS TO THE POINT OF BEGINNING.



# NO FURTHER ACTION REPORT IN SUPPORT OF SITE CLOSURE

Former White Consolidated Industries – Belding Site  
Belding, Michigan

**Submitted To:** David O'Donnell, District Supervisor  
Department of Environmental Quality  
Grand Rapids District  
350 Ottawa, NW  
Grand Rapids, Michigan 49503

**Submitted By:** Golder Associates Inc.  
15851 South US 27, Suite 50  
Lansing, MI 48906 USA

**Distribution:** Dr. Carol Parnell, Electrolux North America, Inc.  
Douglas S. Arnold, Alston & Bird LLP

October 16, 2014

Project No. 1406182B

A world of  
**capabilities**  
delivered **locally**



## Table of Contents

1.0	INTRODUCTION.....	2
2.0	COMPLETED RESPONSE ACTIONS.....	2
2.1	Initial Site Investigations and Source Removal.....	2
2.2	Post Source Removal Investigations.....	3
2.3	Recent Site Characterization Activities.....	3
2.4	Post-source Removal Groundwater Monitoring.....	4
2.4.1	Annual Groundwater Monitoring Work Plan.....	4
2.4.2	Groundwater Quality Monitoring Results.....	5
3.0	SUMMARY OF SUBSURFACE CONDITIONS.....	6
4.0	POSTCLOSURE MONITORING PLAN.....	6
4.1	Monitoring Network and Frequency.....	6
4.2	Analytical Program.....	7
4.3	Reporting.....	7
5.0	LAND AND RESOURCE USE RESTRICTIONS.....	7
6.0	SUMMARY AND CONCLUSIONS.....	8
7.0	CLOSING.....	9
8.0	REFERENCES.....	10

## List of Tables

Table 1	Well Construction Details and Static Water Elevations March 11, 2013
Table 2	Summary of Groundwater and Surface Water Analytical Results

## List of Figures

Figure 1	Site Location Map
Figure 2	Soil Boring, Piezometer and Monitoring Well Locations
Figure 3	Groundwater Contour Map - March 11, 2013
Figure 4	Vinyl Chloride Detections in GSI Wells Above the Generic GSI Criterion

## List of Appendices

Appendix A	Updated Mixing Zone Determination report (September 2014)
Appendix B	Environmental Consultant Affidavit for No Further Action Report
Appendix C	Golder Associates Inc. certificate of insurance

## 1.0 INTRODUCTION

Golder Associates Inc. (Golder) prepared this No Further Action (NFA) Report on behalf of Electrolux Home Products, Inc. (Electrolux) for the property located at 100 East Main Street in Belding, Ionia County, Michigan (the Site). The property is the site of a former silk mill and home appliance factory (see Figure 1). Manufacturing operations ceased at the facility in 1988. During site closure and subsequent site assessment activities, trichloroethene (TCE) and associated breakdown products were identified in soil and groundwater. Response activities conducted at the site to address this release include:

- removal and off-site disposal of source area soils
- assessment and monitoring of groundwater to support a monitored natural attenuation (MNA) remedy for groundwater
- preparation and submittal of a mixing zone determination request
- building demolition
- construction of a soil cover
- future filing of a restrictive covenant with the register of deeds for Ionia County that prohibits site groundwater use, excavation below the soil cover, and any land use that may interfere with the response actions

These response activities satisfy the requirements of Part 201 and allow Electrolux to submit this NFA Report to the Michigan Department of Environmental Quality (MDEQ) for approval pursuant to Section 20114d(3)(c) of Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, (NREPA).

Pursuant to Section 20114d(4) of Part 201, a Postclosure Agreement between Electrolux and MDEQ will be submitted to MDEQ under separate cover. A Postclosure Plan will be appended to the Postclosure Agreement. Upon execution of the Postclosure Agreement, Electrolux will proceed with the process for use of the property as a public park in accordance with a December 3, 2012 Consent Judgment between Electrolux and the City of Belding.

## 2.0 COMPLETED RESPONSE ACTIONS

### 2.1 Initial Site Investigations and Source Removal

When production ceased at the facility in 1989, White Consolidated Industries (WCI, now Electrolux) submitted a request to the MDEQ<sup>1</sup> to terminate an NPDES permit (Outfall 001, NPDES Permit #MI0002143). In accordance with MDEQ closure requirements, WCI sampled water discharging at the

<sup>1</sup> Michigan Department of Environmental Quality is the state agency mandated to protect and conserve the natural resources of the state in the interest of the health, safety, and welfare of the people as the successor to the Michigan Department of Natural Resources (MDNR) under Executive Order 1995-16, effective October 1, 1995. Accordingly, references to the MDEQ relating to events or actions prior to October 1, 1995 should be understood as having been taken by or involved the MDNR.

weir sampling point. Test results indicated the presence of TCE in stormwater collected from the weir. A subsequent investigation indicated that "Catch Basin No. 10" (CB-10) was the source of the TCE release.

In May 1990 WCI removed CB-10 and in April/May 1991 removed and disposed of impacted soil from the CB-10 area. Test results for verification samples collected following each soil removal event indicated residual concentrations of TCE. In July and September 1991 WCI removed and disposed of additional soils in the area of CB-10. The extent of the excavation was reportedly limited by a building foundation and a fire protection water main. TCE concentrations in the verification soil samples remained above cleanup criteria (former Type B cleanup levels) at the time of the 1991 response activities.

## 2.2 Post Source Removal Investigations

Following removal of CB-10 and the 1991 soil removal activities, WCI further investigated the horizontal and vertical extent of the chlorinated hydrocarbon impacts. Investigations were conducted between 1992 and 1995 with findings presented in the following series of reports (each prepared by Dragun Corporation on behalf of WCI) that were submitted to the MDEQ:

- Soil and Groundwater Investigation Report - June 28, 1993
- Work Plan, Phase II Environmental Assessment - November 19, 1993
- Status Report, Phase II Environmental Assessment - June 20, 1994
- Preliminary Feasibility Study - July 12, 1994
- Anion and Cation Groundwater Sampling Report – July 6, 1995
- Mixing Zone Evaluation – August 16, 1995
- Annual Groundwater Monitoring Work Plan - December 13, 1996
- Eleven Quarterly Groundwater Monitoring Reports (1993 to 1997)
- Annual Groundwater Monitoring Reports (1997 and 1998)

The investigations included:

- advancement of 18 soil borings and laboratory analysis of 17 soil samples,
- installation of 12 of monitoring wells
- multiple rounds of groundwater sampling and analysis
- multiple rounds of surface water (Flat River) sampling and analysis
- *in-situ* hydraulic conductivity testing

## 2.3 Recent Site Characterization Activities

At the request of the MDEQ, Electrolux completed additional site investigations in 2013 and 2014 to confirm previous site characterizations. In January 2013, Electrolux installed three piezometers (PZ-1, PZ-2, and PZ-3) and advanced two deep borings located near the Flat River. One of the deep borings

was completed as a deep monitoring well (MW-2D) and is screened across an isolated sand seam at 25 to 26 feet below the ground surface (bgs). The MDEQ was present during the boring and well installation activities. Boring, piezometer, and well locations are illustrated on Figure 2. Additional fieldwork conducted in March 2013 included groundwater sampling, surveying of well top-of-casing elevations, a water level survey, and *in-situ* hydraulic conductivity testing. The 2013 annual groundwater monitoring event was completed in September 2013.

In July 2014, Electrolux installed two additional deep wells (MW-12 and MW-13) at the request of the MDEQ to: (i) evaluate whether impacted groundwater is venting to the Flat River at depths greater than the monitored zones of the wells situated along the groundwater surface water interface (GSI), and (ii) support an update to the July 2013 mixing zone determination (Golder, 2013). The MDEQ was present during advancement of these boreholes and well installation and assisted Golder in the selection of screened intervals. As illustrated on Figure 2, monitoring well MW-12 is located at the northwest corner of the Site near the former "North Well" and monitoring well MW-13 is located immediately north of MW-6 at the former source area. MW-12 and MW-13 were sampled on July 10, 2014 and on August 22, 2014. Boring logs and well construction diagrams for the deep borings are included in the Updated Mixing Zone Determination report (Appendix A).

## 2.4 Post-source Removal Groundwater Monitoring

### 2.4.1 Annual Groundwater Monitoring Work Plan

Since 1999, groundwater and surface water samples have been collected annually in accordance with a monitoring work plan and sampling procedure revisions that comply with MDEQ's Remediation and Redevelopment Division Operational Memorandum No. 2 (RRD OM2), Attachment 5 (MDEQ, 2004). QA/QC samples (including a field duplicate and trip blank) are collected during each monitoring event in accordance with RRD OM2. Since 2010, when Electrolux retained Golder to conduct the annual sampling, samples have been submitted to TriMatrix Laboratories, Inc. located in Grand Rapids, Michigan for analysis of volatile organic compounds (VOCs). In addition, groundwater samples from five monitoring wells and one surface water sample location have been analyzed for the following MNA indicator parameters:

- Dissolved iron and manganese
- Nitrogen, ammonia
- Nitrogen, Kjeldahl
- Nitrogen, nitrate plus nitrite
- Sulfate and chloride
- Total organic carbon

#### 2.4.2 Groundwater Quality Monitoring Results

Groundwater analytical results are summarized in Table 2. Exposure to surface water remains a potential, relevant exposure pathway because groundwater beneath the Site migrates towards and discharges to the Flat River. Therefore, current generic GSI criteria (MDEQ, December 30, 2013) are included on Table 2 for comparison. For purposes of the updated mixing zone determination (Appendix A) and this NFA report, comparison of analytical results to the GSI criteria is most relevant for monitoring wells located near the river bank. These wells (MW-1, MW-2, MW-3, MW-4S/4D, MW-8, MW-9, MW-10 and MW-11) are referred to as GSI wells.

Historically, only TCE and vinyl chloride have been detected at concentrations above generic GSI criteria in the GSI wells. However, because TCE concentrations have naturally attenuated over time, only vinyl chloride has been detected at concentrations above the generic GSI criterion in the GSI wells during more recent sampling events. Using average concentrations for 2011 through 2013, vinyl chloride has been detected at concentrations above the generic GSI criterion at four monitoring wells: MW-1, MW-2, MW-4S, and MW-8. The locations and the three-year average vinyl chloride concentration for each of these wells are shown on Figure 4.

Deep monitoring wells MW-2D (installed in January 2013), and MW-12 and MW-13 (installed in July 2014) have each been sampled twice. VOCs have not been detected above the laboratory reporting limits in samples collected from wells MW-2D and MW-12. Three VOCs (TCE, *cis*-1,2-dichloroethene, and *trans*-1,2-dichloroethene) have been detected in samples collected from deep monitoring well MW-13. However, all detected concentrations are well below the generic GSI criteria in groundwater. In addition, MW-13 is not considered a GSI well because it is located at the former source area.

If generic GSI criteria are exceeded, or are reasonably expected to be exceeded at GSI monitoring wells, an owner/operator may demonstrate compliance with Part 201 for a response activity providing for venting groundwater by meeting mixing zone-based GSI criteria [Section 20120e(1)(c) of Part 201]. Electrolux submitted an updated mixing zone determination request to the MDEQ on September 16, 2014. Using low flow data for the Flat River provided by the MDEQ and following RRD-5 guidance, Golder calculated a groundwater discharge rate of 0.26 cfs and a dilution factor of 125 resulting in a proposed mixing zone-based GSI criterion for vinyl chloride of 1,600 µg/L. The current and projected worst-case maximum GSI discharge concentration for vinyl chloride (590 µg/L) presented in the Updated Mixing Zone Determination report (Appendix A) is well below this calculated mixing zone-based criterion.

### 3.0 SUMMARY OF SUBSURFACE CONDITIONS

The following summarizes the geologic, hydrogeologic and groundwater quality information that forms the basis of this NFA report.

#### Geology

- Most of the site is covered by 3 to 5 feet of sandy anthropogenic fill.
- The fill is underlain by a clayey sand and silty clayey sand to a depth of 13 to 15 feet bgs where a compact sandy silt stratum was encountered. Shallow site wells are screened in saturated zones of the clayey sand and silty clay.
- The clayey sand and silty clay sand are underlain by a dense glacial till of variable lithology. The till is so dense that drillers typically had to use water to advance the rotosonic overshot casing through these materials to complete the borings to the target depth. The till extends to a depth of at least 45 feet as observed in boring SB-4DD and the boring for MW-12.
- Isolated, thin sand seams were encountered at variable depths in the dense till in each deep boring. Deep monitoring wells were screened across these sand seams.

#### Hydrogeology

- The static water elevations on Table 1 were used to construct phreatic surface groundwater contours as shown on Figure 3. The groundwater contours indicate flow across the site towards the Flat River. Horizontal hydraulic gradients ranged from approximately 0.017 ft/ft near MW-4S/4D to 0.024 ft/ft near MW-2/2D on March 11, 2013.
- Based on average results for the falling- and rising-head tests, the hydraulic conductivity ranges from  $8.7 \times 10^{-5}$  cm/sec in MW-4D to  $6.5 \times 10^{-1}$  cm/sec in MW-4S. A boring log is not available for monitoring MW-4S; however, the hydraulic conductivity value for this well is typical of a coarse sand or gravel, not a sandy silt as encountered elsewhere along the GSI.
- The deep wells MW-2D, MW-12, and MW-13 are screened across isolated sand seams that are horizontally discontinuous and are not in hydraulic communication with the shallow water-bearing zone that the GSI wells are screened in.

### 4.0 POSTCLOSURE MONITORING PLAN

#### 4.1 Monitoring Network and Frequency

The proposed postclosure monitoring plan includes:

- sampling of all wells comprising the original monitoring network
- sampling the deep monitoring wells MW-2D, MW-12 and MW-13 two additional times, as requested by MDEQ
- continued sampling of two surface water (Flat River) sampling locations
- groundwater level monitoring

As agreed to during the September 15, 2014 meeting with the MDEQ, Electrolux will continue annual site-wide groundwater and surface water monitoring for at least two additional years, including the 2014 annual monitoring event which is scheduled for October 2014.

## 4.2 Analytical Program

In accordance with previous annual groundwater monitoring events, groundwater and surface water samples will be submitted to TriMatrix Laboratories, Inc. for analysis of VOCs using U.S. EPA Method 8260B. Electrolux will also collect and analyze one field duplicate and one trip blank for VOCs.

Historically, five of the groundwater samples and one surface water sample have been analyzed for the MNA indicator parameters listed in Section 2.4.1 to support demonstration that natural attenuation of halogenated hydrocarbons in groundwater is occurring. Based on monitoring groundwater quality at this Site on an annual basis for almost 20 years, it is Golder's opinion that continued demonstration of natural attenuation is not necessary. Therefore, the proposed postclosure analytical program for the groundwater and surface water samples will be limited to the site-specific VOC list.

## 4.3 Reporting

Upon receipt of the analytical results, Electrolux will and prepare and submit a report that will include:

- groundwater elevation data and a groundwater contour map based on the measured static water level in the shallow wells
- a summary of groundwater and surface water analytical results along with historical analytical results.
- a comparison of analytical results for GSI wells to generic GSI criteria
- a comparison of vinyl chloride analytical results for GSI wells with the authorized mixing zone-based criterion for vinyl chloride

The report will be submitted to the Grand Rapids office of the MDEQ within 45 days of receipt of the laboratory analytical results. The report format will be consistent with recent annual reports.

As indicated above, Electrolux has agreed to continue annual site-wide groundwater monitoring for at least two additional years. The 2015 annual groundwater monitoring report will assess whether further annual groundwater monitoring is necessary.

## 5.0 LAND AND RESOURCE USE RESTRICTIONS

Subsection (2)(a) of Section 324.20114c of NREPA, states that a Postclosure Plan shall include land use or resource use restrictions as provided in Subsection (3) of Section 324.20114c. A copy of the RC filed with the Ionia County, Michigan Register of Deeds will be included as an Attachment to the Postclosure Agreement). The following are key elements of the RC:

- Legal Description - The entire property (Parcel No. 34-401-050-000-716-00) will be subject to the land and resource use restrictions in the RC.
- Groundwater Use Restriction - Specifically, the construction and use of wells or other devices on the Property to extract groundwater for consumption, irrigation, or any other

purpose, except for installation of wells for the purpose of evaluating groundwater quality shall be prohibited.

- **Monitoring Well Disturbance Restriction** - Any activity that would interfere with the function of or obstruct access to any monitoring wells and devices located on the Property also shall be prohibited. This includes, but is not limited to, removing, destroying, or altering any well or device in any way that renders it inoperable or incapable of functioning as intended.
- **Prohibited Land Uses** - The Owner shall prohibit activities on the Property that may interfere with any element of the response activities, including the performance of operation and maintenance activities, monitoring, or other measures necessary to ensure the effectiveness and integrity of the response activities implemented at the Property.
- **Exposure Barrier Restriction** - Prohibited activities include any excavation or other intrusive activity that could affect the integrity of the final cover for the property.

## 6.0 SUMMARY AND CONCLUSIONS

Electrolux (previously WCI) has undertaken a series of response actions to address TCE and associated breakdown products that previously were identified in soil and groundwater during site closure. Response actions conducted at the site include:

- removal and off-site disposal of source area soils
- assessment and monitoring of groundwater to support a monitored natural attenuation remedy for groundwater
- preparation and submittal of a mixing zone determination request
- building demolition
- construction of a soil cover
- future filing of a restrictive covenant with the register of deeds for Ionia County that prohibits site groundwater use, excavation below the soil cover, and any land use that may interfere with the response actions

These response actions address potential exposure pathways as follows:

- **Drinking Water** – Electrolux shall file a RC with the register of deeds for Ionia County (which will be attached to the Postclosure Agreement) that prohibits the use of site groundwater and therefore eliminates this potential exposure pathway.
- **Groundwater Discharging to Surface Water** – Only one constituent, vinyl chloride, currently exceeds a generic GSI criterion in the GSI wells. Electrolux has submitted a request for a mixing zone-based criterion for vinyl chloride which demonstrates that the discharge of vinyl chloride impacted groundwater from the site to the Flat River will not result in an unacceptable risk.
- **Exposure Controls** - During March 2013 and July 2014 Electrolux conducted environmental decommissioning and demolition of the former manufacturing plant. The site structures were demolished to base slab or ground level and disturbed areas were restored in accordance with a “site cover, grading and cover plan.” Specifically, building foundations, slabs, and other paved areas were covered with topsoil and graded to prevent erosion and accumulation of water. The graded topsoil was planted with shallow-root vegetative cover of native grasses. The RC shall prohibit excavation below the

cover, thereby eliminating potential exposure to soil and groundwater beneath the original ground surface.

These response activities satisfy the requirements of Part 201 and allow Electrolux to submit this NFA Report to the Michigan Department of Environmental Quality (MDEQ) for approval pursuant to Section 20114d(3)(c) of Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, (NREPA). As required pursuant to Section 20114d(6) of Part 201, an "Environmental Consultant Affidavit for No Further Action Report" is included as Appendix B and the environmental consultant certificate of insurance is included as Appendix C.

Pursuant to Section 20114d(4) of Part 201, a Postclosure Agreement between Electrolux and MDEQ will be submitted to MDEQ under separate cover. A Postclosure Plan is being prepared for the Site and will be appended to the Postclosure Agreement. Upon execution of the Postclosure Agreement, Electrolux will proceed with the process for use of the property as a public park in accordance with a December 3, 2012 Consent Judgment between Electrolux and the City of Belding.

## 7.0 CLOSING

Golder appreciates this opportunity to assist Electrolux Home Products. Please contact Brad Johnson or Alistair Macdonald if you have any questions regarding this NFA Report.

### GOLDER ASSOCIATES INC.



Bradley S. Johnson, Ph.D.  
Senior Consultant



Alistair Macdonald, CPG, LSP  
Program Leader and Principal

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## 8.0 REFERENCES

RRD Operational Memorandum No. 2, Sampling and Analysis – Attachment 5, Collection of Samples for Comparison to Generic Criteria. MDEQ Remediation and Redevelopment Division, October 22, 2004.

RRD Operational Memorandum No. 5, Groundwater Surface Water Interface Criteria. MDEQ Remediation and Redevelopment Division, September 30, 2004.

Revised Mixing Zone Determination, Former White Consolidated Industries – Belding Site, 100 East Main Street, Belding, Michigan. Golder Associates Inc., July 9, 2013.

Table 1. Groundwater: Residential and Non-Residential Part 201 Generic Cleanup Criteria and Screening Levels/Part 213 Risk-Based Screening levels. MDEQ, December 30, 2013.

**TABLES**

**TABLE 1: WELL CONSTRUCTION DETAILS AND STATIC WATER ELEVATIONS  
FORMER WHITE CONSOLIDATED INDUSTRIES - BELDING SITE  
NO FURTHER ACTION REPORT**

Monitoring Well	Northing	Easting	Ground Surface (ft)	Top of Casing (ft)	Top of Screen (ft BGS)	Bottom of Screen (ft BGS)	Screened Interval Elevation (ft)	Measured March 11, 2013		
								Depth to Water (ft BTOC)	Depth to Water (ft BGS)	Water Elev. (ft)
MW1	583902.062	12893459.951	767.82	767.52	7.0	12.0	760.82 - 755.82	3.29	3.59	764.23
MW2	583856.147	12893554.539	767.69	769.99	8.0	13.0	759.69 - 754.69	5.99	3.69	764.00
MW2D	583854.374	12893546.060	767.47	767.13	23.0	28.0	744.47 - 739.47	0.00	0.34	767.13
MW3	583902.097	12893519.488	767.58	769.90	7.0	12.0	760.58 - 755.58	5.94	3.62	763.96
MW4S	583959.653	12893469.340	768.69	771.24	9.0	14.0	759.69 - 754.69	7.24	4.69	764.00
MW4D	583956.397	12893470.151	768.33	770.86	17.0	22.0	751.33 - 746.33	4.50	1.97	766.36
MW5	583887.699	12893351.306	770.20	770.11	9.0	14.0	761.20 - 756.20	cover missing - filled in w/ sediment		
MW6	583791.090	12893339.990	772.67	772.28	6.0	11.0	766.67 - 761.67	NM	--	--
MW7	583652.077	12893172.825	775.71	775.52	7.0	12.0	768.71 - 763.71	3.90	4.09	771.62
MW8	583781.994	12893587.972	769.30	768.86	9.0	14.0	760.30 - 755.30	4.77	5.21	764.09
MW9	583733.683	12893638.008	772.36	772.15	14.0	19.0	758.36 - 753.36	5.99	6.20	766.16
MW10	584006.500	12893421.125	771.36	773.28	11.0	16.0	760.36 - 755.36	9.30	7.38	763.98
MW11	584086.135	12893354.469	770.93	773.32	10.0	15.0	760.93 - 755.93	9.30	6.91	764.02
MW12	583858.262	12893196.251	769.73	769.64	31.0	36.0	738.73 - 733.73	NM	--	--
MW13	583802.395	12893337.008	772.21	771.98	40.0	45.0	732.21 - 727.21	NM	--	--
PZ-1	583853.122	12893189.755	772.99	772.68	7.0	12.0	765.99 - 760.99	4.10	4.41	768.58
PZ-2	583560.467	12893620.256	777.97	777.59	6.5	11.5	771.47 - 766.47	3.63	4.01	773.96
PZ-3	583636.494	12893464.515	775.37	775.10	5.0	10.0	770.37 - 765.37	4.70	4.97	770.40
SW1	583988.311	12893503.164	N/A	772.90	N/A	N/A	N/A - N/A	9.10	N/A	763.80

**Notes & Abbreviations:**

- ft - Elevation in feet relative to an arbitrary on-site reference elevation (100 ft)
- ft BGS - Indicates feet below ground surface
- ft BTOC - Indicates feet below Top-of-Casing
- SW1 - Flat River elevation measurement location
- N/A Not applicable
- NM Not Measured - MW6 could not be located on March 11, 2013 due to snow cover
- Monitoring wells MW12 and MW13 were not installed until July 2014

TABLE 2: SUMMARY OF GROUNDWATER AND SURFACE WATER ANALYTICAL RESULTS  
FORMER WHITE CONSOLIDATED INDUSTRIES - BELDING SITE  
NO FURTHER ACTION REPORT

Parameter	GSI <sup>(1)</sup>	units	MW1	MW1	MW1	MW1	MW1	MW1	MW2	MW2	MW2	MW2	MW2	MW2
			7/15/08	5/6/09	10/25/10	8/18/11	11/5/12	9/25/13	7/16/08	5/6/09	10/25/10	8/18/11	11/5/12	9/25/13
Benzene	200 (X)	µg/L	ND	ND	<1.0	<1.0	<1.0	<2.0	ND	ND	<1.0	<1.0	<1.0	<1.0
Toluene	270	µg/L	ND	ND	<1.0	<1.0	<1.0	<2.0	ND	ND	<1.0	<1.0	<1.0	<1.0
2-Butanone (MEK)	2,200	µg/L	ND	ND	<5.0	<5.0	<5.0	13	ND	ND	<5.0	<5.0	<5.0	<5.0
Chloroethane	1,100 (X)	µg/L	ND	ND	<1.0	<1.0	<1.0	<2.0	ND	ND	<1.0	3.1	2	1.0
Chloromethane [2]	ID	µg/L	ND	ND	<1.0	<1.0	<1.0	<2.0	ND	ND	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethane	740	µg/L	ND	ND	1.8	2.1	2.1	3.1	ND	ND	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethene	130	µg/L	ND	ND	<1.0	<1.0	<1.0	<2.0	ND	ND	<1.0	<1.0	<1.0	<1.0
cis-1,2-Dichloroethene	620	µg/L	4.1	3.7	6.0	14	22	16	ND	1.3	<1.0	1.7	<1.0	14
trans-1,2-Dichloroethene	1500 (X)	µg/L	ND	ND	<1.0	<1.0	<1.0	<2.0	ND	ND	<1.0	<1.0	<1.0	<1.0
Tetrachloroethene	60 (X)	µg/L	ND	ND	<1.0	<1.0	<1.0	<2.0	ND	ND	<1.0	<1.0	<1.0	<1.0
1,1,1-Trichloroethane	89	µg/L	ND	ND	<1.0	<1.0	<1.0	<2.0	ND	ND	<1.0	<1.0	<1.0	<1.0
1,1,2-Trichloroethane	330 (X)	µg/L	ND	ND	<1.0	<1.0	<1.0	<2.0	ND	ND	<1.0	<1.0	<1.0	<1.0
Trichloroethene	200 (X)	µg/L	ND	ND	<1.0	<1.0	<1.0	<2.0	ND	ND	<1.0	<1.0	<1.0	<1.0
Vinyl Chloride	13 (X)	µg/L	160	96	140	160	160	190	ND	8.9	<1.0	9.4	2.6	31

Parameter	GSI <sup>(1)</sup>	units	MW2D	MW2D	MW2D Duplicate	MW3	MW3	MW3	MW3	MW3	MW3
			3/11/13	10/25/13	10/25/13	7/15/08	5/6/09	10/25/10	8/18/11	11/5/12	9/25/13
Benzene	200 (X)	µg/L	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
Toluene	270	µg/L	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
2-Butanone (MEK)	2,200	µg/L	<5.0	<5.0	<5.0	ND	ND	<5.0	<5.0	<5.0	<5.0
Chloroethane	1,100 (X)	µg/L	2.0	<1.0	<1.0	60	66	41	50	84	65
Chloromethane [2]	ID	µg/L	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethane	740	µg/L	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	1.2
1,1-Dichloroethene	130	µg/L	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
cis-1,2-Dichloroethene	620	µg/L	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
trans-1,2-Dichloroethene	1500 (X)	µg/L	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
Tetrachloroethene	60 (X)	µg/L	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
1,1,1-Trichloroethane	89	µg/L	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
1,1,2-Trichloroethane	330 (X)	µg/L	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
Trichloroethene	200 (X)	µg/L	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
Vinyl Chloride	13 (X)	µg/L	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	1.2

TABLE 2: SUMMARY OF GROUNDWATER AND SURFACE WATER ANALYTICAL RESULTS  
FORMER WHITE CONSOLIDATED INDUSTRIES - BELDING SITE  
NO FURTHER ACTION REPORT

Parameter	GSI <sup>(1)</sup>	units	MW4S	MW4S	MW4S	DUP	MW4S	MW4S	MW4S	MW4D	MW4D	MW4D	MW4D	MW4D	MW4D
			7/15/08	5/7/09	10/25/10	10/25/10	8/18/11	11/5/12	9/25/13	7/15/08	5/6/09	10/25/10	8/18/11	11/5/12	9/25/13
Benzene	200 (X)	µg/L	1.1	ND	<5.0	<5.0	<5.0	<5.0	<5.0	ND	ND	<1.0	<1.0	<1.0	<1.0
Toluene	270	µg/L	ND	ND	<5.0	<5.0	<5.0	<5.0	<5.0	ND	ND	<1.0	<1.0	<1.0	<1.0
2-Butanone (MEK)	2,200	µg/L	ND	ND	<25	<25	<25	<25	<25	ND	ND	<5.0	<5.0	<5.0	<5.0
Chloroethane	1,100 (X)	µg/L	ND	ND	<5.0	<5.0	<5.0	<5.0	<5.0	ND	ND	<1.0	<1.0	<1.0	<1.0
Chloromethane [2]	ID	µg/L	ND	ND	<5.0	<5.0	<5.0	<5.0	<5.0	ND	ND	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethane	740	µg/L	1.9	4.5	<5.0	<5.0	<5.0	<5.0	11	ND	ND	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethene	130	µg/L	5.5	12	<5.0	<5.0	<5.0	<5.0	<5.0	ND	ND	<1.0	<1.0	<1.0	<1.0
cis-1,2-Dichloroethene	620	µg/L	<b>290</b>	<b>330</b>	<b>160</b>	<b>160</b>	<b>260</b>	<b>210</b>	11	ND	ND	<1.0	<1.0	<1.0	<1.0
trans-1,2-Dichloroethene	1500 (X)	µg/L	11	ND	<5.0	<5.0	<5.0	<5.0	<5.0	ND	ND	<1.0	<1.0	<1.0	<1.0
Tetrachloroethene	60 (X)	µg/L	ND	ND	<5.0	<5.0	<5.0	<5.0	<5.0	ND	ND	<1.0	<1.0	<1.0	<1.0
1,1,1-Trichloroethane	89	µg/L	ND	ND	<5.0	<5.0	<5.0	<5.0	<5.0	ND	ND	<1.0	<1.0	<1.0	<1.0
1,1,2-Trichloroethane	330 (X)	µg/L	ND	ND	<5.0	<5.0	<5.0	<5.0	<5.0	ND	ND	<1.0	<1.0	<1.0	<1.0
Trichloroethene	200 (X)	µg/L	ND	3.5	<5.0	<5.0	<5.0	<5.0	<5.0	ND	ND	<1.0	<1.0	<1.0	<1.0
Vinyl Chloride	13 (X)	µg/L	<b>740</b>	<b>380</b>	<b>590</b>	<b>580</b>	<b>390</b>	<b>490</b>	<b>380</b>	ND	ND	<1.0	<1.0	<1.0	<1.0

Parameter	GSI <sup>(1)</sup>	units	MW5	MW5	MW5	MW6	DUP	MW6	MW6	MW6	MW6	MW6
			7/15/08	5/7/09	2010-2013	7/16/08	7/16/08	5/7/09	10/25/10	8/18/11	11/5/12	9/25/13
Benzene	200 (X)	µg/L	ND	ND	Well filled w/ sediment above screened interval, could not sample	ND	ND	ND	<25	<25	<25	<25
Toluene	270	µg/L	ND	ND		ND	ND	ND	<25	<25	<25	<25
2-Butanone (MEK)	2,200	µg/L	ND	ND		ND	ND	ND	<120	<120	130	<120
Chloroethane	1,100 (X)	µg/L	ND	ND		ND	ND	ND	<25	<25	<25	<25
Chloromethane [2]	ID	µg/L	ND	ND		ND	ND	ND	<25	<25	<25	<25
1,1-Dichloroethane	740	µg/L	ND	ND		ND	ND	ND	<25	<25	<25	<25
1,1-Dichloroethene	130	µg/L	ND	ND		ND	ND	ND	<25	<25	<25	<25
cis-1,2-Dichloroethene	620	µg/L	ND	1.0		62	64	54	<b>230</b>	<b>210</b>	<b>130</b>	<b>140</b>
trans-1,2-Dichloroethene	1500 (X)	µg/L	ND	ND		6.0	5.3	ND	<25	<25	<25	<25
Tetrachloroethene	60 (X)	µg/L	ND	ND		4.9	5.6	<b>7.0</b>	<25	<25	<25	<25
1,1,1-Trichloroethane	89	µg/L	ND	ND		6.5	6.5	4.6	<25	<25	<25	<25
1,1,2-Trichloroethane	330 (X)	µg/L	ND	ND		ND	ND	ND	<25	<25	<25	<25
Trichloroethene	200 (X)	µg/L	ND	ND		<b>2,000</b>	<b>2,000</b>	<b>960</b>	<b>3,800</b>	<b>4,200</b>	<b>2,600</b>	<b>1,900</b>
Vinyl Chloride	13 (X)	µg/L	ND	ND	ND	ND	ND	<25	<25	<25	<25	

TABLE 2: SUMMARY OF GROUNDWATER AND SURFACE WATER ANALYTICAL RESULTS  
FORMER WHITE CONSOLIDATED INDUSTRIES - BELDING SITE  
NO FURTHER ACTION REPORT

Parameter	GSI <sup>(1)</sup>	units	MW7	MW7	MW7	MW7	MW7	MW7	MW8	MW8	MW8	MW8	MW8	MW8
			7/16/08	5/7/09	10/26/10	8/18/11	11/5/12	9/25/13	7/15/08	5/6/09	10/25/10	8/18/11	11/5/12	9/25/13
Benzene	200 (X)	µg/L	ND	ND	<1.0	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
Toluene	270	µg/L	ND	ND	<1.0	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
2-Butanone (MEK)	2,200	µg/L	ND	ND	<5.0	<5.0	<5.0	<5.0	ND	ND	<5.0	<5.0	<5.0	<5.0
Chloroethane	1,100 (X)	µg/L	ND	ND	<1.0	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
Chloromethane [2]	ID	µg/L	ND	ND	<1.0	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethane	740	µg/L	ND	ND	<1.0	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	2.0
1,1-Dichloroethene	130	µg/L	ND	ND	<1.0	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
cis-1,2-Dichloroethene	620	µg/L	ND	ND	<1.0	<1.0	<1.0	<1.0	2.8	2.6	1.8	3.7	2.8	4.0
trans-1,2-Dichloroethene	1500 (X)	µg/L	ND	ND	<1.0	<1.0	<1.0	<1.0	1.3	1.1	1.1	1.2	1.3	1.8
Tetrachloroethene	60 (X)	µg/L	ND	ND	<1.0	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
1,1,1-Trichloroethane	89	µg/L	ND	ND	<1.0	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
1,1,2-Trichloroethane	330 (X)	µg/L	ND	ND	<1.0	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
Trichloroethene	200 (X)	µg/L	2.1	ND	<1.0	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
Vinyl Chloride	13 (X)	µg/L	ND	ND	<1.0	<1.0	<1.0	<1.0	37	26	31	23	31	24

Parameter	GSI <sup>(1)</sup>	units	MW9	MW9	DUP	MW9	MW9	MW9	MW9
			7/15/08	5/6/09	5/6/09	10/25/10	8/18/11	11/5/12	9/25/13
Benzene	200 (X)	µg/L	ND	ND	ND	<1.0	<1.0	<1.0	<1.0
Toluene	270	µg/L	ND	ND	ND	<1.0	<1.0	<1.0	<1.0
2-Butanone (MEK)	2,200	µg/L	ND	ND	ND	<5.0	<5.0	<5.0	<5.0
Chloroethane	1,100 (X)	µg/L	ND	ND	ND	<1.0	<1.0	<1.0	<1.0
Chloromethane [2]	ID	µg/L	ND	ND	ND	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethane	740	µg/L	ND	ND	ND	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethene	130	µg/L	ND	ND	ND	<1.0	<1.0	<1.0	<1.0
cis-1,2-Dichloroethene	620	µg/L	ND	ND	ND	<1.0	<1.0	<1.0	1.0
trans-1,2-Dichloroethene	1500 (X)	µg/L	ND	ND	ND	<1.0	<1.0	<1.0	<1.0
Tetrachloroethene	60 (X)	µg/L	ND	ND	ND	<1.0	<1.0	<1.0	<1.0
1,1,1-Trichloroethane	89	µg/L	ND	ND	ND	<1.0	<1.0	<1.0	<1.0
1,1,2-Trichloroethane	330 (X)	µg/L	ND	ND	ND	<1.0	<1.0	<1.0	<1.0
Trichloroethene	200 (X)	µg/L	ND	ND	ND	<1.0	<1.0	<1.0	<1.0
Vinyl Chloride	13 (X)	µg/L	ND	ND	ND	<1.0	1.2	<1.0	1.4

TABLE 2: SUMMARY OF GROUNDWATER AND SURFACE WATER ANALYTICAL RESULTS  
FORMER WHITE CONSOLIDATED INDUSTRIES - BELDING SITE  
NO FURTHER ACTION REPORT

Parameter	GSI <sup>(1)</sup>	units	MW10	MW10	MW10	MW10	MW10	DUP (MW10)	MW10	MW11	MW11	MW11	MW11	MW11	MW11
			7/16/08	5/7/09	10/26/10	8/18/11	11/6/12	11/6/12	9/25/13	7/16/08	5/7/09	10/26/10	8/18/11	11/6/12	9/25/13
Benzene	200 (X)	µg/L	ND	ND	<1.0	<1.0	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
Toluene	270	µg/L	ND	ND	<1.0	<1.0	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
2-Butanone (MEK)	2,200	µg/L	ND	ND	<5.0	<5.0	<5.0	<5.0	<5.0	ND	ND	<5.0	<5.0	<5.0	<5.0
Chloroethane	1,100 (X)	µg/L	ND	ND	<1.0	<1.0	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
Chloromethane [2]	ID	µg/L	ND	ND	<1.0	<1.0	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethane	740	µg/L	ND	ND	<1.0	<1.0	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethene	130	µg/L	ND	ND	<1.0	<1.0	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
cis-1,2-Dichloroethene	620	µg/L	ND	ND	<1.0	<1.0	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
trans-1,2-Dichloroethene	1500 (X)	µg/L	ND	ND	<1.0	<1.0	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
Tetrachloroethene	60 (X)	µg/L	ND	ND	<1.0	<1.0	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
1,1,1-Trichloroethane	89	µg/L	ND	ND	<1.0	<1.0	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
1,1,2-Trichloroethane	330 (X)	µg/L	ND	ND	<1.0	<1.0	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
Trichloroethene	200 (X)	µg/L	ND	ND	<1.0	<1.0	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
Vinyl Chloride	13 (X)	µg/L	ND	ND	<1.0	1.0	<1.0	<1.0	1.1	ND	ND	<1.0	<1.0	<1.0	<1.0

Parameter	GSI <sup>(1)</sup>	units	MW12	DUP (MW12)	MW12	MW13	MW13	DUP (MW13)
			7/10/14	7/10/14	8/22/14	7/10/14	8/22/14	8/22/14
Benzene	200 (X)	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Toluene	270	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
2-Butanone (MEK)	2,200	µg/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Chloroethane	1,100 (X)	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloromethane [2]	ID	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethane	740	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethene	130	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
cis-1,2-Dichloroethene	620	µg/L	<1.0	<1.0	<1.0	86	97	97
trans-1,2-Dichloroethene	1500 (X)	µg/L	<1.0	<1.0	<1.0	11	14	14
Tetrachloroethene	60 (X)	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,1-Trichloroethane	89	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,2-Trichloroethane	330 (X)	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Trichloroethene	200 (X)	µg/L	<1.0	<1.0	<1.0	26	72	75
Vinyl Chloride	13 (X)	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0

TABLE 2: SUMMARY OF GROUNDWATER AND SURFACE WATER ANALYTICAL RESULTS  
 FORMER WHITE CONSOLIDATED INDUSTRIES - BELDING SITE  
 NO FURTHER ACTION REPORT

Parameter	GSI <sup>(1)</sup>	units	SW1	SW1	SW1	SW1	SW1	SW1	SW2	SW2	SW2	SW2	SW2	SW2
			7/16/08	5/6/09	10/25/10	8/18/11	11/6/12	9/25/13	7/16/08	5/6/09	10/25/10	8/18/11	11/6/12	9/25/13
Benzene	200 (X)	µg/L	ND	ND	<1.0	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
Toluene	270	µg/L	ND	ND	<1.0	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
2-Butanone (MEK)	2,200	µg/L	ND	ND	<5.0	<5.0	<5.0	<5.0	ND	ND	<5.0	<5.0	<5.0	<5.0
Chloroethane	1,100 (X)	µg/L	ND	ND	<1.0	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
Chloromethane [2]	ID	µg/L	ND	ND	<1.0	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethane	740	µg/L	ND	ND	<1.0	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethene	130	µg/L	ND	ND	<1.0	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
cis-1,2-Dichloroethene	620	µg/L	ND	ND	<1.0	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
trans-1,2-Dichloroethene	1500 (X)	µg/L	ND	ND	<1.0	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
Tetrachloroethene	60 (X)	µg/L	ND	ND	<1.0	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
1,1,1-Trichloroethane	89	µg/L	ND	ND	<1.0	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
1,1,2-Trichloroethane	330 (X)	µg/L	ND	ND	<1.0	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
Trichloroethene	200 (X)	µg/L	ND	ND	<1.0	<1.0	<1.0	<1.0	ND	ND	3.5	<1.0	<1.0	<1.0
Vinyl Chloride	13 (X)	µg/L	ND	ND	<1.0	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0

**TABLE 2: SUMMARY OF GROUNDWATER AND SURFACE WATER ANALYTICAL RESULTS  
FORMER WHITE CONSOLIDATED INDUSTRIES - BELDING SITE  
NO FURTHER ACTION REPORT**

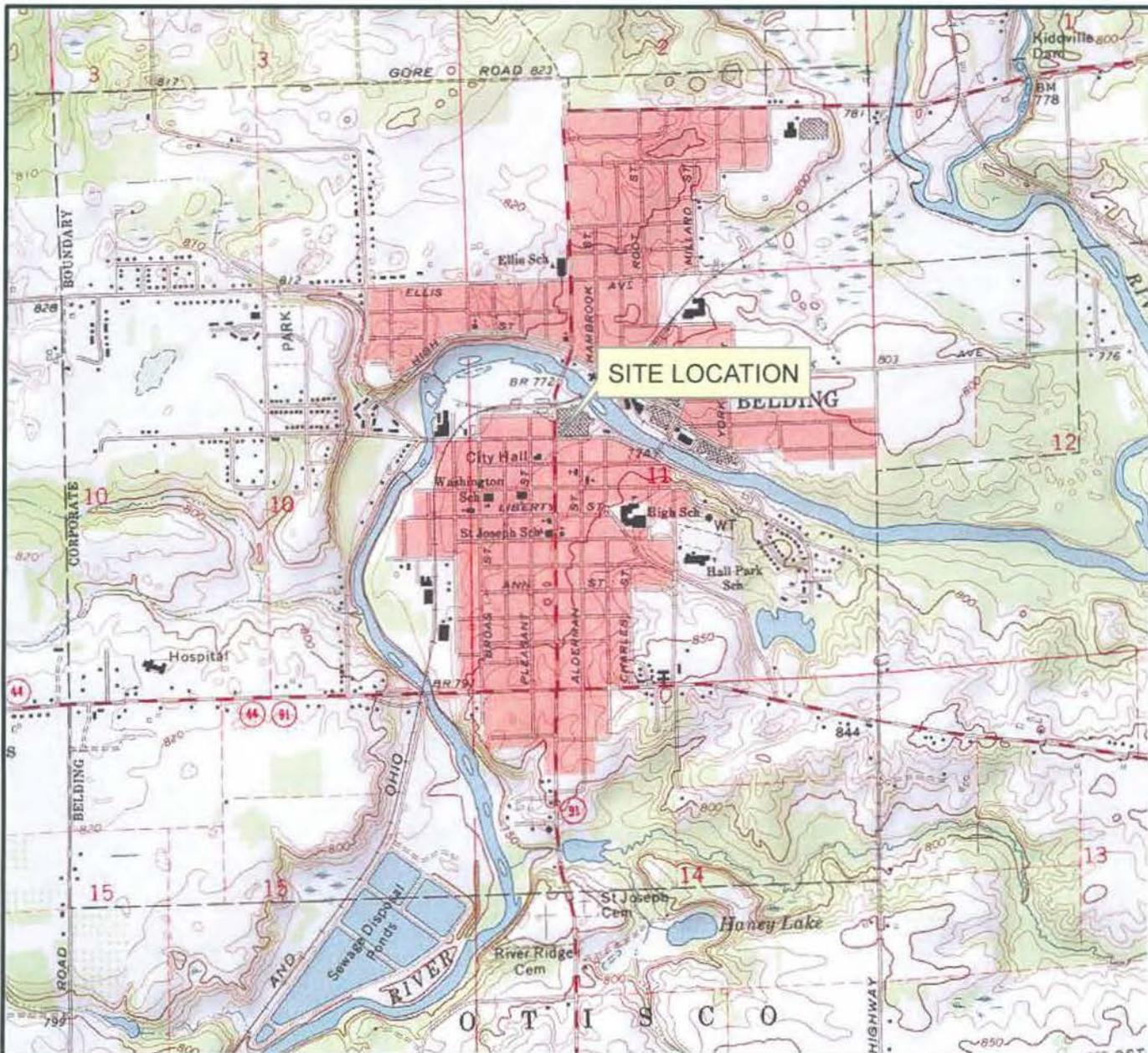
**NOTES:**

- [1] GSI = Groundwater surface water interface criteria (DEQ Table 1. Groundwater: Residential and Non-Residential Part 201 Generic Cleanup Criteria and Screening Levels/Part 213 Risk-Based Screening levels, December 30, 2013).
- [2] For chloromethane, "ID" indicates inadequate data to develop a GSI criterion.
- [3] ND = Non detect (laboratory reporting limits unknown for pre-2010 monitoring events).
- [4] Bold data exceed generic GSI and/or NRDW criteria.

**Part 201 Cleanup Criteria Footnotes:**

- (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.

**FIGURES**



REFERENCE: U.S. GEOLOGIC SURVEY 7.5 MINUTE BELDING, MI TOPOGRAPHIC QUADRANGLE MAP, 1972.



SCALE AS SHOWN  
 DATE 10/02/14  
 DESIGN BSJ  
 GIS JJS

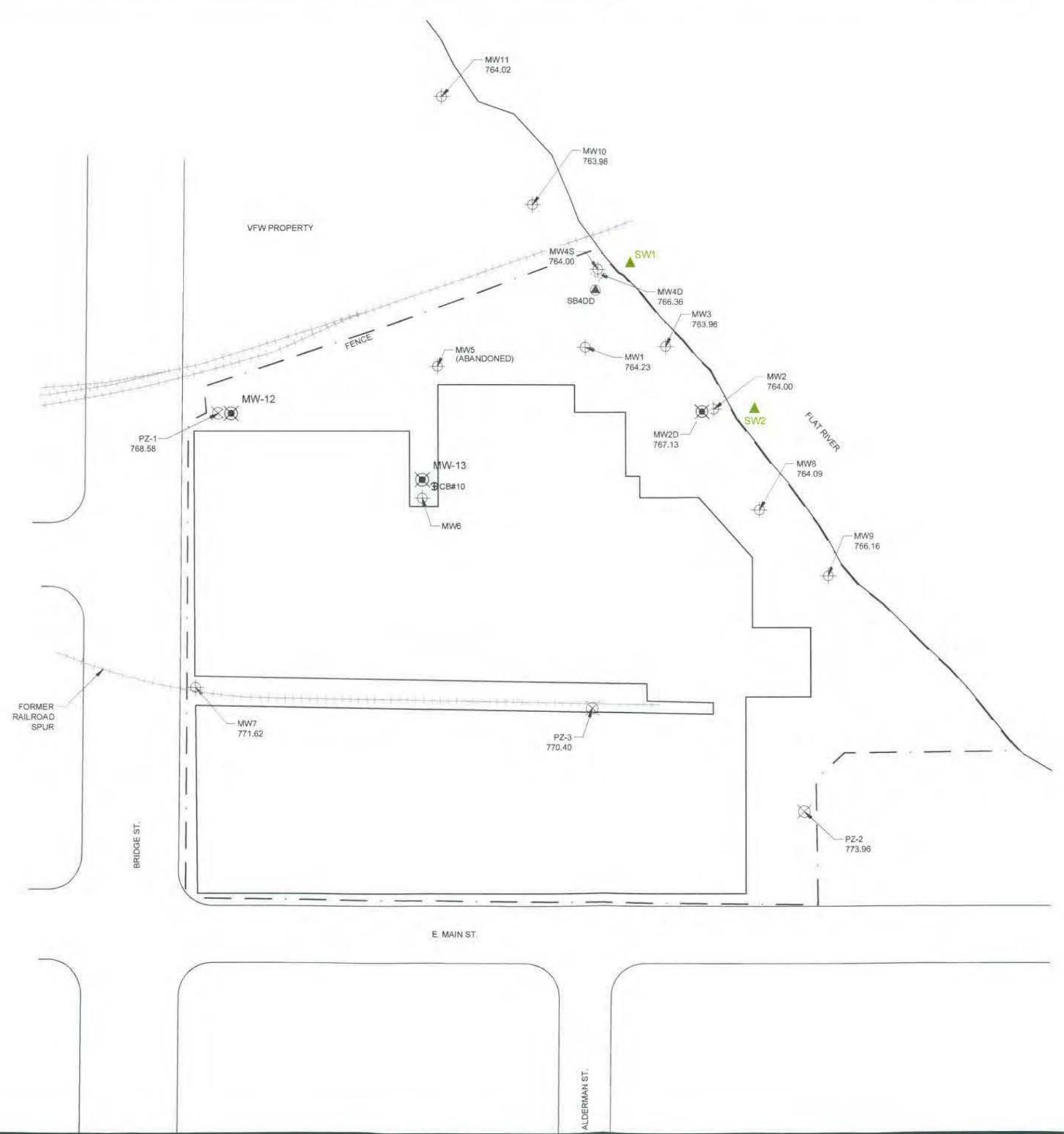
**SITE LOCATION MAP**  
 FORMER WHITE CONSOLIDATED INDUSTRIES -  
 BELDING SITE  
 100 E. MAIN STREET  
 BELDING, IONIA COUNTY, MICHIGAN

FILE No 1406182A001-GIS  
 PROJECT No 1406182 REV 0

CHECK [Signature]  
 REVIEW [Signature]

NO FURTHER ACTION REPORT

FIGURE 1



**LEGEND**

	PROPERTY BOUNDARY
	FORMER RAILROAD TRACK
	MONITORING WELL
	CATCH BASIN
	PIEZOMETER
	SOIL BORING
	SURFACE WATER SAMPLE LOCATION
	DEEP BORING/MONITORING WELL

**NOTES**

1. BASE DRAWING ADAPTED FROM "MONITOR WELL & PIEZOMETER LOCATIONS," PREPARED BY GOWER PROFESSIONAL SURVEYING, P.C., DATED 3/12/2013.

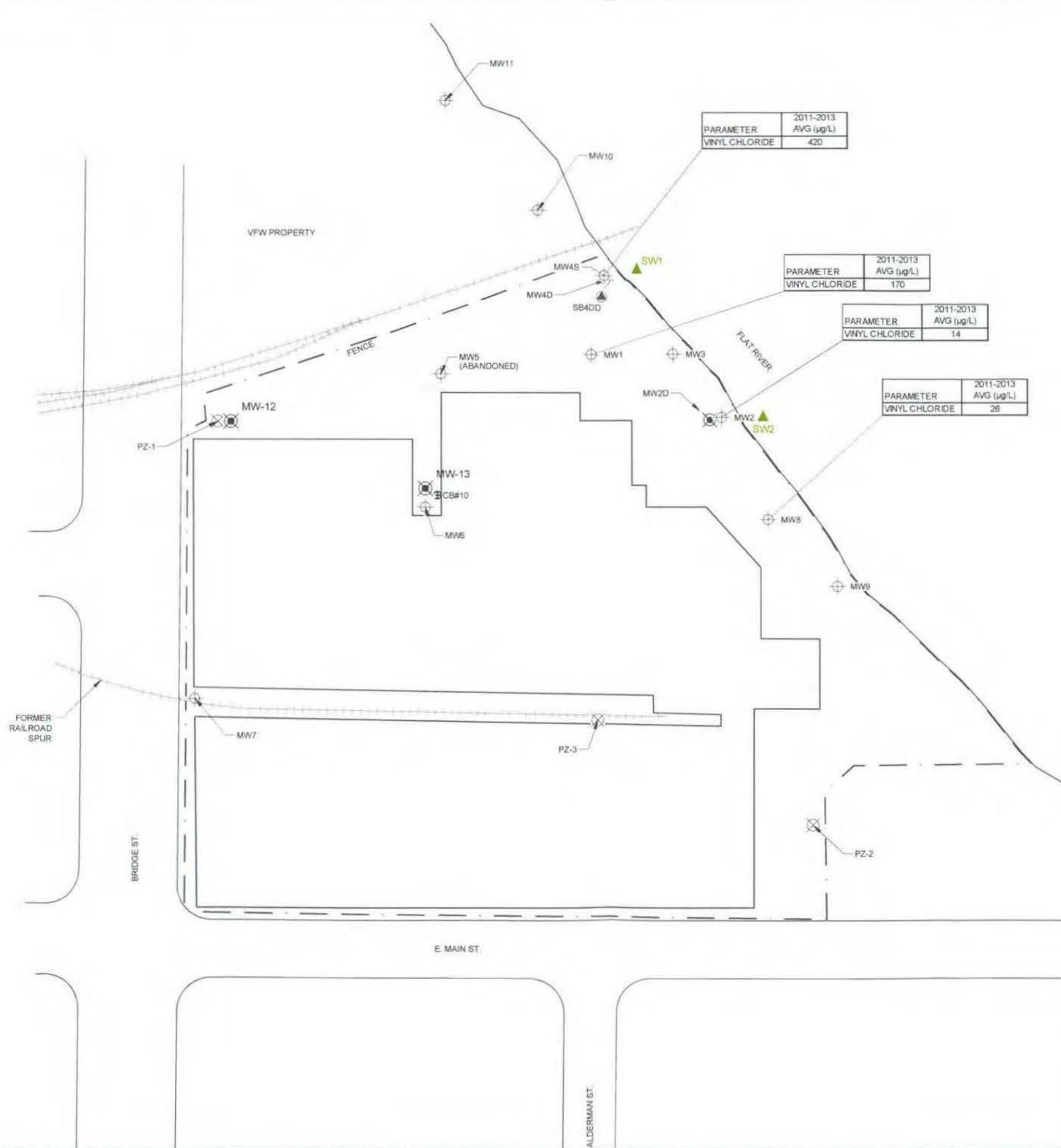


PROJECT		ELECTROLUX FORMER WHITE CONSOLIDATED INDUSTRIES BELDING, MICHIGAN	
TITLE		SOIL BORING, PIEZOMETER AND MONITORING WELL LOCATIONS	
PROJECT No.	1406182	FILE No.	1406182B001
DESIGN	BSJ	2014-10-02	SCALE AS SHOWN
CADD	JJS	2014-10-02	FIGURE
CHECK	<i>[Signature]</i>	10/16/14	
REVIEW	<i>[Signature]</i>	10/16/14	
			<b>2</b>



N:\Projects\1406182\_Belding Mining Zone\PRODUCTION\B-NFA\_Report\1406182B001.dwg [Layout: 2 MONITORING NETWORK] Modified: jechmacker 10/20/14 9:57 AM | Plotfile: jechmacker 10/20/2014





**LEGEND**

	PROPERTY BOUNDARY
	FORMER RAILROAD TRACK
	MONITORING WELL
	CATCH BASIN
	PIEZOMETER
	SOIL BORING
	SURFACE WATER SAMPLE LOCATION
	DEEP BORING/MONITORING WELL

**NOTES**

1. BASE DRAWING ADAPTED FROM "MONITOR WELL & PIEZOMETER LOCATIONS," PREPARED BY GOWER PROFESSIONAL SURVEYING, P.C., DATED 3/12/2013.



PROJECT		ELECTROLUX FORMER WHITE CONSOLIDATED INDUSTRIES BELDING, MICHIGAN	
TITLE		VINYL CHLORIDE DETECTIONS IN GSI WELLS ABOVE THE GENERIC GSI CRITERION	
PROJECT No.	1406182	FILE No.	1406182B001
DESIGN	BSJ 2014-10-02	SCALE	AS SHOWN
CADD	JJS 2014-10-02	FIGURE	
CHECK	BSJ 10/16/14		
REVIEW	DKL 10/16/14		



K:\Projects\1406182\_Belding Milling Zone\PRODUCT\TDR\NFA\_Rep\1406182B001.dwg - Layer: 4 LOW EXCEEDANCES | Modified: acromaster 10/20/14 8:57 AM | User: acromaster | 10/20/14

**APPENDIX A**

**Updated Mixing Zone Determination report (September 2014)**

# UPDATED MIXING ZONE DETERMINATION

Former White Consolidated Industries – Belding Site

100 East Main Street, Belding, Michigan

**Submitted To:** David O'Donnell, District Supervisor  
Department of Environmental Quality  
Grand Rapids District  
350 Ottawa, NW  
Grand Rapids, Michigan 49503

**Submitted By:** Golder Associates Inc.  
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Douglas S. Arnold, Alston & Bird LLP

September 2014

Project No. 1406182

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## Table of Contents

1.0	BACKGROUND .....	1
2.0	ANNUAL GROUNDWATER MONITORING .....	1
3.0	RECENT SITE CHARACTERIZATION ACTIVITIES .....	1
4.0	SUMMARY OF SUBSURFACE CONDITIONS .....	2
5.0	REQUEST FOR MIXING ZONE-BASED GSI CRITERIA.....	3
5.1	Receiving Water .....	4
5.2	Location, Nature, and Chemical Characteristics of Groundwater Contamination .....	4
5.3	Name, CAS Number, and Worst Case Maximum Concentration .....	4
5.4	Flat River Low Flow Data .....	5
5.5	Discharge Rate of Venting Groundwater .....	5
5.6	Calculation of Mixing Zone Criterion for Vinyl Chloride .....	6
6.0	SUMMARY .....	6
7.0	CLOSING .....	6
8.0	REFERENCES.....	7

### List of Tables

Table 1	Well Construction Details and Static Water Elevations
Table 2	Summary of Hydraulic Conductivity Data
Table 3	Summary of Soil Analytical Results
Table 4	Summary of Groundwater and Surface Water Analytical Results

### List of Figures

Figure 1	Site Location Map
Figure 2	Groundwater Contour Map - March 11, 2013
Figure 3	Groundwater Vinyl Chloride Detections Above the Generic GSI Criterion
Figure 4	Vinyl Chloride Concentration Trends in Monitoring Wells MW-1, MW-4S, and MW-8
Figure 5	TCE Concentration Trend in Monitoring Well MW-6

### List of Appendices

Appendix A	Soil Boring Logs and Well Construction Diagrams
Appendix B	TriMatrix Analytical Reports
Appendix C	MDEQ Response to Low Flow Discharge Request for the Flat River
Appendix D	Attachment 1 Request to MDEQ for Mixing Zone-Based GSI Criteria

## 1.0 BACKGROUND

The property at 100 East Main Street in Belding, Ionia County, Michigan (the "Site") is a former silk mill and home appliance factory. . Production ceased at the Belding, Michigan facility on February 10, 1988. The Site was sold to Tol Realty in 1991 who leased the property to a variety of tenants. According to parcel information for 34-401-050-000-716-00 obtained from Ionia County online services, Silk Mill LLC (reportedly owned by Grand Rapids developer Robert Tol) was the owner on September 21, 2010 when the property was acquired by Electrolux Home Products, Inc. (Electrolux).

Groundwater beneath the Site migrates towards and discharges to the Flat River and therefore, the groundwater surface water interface (GSI) is a potential groundwater exposure pathway. Trichloroethene (TCE) and vinyl chloride concentrations in groundwater collected from wells located adjacent to the Flat River historically exceeded generic GSI values. Recent groundwater analytical results indicate that only vinyl chloride, remains above the generic GSI criterion in the GSI monitoring wells. If generic GSI criteria are exceeded, or are reasonably expected, to be exceeded at GSI monitoring wells, an owner/operator may submit a request to the MDEQ for mixing zone-based criteria. This report supports a request to the MDEQ for a mixing zone-based criterion for vinyl chloride.

## 2.0 ANNUAL GROUNDWATER MONITORING

Electrolux has conducted annual groundwater monitoring at the Site since 1999 following procedures that comply with the Remediation and Redevelopment Division "Op Memo 2" sampling and analysis guidance. The groundwater monitoring network consists of 12 permanent monitoring wells: MW-1 through MW-11 with shallow (MW-4S) and deep (MW-4D) wells at MW-4. Two monitoring wells (MW-10 and MW-11) are located on the adjoining VFW property. Figure 2 shows the locations of these monitoring wells. Monitoring well MW-5, which was damaged in 2010 and subsequently decommissioned during site demolition activities in 2013, was dropped from the monitoring program with the MDEQ's approval.

## 3.0 RECENT SITE CHARACTERIZATION ACTIVITIES

At the request of the MDEQ, drilling programs were carried out during 2013 and 2014. The MDEQ was present during the January 2013 installation of three piezometers (PZ-1, PZ-2, and PZ-3) and advancement of deep borings located near the Flat River (i.e., at the GSI). One of the deep borings was completed as a deep monitoring well (MW-2D) and is screened across an isolated sand seam at 25 to 26 feet below the ground surface (bgs). Additional field work in March 2013 included groundwater sample collection, survey of well top-of-casing elevations, water level survey, and *in-situ* hydraulic conductivity testing. The 2013 annual groundwater monitoring event was completed in September 2013.

Electrolux installed two additional deep wells (MW-12 and MW-13) at the request of the MDEQ in July 2014. The MDEQ was present during advancement of these boreholes and well installation and assisted Golder in the selection of screened intervals. As illustrated on Figure 2, monitoring well MW-12 is located

at the northwest corner of the Site near the former North Well and monitoring well MW-13 is located immediately north of MW-6 near the former release area. MW-12 and MW-13 were sampled on July 10, 2014 and on August 22, 2014. Boring logs and well construction diagrams for the deep borings are included in Appendix A.

These recent site characterization activities were conducted to evaluate whether impacted groundwater is venting to the Flat River at depths greater than the monitored zones of the wells situated along the GSI and to support of this updated mixing zone determination.

#### 4.0 SUMMARY OF SUBSURFACE CONDITIONS

The following summarizes the geologic, hydrogeologic and groundwater quality information that forms the basis of the mixing zone determination.

##### Geology

- The logs for the 2013 deep borings show that fill sand was encountered in the upper 5 feet in the first deep boring (SB-4DD) completed by Golder, followed by clayey sand and silty clayey sand. The silty clayey sand extended to 13 feet bgs where a compact sandy silt stratum was encountered. In the second deep boring (MW-2D), sand was encountered from the ground surface to 13 feet bgs where the sandy silt stratum began. A variety of geologic strata were encountered below the sandy silt including silt, sandy clay, clay, etc. These strata were generally dry, very stiff, and it was necessary for the driller to utilize water to advance the overshot casing through these dense glacial till materials.
- Thin sand seams were encountered from 24.5 to 26.5 feet bgs in SB-4DD and from 25 to 26 feet bgs in MW-2D. The sand seam was dry in SB-4DD but was saturated in MW-2D.
- In SB-12/MW-12, a perched groundwater zone was encountered at approximately 10 feet below the ground surface (bgs). Piezometer PZ-1 is screened from 7 to 12 feet bgs, within the perched zone. Dense, glacial till described variously as a clayey silt or silty clay (depending on depth) was encountered below the perched zone to a depth of approximately 30 feet bgs. A silty sand was encountered from 30 to 35 feet bgs and coarse sand was encountered from 35 to 36 feet bgs. The remainder of the borehole contained glacial till to a depth of 45 feet bgs. The sand from 30 to 36 feet bgs was saturated and therefore, with the MDEQ's concurrence, a well was set with a screened interval of 31 to 36 feet bgs after backfilling the lower portion of the borehole.
- After drilling through fill and a concrete slab at 4.5 feet in SB-13/MW-13, the saturated zone that MW-6 is screened in (from 6 to 11 feet below the original ground surface) was encountered. A dense glacial till described as clayey silt was encountered from 11 feet to 42 feet bgs. One-foot thick sand seams were encountered from 42 to 43 feet bgs and from 44 to 45 feet bgs. The lower sand seam was saturated. As requested by MDEQ, a well was constructed with a screened interval across the two sand seams.

##### Hydrogeology

- The static water elevations on Table 1 were used to construct the groundwater contours shown on Figure 2. The static water elevation in MW-2D was not used for contouring because the sand seam from 25 to 26 feet bgs at that location is not in hydraulic communication with the shallow water-bearing zone that the GSI wells are screened

within. The groundwater contours are consistent with contours presented in previous annual monitoring reports submitted to MDEQ for the Site.

- The potentiometric surface illustrated in Figure 2 indicates that groundwater flow is toward the Flat River with a gradient of approximately 0.017 ft/ft near MW-4S/4D and 0.024 ft/ft in the vicinity of MW-2/2D.
- Based on average results for the falling- and rising-head tests, the hydraulic conductivity ranges from  $8.7 \times 10^{-5}$  cm/sec in MW-4D to  $6.5 \times 10^{-1}$  cm/sec in MW-4S (Table 2). A boring log is not available for monitoring MW-4S; however, the hydraulic conductivity value for this well is typical of a coarse sand or gravel, not a sandy silt as encountered elsewhere along the GSI.

### Soil and Groundwater Quality

- The soil analytical results for the samples collected from the 2013 deep borings are summarized on Table 3. No volatile organic compounds (VOCs) were detected above the laboratory reporting limits in any soil samples collected from the 2013 deep borings.
- Groundwater analytical results for the monitoring wells comprising the monitoring network (MW-1 through MW-11) for 2008 - 2013 are summarized on Table 4 along with analytical results for the deep wells installed in 2013 and 2014. Groundwater quality data for 2001 through 2007 were included in previous annual groundwater monitoring reports. Deep monitoring well MW-2D was sampled for the first time on March 11, 2013 and a second time on October 25, 2013 as part of the 2013 annual groundwater monitoring event. Deep wells MW-12 and MW-13 were sampled on July 10, 2014 and on August 22, 2014 and will be sampled a third time during the 2014 annual groundwater monitoring event. The TriMatrix analytical reports for the 2014 sampling events (monitoring wells MW-12 and MW-13) are included in Appendix B; analytical reports for sampling events completed through the 2013 site-wide annual monitoring event were appended to previous submittals to the MDEQ.
- No VOCs have been detected above the laboratory reporting limits in samples collected from deep monitoring wells MW-2D and MW-12.
- Three VOCs (*cis*-1,2-dichloroethene, *trans*-1,2-dichloroethene, and TCE) were detected at concentrations well below the generic GSI criteria in groundwater samples collected from deep monitoring well MW-13, which is located at the former release area.
- Generic GSI criteria (MDEQ Table 1. Groundwater: Residential and Non-Residential Part 201 Generic Cleanup Criteria and Screening Levels/Part 213 Risk-Based Screening levels, December 30, 2013) are included on Table 4. For purposes of the mixing zone determination, comparison of results for monitoring wells situated at the GSI with GSI criteria represent the most relevant comparisons. Only one constituent, vinyl chloride, exceeds a GSI criterion in the GSI wells. Using average concentrations for 2011 through 2013, vinyl chloride is greater than the generic GSI criterion in only four monitoring wells, MW-1, MW-2, MW-4S, and MW-8. The locations of these wells are shown on Figure 3 along with the estimated width (280 feet) of groundwater impacted with vinyl chloride concentrations above its generic GSI criterion.

## 5.0 REQUEST FOR MIXING ZONE-BASED GSI CRITERIA

MDEQ guidance (RRD Operational Memorandum No. 5, Groundwater Surface Water Interface Criteria, Remediation and Redevelopment Division, September 30, 2004) specifies the information that must be provided for the Department to develop mixing zone-based criteria. A form to provide the required information is provided as Attachment 1 to RRD-5. A completed form containing site-specific information

is included as Appendix D to this document. The following sections expand on the information provided on Attachment 1 to RRD-5.

### 5.1 Receiving Water

The receiving water is the Flat River at Bridge Street in Belding, Michigan. Specifically, the receiving water is located in the NW ¼ of the NW ¼ of Section 11 in Township 8N, Range 8W (Otisco Township), Ionia County.

### 5.2 Location, Nature, and Chemical Characteristics of Groundwater Contamination

Catch Basin No. 10 (CB-10 on Figures 2 and 3) was previously identified as a source of the TCE and related VOCs in soil and groundwater. TCE concentrations in the groundwater samples collected from shallow monitoring well MW-6, located near former CB-10, have averaged approximately 3,125 µg/L over the last four years (2010 – 2013). Lower concentrations of TCE are present in the groundwater downgradient of CB-10. However, TCE has not been detected above the laboratory reporting limit in any GSI well since 2009. Concentrations of TCE degradation by-products (e.g., *cis*-1,2-dichloroethene and vinyl chloride) tend to increase in groundwater closer to the Flat River. However, vinyl chloride is the only constituent that exceeds the generic GSI criterion in the GSI wells.

### 5.3 Name, CAS Number, and Worst Case Maximum Concentration

Golder evaluated trends in constituent concentrations from 2001 through 2013 to project worst-case maximum GSI discharge concentrations. Figure 4 shows vinyl chloride concentrations in the four GSI wells where the generic GSI criterion for vinyl chloride is exceeded. The concentration of vinyl chloride and other TCE degradation by-products (e.g., *cis*-1,2-dichloroethene) have historically been greatest in MW-4S. The maximum concentration detected during the last five years (590 µg/L) was selected as the projected worst-case maximum GSI discharge concentration.

Chemical	CAS #	Projected Worst Case Max GSI Discharge Concentration
Vinyl Chloride	75014	590 µg/L

Figure 5 shows TCE concentrations at the source area in MW-6 during the same time period. The detected concentration of TCE in groundwater has decreased from 11,000 µg/L in 2001 to less than 4,500 µg/L since 2004, indicating that concentrations of TCE degradation by-products should remain stable or decrease with time in the GSI wells. The TCE concentration in MW-6 was 1,900 µg/L during the 2013 annual groundwater monitoring event.

#### 5.4 Flat River Low Flow Data

During March 2013, Golder submitted a low flow discharge request for the Flat River at Bridge Street to the MDEQ Water Resources Division. The April 1, 2013 response from the Hydrologic Studies Unit of the Water Resources Division (included as Appendix C) provided the following flow data:

- The Flat River at Bridge Street has a drainage area of 465 square miles.
- The lowest monthly 95 percent exceedance low flow at the discharge location is 130 cubic feet per second (cfs).
- The lowest monthly 50 percent exceedance low flow at the discharge location is 200 cfs.
- The harmonic mean flow at the discharge location is 290 cfs.
- The 90-day once in 10-year flow is 160 cfs.

#### 5.5 Discharge Rate of Venting Groundwater

The plume discharge rate is calculated using Darcy's Law ( $Q_p = k \times i \times A$ ) where:

- $Q_p$  = Plume discharge rate, in cfs, of groundwater plume for the area contaminated above generic GSI criteria.
- $k$  = A representative hydraulic conductivity within the area of plume discharge (0.65 cm/sec in MW-4S and  $7.7 \times 10^{-3}$  cm/sec geometric mean in the remaining GSI wells).
- $i$  = A representative hydraulic gradient within the area of plume discharge (0.017 ft/ft in the vicinity of MW-4S/4D and 0.024 ft/ft in the vicinity of MW-2/2D).
- $A$  = The cross-sectional area of the plume perpendicular to groundwater flow that encompasses the entire plume that exceeds generic GSI.

Golder conservatively identified the width of the zone of groundwater impact with vinyl chloride above the generic GSI criterion to be 280 feet as illustrated on Figure 3. Because the calculated hydraulic conductivity at monitoring well MW-4S is nearly two orders of magnitude greater than the calculated hydraulic conductivity at the remaining GSI wells (MW-2, MW-3, and MW-8), separate discharge rates were calculated for the 70-foot wide zone encompassing MW-4S/4D (Zone 1) and the 210-foot wide zone representing the remainder of the plume width (Zone 2). The depth to water below the ground surface ranged from 3 to 5 feet bgs in the GSI wells on March 11, 2013 (Table 1). The bottom of the water-bearing zone is approximately 13 feet bgs based on information obtained from the deep soil borings. The thickness of the saturated formation is conservatively identified to be 10 feet along the 280-foot wide discharge zone. Therefore,  $A = 700 \text{ ft}^2$  for Zone 1 and  $A = 2,100 \text{ ft}^2$  for Zone 2. Converting  $k$  to ft/sec, the discharge rates are:

$$\text{Zone 1: } Q_p = 0.65 \text{ cm/sec} \times 1 \text{ ft}/30.48 \text{ cm} \times 0.017 \text{ ft/ft} \times 700 \text{ ft}^2 = 0.25 \text{ cfs}$$

and

$$\text{Zone 2: } Q_p = 7.7 \times 10^{-3} \text{ cm/sec} \times 1 \text{ ft}/30.48 \text{ cm} \times 0.024 \text{ ft/ft} \times 2,100 \text{ ft}^2 = 0.013 \text{ cfs}$$

Combining the discharge rate for Zones 1 and 2, the total discharge ( $Q_p$ ) is 0.26 cfs.

## 5.6 Calculation of Mixing Zone Criterion for Vinyl Chloride

As specified in RRD-5, mixing zone-based calculations cannot allocate more than 25 percent of the receiving water low flows in river systems. Twenty five percent of the lowest monthly 95 percent exceedance low flow of 130 cfs is 32.5 cfs resulting in a dilution factor of:

$$\frac{32.5 \text{ cfs}}{0.26 \text{ cfs}} = 125$$

Multiplying this dilution factor by the generic GSI criterion for vinyl chloride (13 µg/L) gives a mixing zone-based GSI criterion of 1,600 µg/L, which exceeds the current and projected worst-case maximum GSI discharge concentrations for vinyl chloride (590 µg/L).

## 6.0 SUMMARY

Because groundwater beneath the Site migrates towards and discharges to the Flat River, the groundwater surface water interface is a potential groundwater exposure pathway. Recent groundwater analytical results indicate that vinyl chloride concentrations remain above the generic GSI criterion in four GSI monitoring wells. If generic GSI criteria are exceeded or are reasonably expected to be exceeded at GSI monitoring wells, an owner/operator may submit a request to the MDEQ for mixing zone-based criteria.

Following RRD-5 guidance, Golder calculated a groundwater discharge rate of 0.26 cfs and a dilution factor of 125 resulting in a mixing zone-based GSI criterion for vinyl chloride of 1,600 µg/L. The current and projected worst-case maximum GSI discharge concentration for vinyl chloride (590 µg/L) is well below this calculated mixing zone-based criterion.

## 7.0 CLOSING

Golder appreciates this opportunity to assist Electrolux Home Products. Please contact Brad Johnson or Alistair Macdonald if you have any questions regarding this summary of regulatory requirements.

### GOLDER ASSOCIATES INC.



Bradley S. Johnson, Ph.D.  
Senior Consultant



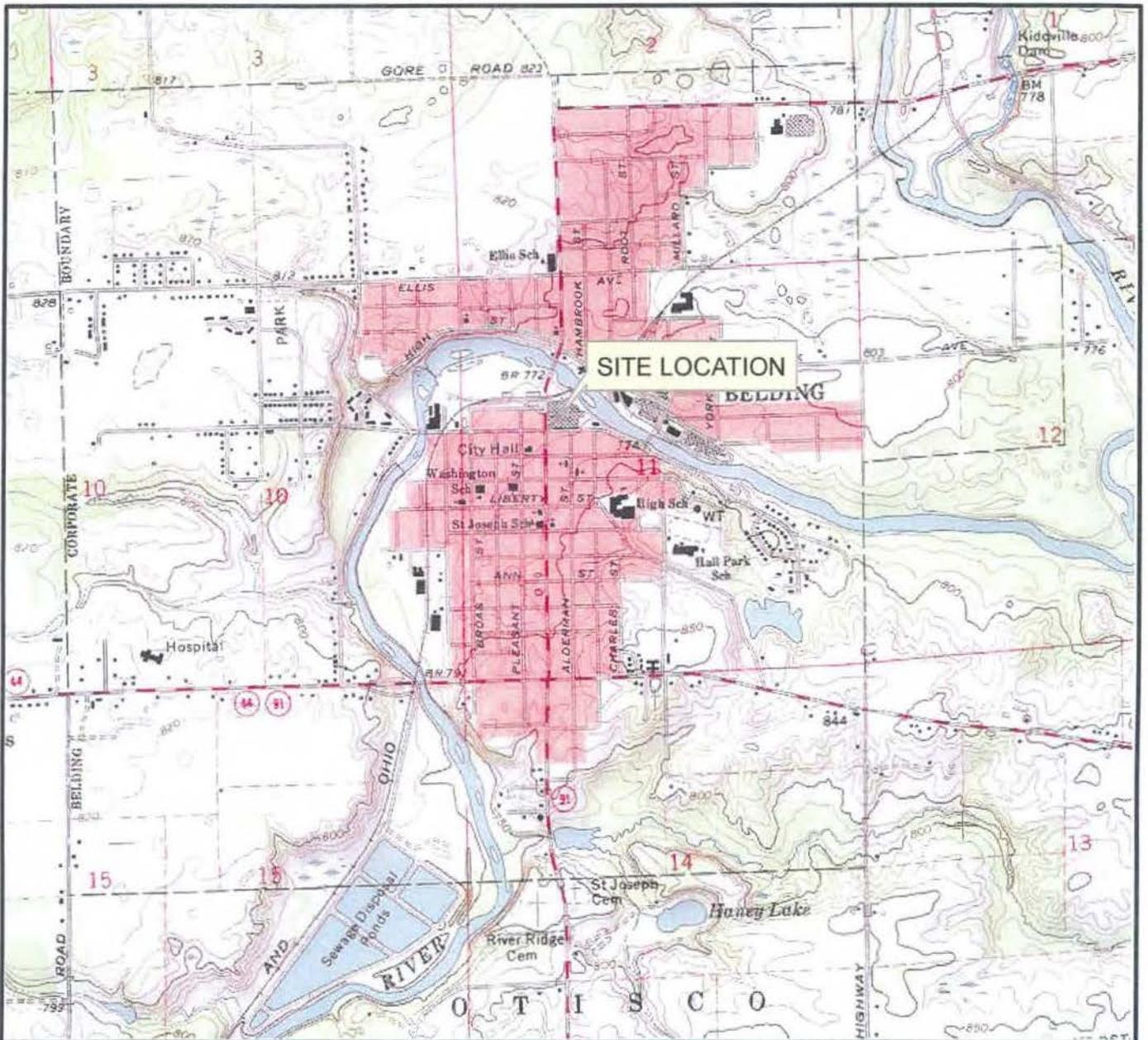
Alistair Macdonald, CPG, LSP  
Program Leader and Principal

## 8.0 REFERENCES

RRD Operational Memorandum No. 5, Groundwater Surface Water Interface Criteria, Remediation and Redevelopment Division, September 30, 2004.

Attachment 1 Request to MDEQ for Mixing Zone-Based GSI Criteria, Remediation and Redevelopment Division, September 30, 2004

**FIGURES**



REFERENCE: U.S. GEOLOGIC SURVEY 7.5 MINUTE BELDING, MI TOPOGRAPHIC QUADRANGLE MAP, 1972.



SCALE	AS SHOWN
DATE	09/08/14
DESIGN	BSJ
GIS	JJS
CHECK	<i>BSJ</i>
REVIEW	<i>DBL</i>

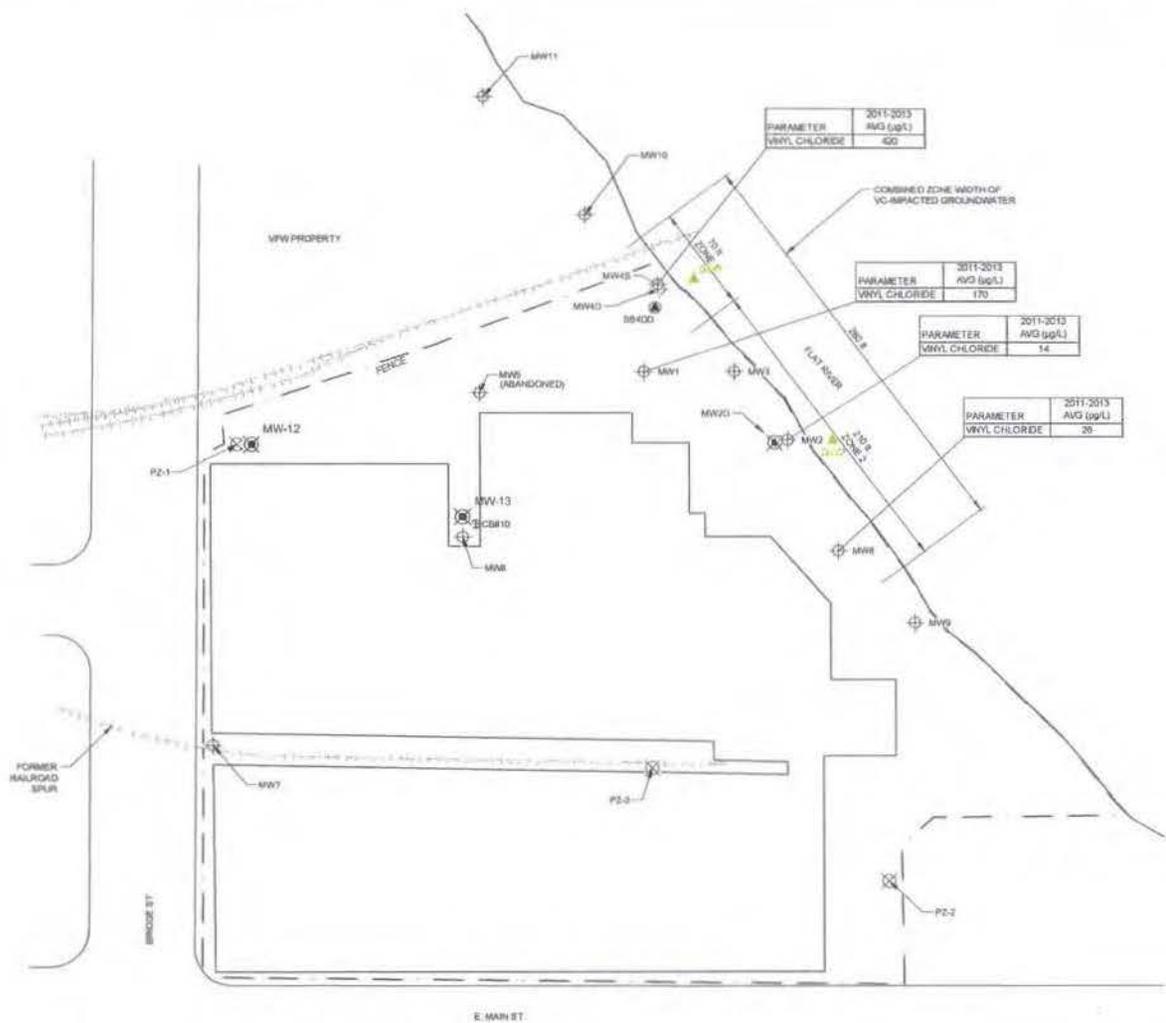
**SITE LOCATION MAP**  
 FORMER WHITE CONSOLIDATED INDUSTRIES -  
 BELDING SITE  
 100 E. MAIN STREET  
 BELDING, IONIA COUNTY, MICHIGAN

FILE No.	1406182A000-GIS
PROJECT No.	1406182
REV.	0

UPDATED MIXING ZONE DETERMINATION	FIGURE <b>1</b>
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**LEGEND**

	PROPERTY BOUNDARY
	FORMER RAILROAD TRACK
	MONITORING WELL
	CATCHBASIN
	PIEZOMETER
	SOIL BORING
	SURFACE WATER SAMPLE LOCATION
	DEEP BORING/MONITORING WELL

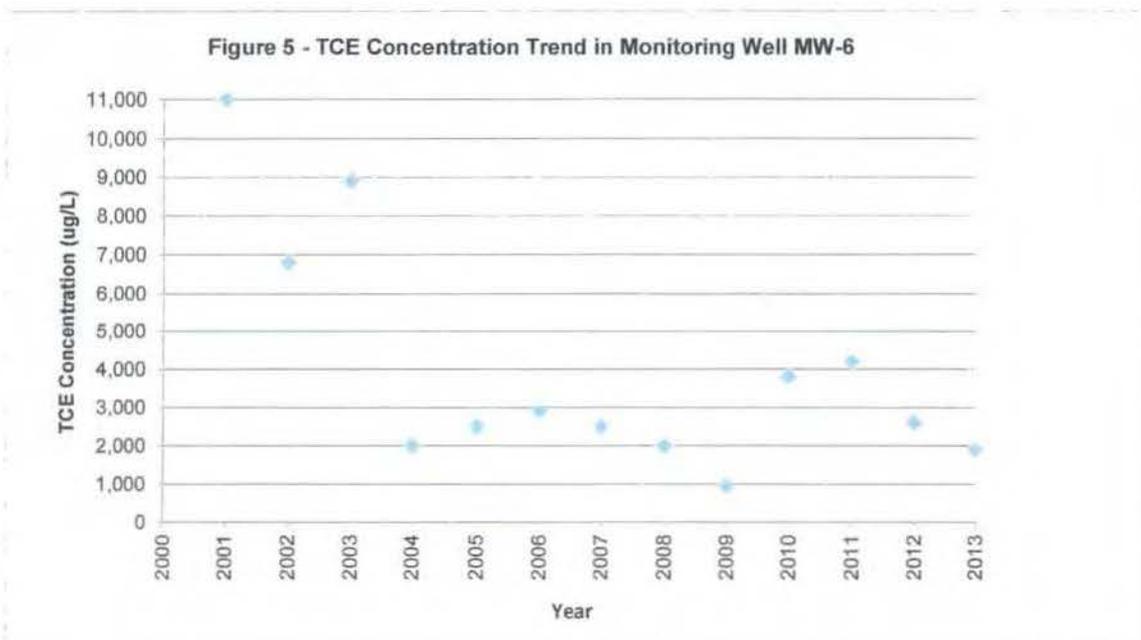
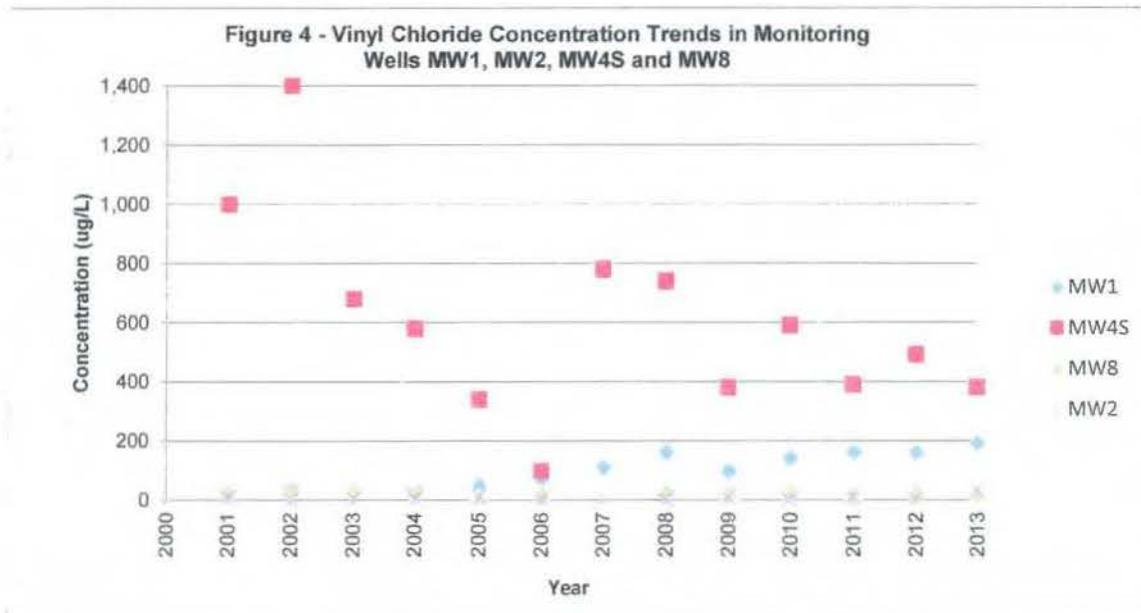
**NOTES**

1. BASE DRAWING ADAPTED FROM "MONITOR WELL & PIEZOMETER LOCATIONS" PREPARED BY GCWER PROFESSIONAL SURVEYING, P.C., DATED 3/12/2013.



PROJECT			
ELECTROLUX FORMER WHITE CONSOLIDATED INDUSTRIES BELDING, MICHIGAN			
TITLE			
<b>VINYL CHLORIDE DETECTIONS IN GROUNDWATER ABOVE GENERIC GSI CRITERION</b>			
PROJECT No.	140810	FILE No.	140810A002
DESIGN	BBJ	DATE	2014-09-09
CADD	JJB	DATE	2014-09-08
CHECK	<i>[Signature]</i>	FIGURE	
REVIEW	<i>[Signature]</i>		
			<b>3</b>

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TABLES

**TABLE 1: WELL CONSTRUCTION DETAILS AND STATIC WATER ELEVATIONS  
FORMER WHITE CONSOLIDATED INDUSTRIES - BELDING SITE**

Monitoring Well	Northing	Easting	Ground Surface (ft)	Top of Casing (ft)	Top of Screen (ft BGS)	Bottom of Screen (ft BGS)	Screened Interval Elevation (ft)	Measured March 11, 2013		
								Depth to Water (ft BTOC)	Depth to Water (ft BGS)	Water Elev. (ft)
MW1	583902.062	12893459.951	767.82	767.52	7.0	12.0	760.82 - 755.82	3.29	3.59	764.23
MW2	583856.147	12893554.539	767.69	769.99	8.0	13.0	759.69 - 754.69	5.99	3.69	764.00
MW2D	583854.374	12893546.060	767.47	767.13	23.0	28.0	744.47 - 739.47	0.00	0.34	767.13
MW3	583902.097	12893519.488	767.58	769.90	7.0	12.0	760.58 - 755.58	5.94	3.62	763.96
MW4S	583959.653	12893469.340	768.69	771.24	9.0	14.0	759.69 - 754.69	7.24	4.69	764.00
MW4D	583956.397	12893470.151	768.33	770.86	17.0	22.0	751.33 - 746.33	4.50	1.97	766.36
MW5	583887.699	12893351.306	770.20	770.11	9.0	14.0	761.20 - 756.20	cover missing - filled in w/ sediment		
MW6	583791.090	12893339.990	772.67	772.28	6.0	11.0	766.67 - 761.67	NM	--	--
MW7	583652.077	12893172.825	775.71	775.52	7.0	12.0	768.71 - 763.71	3.90	4.09	771.62
MW8	583781.994	12893587.972	769.30	768.86	9.0	14.0	760.30 - 755.30	4.77	5.21	764.09
MW9	583733.683	12893638.008	772.36	772.15	14.0	19.0	758.36 - 753.36	5.99	6.20	766.16
MW10	584006.500	12893421.125	771.36	773.28	11.0	16.0	760.36 - 755.36	9.30	7.38	763.98
MW11	584086.135	12893354.469	770.93	773.32	10.0	15.0	760.93 - 755.93	9.30	6.91	764.02
MW12	583858.262	12893196.251	769.73	769.64	31.0	36.0	738.73 - 733.73	NM	--	--
MW13	583802.395	12893337.008	772.21	771.98	40.0	45.0	732.21 - 727.21	NM	--	--
PZ-1	583853.122	12893189.755	772.99	772.68	7.0	12.0	765.99 - 760.99	4.10	4.41	768.58
PZ-2	583560.467	12893620.256	777.97	777.59	6.5	11.5	771.47 - 766.47	3.63	4.01	773.96
PZ-3	583636.494	12893464.515	775.37	775.10	5.0	10.0	770.37 - 765.37	4.70	4.97	770.40
SW1	583988.311	12893503.164	N/A	772.90	N/A	N/A	N/A - N/A	9.10	N/A	763.80

**Notes & Abbreviations:**

- ft - Elevation in feet relative to an arbitrary on-site reference elevation (100 ft)
- ft BGS - Indicates feet below ground surface
- ft BTOC - Indicates feet below Top-of-Casing
- SW1 - Flat River elevation measurement location
- N/A Not applicable
- NM Not Measured - MW6 could not be located on March 11, 2013 due to snow cover
- Monitoring wells MW12 and MW13 were not installed until July 2014

TABLE 2: SUMMARY OF HYDRAULIC CONDUCTIVITY DATA  
FORMER WHITE CONSOLIDATED INDUSTRIES - BELDING SITE

	MW-2		MW-2D		MW-3		MW-4D		M-4S		MW-8	
	Falling (1)	Rising	Falling	Rising	Falling	Rising	Falling	Rising	Falling	Rising	Falling	Rising
<b>Parameters</b>												
H(0) - Initial obs. Displacement	1.569	2.195	NA	3.108	1.955	2.888	3.013	0.531	2.729	2.25	0.989	3.001
H - Static Water Column Height	9.7		27.66		8.8		20.39		10.06		9.51	
b - saturated thickness	9.7		1		8.8		20.39		10.06		9.51	
d - depth to top of screen (from water table)	4.7		0		3.8		15.39		5.06		4.51	
L - length of open well screen	5		1		5		5		5		5	
T - transducer depth	8.7526		27.8174		8.12742		20.3713		10.05		9.06116	
rC (2" well) - inside radius of well casing	0.083		0.083		0.083		0.083		0.083		0.083	
rW (2" screen) - radius of well	0.083		0.083		0.083		0.083		0.083		0.083	
rSK (8.25" hole) - outer radius of well skin	0.340		0.167		0.340		0.340		0.340		0.340	
<b>Well Data</b>												
DTW (btoc)	5.6		0		5.52		4.14		6.49		4.05	
Top of screen	8		23		7		17		9		9	
Bottom of Screen	13		28		12		22		14		14	
TOC	2.3		-0.34		2.32		2.53		2.55		-0.44	
DTW from transducer logs	8.609		27.776		8.092		20.292		10.09		8.996	
<b>Hydraulic Conductivity (Bouwer-Rice method)</b>												
cm/sec	2.5E-03	2.9E-03	NA	7.3E-04	4.5E-03	4.8E-03	4.8E-05	1.3E-04	5.6E-01	7.5E-01	3.2E-02	4.2E-02
Average (cm/sec)	2.7E-03		7.3E-04		4.6E-03		8.7E-05		6.5E-01		3.7E-02	
Average (ft/day)	7.65		2.08		13.2		0.25		1860		105	
<b>Hydraulic Conductivity Presented in the 1998 LRAP (2)</b>												
cm/sec	4.3E-03		Not present during original slug testing		5.0E-03		3.2E-05		No slug tests conducted in this well		No slug tests conducted in this well	
ft/day	12.19				14.17		0.09					

**Notes**

- falling-head (slug-in) and rising-head (slug-out) tests
- Dragun submitted a mixing zone evaluation to the MDEQ in 1995, prior to submittal of the LRAP and was made part of the LRAP. The hydraulic conductivity values presented in the 1995 mixing zone evaluation are presented here for comparison.

**TABLE 3: SUMMARY OF 2013 SOIL ANALYTICAL RESULTS  
FORMER WHITE CONSOLIDATED INDUSTRIES - BELDING SITE**

Substance	Units	GSI Protection	SB-4DD					MW-2D			
			25'	30'	35'	39'	45'	21'	30'	35'	40'
<b><i>Volatile Organic Compounds</i></b>											
Benzene	mg/kg	4.0 (X)	<0.056	<0.058	<0.064	<0.056	<0.065	<0.057	<0.053	<0.054	<0.055
Chloroethane	mg/kg	22 (X)	<0.056	<0.058	<0.064	<0.056	<0.065	<0.057	<0.053	<0.054	<0.055
Chloromethane	mg/kg	ID	<0.056	<0.058	<0.064	<0.056	<0.065	<0.057	<0.053	<0.054	<0.055
1,1-Dichloroethane	mg/kg	7	<0.056	<0.058	<0.064	<0.056	<0.065	<0.057	<0.053	<0.054	<0.055
1,1-Dichloroethene	mg/kg	2.6	<0.056	<0.058	<0.064	<0.056	<0.065	<0.057	<0.053	<0.054	<0.055
cis-1,2-Dichloroethene	mg/kg	12	<0.056	<0.058	<0.064	<0.056	<0.065	<0.057	<0.053	<0.054	<0.055
trans-1,2-Dichloroethene	mg/kg	30 (X)	<0.056	<0.058	<0.064	<0.056	<0.065	<0.057	<0.053	<0.054	<0.055
2-Butanone (MEK)	mg/kg	44	<2.8	<2.9	<3.2	<2.8	<3.3	<2.8	<2.7	<2.7	<2.7
Tetrachloroethene	mg/kg	1.2 (X)	<0.056	<0.058	<0.064	<0.056	<0.065	<0.057	<0.053	<0.054	<0.055
Toluene	mg/kg	5.4	<0.056	<0.058	<0.064	<0.056	<0.065	<0.057	<0.053	<0.054	<0.055
1,1,1-Trichloroethane	mg/kg	1.8	<0.056	<0.058	<0.064	<0.056	<0.065	<0.057	<0.053	<0.054	<0.055
1,1,2-Trichloroethane	mg/kg	6.6 (X)	<0.056	<0.058	<0.064	<0.056	<0.065	<0.057	<0.053	<0.054	<0.055
Trichloroethene	mg/kg	4.0 (X)	<0.056	<0.058	<0.064	<0.056	<0.065	<0.057	<0.053	<0.054	<0.055
Vinyl Chloride	mg/kg	0.260 (X)	<0.056	<0.058	<0.064	<0.056	<0.065	<0.057	<0.053	<0.054	<0.055
<b><i>Physical/Chemical Parameters</i></b>											
Percent Solids	%		90	94	90	89	90	88	94	93	91

**NOTES:**

- [1] The soil samples were analyzed for volatile organic compounds by EPA Method 8260B (5035A High Level)  
 [2] GSI = Groundwater surface water interface protection criteria (MDEQ "Table 3. Soil: Nonresidential Part 201 Generic Cleanup Criteria and Screening levels; Part 213 Risk-Based Screening Levels" December 30, 2013).

**Part 201 Cleanup Criteria Footnotes:**

- (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.  
 ID Insufficient data to develop criterion

TABLE 4: SUMMARY OF GROUNDWATER AND SURFACE WATER ANALYTICAL RESULTS  
FORMER WHITE CONSOLIDATED INDUSTRIES - BELDING SITE

Parameter	GSI <sup>[1]</sup>	units	MW1	MW1	MW1	MW1	MW1	MW1	MW2	MW2	MW2	MW2	MW2	MW2
			7/15/08	5/6/09	10/25/10	8/18/11	11/5/12	9/25/13	7/16/08	5/6/09	10/25/10	8/18/11	11/5/12	9/25/13
Benzene	200 (X)	µg/L	ND	ND	<1.0	<1.0	<1.0	<2.0	ND	ND	<1.0	<1.0	<1.0	<1.0
Toluene	270	µg/L	ND	ND	<1.0	<1.0	<1.0	<2.0	ND	ND	<1.0	<1.0	<1.0	<1.0
2-Butanone (MEK)	2,200	µg/L	ND	ND	<5.0	<5.0	<5.0	13	ND	ND	<5.0	<5.0	<5.0	<5.0
Chloroethane	1,100 (X)	µg/L	ND	ND	<1.0	<1.0	<1.0	<2.0	ND	ND	<1.0	3.1	2	1.0
Chloromethane [2]	ID	µg/L	ND	ND	<1.0	<1.0	<1.0	<2.0	ND	ND	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethane	740	µg/L	ND	ND	1.8	2.1	2.1	3.1	ND	ND	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethene	130	µg/L	ND	ND	<1.0	<1.0	<1.0	<2.0	ND	ND	<1.0	<1.0	<1.0	<1.0
<i>cis</i> -1,2-Dichloroethene	620	µg/L	4.1	3.7	6.0	14	22	16	ND	1.3	<1.0	1.7	<1.0	14
<i>trans</i> -1,2-Dichloroethene	1500 (X)	µg/L	ND	ND	<1.0	<1.0	<1.0	<2.0	ND	ND	<1.0	<1.0	<1.0	<1.0
Tetrachloroethene	60 (X)	µg/L	ND	ND	<1.0	<1.0	<1.0	<2.0	ND	ND	<1.0	<1.0	<1.0	<1.0
1,1,1-Trichloroethane	89	µg/L	ND	ND	<1.0	<1.0	<1.0	<2.0	ND	ND	<1.0	<1.0	<1.0	<1.0
1,1,2-Trichloroethane	330 (X)	µg/L	ND	ND	<1.0	<1.0	<1.0	<2.0	ND	ND	<1.0	<1.0	<1.0	<1.0
Trichloroethene	200 (X)	µg/L	ND	ND	<1.0	<1.0	<1.0	<2.0	ND	ND	<1.0	<1.0	<1.0	<1.0
Vinyl Chloride	13 (X)	µg/L	160	96	140	160	160	190	ND	8.9	<1.0	9.4	2.6	31

Parameter	GSI <sup>[1]</sup>	units	MW2D	MW2D	MW2D Duplicate	MW3	MW3	MW3	MW3	MW3	MW3
			3/11/13	10/25/13	10/25/13	7/15/08	5/6/09	10/25/10	8/18/11	11/5/12	9/25/13
Benzene	200 (X)	µg/L	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
Toluene	270	µg/L	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
2-Butanone (MEK)	2,200	µg/L	<5.0	<5.0	<5.0	ND	ND	<5.0	<5.0	<5.0	<5.0
Chloroethane	1,100 (X)	µg/L	2.0	<1.0	<1.0	60	66	41	50	84	65
Chloromethane [2]	ID	µg/L	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethane	740	µg/L	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	1.2
1,1-Dichloroethene	130	µg/L	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
<i>cis</i> -1,2-Dichloroethene	620	µg/L	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
<i>trans</i> -1,2-Dichloroethene	1500 (X)	µg/L	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
Tetrachloroethene	60 (X)	µg/L	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
1,1,1-Trichloroethane	89	µg/L	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
1,1,2-Trichloroethane	330 (X)	µg/L	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
Trichloroethene	200 (X)	µg/L	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
Vinyl Chloride	13 (X)	µg/L	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	1.2

TABLE 4: SUMMARY OF GROUNDWATER AND SURFACE WATER ANALYTICAL RESULTS  
FORMER WHITE CONSOLIDATED INDUSTRIES - BELDING SITE

Parameter	GSI <sup>[1]</sup>	units	MW4S	MW4S	MW4S	DUP	MW4S	MW4S	MW4S	MW4D	MW4D	MW4D	MW4D	MW4D	MW4D
			7/15/08	5/7/09	10/25/10	10/25/10	8/18/11	11/5/12	9/25/13	7/15/08	5/6/09	10/25/10	8/18/11	11/5/12	9/25/13
Benzene	200 (X)	µg/L	1.1	ND	<5.0	<5.0	<5.0	<5.0	<5.0	ND	ND	<1.0	<1.0	<1.0	<1.0
Toluene	270	µg/L	ND	ND	<5.0	<5.0	<5.0	<5.0	<5.0	ND	ND	<1.0	<1.0	<1.0	<1.0
2-Butanone (MEK)	2,200	µg/L	ND	ND	<25	<25	<25	<25	<25	ND	ND	<5.0	<5.0	<5.0	<5.0
Chloroethane	1,100 (X)	µg/L	ND	ND	<5.0	<5.0	<5.0	<5.0	<5.0	ND	ND	<1.0	<1.0	<1.0	<1.0
Chloromethane [2]	ID	µg/L	ND	ND	<5.0	<5.0	<5.0	<5.0	<5.0	ND	ND	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethane	740	µg/L	1.9	4.5	<5.0	<5.0	<5.0	<5.0	11	ND	ND	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethene	130	µg/L	5.5	12	<5.0	<5.0	<5.0	<5.0	<5.0	ND	ND	<1.0	<1.0	<1.0	<1.0
cis-1,2-Dichloroethene	620	µg/L	290	330	160	160	260	210	11	ND	ND	<1.0	<1.0	<1.0	<1.0
trans-1,2-Dichloroethene	1500 (X)	µg/L	11	ND	<5.0	<5.0	<5.0	<5.0	<5.0	ND	ND	<1.0	<1.0	<1.0	<1.0
Tetrachloroethene	60 (X)	µg/L	ND	ND	<5.0	<5.0	<5.0	<5.0	<5.0	ND	ND	<1.0	<1.0	<1.0	<1.0
1,1,1-Trichloroethane	89	µg/L	ND	ND	<5.0	<5.0	<5.0	<5.0	<5.0	ND	ND	<1.0	<1.0	<1.0	<1.0
1,1,2-Trichloroethane	330 (X)	µg/L	ND	ND	<5.0	<5.0	<5.0	<5.0	<5.0	ND	ND	<1.0	<1.0	<1.0	<1.0
Trichloroethene	200 (X)	µg/L	ND	3.5	<5.0	<5.0	<5.0	<5.0	<5.0	ND	ND	<1.0	<1.0	<1.0	<1.0
Vinyl Chloride	13 (X)	µg/L	<b>740</b>	<b>380</b>	<b>590</b>	<b>580</b>	<b>390</b>	<b>490</b>	<b>380</b>	ND	ND	<1.0	<1.0	<1.0	<1.0

Parameter	GSI <sup>[1]</sup>	units	MW5	MW5	MW5	MW6	DUP	MW6	MW6	MW6	MW6	MW6
			7/15/08	5/7/09	2010-2013	7/16/08	7/16/08	5/7/09	10/25/10	8/18/11	11/5/12	9/25/13
Benzene	200 (X)	µg/L	ND	ND	Well filled w/ sediment above screened interval, could not sample	ND	ND	ND	<25	<25	<25	<25
Toluene	270	µg/L	ND	ND		ND	ND	ND	<25	<25	<25	<25
2-Butanone (MEK)	2,200	µg/L	ND	ND		ND	ND	ND	<120	<120	130	<120
Chloroethane	1,100 (X)	µg/L	ND	ND		ND	ND	ND	<25	<25	<25	<25
Chloromethane [2]	ID	µg/L	ND	ND		ND	ND	ND	<25	<25	<25	<25
1,1-Dichloroethane	740	µg/L	ND	ND		ND	ND	ND	<25	<25	<25	<25
1,1-Dichloroethene	130	µg/L	ND	ND		ND	ND	ND	<25	<25	<25	<25
cis-1,2-Dichloroethene	620	µg/L	ND	1.0		62	64	54	230	210	130	140
trans-1,2-Dichloroethene	1500 (X)	µg/L	ND	ND		6.0	5.3	ND	<25	<25	<25	<25
Tetrachloroethene	60 (X)	µg/L	ND	ND		4.9	5.6	<b>7.0</b>	<25	<25	<25	<25
1,1,1-Trichloroethane	89	µg/L	ND	ND		6.5	6.5	4.6	<25	<25	<25	<25
1,1,2-Trichloroethane	330 (X)	µg/L	ND	ND		ND	ND	ND	<25	<25	<25	<25
Trichloroethene	200 (X)	µg/L	ND	ND		<b>2,000</b>	<b>2,000</b>	<b>960</b>	<b>3,800</b>	<b>4,200</b>	<b>2,600</b>	<b>1,900</b>
Vinyl Chloride	13 (X)	µg/L	ND	ND	ND	ND	ND	<25	<25	<25	<25	

TABLE 4: SUMMARY OF GROUNDWATER AND SURFACE WATER ANALYTICAL RESULTS  
FORMER WHITE CONSOLIDATED INDUSTRIES - BELDING SITE

Parameter	GSI <sup>(1)</sup>	units	MW7	MW7	MW7	MW7	MW7	MW7	MW8	MW8	MW8	MW8	MW8	MW8
			7/16/08	5/7/09	10/26/10	8/18/11	11/5/12	9/25/13	7/15/08	5/6/09	10/25/10	8/18/11	11/5/12	9/25/13
Benzene	200 (X)	µg/L	ND	ND	<1.0	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
Toluene	270	µg/L	ND	ND	<1.0	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
2-Butanone (MEK)	2,200	µg/L	ND	ND	<5.0	<5.0	<5.0	<5.0	ND	ND	<5.0	<5.0	<5.0	<5.0
Chloroethane	1,100 (X)	µg/L	ND	ND	<1.0	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
Chloromethane [2]	ID	µg/L	ND	ND	<1.0	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethane	740	µg/L	ND	ND	<1.0	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	2.0
1,1-Dichloroethene	130	µg/L	ND	ND	<1.0	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
<i>cis</i> -1,2-Dichloroethene	620	µg/L	ND	ND	<1.0	<1.0	<1.0	<1.0	2.8	2.6	1.8	3.7	2.8	4.0
<i>trans</i> -1,2-Dichloroethene	1500 (X)	µg/L	ND	ND	<1.0	<1.0	<1.0	<1.0	1.3	1.1	1.1	1.2	1.3	1.8
Tetrachloroethene	60 (X)	µg/L	ND	ND	<1.0	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
1,1,1-Trichloroethane	89	µg/L	ND	ND	<1.0	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
1,1,2-Trichloroethane	330 (X)	µg/L	ND	ND	<1.0	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
Trichloroethene	200 (X)	µg/L	2.1	ND	<1.0	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
Vinyl Chloride	13 (X)	µg/L	ND	ND	<1.0	<1.0	<1.0	<1.0	<b>37</b>	<b>26</b>	<b>31</b>	<b>23</b>	<b>31</b>	<b>24</b>

Parameter	GSI <sup>(1)</sup>	units	MW9	MW9	DUP	MW9	MW9	MW9	MW9
			7/15/08	5/6/09	5/6/09	10/25/10	8/18/11	11/5/12	9/25/13
Benzene	200 (X)	µg/L	ND	ND	ND	<1.0	<1.0	<1.0	<1.0
Toluene	270	µg/L	ND	ND	ND	<1.0	<1.0	<1.0	<1.0
2-Butanone (MEK)	2,200	µg/L	ND	ND	ND	<5.0	<5.0	<5.0	<5.0
Chloroethane	1,100 (X)	µg/L	ND	ND	ND	<1.0	<1.0	<1.0	<1.0
Chloromethane [2]	ID	µg/L	ND	ND	ND	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethane	740	µg/L	ND	ND	ND	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethene	130	µg/L	ND	ND	ND	<1.0	<1.0	<1.0	<1.0
<i>cis</i> -1,2-Dichloroethene	620	µg/L	ND	ND	ND	<1.0	<1.0	<1.0	1.0
<i>trans</i> -1,2-Dichloroethene	1500 (X)	µg/L	ND	ND	ND	<1.0	<1.0	<1.0	<1.0
Tetrachloroethene	60 (X)	µg/L	ND	ND	ND	<1.0	<1.0	<1.0	<1.0
1,1,1-Trichloroethane	89	µg/L	ND	ND	ND	<1.0	<1.0	<1.0	<1.0
1,1,2-Trichloroethane	330 (X)	µg/L	ND	ND	ND	<1.0	<1.0	<1.0	<1.0
Trichloroethene	200 (X)	µg/L	ND	ND	ND	<1.0	<1.0	<1.0	<1.0
Vinyl Chloride	13 (X)	µg/L	ND	ND	ND	<1.0	1.2	<1.0	1.4

TABLE 4: SUMMARY OF GROUNDWATER AND SURFACE WATER ANALYTICAL RESULTS  
FORMER WHITE CONSOLIDATED INDUSTRIES - BELDING SITE

Parameter	GSI <sup>(1)</sup>	units	MW10	MW10	MW10	MW10	MW10	DUP (MW10)	MW10	MW11	MW11	MW11	MW11	MW11	MW11
			7/16/08	5/7/09	10/26/10	8/18/11	11/6/12	11/6/12	9/25/13	7/16/08	5/7/09	10/26/10	8/18/11	11/6/12	9/25/13
Benzene	200 (X)	µg/L	ND	ND	<1.0	<1.0	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
Toluene	270	µg/L	ND	ND	<1.0	<1.0	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
2-Butanone (MEK)	2,200	µg/L	ND	ND	<5.0	<5.0	<5.0	<5.0	<5.0	ND	ND	<5.0	<5.0	<5.0	<5.0
Chloroethane	1,100 (X)	µg/L	ND	ND	<1.0	<1.0	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
Chloromethane [2]	ID	µg/L	ND	ND	<1.0	<1.0	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethane	740	µg/L	ND	ND	<1.0	<1.0	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethene	130	µg/L	ND	ND	<1.0	<1.0	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
<i>cis</i> -1,2-Dichloroethene	620	µg/L	ND	ND	<1.0	<1.0	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
<i>trans</i> -1,2-Dichloroethene	1500 (X)	µg/L	ND	ND	<1.0	<1.0	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
Tetrachloroethene	60 (X)	µg/L	ND	ND	<1.0	<1.0	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
1,1,1-Trichloroethane	89	µg/L	ND	ND	<1.0	<1.0	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
1,1,2-Trichloroethane	330 (X)	µg/L	ND	ND	<1.0	<1.0	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
Trichloroethene	200 (X)	µg/L	ND	ND	<1.0	<1.0	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
Vinyl Chloride	13 (X)	µg/L	ND	ND	<1.0	1.0	<1.0	<1.0	1.1	ND	ND	<1.0	<1.0	<1.0	<1.0

Parameter	GSI <sup>(1)</sup>	units	MW12	DUP (MW12)	MW12	MW13	MW13	DUP (MW13)
			7/10/14	7/10/14	8/22/14	7/10/14	8/22/14	8/22/14
Benzene	200 (X)	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Toluene	270	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
2-Butanone (MEK)	2,200	µg/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Chloroethane	1,100 (X)	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloromethane [2]	ID	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethane	740	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethene	130	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
<i>cis</i> -1,2-Dichloroethene	620	µg/L	<1.0	<1.0	<1.0	86	97	97
<i>trans</i> -1,2-Dichloroethene	1500 (X)	µg/L	<1.0	<1.0	<1.0	11	14	14
Tetrachloroethene	60 (X)	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,1-Trichloroethane	89	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,2-Trichloroethane	330 (X)	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Trichloroethene	200 (X)	µg/L	<1.0	<1.0	<1.0	26	72	75
Vinyl Chloride	13 (X)	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0

TABLE 4: SUMMARY OF GROUNDWATER AND SURFACE WATER ANALYTICAL RESULTS  
FORMER WHITE CONSOLIDATED INDUSTRIES - BELDING SITE

Parameter	GSI <sup>(1)</sup>	units	SW1	SW1	SW1	SW1	SW1	SW1	SW2	SW2	SW2	SW2	SW2	SW2
			7/16/08	5/6/09	10/25/10	8/18/11	11/6/12	9/25/13	7/16/08	5/6/09	10/25/10	8/18/11	11/6/12	9/25/13
Benzene	200 (X)	µg/L	ND	ND	<1.0	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
Toluene	270	µg/L	ND	ND	<1.0	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
2-Butanone (MEK)	2,200	µg/L	ND	ND	<5.0	<5.0	<5.0	<5.0	ND	ND	<5.0	<5.0	<5.0	<5.0
Chloroethane	1,100 (X)	µg/L	ND	ND	<1.0	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
Chloromethane [2]	ID	µg/L	ND	ND	<1.0	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethane	740	µg/L	ND	ND	<1.0	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethene	130	µg/L	ND	ND	<1.0	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
<i>cis</i> -1,2-Dichloroethene	620	µg/L	ND	ND	<1.0	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
<i>trans</i> -1,2-Dichloroethene	1500 (X)	µg/L	ND	ND	<1.0	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
Tetrachloroethene	60 (X)	µg/L	ND	ND	<1.0	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
1,1,1-Trichloroethane	89	µg/L	ND	ND	<1.0	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
1,1,2-Trichloroethane	330 (X)	µg/L	ND	ND	<1.0	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0
Trichloroethene	200 (X)	µg/L	ND	ND	<1.0	<1.0	<1.0	<1.0	ND	ND	3.5	<1.0	<1.0	<1.0
Vinyl Chloride	13 (X)	µg/L	ND	ND	<1.0	<1.0	<1.0	<1.0	ND	ND	<1.0	<1.0	<1.0	<1.0

Parameter	GSI <sup>(1)</sup>	units
Benzene	200 (X)	µg/L
Toluene	270	µg/L
2-Butanone (MEK)	2,200	µg/L
Chloroethane	1,100 (X)	µg/L
Chloromethane [2]	ID	µg/L
1,1-Dichloroethane	740	µg/L
1,1-Dichloroethene	130	µg/L
<i>cis</i> -1,2-Dichloroethene	620	µg/L
<i>trans</i> -1,2-Dichloroethene	1500 (X)	µg/L
Tetrachloroethene	60 (X)	µg/L
1,1,1-Trichloroethane	89	µg/L
1,1,2-Trichloroethane	330 (X)	µg/L
Trichloroethene	200 (X)	µg/L
Vinyl Chloride	13 (X)	µg/L

**TABLE 4: SUMMARY OF GROUNDWATER AND SURFACE WATER ANALYTICAL RESULTS  
FORMER WHITE CONSOLIDATED INDUSTRIES - BELDING SITE**

**NOTES:**

- [1] GSI = Groundwater surface water interface criteria (DEQ Table 1. Groundwater: Residential and Non-Residential Part 201 Generic Cleanup Criteria and Screening Levels/Part 213 Risk-Based Screening levels, December 30, 2013).
- [2] For chloromethane, "ID" indicates inadequate data to develop a GSI criterion.
- [3] ND = Non detect (laboratory reporting limits unknown for pre-2010 monitoring events).
- [4] Bold data exceed generic GSI criteria.

**Part 201 Cleanup Criteria Footnotes:**

- (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.

APPENDIX A

# WELL NUMBER MW-2D

PAGE 1 OF 2

CLIENT <u>Electrolux Home Products</u>	PROJECT NAME <u>Mixing Zone Determination</u>
PROJECT NUMBER <u>12388894</u>	PROJECT LOCATION <u>Belding, MI</u>
DATE STARTED <u>1/16/13</u> COMPLETED <u>1/16/13</u>	GROUND ELEVATION <u>767.47 ft</u> HOLE SIZE <u>6"</u>
DRILLING CONTRACTOR <u>Boart Longyear</u>	GROUND WATER LEVELS:
DRILLING METHOD <u>Sonic</u>	AT TIME OF DRILLING <u>—</u>
LOGGED BY <u>G. Shereda</u> CHECKED BY <u>BSJ</u>	AT END OF DRILLING <u>—</u>
NOTES <u>Screened interval 23-28ft</u>	▽ AFTER DRILLING <u>0.30 ft / Elev 767.17 ft</u>

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0							Casing Top Elev: 767.13 (ft) Casing Type: PVC
					0.5	▽ Asphalt <span style="float: right;">767.0</span>	
						(SP) SAND, fine to coarse grain, non-plastic, brown, moist.	Sand
5	GB 1	90		SP			Bentonite Slurry
					8.5	759.0	
					9.0	758.5	
						Cobbles (3-4")	
10				SP-SM		(SP-SM) POORLY GRADED SAND with silt, fine to coarse grain, non-plastic, brown, moist.	
					12.0	755.5	
				SP		(SP) SAND, fine to coarse grain, non-plastic, some gravel, little organics, brown.	
					13.0	754.5	
15	2	100	10-11.15' Grain Size: SP-SM	ML		(ML) SANDY SILT, non-plastic, compact, some cobbles, little gravel, light grayish brown.	Soil Sample: MW-2D 10-11.5' (grain size)
20					20.0	747.5	

GENERAL BH / TP / WELL - GINT STD US.GDT - 7/2/13 14:25 - C:\USERS\BERTOLINI\DESKTOP\PIEZOMETERS.GPJ

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# WELL NUMBER MW-2D

PAGE 2 OF 2

CLIENT Electrolux Home Products

PROJECT NAME Mixing Zone Determination

PROJECT NUMBER 12388894

PROJECT LOCATION Belding, MI

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
20	3	100		CL		20.5 (CL) CLAY, trace sand, brownish gray. 747.0	
			SP		21.5 (SP) SAND, little gravel, noncohesive, brown, moist. 746.0		
			ML		22.5 (ML) SANDY CLAYEY SILT, noncohesive, trace gravel, light grayish brown. 745.0		
			ML		22.5 (ML) SANDY SILT, noncohesive, compact, light brown, dry. 745.0		
25	4	100				25.0 (SP) SAND, fine to coarse grain, brown, wet. 742.5	
			SP		26.0 (ML) SILT, little clay, light brown. 741.5		
			ML		30.0 (ML) SILT, little clay and sand, brown. 737.5		
30	5	100				36.5 (CL) SANDY CLAY, brown. 731.0	
			ML		38.0 (CL) SILTY SANDY CLAY, light brown, dry. 729.5		
			CL		40.0 Bottom of borehole at 40.0 feet. 727.5		

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# BORING NUMBER SB-4DD

PAGE 1 OF 3

CLIENT <u>Electrolux Home Products</u>	PROJECT NAME <u>Mixing Zone Determination</u>
PROJECT NUMBER <u>12388894</u>	PROJECT LOCATION <u>Belding, MI</u>
DATE STARTED <u>1/16/13</u> COMPLETED <u>1/16/13</u>	GROUND ELEVATION _____ HOLE SIZE <u>6"</u>
DRILLING CONTRACTOR <u>Boart Longyear</u>	GROUND WATER LEVELS:
DRILLING METHOD <u>Sonic</u>	AT TIME OF DRILLING <u>—</u>
LOGGED BY <u>G. Shereda</u> CHECKED BY <u>BSJ</u>	AT END OF DRILLING <u>—</u>
NOTES <u>Hole abandoned with bentonite fill</u>	AFTER DRILLING <u>—</u>

GENERAL BH / TP / WELL - GINT STD US.GDT - 7/2/13 14:25 - C:\USERS\BERTOLIN\DESKTOP\ELECTROLUX PIEZOMETERS.GPJ

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	
0							
	1	100	13-13.5' grain size: SC-SM	SP	1.5	(SP) SAND, fine to coarse grain, noncohesive little gravel, brown	
					2.0	Large stone.	
				SP		(SP) SAND, fine to coarse grain, noncohesive, some gravel, brown.	
					4.5		
5				SC	5.0	(SC) CLAYEY SAND, medium to high plasticity, brown, moist. Fill with little organics, little sand, black, little gravel, wet.	
	2	100					
						9.0	Gravelly fill, little organics, trace sand, black, wet.
10							
	3	100					
						13.0	(SC-SM) SILTY CLAYEY SAND, little gravel, compact, light grayish brown.
15					ML	14.5	(ML) SANDY SILT, little clay, little gravel, light brown.
	4	100					
					15.0	(ML) SANDY SILT, trace gravel, compact, non-plastic, light brown.	
					ML	17.5	(SC-SM) SILT, little sand, trace clay and gravel, very low plasticity, light grayish brown.
20				SC-SM	20.0		

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CLIENT Electrolux Home Products

PROJECT NAME Mixing Zone Determination

PROJECT NUMBER 12388894

PROJECT LOCATION Belding, MI

GENERAL BH / TP / WELL - GINT STD US.GDT - 7/2/13 14:25 - C:\USERS\BERTOLINI\DESKTOP\ELECTROLUX PIEZOMETERS.GPJ

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
20						
	5	100	23-23.5' grain size: SC-SM	ML		(ML) SANDY SILT, trace clay and gravel, light grayish brown.
					22.0	
				SC-SM		(SC-SM) SILTY CLAYEY SAND, fine to coarse grain, non-plastic, little gravel, light brown.
					24.5	
25				SP		(SP) SAND, fine to coarse grain, non-plastic, light brown, dry.
					25.0	
				SP		(SP) SAND, fine to coarse grain, non-plastic, light brown.
					26.5	
	6	100		CL		(CL) SANDY CLAY, low to medium plasticity, trace gravel, compact, brown.
					27.5	
				SC		(SC) CLAYEY SAND, some gravel, light brown, dry.
					30.0	
30						
	7	100	33-33.5' grain size: SC	ML		(ML) SILT, little clay and sand, trace gravel, light grayish brown.
					35.0	
				CL		(CL) SANDY CLAY, light brown.
					35.5	
				CL		(CL) Clay, brown.
					36.5	
				SM		(SM) SILTY SAND, light gray, dry.
					37.0	
				CL		(CL) SANDY CLAY, light gray.
	8	100				
					39.0	
				CL		(CL) CLAY, little sand, compact, grayish brown.
40						
				CL		
					41.0	
				CL		(CL) CLAY, little sand, trace gravel, compact, gray.
	9	100				

(Continued Next Page)

# BORING NUMBER SB-4DD

PAGE 3 OF 3

CLIENT Electrolux Home Products

PROJECT NAME Mixing Zone Determination

PROJECT NUMBER 12388894

PROJECT LOCATION Belding, MI

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
45				CL		(CL) CLAY, little sand, trace gravel, compact, gray. <i>(continued)</i>

Bottom of borehole at 45.0 feet.

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# WELL NUMBER MW-12

**CLIENT** Electrolux Home Products **PROJECT NAME** Mixing Zone Determination  
**PROJECT NUMBER** 1406182 **PROJECT LOCATION** Belding, MI  
**DATE STARTED** 7/7/14 **COMPLETED** 7/9/14 **GROUND ELEVATION** 769.73 ft **HOLE SIZE** 6" inches  
**DRILLING CONTRACTOR** Stears **GROUND WATER LEVELS:**  
**DRILLING METHOD** Sonic **AT TIME OF DRILLING** —  
**LOGGED BY** BPE **CHECKED BY** BSJ **AT END OF DRILLING** —  
**NOTES** Screened interval 31-36ft **▽ AFTER DRILLING** 4.81 ft / Elev 764.92 ft

GENERAL.BH/TP/WELL - GINT STD US LAB.GDT - 9/5/14 10:34 - \\LAN1-V-FS\PROJECTS\MAJOR CLIENTS\ELECTROLUX\12388894 BELDING MZ DETERMINATION\300 FIELD INFORMATION\320 BORING LOGS\ELECTROLUX PIEZOMETERS.GPJ

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM	
0						Casing Top Elev: 769.636 (ft) Casing Type: PVC	
0.0	1	100	SP		(SP) SAND, trace gravel, medium grain, moist, compact. (fill)	Flushmount cover with sand pack	
1.0					768.7		
1.1					Asphalt		768.6
2.5			SW		(SW) Gravelly SAND, brown, wet, loose.		767.2
3.0			ML		(ML) Sandy SILT, some gravel, brown - black mottled, non-plastic, non-cohesive, dry.		766.7
4.0			SW		(SW) SAND with some gravel, dark brown-black, moist.		765.7
5.0			SW		(SW) SAND with some gravel, brown, moist.		764.7
5.4	2	100	SM		(SM) Silty SAND, dark brown - black, moist, dense.		764.3
5.8			SP		(SP) SAND, trace gravel, brown, wet, loose.		763.9
6.2			ML		(ML) SILT, black, cohesive, plastic, moist to dry.		763.5
6.5			SP		(SP) SAND, some gravel, brown, wet, loose.	763.2	
7.0			ML		(ML) SILT, trace gravel, brown, plastic, cohesive, wet, stiff.	762.7	
9.0			ML		(ML) Sandy SILT, fine grain sand, brown, cohesive, plastic, wet, soft.	760.7	
10.0			SM		(SM) Silty SAND, trace gravel, brown, moist to wet, compact.	759.7	
10.0	3	90	CL		(CL) Silty CLAY, trace gravel, cohesive, plastic, moist, firm.	Grout	
11.5			SC		(SC) Clayey SAND, trace gravel, medium grain sand, brown, moist, compact.		758.2
15.0					decreasing clay content 14-15'		754.7
15.5	4	90	CL		(CL) Sandy CLAY, brown, non-plastic, non-cohesive, dry, very stiff to hard.		754.2
21.0			CL		(CL) Silty CLAY, trace gravel, brown, non-plastic, non-cohesive, dry, w<PL, hard.		
21.0	5	100	CL		(CL) Sandy CLAY, trace gravel, brown, non-plastic, slightly cohesive, moist.		748.7
21.5			SM		(SM) Silty clayey SAND, trace gravel, brown, moist, dense. dry with horizontal laminations 22-23'		748.2
24.0			SM		(SM) Silty SAND, trace gravel, brown, moist, compact.		745.7
25.0			SM		(SM) Silty SAND, trace gravel, brown, moist, compact.		744.7

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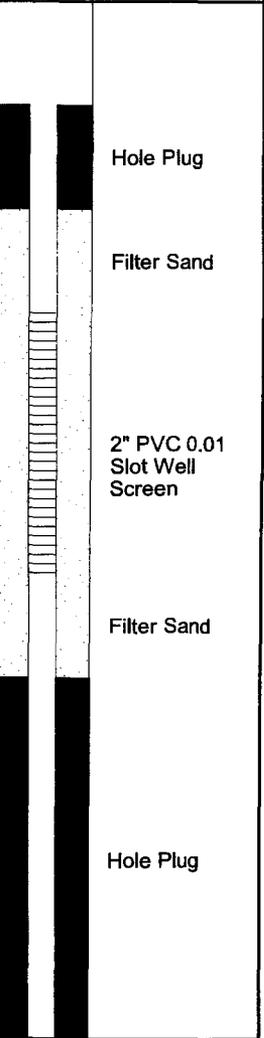
**CLIENT** Electrolux Home Products

**PROJECT NAME** Mixing Zone Determination

**PROJECT NUMBER** 1406182

**PROJECT LOCATION** Belding, MI

GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 9/5/14 10:34 - \\LAN1-V-FS1\PROJECTS\MA-JOR CLIENTS\ELECTROLUX\MA-JOR CLIENTS\ELECTROLUX\320 BORING LOGS\ELECTROLUX\_PIEZOMETERS.GPJ

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
25	6	100	CL		(CL) Silty CLAY, trace gravel, brown with gray mottling, horizontal laminations, non-plastic, non-cohesive, dry to moist, very stiff.	 <p>Hole Plug</p> <p>Filter Sand</p> <p>2" PVC 0.01 Slot Well Screen</p> <p>Filter Sand</p> <p>Hole Plug</p>
30	7	100	SM		(SM) Silty SAND - Sandy SILT, fine sand, brown, moist, loose  becomes saturated @ 33'	
35	8	100	SP		(SP) SAND, trace gravel, brown, coarse grain, moist.	
40	9	100	CL		(CL) Silty CLAY, brown, non-plastic, non-cohesive, w<PL, dry to moist, very stiff.	
45					Bottom of borehole at 45.0 feet.	

Bottom of borehole at 45.0 feet.

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**WELL NUMBER MW-13**

**CLIENT** Electrolux Home Products **PROJECT NAME** Mixing Zone Determination  
**PROJECT NUMBER** 1406182 **PROJECT LOCATION** Belding, MI  
**DATE STARTED** 7/8/14 **COMPLETED** 7/9/14 **GROUND ELEVATION** 772.21 ft **HOLE SIZE** 6" inches  
**DRILLING CONTRACTOR** Stearns **GROUND WATER LEVELS:**  
**DRILLING METHOD** Sonic **AT TIME OF DRILLING** —  
**LOGGED BY** BPE **CHECKED BY** BSJ **AT END OF DRILLING** —  
**NOTES** Screened interval 40-45ft **▽ AFTER DRILLING** 7.00 ft / Elev 765.21 ft

GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 9/5/14 10:34 - \\LAN1-V-FS\PROJECTS\MAJOR CLIENTS\ELECTROLUX\12388894 BELDING MZ DETERMINATION\300 BORING LOGS\ELECTROLUX PIEZOMETERS.GPJ

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0	1	100	SP		(SP) SAND, trace gravel and fines, medium grain, brown, moist, compact.	Casing Top Elev: 771.98 (ft) Casing Type: PVC Flushmount cover with sand pack
4.0					768.2	
4.5					Concrete	767.7
5.0					Black, powdery, sand sized fill material.	767.2
5.5	2	100	ML		(ML) Sandy SILT, gray - brown mottled, cohesive, non-plastic, moist, plant roots.	766.7
5.8			GW		(GW) Gravel (fill)	766.4
			SP		(SP) SAND, trace gravel and fines, medium grain, brown, moist, loose to compact.	▽
8.8					763.4	
10.0			ML		(ML) Black silty material with gravel. Mixed with brown clay on bottom 2".	762.2
10.5	3	100	SC		(SC) Clayey SAND, coarse grain, dark brown, moist, loose.	761.7
11.0			CL		(CL) Sandy CLAY, gray - brown mottled, cohesive, slightly plastic, soft.	761.2
					(ML) Clayey SILT, trace gravel, brown, non-plastic, non-cohesive, w<PL, very stiff.	
15	4	100			becomes gray - brown mottled color	
			ML			Grout
20	5	100			becomes brown - light brown color, very stiff - hard, broken into ~0.5" horizontal layers, dry - moist.	
25	6	100				

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# WELL NUMBER MW-13

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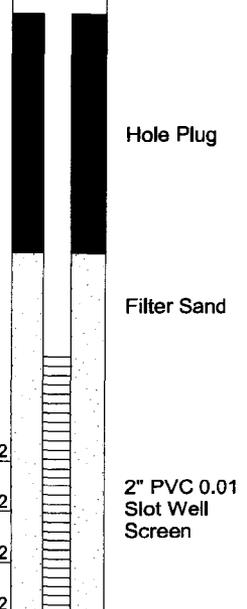
PROJECT NAME Mixing Zone Determination

PROJECT NUMBER 1406182

PROJECT LOCATION Belding, MI

GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 9/5/14 10:34 - \LAN1-V\FS1\PROJECTS\MAJOR CLIENTS\ELECTROLUX\12388994 BELDING MZ DETERMINATION\300 FIELD INFORMATION\320 BORING LOGS\ELECTROLUX PIEZOMETERS.GPJ

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
25					(ML) Clayey SILT, trace gravel, brown, non-plastic, non-cohesive, w<PL, very stiff. (continued)	
30	7	100	ML		1" sand seam, fine grain, dry @ 33.5'	
35	8	100	ML		large gravel piece	
40	9	100	ML			
			SW		(SW) SAND, medium to coarse grain, trace gravel, wet, loose.	
			ML		(ML) Clayey SILT, trace gravel, brown, non-plastic, non-cohesive, w<PL, very stiff.	
			SP		(SP) Gravelly SAND, coarse grain, wet, loose.	
45					Bottom of borehole at 45.0 feet.	



**APPENDIX B**



July 16, 2014

Golder Associates, Inc. - MI  
Attn: Mr. Brad Johnson  
15851 S. US 27, Suite 50  
Lansing, MI 48906

**Project: Electrolux - Belding**

Dear Mr. Brad Johnson,

Enclosed is a copy of the laboratory report for the following work order(s) received by TriMatrix Laboratories:

<b>Work Order</b>	<b>Received</b>	<b>Description</b>
1407178	07/10/2014	Laboratory Services

This report relates only to the sample(s) as received. Test results are in compliance with the requirements of the National Environmental Laboratory Accreditation Program (NELAP) and/or one of the following certification programs:

ACLASS DoD-ELAP/ISO17025 (#ADE-1542); Arkansas DEP (#88-0730/13-049-0); Florida DEP (#E87622-24); Georgia EPD (#E87622-24); Illinois DEP (#200026/003329); Kansas DPH (#E-10302); Kentucky DEP (#0021); Louisiana DEP (#103068); Michigan DPH (#0034); Minnesota DPH (#491715); New York ELAP (#11776/48855); North Carolina DNRE (#659); Texas CEQ (#T104704495-14-4); Virginia DCLS (#460153/2592); Wisconsin DNR (#999472650); USDA Soil Import Permit (#P330-12-00236).

Any qualification or narration of results, including sample acceptance requirements and test exceptions to the above referenced programs, is presented in the Statement of Data Qualifications and Project Technical Narrative sections of this report. Estimates of analytical uncertainties and certification documents for the test results contained within this report are available upon request.

If you have any questions or require further information, please do not hesitate to contact me.

Sincerely,

James D. McFadden  
Project Chemist



**PROJECT TECHNICAL NARRATIVE(s)**

No Project Narrative is associated with this report.



## STATEMENT OF DATA QUALIFICATIONS

All analyses have been validated and comply with our Quality Control Program.  
No Qualification is required.



**ANALYTICAL REPORT**

Client:	<b>Golder Associates, Inc. - MI</b>	Work Order:	<b>1407178</b>
Project:	Electrolux - Belding	Description:	Laboratory Services
Client Sample ID:	<b>MW-12</b>	Sampled:	7/10/14 11:35
Lab Sample ID:	<b>1407178-01</b>	Sampled By:	Brian Eustice
Matrix:	Water	Received:	7/10/14 14:45
Unit:	ug/L	Prepared:	7/14/14 7:00 By: DLV
Dilution Factor:	1	Analyzed:	7/14/14 17:06 By: DLV
QC Batch:	1406843	Analytical Batch:	4G14040

**Volatile Organic Compounds by EPA Method 8260B**

CAS Number	Analyte	Analytical Result	RL
71-43-2	Benzene	<1.0	1.0
75-00-3	Chloroethane	<1.0	1.0
74-87-3	Chloromethane	<1.0	1.0
75-34-3	1,1-Dichloroethane	<1.0	1.0
75-35-4	1,1-Dichloroethene	<1.0	1.0
156-59-2	cis-1,2-Dichloroethene	<1.0	1.0
156-60-5	trans-1,2-Dichloroethene	<1.0	1.0
78-93-3	2-Butanone (MEK)	<5.0	5.0
127-18-4	Tetrachloroethene	<1.0	1.0
108-88-3	Toluene	<1.0	1.0
71-55-6	1,1,1-Trichloroethane	<1.0	1.0
79-00-5	1,1,2-Trichloroethane	<1.0	1.0
79-01-6	Trichloroethene	<1.0	1.0
75-01-4	Vinyl Chloride	<1.0	1.0
1330-20-7	Xylene (Total)	<3.0	3.0

<i>Surrogates:</i>	<i>% Recovery</i>	<i>Control Limits</i>
<i>Dibromofluoromethane</i>	<i>109</i>	<i>85-118</i>
<i>1,2-Dichloroethane-d4</i>	<i>105</i>	<i>87-122</i>
<i>Toluene-d8</i>	<i>96</i>	<i>85-113</i>
<i>4-Bromofluorobenzene</i>	<i>91</i>	<i>82-110</i>



**ANALYTICAL REPORT**

Client:	<b>Golder Associates, Inc. - MI</b>	Work Order:	<b>1407178</b>
Project:	Electrolux - Belding	Description:	Laboratory Services
Client Sample ID:	<b>MW-13</b>	Sampled:	7/10/14 12:55
Lab Sample ID:	<b>1407178-02</b>	Sampled By:	Brian Eustice
Matrix:	Water	Received:	7/10/14 14:45
Unit:	ug/L	Prepared:	7/14/14 7:00 By: DLV
Dilution Factor:	1	Analyzed:	7/14/14 17:33 By: DLV
QC Batch:	1406843	Analytical Batch:	4G14040

**Volatile Organic Compounds by EPA Method 8260B**

CAS Number	Analyte	Analytical Result	RL
71-43-2	Benzene	<1.0	1.0
75-00-3	Chloroethane	<1.0	1.0
74-87-3	Chloromethane	<1.0	1.0
75-34-3	1,1-Dichloroethane	<1.0	1.0
75-35-4	1,1-Dichloroethene	<1.0	1.0
156-59-2	cis-1,2-Dichloroethene	<b>86</b>	1.0
156-60-5	trans-1,2-Dichloroethene	<b>11</b>	1.0
78-93-3	2-Butanone (MEK)	<5.0	5.0
127-18-4	Tetrachloroethene	<1.0	1.0
108-88-3	Toluene	<1.0	1.0
71-55-6	1,1,1-Trichloroethane	<1.0	1.0
79-00-5	1,1,2-Trichloroethane	<1.0	1.0
79-01-6	Trichloroethene	<b>26</b>	1.0
75-01-4	Vinyl Chloride	<1.0	1.0
1330-20-7	Xylene (Total)	<3.0	3.0

<i>Surrogates:</i>	<i>% Recovery</i>	<i>Control Limits</i>
<i>Dibromofluoromethane</i>	<i>105</i>	<i>85-118</i>
<i>1,2-Dichloroethane-d4</i>	<i>105</i>	<i>87-122</i>
<i>Toluene-d8</i>	<i>98</i>	<i>85-113</i>
<i>4-Bromofluorobenzene</i>	<i>94</i>	<i>82-110</i>

**ANALYTICAL REPORT**

Client:	<b>Golder Associates, Inc. - MI</b>	Work Order:	<b>1407178</b>
Project:	Electrolux - Belding	Description:	Laboratory Services
Client Sample ID:	<b>MW-FD</b>	Sampled:	7/10/14 0:00
Lab Sample ID:	<b>1407178-03</b>	Sampled By:	Brian Eustice
Matrix:	Water	Received:	7/10/14 14:45
Unit:	ug/L	Prepared:	7/14/14 7:00 By: DLV
Dilution Factor:	1	Analyzed:	7/14/14 17:59 By: DLV
QC Batch:	1406843	Analytical Batch:	4G14040

**Volatile Organic Compounds by EPA Method 8260B**

CAS Number	Analyte	Analytical Result	RL
71-43-2	Benzene	<1.0	1.0
75-00-3	Chloroethane	<1.0	1.0
74-87-3	Chloromethane	<1.0	1.0
75-34-3	1,1-Dichloroethane	<1.0	1.0
75-35-4	1,1-Dichloroethene	<1.0	1.0
156-59-2	cis-1,2-Dichloroethene	<1.0	1.0
156-60-5	trans-1,2-Dichloroethene	<1.0	1.0
78-93-3	2-Butanone (MEK)	<5.0	5.0
127-18-4	Tetrachloroethene	<1.0	1.0
108-88-3	Toluene	<1.0	1.0
71-55-6	1,1,1-Trichloroethane	<1.0	1.0
79-00-5	1,1,2-Trichloroethane	<1.0	1.0
79-01-6	Trichloroethene	<1.0	1.0
75-01-4	Vinyl Chloride	<1.0	1.0
1330-20-7	Xylene (Total)	<3.0	3.0

<i>Surrogates:</i>	<i>% Recovery</i>	<i>Control Limits</i>
<i>Dibromofluoromethane</i>	<i>105</i>	<i>85-118</i>
<i>1,2-Dichloroethane-d4</i>	<i>105</i>	<i>87-122</i>
<i>Toluene-d8</i>	<i>97</i>	<i>85-113</i>
<i>4-Bromofluorobenzene</i>	<i>92</i>	<i>82-110</i>



**QUALITY CONTROL REPORT**

**Volatile Organic Compounds by EPA Method 8260B**

Analyte	Sample Conc.	Spike Qty.	Result	Spike % Rec.	Control Limits	RPD	RPD Limits	RL
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**QC Batch: 1406843** 5030B Aqueous Purge & Trap/USEPA-8260B

**Method Blank**

Unit: ug/L

Analyzed: 07/14/2014 By: DLV

Analytical Batch: 4G14040

Benzene			<1.0					1.0
Chloroethane			<1.0					1.0
Chloromethane			<1.0					1.0
1,1-Dichloroethane			<1.0					1.0
1,1-Dichloroethene			<1.0					1.0
cis-1,2-Dichloroethene			<1.0					1.0
trans-1,2-Dichloroethene			<1.0					1.0
2-Butanone (MEK)			<5.0					5.0
Tetrachloroethene			<1.0					1.0
Toluene			<1.0					1.0
1,1,1-Trichloroethane			<1.0					1.0
1,1,2-Trichloroethane			<1.0					1.0
Trichloroethene			<1.0					1.0
Vinyl Chloride			<1.0					1.0
Xylene (Total)			<3.0			--		3.0

**Surrogates:**

<i>Dibromofluoromethane</i>				103	85-118			
<i>1,2-Dichloroethane-d4</i>				100	87-122			
<i>Toluene-d8</i>				96	85-113			
<i>4-Bromofluorobenzene</i>				96	82-110			

**Laboratory Control Sample**

Unit: ug/L

Analyzed: 07/14/2014 By: DLV

Analytical Batch: 4G14040

Benzene	40.0	<b>41.9</b>		105	84-119	--		1.0
Chloroethane	40.0	<b>41.2</b>		103	76-124	--		1.0
Chloromethane	40.0	<b>42.3</b>		106	73-125	--		1.0
1,1-Dichloroethane	40.0	<b>42.2</b>		106	80-118	--		1.0
1,1-Dichloroethene	40.0	<b>41.5</b>		104	77-123	--		1.0
cis-1,2-Dichloroethene	40.0	<b>42.2</b>		105	84-119	--		1.0
trans-1,2-Dichloroethene	40.0	<b>41.2</b>		103	76-126	--		1.0
2-Butanone (MEK)	40.0	<b>38.9</b>		97	52-142	--		5.0
Tetrachloroethene	40.0	<b>37.7</b>		94	81-117	--		1.0
Toluene	40.0	<b>42.1</b>		105	85-118	--		1.0

Continued on next page



### QUALITY CONTROL REPORT

#### Volatile Organic Compounds by EPA Method 8260B (Continued)

Analyte	Sample Conc.	Spike Qty.	Result	Spike % Rec.	Control Limits	RPD	RPD Limits	RL
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QC Batch: 1406843 (Continued) 5030B Aqueous Purge & Trap/USEPA-8260B

#### Laboratory Control Sample (Continued)

Analyzed: 07/14/2014 By: DLV

Unit: ug/L

Analytical Batch: 4G14040

1,1,1-Trichloroethane	40.0	<b>41.5</b>	104	81-122	--	1.0
1,1,2-Trichloroethane	40.0	<b>42.2</b>	106	83-121	--	1.0
Trichloroethene	40.0	<b>37.6</b>	94	82-119	--	1.0
Vinyl Chloride	40.0	<b>42.2</b>	106	77-123	--	1.0

#### Surrogates:

<i>Dibromofluoromethane</i>			100	85-118
<i>1,2-Dichloroethane-d4</i>			104	87-122
<i>Toluene-d8</i>			102	85-113
<i>4-Bromofluorobenzene</i>			103	82-110



5560 Corporate Exchange Court SE  
Grand Rapids, MI 49512

# Chain of Custody Record

COC No. 12951

Phone (616) 975-4500 Fax (616) 942-7463  
www.trimatrixlabs.com

## Analyses Requested

Pg. 1 of 1

**For Lab Use Only**

Cert.         

VOA Rack/Tray  
66D-G

Receipt Log No.  
42-22

Project Chemist  
**Jim McFadden**

Work Order No.  
1407178

Client Name  
**Goldier Associates, Inc., MI**

Project Name  
**Electroflux**

Address  
**158515 US 27, Suite 50**

Client Project No. / P.O. No.

City, State Zip  
**Lansing, MI 48906**

Invoice To  Client  
 Other (comments)

Phone/Fax D: 517-318-3250, F: 517-482-2460

Contact/Report To  
**Brad Johnson**

Email: **Brad Johnson (brad\_johnson@goldier.com)**

D	A	C	B	C																
Volatiles - Water		Volatiles - Liquid Waste																		

- ← PRESERVATIVES
- A NONE pH<7
  - B HNO<sub>3</sub> pH<2
  - C H<sub>2</sub>SO<sub>4</sub> pH<2
  - D 1+1 HCl pH<2
  - E NaOH pH>12
  - F ZnAc/NaOH pH>9
  - G MeOH
  - H Other (note below)

Schedule	Matrix Code	Sample Number	Field Sample ID	Cooler ID	Sample Date	Sample Time	Matrix	1	17	Number of Containers Submitted										Total	Sample Comments				
		01	MW-12	3393	7/10/14	1135	GW	2																	
		02	MW-13	↓	7/10/14	1255	GW	2																	
		03	MW-FD	↓	7/10/14	-	GW	2																	

Sampler By (print): Brandon Evrta

How Shipped? Hand  Carrier

Tracker No.         

Company: Goldier

1. Relinquished By: [Signature] Date: 7/10/14 Time: 1445

2. Relinquished By:          Date:          Time:         

3. Received For Lab By: [Signature] Date: 7.10.14 Time:         

ORIGINAL - LABORATORY COPY - FIELD/SAMPLER

# SAMPLE RECEIVING / LOG-IN CHECKLIST



Client: <u>GOLDER</u>	Work Order #: <u>1407178</u>
Receipt Record Page/Line #: <u>42-22</u>	New / Add To: <u>JDR</u>
	Sample #: _____

Recorded by (initials/date): <u>DN 7/10/14</u>	Cooler: <input checked="" type="checkbox"/> Cooler <input type="checkbox"/> Box <input type="checkbox"/> Other	City Received: <u>1</u>	Thermometer Used: <input checked="" type="checkbox"/> IR Gun (#202) <input type="checkbox"/> Digital Thermometer (#64) <input type="checkbox"/> Other (# _____)	<input type="checkbox"/> See Additional Cooler Information Form
--	--	-------------------------	---	---

Cooler #	Time	Cooler #	Time	Cooler #	Time
<u>113393</u>	<u>11:25</u>				
Custody Seals: <input checked="" type="checkbox"/> None <input type="checkbox"/> Present / Intact <input type="checkbox"/> Present / Not Intact		Custody Seals: <input type="checkbox"/> None <input type="checkbox"/> Present / Intact <input type="checkbox"/> Present / Not Intact		Custody Seals: <input type="checkbox"/> None <input type="checkbox"/> Present / Intact <input type="checkbox"/> Present / Not Intact	
Coolant Type: <input type="checkbox"/> Loose Ice <input checked="" type="checkbox"/> Bagged Ice <input type="checkbox"/> Blue Ice <input type="checkbox"/> None		Coolant Type: <input type="checkbox"/> Loose Ice <input type="checkbox"/> Bagged Ice <input type="checkbox"/> Blue Ice <input type="checkbox"/> None		Coolant Type: <input type="checkbox"/> Loose Ice <input type="checkbox"/> Bagged Ice <input type="checkbox"/> Blue Ice <input type="checkbox"/> None	
Coolant Location: Dispersed / Top / Middle / Bottom		Coolant Location: Dispersed / Top / Middle / Bottom		Coolant Location: Dispersed / Top / Middle / Bottom	
Temp Blank Present: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Temp Blank Present: <input type="checkbox"/> Yes <input type="checkbox"/> No		Temp Blank Present: <input type="checkbox"/> Yes <input type="checkbox"/> No	
If Present, Temperature Blank Location is: <input type="checkbox"/> Representative <input type="checkbox"/> Not Representative		If Present, Temperature Blank Location is: <input type="checkbox"/> Representative <input type="checkbox"/> Not Representative		If Present, Temperature Blank Location is: <input type="checkbox"/> Representative <input type="checkbox"/> Not Representative	
Observed °C	Correction Factor °C	Actual °C	Observed °C	Correction Factor °C	Actual °C
Temp Blank			Temp Blank		
Sample 1: <u>11.9</u>	<u>0</u>	<u>11.9</u>	Sample 1:		
Sample 2: <u>12.9</u>	<u>0</u>	<u>12.9</u>	Sample 2:		
Sample 3: <u>11.1</u>	<u>0</u>	<u>11.1</u>	Sample 3:		
3 Sample Average °C: <u>12.0</u>		3 Sample Average °C:		3 Sample Average °C:	
<input checked="" type="checkbox"/> Cooler ID on COC?		<input type="checkbox"/> Cooler ID on COC?		<input type="checkbox"/> Cooler ID on COC?	
<input checked="" type="checkbox"/> VOC Trip Blank received?		<input type="checkbox"/> VOC Trip Blank received?		<input type="checkbox"/> VOC Trip Blank received?	

**If any shaded areas checked, complete Sample Receiving Non-Conformance and/or Inventory Form**

**Paperwork Received**

Yes No

Chain of Custody record(s)? If No, Initiated By \_\_\_\_\_

Received for Lab Signed/Date/Time?

Shipping document?

Other \_\_\_\_\_

**COC Information**

TriMatrix COC  Other \_\_\_\_\_

COC ID Numbers: 12951

**Check Sample Preservation**

N/A Yes No

Temperature Blank OR average sample temperature: ≥6° C?

If either is ≥6° C, was thermal preservation required?

If "Yes", Project Chemist Approval Initials: \_\_\_\_\_

If "Yes", Completed Non-Con Cooler - Cont Inventory Form?

Completed Sample Preservation Verification Form?

Samples chemically preserved correctly?

If "No", added orange tag?

Received pre-preserved VOC soils?

MeOH  Na<sub>2</sub>SO<sub>4</sub>

**Check COC for Accuracy**

Yes No

Analysis Requested?

Sample ID matches COC?

Sample Date and Time matches COC?

Container type completed on COC?

All container types indicated are received?

**Check for Short Hold-Time Prep/Analyses**

Bacteriological

Air Bags

EnCores / Methanol Pre-Preserved

Formaldehyde/Aldehyde

Green-tagged containers

Yellow/White-tagged 1 L Ambers (SV Prep-Lab)

**AFTER HOURS ONLY:**

COPIES OF COC TO LAB AREA(S)

NONE RECEIVED

RECEIVED, COCs TO LAB(S)

**Sample Condition Summary**

N/A Yes No

Broken containers/lids?

Missing or incomplete labels?

Illegible information on labels?

Low volume received?

Inappropriate or non-TriMatrix containers received?

VOC vials / TOX containers have headspace?

Extra sample locations / containers not listed on COC?

**Notes**

Trip Blank received  Trip Blank not listed on COC

Cooler Received (Date/Time): DN 7/10/14 Paperwork Delivered (Date/Time): 7/10/14 ±1 Hour Goal Met? Yes / No



August 26, 2014

Golder Associates, Inc. - MI  
Attn: Mr. Brad Johnson  
15851 S. US 27, Suite 50  
Lansing, MI 48906

**Project: Electrolux - Belding**

Dear Mr. Brad Johnson,

Enclosed is a copy of the laboratory report for the following work order(s) received by TriMatrix Laboratories:

<b>Work Order</b>	<b>Received</b>	<b>Description</b>
1408400	08/22/2014	Laboratory Services

This report relates only to the sample(s) as received. Test results are in compliance with the requirements of the National Environmental Laboratory Accreditation Program (NELAP) and/or one of the following certification programs:

ACCLASS DoD-ELAP/ISO17025 (#ADE-1542); Arkansas DEP (#88-0730/13-049-0); Florida DEP (#E87622-24); Georgia EPD (#E87622-24); Illinois DEP (#200026/003329); Kansas DPH (#E-10302); Kentucky DEP (#0021); Louisiana DEP (#103068); Michigan DPH (#0034); Minnesota DPH (#491715); New York ELAP (#11776/48855); North Carolina DNRE (#659); Texas CEQ (#T104704495-14-4); Virginia DCLS (#460153/2592); Wisconsin DNR (#999472650); USDA Soil Import Permit (#P330-12-00236).

Any qualification or narration of results, including sample acceptance requirements and test exceptions to the above referenced programs, is presented in the Statement of Data Qualifications and Project Technical Narrative sections of this report. Estimates of analytical uncertainties and certification documents for the test results contained within this report are available upon request.

If you have any questions or require further information, please do not hesitate to contact me.

Sincerely,

James D. McFadden  
Project Chemist



**PROJECT TECHNICAL NARRATIVE(s)**

No Project Narrative is associated with this report.



**STATEMENT OF DATA QUALIFICATIONS**

**Volatile Organic Compounds by EPA Method 8260B**

**Qualification:** The corresponding CCV for this analytical batch had a recovery exceeding the upper control limit of the method. A positive result for this analyte in any associated samples are considered estimated. Non-detectable results are not qualified.

Analysis: USEPA-8260B

Sample/Analyte:	1408400-01	MW-12	Tetrachloroethene
	1408400-02	MW-13	Tetrachloroethene
	1408400-03	Field Dup	Tetrachloroethene
	1408400-04	Trip Blank	Tetrachloroethene



**ANALYTICAL REPORT**

Client:	<b>Golder Associates, Inc. - MI</b>	Work Order:	<b>1408400</b>
Project:	Electrolux - Belding	Description:	Laboratory Services
Client Sample ID:	<b>MW-12</b>	Sampled:	8/22/14 11:05
Lab Sample ID:	<b>1408400-01</b>	Sampled By:	Bradley S. Johnson
Matrix:	Water	Received:	8/22/14 13:50
Unit:	ug/L	Prepared:	8/25/14 20:00 By: DLV
Dilution Factor:	1	Analyzed:	8/26/14 1:24 By: DLV
QC Batch:	1408836	Analytical Batch:	4H26007

**Volatile Organic Compounds by EPA Method 8260B**

CAS Number	Analyte	Analytical Result	RL
71-43-2	Benzene	<1.0	1.0
75-00-3	Chloroethane	<1.0	1.0
74-87-3	Chloromethane	<1.0	1.0
75-34-3	1,1-Dichloroethane	<1.0	1.0
75-35-4	1,1-Dichloroethene	<1.0	1.0
156-59-2	cis-1,2-Dichloroethene	<1.0	1.0
156-60-5	trans-1,2-Dichloroethene	<1.0	1.0
78-93-3	2-Butanone (MEK)	<5.0	5.0
*127-18-4	Tetrachloroethene	<1.0	1.0
108-88-3	Toluene	<1.0	1.0
71-55-6	1,1,1-Trichloroethane	<1.0	1.0
79-00-5	1,1,2-Trichloroethane	<1.0	1.0
79-01-6	Trichloroethene	<1.0	1.0
75-01-4	Vinyl Chloride	<1.0	1.0
1330-20-7	Xylene (Total)	<3.0	3.0

<i>Surrogates:</i>	<i>% Recovery</i>	<i>Control Limits</i>
<i>Dibromofluoromethane</i>	<i>113</i>	<i>85-118</i>
<i>1,2-Dichloroethane-d4</i>	<i>118</i>	<i>87-122</i>
<i>Toluene-d8</i>	<i>99</i>	<i>85-113</i>
<i>4-Bromofluorobenzene</i>	<i>87</i>	<i>82-110</i>

\*See Statement of Data Qualifications



### ANALYTICAL REPORT

Client:	<b>Golder Associates, Inc. - MI</b>	Work Order:	<b>1408400</b>
Project:	Electrolux - Belding	Description:	Laboratory Services
Client Sample ID:	<b>MW-13</b>	Sampled:	8/22/14 12:00
Lab Sample ID:	<b>1408400-02</b>	Sampled By:	Bradley S. Johnson
Matrix:	Water	Received:	8/22/14 13:50
Unit:	ug/L	Prepared:	8/25/14 20:00 By: DLV
Dilution Factor:	1	Analyzed:	8/26/14 1:51 By: DLV
QC Batch:	1408836	Analytical Batch:	4H26007

### Volatile Organic Compounds by EPA Method 8260B

CAS Number	Analyte	Analytical Result	RL
71-43-2	Benzene	<1.0	1.0
75-00-3	Chloroethane	<1.0	1.0
74-87-3	Chloromethane	<1.0	1.0
75-34-3	1,1-Dichloroethane	<1.0	1.0
75-35-4	1,1-Dichloroethene	<1.0	1.0
156-59-2	cis-1,2-Dichloroethene	<b>97</b>	1.0
156-60-5	trans-1,2-Dichloroethene	<b>14</b>	1.0
78-93-3	2-Butanone (MEK)	<5.0	5.0
*127-18-4	Tetrachloroethene	<1.0	1.0
108-88-3	Toluene	<1.0	1.0
71-55-6	1,1,1-Trichloroethane	<1.0	1.0
79-00-5	1,1,2-Trichloroethane	<1.0	1.0
79-01-6	Trichloroethene	<b>72</b>	1.0
75-01-4	Vinyl Chloride	<1.0	1.0
1330-20-7	Xylene (Total)	<3.0	3.0

<i>Surrogates:</i>	<i>% Recovery</i>	<i>Control Limits</i>
<i>Dibromofluoromethane</i>	<i>112</i>	<i>85-118</i>
<i>1,2-Dichloroethane-d4</i>	<i>117</i>	<i>87-122</i>
<i>Toluene-d8</i>	<i>97</i>	<i>85-113</i>
<i>4-Bromofluorobenzene</i>	<i>88</i>	<i>82-110</i>

\*See Statement of Data Qualifications



### ANALYTICAL REPORT

Client:	<b>Golder Associates, Inc. - MI</b>	Work Order:	<b>1408400</b>
Project:	Electrolux - Belding	Description:	Laboratory Services
Client Sample ID:	<b>Field Dup</b>	Sampled:	8/22/14 12:00
Lab Sample ID:	<b>1408400-03</b>	Sampled By:	Bradley S. Johnson
Matrix:	Water	Received:	8/22/14 13:50
Unit:	ug/L	Prepared:	8/25/14 20:00 By: DLV
Dilution Factor:	1	Analyzed:	8/26/14 2:17 By: DLV
QC Batch:	1408836	Analytical Batch:	4H26007

### Volatile Organic Compounds by EPA Method 8260B

CAS Number	Analyte	Analytical Result	RL
71-43-2	Benzene	<1.0	1.0
75-00-3	Chloroethane	<1.0	1.0
74-87-3	Chloromethane	<1.0	1.0
75-34-3	1,1-Dichloroethane	<1.0	1.0
75-35-4	1,1-Dichloroethene	<1.0	1.0
156-59-2	cis-1,2-Dichloroethene	<b>97</b>	1.0
156-60-5	trans-1,2-Dichloroethene	<b>14</b>	1.0
78-93-3	2-Butanone (MEK)	<5.0	5.0
*127-18-4	Tetrachloroethene	<1.0	1.0
108-88-3	Toluene	<1.0	1.0
71-55-6	1,1,1-Trichloroethane	<1.0	1.0
79-00-5	1,1,2-Trichloroethane	<1.0	1.0
79-01-6	Trichloroethene	<b>75</b>	1.0
75-01-4	Vinyl Chloride	<1.0	1.0
1330-20-7	Xylene (Total)	<3.0	3.0

<i>Surrogates:</i>	<i>% Recovery</i>	<i>Control Limits</i>
<i>Dibromofluoromethane</i>	<i>113</i>	<i>85-118</i>
<i>1,2-Dichloroethane-d4</i>	<i>115</i>	<i>87-122</i>
<i>Toluene-d8</i>	<i>98</i>	<i>85-113</i>
<i>4-Bromofluorobenzene</i>	<i>87</i>	<i>82-110</i>

\*See Statement of Data Qualifications



**ANALYTICAL REPORT**

Client:	<b>Golder Associates, Inc. - MI</b>	Work Order:	<b>1408400</b>
Project:	Electrolux - Belding	Description:	Laboratory Services
Client Sample ID:	<b>Trip Blank</b>	Sampled:	8/22/14 0:00
Lab Sample ID:	<b>1408400-04</b>	Sampled By:	TML
Matrix:	Water	Received:	8/22/14 13:50
Unit:	ug/L	Prepared:	8/25/14 20:00 By: DLV
Dilution Factor:	1	Analyzed:	8/26/14 0:58 By: DLV
QC Batch:	1408836	Analytical Batch:	4H26007

**Volatile Organic Compounds by EPA Method 8260B**

CAS Number	Analyte	Analytical Result	RL
71-43-2	Benzene	<1.0	1.0
75-00-3	Chloroethane	<1.0	1.0
74-87-3	Chloromethane	<1.0	1.0
75-34-3	1,1-Dichloroethane	<1.0	1.0
75-35-4	1,1-Dichloroethene	<1.0	1.0
156-59-2	cis-1,2-Dichloroethene	<1.0	1.0
156-60-5	trans-1,2-Dichloroethene	<1.0	1.0
78-93-3	2-Butanone (MEK)	<5.0	5.0
*127-18-4	Tetrachloroethene	<1.0	1.0
108-88-3	Toluene	<1.0	1.0
71-55-6	1,1,1-Trichloroethane	<1.0	1.0
79-00-5	1,1,2-Trichloroethane	<1.0	1.0
79-01-6	Trichloroethene	<1.0	1.0
75-01-4	Vinyl Chloride	<1.0	1.0
1330-20-7	Xylene (Total)	<3.0	3.0

<i>Surrogates:</i>	<i>% Recovery</i>	<i>Control Limits</i>
<i>Dibromofluoromethane</i>	<i>108</i>	<i>85-118</i>
<i>1,2-Dichloroethane-d4</i>	<i>116</i>	<i>87-122</i>
<i>Toluene-d8</i>	<i>97</i>	<i>85-113</i>
<i>4-Bromofluorobenzene</i>	<i>87</i>	<i>82-110</i>

\*See Statement of Data Qualifications



## QUALITY CONTROL REPORT

### Volatile Organic Compounds by EPA Method 8260B

Analyte	Sample Conc.	Spike Qty.	Result	Spike % Rec.	Control Limits	RPD	RPD Limits	RL
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**QC Batch: 1408836** 5030B Aqueous Purge & Trap/USEPA-8260B

<b>Method Blank</b>	Analyzed:	08/26/2014	By: DLV
Unit: ug/L	Analytical Batch:	4H26007	

Benzene		<1.0		--	1.0
Chloroethane		<1.0			1.0
Chloromethane		<b>1.0</b>		--	1.0
1,1-Dichloroethane		<1.0			1.0
1,1-Dichloroethene		<1.0			1.0
cis-1,2-Dichloroethene		<1.0			1.0
trans-1,2-Dichloroethene		<1.0			1.0
2-Butanone (MEK)		<5.0		--	5.0
Tetrachloroethene		<b>1.1</b>		--	1.0
Toluene		<1.0		--	1.0
1,1,1-Trichloroethane		<1.0			1.0
1,1,2-Trichloroethane		<1.0			1.0
Trichloroethene		<1.0			1.0
Vinyl Chloride		<1.0			1.0
Xylene (Total)		<3.0			3.0

**Surrogates:**

<i>Dibromofluoromethane</i>	104	85-118
<i>1,2-Dichloroethane-d4</i>	113	87-122
<i>Toluene-d8</i>	98	85-113
<i>4-Bromofluorobenzene</i>	88	82-110

<b>Laboratory Control Sample</b>	Analyzed:	08/25/2014	By: DLV
Unit: ug/L	Analytical Batch:	4H26007	

Benzene	40.0	<b>41.3</b>	103	84-119	--	1.0
Chloroethane	40.0	<b>35.7</b>	89	76-124	--	1.0
*Chloromethane	40.0	<b>37.0</b>	92	73-125	--	1.0
1,1-Dichloroethane	40.0	<b>43.5</b>	109	80-118	--	1.0
1,1-Dichloroethene	40.0	<b>41.1</b>	103	77-123	--	1.0
cis-1,2-Dichloroethene	40.0	<b>40.3</b>	101	84-119	--	1.0
trans-1,2-Dichloroethene	40.0	<b>41.3</b>	103	76-126	--	1.0
2-Butanone (MEK)	40.0	<b>40.9</b>	102	52-142	--	5.0
*Tetrachloroethene	40.0	<b>92.6</b>	<b>232</b>	81-117	--	1.0
Toluene	40.0	<b>40.6</b>	101	85-118	--	1.0

Continued on next page

\*See Statement of Data Qualifications

**QUALITY CONTROL REPORT**
**Volatile Organic Compounds by EPA Method 8260B (Continued)**

Analyte	Sample Conc.	Spike Qty.	Result	Spike % Rec.	Control Limits	RPD	RPD Limits	RL
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**QC Batch: 1408836 (Continued)** 5030B Aqueous Purge & Trap/USEPA-8260B

**Laboratory Control Sample (Continued)**

Analyzed: 08/25/2014 By: DLV

Unit: ug/L

Analytical Batch: 4H26007

1,1,1-Trichloroethane	40.0	<b>43.9</b>		110	81-122	--	1.0	
1,1,2-Trichloroethane	40.0	<b>43.0</b>		108	83-121	--	1.0	
Trichloroethene	40.0	<b>43.0</b>		107	82-119	--	1.0	
Vinyl Chloride	40.0	<b>36.8</b>		92	77-123	--	1.0	

**Surrogates:**

<i>Dibromofluoromethane</i>				107	85-118			
<i>1,2-Dichloroethane-d4</i>				111	87-122			
<i>Toluene-d8</i>				106	85-113			
<i>4-Bromofluorobenzene</i>				105	82-110			



# SAMPLE RECEIVING / LOG-IN CHECKLIST



Client: Golden Casuar Work Order # 1408400  
 Receipt Record Page # 15-10 New / Add To JDA Sample #s

Recorded by (initials/date): SK 8/22/14  Cooler  Box  Other 1 Qty Received 1  IR Gun (#202) Thermometer Used  Digital Thermometer (#54)  See Additional Cooler Information Form  Other (#         )

Cooler #	Time	Cooler #	Time	Cooler #	Time	Cooler #	Time
<u>2727</u>	<u>1413</u>						
Custody Seals: <input checked="" type="checkbox"/> None <input type="checkbox"/> Present / Intact <input type="checkbox"/> Present / Not Intact		Custody Seals: <input type="checkbox"/> None <input type="checkbox"/> Present / Intact <input type="checkbox"/> Present / Not Intact		Custody Seals: <input type="checkbox"/> None <input type="checkbox"/> Present / Intact <input type="checkbox"/> Present / Not Intact		Custody Seals: <input type="checkbox"/> None <input type="checkbox"/> Present / Intact <input type="checkbox"/> Present / Not Intact	
Coolant Type: <input checked="" type="checkbox"/> Loose ice <input type="checkbox"/> Bagged ice <input type="checkbox"/> Blue ice <input type="checkbox"/> None		Coolant Type: <input type="checkbox"/> Loose ice <input type="checkbox"/> Bagged ice <input type="checkbox"/> Blue ice <input type="checkbox"/> None		Coolant Type: <input type="checkbox"/> Loose ice <input type="checkbox"/> Bagged ice <input type="checkbox"/> Blue ice <input type="checkbox"/> None		Coolant Type: <input type="checkbox"/> Loose ice <input type="checkbox"/> Bagged ice <input type="checkbox"/> Blue ice <input type="checkbox"/> None	
Coolant Location: <input checked="" type="checkbox"/> Dispersed / <input type="checkbox"/> Top / <input type="checkbox"/> Middle / <input type="checkbox"/> Bottom		Coolant Location: <input type="checkbox"/> Dispersed / <input type="checkbox"/> Top / <input type="checkbox"/> Middle / <input type="checkbox"/> Bottom		Coolant Location: <input type="checkbox"/> Dispersed / <input type="checkbox"/> Top / <input type="checkbox"/> Middle / <input type="checkbox"/> Bottom		Coolant Location: <input type="checkbox"/> Dispersed / <input type="checkbox"/> Top / <input type="checkbox"/> Middle / <input type="checkbox"/> Bottom	
Temp Blank Present <input type="checkbox"/> Yes <input type="checkbox"/> No		Temp Blank Present <input type="checkbox"/> Yes <input type="checkbox"/> No		Temp Blank Present <input type="checkbox"/> Yes <input type="checkbox"/> No		Temp Blank Present <input type="checkbox"/> Yes <input type="checkbox"/> No	
If Present, Temperature Blank Location is: <input type="checkbox"/> Representative <input type="checkbox"/> Not Representative		If Present, Temperature Blank Location is: <input type="checkbox"/> Representative <input type="checkbox"/> Not Representative		If Present, Temperature Blank Location is: <input type="checkbox"/> Representative <input type="checkbox"/> Not Representative		If Present, Temperature Blank Location is: <input type="checkbox"/> Representative <input type="checkbox"/> Not Representative	
Observed °C	Correction Factor °C	Actual °C	Observed °C	Correction Factor °C	Actual °C	Observed °C	Correction Factor °C
Temp Blank:			Temp Blank:			Temp Blank:	
Sample 1:	<u>13.7</u>	<u>-</u>	<u>13.7</u>			Sample 1:	
Sample 2:	<u>12.0</u>	<u>-</u>	<u>12.0</u>			Sample 2:	
Sample 3:	<u>11.4</u>	<u>-</u>	<u>11.4</u>			Sample 3:	
3 Sample Average °C:		<u>12.4</u>		3 Sample Average °C:		3 Sample Average °C:	
<input type="checkbox"/> Cooler ID on COC?		<input checked="" type="checkbox"/> VOC Trip Blank received?		<input type="checkbox"/> Cooler ID on COC?		<input checked="" type="checkbox"/> VOC Trip Blank received?	

**If any shaded areas checked, complete Sample Receiving Non-Conformance and/or Inventory Form**

**Paperwork Received**

Yes  No  Chain of Custody record(s)? if No, Initiated By \_\_\_\_\_  
 Received for Lab Signoff/Date/Time? \_\_\_\_\_  
 Snipping document?  
 Other \_\_\_\_\_

**COC Information**

TriMatrix COC  Other: 13126  
 COC ID Numbers: \_\_\_\_\_

**Check COC for Accuracy**

Yes  No  Analysis Requested?  
 Sample ID matches COC?  
 Sample Date and Time matches COC?  
 Container type completed on COC?  
 All container types indicated are received?

**Sample Condition Summary**

N/A  Yes  No  Broken containers/sds?  
 Missing or incomplete labels?  
 Illegible information on labels?  
 Low volume received?  
 Inappropriate or non-TriMatrix containers received?  
 VOC vials / TOX containers have headspace?  
 Extra sample locations / containers not listed on COC?

**Check Sample Preservation**

N/A  Yes  No  Temperature Blank OR average sample temperature,  $\pm 6^\circ\text{C}$ ?  
 If either is  $\pm 6^\circ\text{C}$ , was thermal preservation required?  
 If "Yes", Project Chemist Approval Initials: \_\_\_\_\_  
 If "Yes" Completed Non-Con Cooler - Cont Inventory Form?  
 Samples chemically preserved correctly?  
 If "No", added orange tag?  
 Received pre-preserved VOC soils?  
 MeOH  Na<sub>2</sub>SO<sub>4</sub>

**Check for Short Hold-Time Prep/Analyses**

Bacteriological  
 Air Bags  
 EnCores / Methanol Pre-Preserved  
 Formaldehyde/Aldahyde  
 Green-tagged containers  
 Yellow/White-tagged 1 L. Ambers (SV Prep-Lab)

**AFTER HOURS ONLY:**  
 COPIES OF COC TO LAB AREA(S)  
 NONE RECEIVED  
 RECEIVED COCs TO LAB(S)

**Notes**

Trip Blank received  Trip Blank not listed on COC  
 Cooler Received (Date/Time) 8/22/14 1350 Paperwork Delivered (Date/Time) 8/22/14 1418 51 Hour Goal Met? Yes / No

**APPENDIX C**

## Johnson, Brad

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**From:** DoNotReply168812@michigan.gov  
**Sent:** Tuesday, March 26, 2013 5:02 PM  
**To:** Johnson, Brad  
**Subject:** flood or low flow discharge request (ContentID - 168812)

This message has been automatically generated. Thank you for your discharge request. If any information in the confirmation e-mail is in error, please forward the entire email, with corrections, to [DEQ-WRD-QREQ@michigan.gov](mailto:DEQ-WRD-QREQ@michigan.gov), leaving the subject line intact. If you do not receive a confirmation e-mail, we did not receive your e-mail requesting discharge information. Please forward your discharge request information directly to [DEQ-WRD-QREQ@michigan.gov](mailto:DEQ-WRD-QREQ@michigan.gov). The requested discharges will be sent to you via e-mail. Discharge requests are normally processed within 30 days. Please do not call to check on the status of your request if it has been less than 30 days. If you do not hear from us within this time frame, please call Ms. Susan Greiner at 517-241-1210.

Requestor: Bradley S. Johnson  
Company: Golder Associates Inc.  
Address: 15851 South US 27, Suite 50  
City: Lansing, MI  
Zip: 48842  
Phone: 517-318-3250  
Date: March 26, 2013  
Monthly95: Yes  
90DayQ10: Yes  
Lowest95: Yes  
HarmonicMean: Yes  
ContactAgency: GSI (RD, DEQ)  
ContactPerson: Paul Knoerr  
Watercourse: Flat River (on the Belding quad)  
LocalName: none that I know of  
CountyLocation: Ionia  
CityorTownship: Belding  
Section: 11  
Town: 8N  
Range: 8W  
Location: See attached location map - that portion of the Flat River between Ashfield Street and N Bridge Street.  
FFR1: None Selected

attachment: Flat\_River\_Location\_map.pdf

**This reply is being sent via email only.**

We have estimated the low flow discharges requested in your email of March 26, 2013 (Process No.8211), as follows:

Flat River At Bridge Street, NW ¼ of the NW ¼ of Section 11, T8N, R8W, Otisco Township, Ionia County, has a drainage area of 465 square miles. The lowest 95% and 50% exceedance, the Harmonic Mean and 90-day once in 10-year flow (90Q10) are estimated to be 130 cubic feet per second (cfs), 200 cfs, 290 cfs, and 160 cfs, respectively. The 95% exceedance monthly flows are:

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
95%	190	200	260	310	230	160	130	130	140	160	200	210

If you have any questions, please contact Mr. Marlio Lesmez, Water Resources Division, Hydrologic Studies Unit, at 517-335-3173, or by e-mail at: [lesmezm@michigan.gov](mailto:lesmezm@michigan.gov).

Sincerely,

Byron P. Lane, P.E., Chief  
Hydrologic Studies Unit  
Water Resources Division  
517-241-9862

MWL  
cc: , MDEQ (R-22-SW)

**APPENDIX D**



# Remediation and Redevelopment Division

Michigan Department of Environmental Quality

## ATTACHMENT 1 REQUEST TO MDEQ FOR MIXING ZONE-BASED GSI CRITERIA

*Shaded selections of this form should be completed with appropriate information, documentation or narrative to provide the necessary information for the MDEQ to process the request. Original sources of information, if not supplied, should be appended or clearly referenced.*

TO: Paul Knoerr, Project Manager  
Southeast Michigan District, Remediation and Redevelopment Division

FROM: Golder Associates Inc., on behalf of Electrolux Home Products, Inc.

SUBJECT: Request for Mixing Zone-Based Criteria  
Facility Name: *Belding Products* Part 201 Facility ID#: *34000083*  
*Ionia County* County Part 213 Site ID#:

We are requesting mixing zone-based criteria for the above referenced facility, located in the  
NW 1/4 of the NW 1/4 of Section 11, T 8N, R 8W in Ionia County

The facility characteristics include:

1. The name of the receiving surface water body and the location of the venting groundwater contaminant plume:

The receiving water is the Flat River at Bridge Street in Belding, Michigan

This is a  new  increased or  existing loading.

Recreational Use:  Yes  No (if no, provide an explanation of conditions that make recreation use not applicable to site conditions).

**(MAP ATTACHED).**

2. The location, nature, and chemical characteristics of the source of the groundwater contamination plume:

The presence of TCE was discovered in 1989 during decommissioning of the weir for the NPDES discharge. Catch Basin No. 10 (CB-10 on report Figures 2 and 3) was identified as the source of the TCE. Figure 3 in the "Revised Mixing Zone Determination" report shows the locations of wells at the GSI (MW-1, MW-4S and MW-8) containing vinyl chloride above its GSI criterion. Additional background information is provided in the referenced report prepared by Golder Associates on behalf of Electrolux.

3. The name, Chemical Abstract Service (CAS) Number, and worst case maximum concentration of contaminants predicted to reach the groundwater/surface water interface (GSI). Generally the highest concentration of the contaminant found in the groundwater would be appropriate to represent the worst case maximum. If source contaminants have not yet reached the groundwater but are expected to do so, source concentrations should be identified and noted as such. Mixing zone-based GSI criteria will not be developed for contaminants that are not identified as having a reasonable potential to exceed water quality criteria.



Chemical or General Chemistry Parameter	CAS #	Predicted Worst Case Maximum GSI Discharge Concentration	Average Surface Water Conc. Upstream If available
Vinyl Chloride	75014	500 ug/L	unknown

4. The discharge rate of the venting groundwater contaminant plume in cubic feet per second (cfs).

0.26 cfs (see "Revised Mixing Zone Determination" report for calculations)

5. The location of other contaminant plumes entering the receiving surface water body, their constituents and concentrations, if available:

We are not aware of other contaminant plumes entering the receiving surface water

6. If available:

The lowest monthly 95 percent exceedance low flow at the discharge location: 130.00 CFS

The harmonic mean flow at the discharge location: 200.00 CFS

The 90dQ10 flow at the discharge location: 160.00 CFS

source:

MDEQ Low Flow Data Base

Determined by MDEQ Hydrologic Studies Unit (memo attached)

Other

**I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this request and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information**

Authorized Signature

Name

Title

*David M. Chronmy*  
Assistant General Counsel / Electrolux

Authorized signatures:

*For a corporation, a principal executive officer of at least the level of vice president or his designated representative. If the designated representative is responsible for the overall operation of the facility from which the groundwater is venting, the designation of the representative must be in writing from a principal executive officer and provided to the MDEQ*

*For a partnership, a general partner*

*For a sole proprietorship, the proprietor*

*For a state, municipal, or other public facility, either a principal executive officer, the mayor, village president, city or village manager, or other authorized employee designated in writing from a principal executive officer and provided to the MDEQ*

**APPENDIX B**

**Environmental Consultant Affidavit for No Further Action Report**



**ATTACHMENT A**  
**Consultant Qualifications**

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## PERSONNEL

### Bradley S. Johnson, PhD

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#### Education

- Ph.D., Soil Science/Soil Physics, Michigan State University, 1987
- MS, Soil Science, University of Minnesota, 1981
- BS, Biology, University of Minnesota, 1977

#### Specialization

- Environmental Site Assessments
- Hydrogeological studies
- Compliance audits
- Storm water management
- Hydrologic modeling
- Statistical Analysis of Environmental data
- Wetland assessments, delineation, permitting
- Site demolition management

#### Certifications/ Registrations

- OSHA 29 CFR 1920.1020, (e) (8) 8-Hour HAZWOPER Refresher
- Certified Trainer for FRA Track Workers Safety
- e-RAILSAFE Contractor
- OSHA 29 CFR 1926 10 Hour Construction Safety Certification
- U.S. Army Corps of Engineers Wetland Delineation (Certificate No. 247)
- OSHA 29 CFR 1920.1020, (e) (3) 40-Hour HAZWOPER Health & Safety Training

#### Professional Affiliations

- Member, Michigan Manufacturer's Association

Dr. Johnson is a Senior Project Manager with Golder Associates and has been with the firm since 1998. Has approximately 30 years of experience performing field investigations as an agricultural researcher at Michigan State University and during the last 21 years as an environmental consultant. As an environmental consultant, has designed and implemented numerous hydrogeological studies, environmental site assessments, storm water studies, compliance audits, and hydrologic modeling of landfill containment systems. Has evaluated remedial alternatives for cleanup of petroleum-impacted soils and groundwater, and gathered site-specific data to support site closures.

#### Relevant Experience

- Currently managing a site characterization study to gather data and information necessary to engineer, design, permit, and construct a low-permeability cut-off wall at an existing tailings pond in northern Michigan. The site characterization program includes overburden and bedrock drilling and testing programs. The bedrock testing was conducted to assess the stratigraphy, permeability, degree of fracturing, and possible faulting in the bedrock for wall key-in depths and modeling.
- Currently managing remedial assessment of an integrated limestone quarry and cement plant located in southeast Michigan. Remedial actions have been conducted by others at six discrete solid waste disposal areas containing cement kiln dust and at former RCRA hazardous waste management units. The overall objective for the remedial assessment is to prepare the 1,900-acre site for permanent closure by obtaining the additional site characterization data needed at known or suspected areas of concern to prepare an approvable Remedial Action Plan for the entire site.
- Currently managing O&M of a groundwater pump and treatment (P&T) system at a former manufacturing plant located in central Michigan. The groundwater P&T system has been in operation at the site since 1991. The manufacturing plant ceased operations in March 2006 and was demolished in 2007 making it necessary to relocate certain components of the P&T system that were housed within the footprint of the plant. Designed "post-demolition" P&T system modifications including renovations to an existing structure for use as the treatment building, and installation of new treatment equipment (air stripper, control boxes, motor starters, etc.).
- Management and execution of Phase I/II/III ESAs at railroad and manufacturing properties in numerous states.
- Management of a Storm Water System Survey (SWSS) of 300-acre manufacturing facility located in Cleveland, Ohio. The SWSS included confirmation of the storm water collection system network, collection of storm water and sediment samples, hydraulic modeling of storm water flow, evaluation of storm water treatment structures, and preparation of recommendations for system improvements.
- Served as Team Leader for pilot study of a combined "soil gas venting – biofilter treatment system" for remediation of contaminated site involving the Michigan Department of Environmental Quality and the Michigan Biotechnology Institute.

**ATTACHMENT B**  
**Property Tax Identification and Legal Description**

**LEGAL DESCRIPTION OF PROPERTY**  
**Property Tax ID Number 401-050-000-716-00**

LOT 58, AND A PART OF LOT 197 OF SUPERVISOR MOON'S PLAT OF THE CITY OF BELDING, MORE PARTICULARLY DESCRIBED AS: COMMENCING AT THE SOUTHWEST CORNER OF SAID LOT 58; THENCE NORTH 117 FEET TO A POINT ON THE SOUTHERLY BOUNDARY LINE OF LAND HERETOFORE CONVEYED BY BELDING HEMINWAY COMPANY TO FIRST CONTINENTAL CORPORATION BY WARRANTY DEED NOW RECORDED IN THE OFFICE OF THE REGISTER OF DEEDS; THENCE EASTERLY ALONG THE SOUTHERLY BOUNDARY LINE OF SAID FIRST CONTINENTAL CORPORATION LAND 66 FEET MORE OR LESS TO A POINT ON SAID SOUTHERLY BOUNDARY LINE; THENCE SOUTH 117 FEET TO THE SOUTHEAST CORNER OF SAID LOT 58, SUPERVISOR MOON'S PLAT; THENCE WEST 66 FEET MORE OR LESS TO THE PLACE OF BEGINNING.

ALSO LOT 191 AND THE SOUTH PART OF LOT 195 OF SUPERVISOR MOON'S PLAT TO THE CITY OF BELDING, MORE PARTICULARLY DESCRIBED AS: COMMENCING AT A POINT AT THE SOUTHWEST CORNER OF LOT 191; THENCE ALONG THE WESTERLY BOUNDARY LINE OF SAID LOT 191 IF EXTENDED INTO LOT 195, 117 FEET MORE OR LESS TO A POINT WHERE SAID WESTERLY BOUNDARY LINE IF EXTENDED WOULD INTERSECT THE SOUTHERLY BOUNDARY LINE OF LANDS HERETOFORE CONVEYED BY BELDING HEMINWAY COMPANY TO FIRST CONTINENTAL CORPORATION BY WARRANTY DEED NOW RECORDED IN THE OFFICE OF THE REGISTER OF DEEDS FOR IONIA COUNTY; THENCE EASTERLY ALONG THE SOUTHERLY BOUNDARY LINE OF SAID FIRST CONTINENTAL CORPORATION LANDS 66 FEET MORE OR LESS TO A POINT WHERE THE EASTERLY BOUNDARY LINE OF LOT 191 IF EXTENDED INTO LOT 195 WOULD INTERSECT SAID SOUTHERLY BOUNDARY LINE OF SAID FIRST CONTINENTAL CORPORATION LANDS; THENCE SOUTHERLY ALONG THE EASTERLY BOUNDARY LINE OF SAID LOT 191 IF EXTENDED INTO LOT 195, 117 FEET MORE OR LESS TO THE SOUTHERLY BOUNDARY LINE OF SAID LOT 191; THENCE WEST ALONG THE SOUTHERLY BOUNDARY LINE OF SAID LOT 191, 66 FEET MORE OR LESS TO THE PLACE OF BEGINNING.

ALSO LOT 57 OF SUPERVISOR MOON'S FLAT TO THE CITY OF BELDING; AND ALSO THAT PART OF LOT 197 OF SAID SUPERVISOR MOON'S PLAT OF THE CITY OF BELDING, DESCRIBED AS FOLLOWS: COMMENCING AT A POINT ON THE EAST LINE OF BRIDGE STREET IN THE SAID CITY OF BELDING, WHICH SAID POINT IS 117 FEET MORE OR LESS NORTH OF THE SOUTHWEST CORNER OF SAID LOT 57 OF SAID SUPERVISOR MOON'S PLAT WITNESSED BY AN IRON STAKE; THENCE EAST 66 FEET, MORE OR LESS ALONG THE SOUTHERLY BOUNDARY LINE OF LANDS CONVEYED TO FIRST CONTINENTAL CORPORATION AUGUST 8, 1933 BY WARRANTY DEED RECORDED IN THE OFFICE OF THE REGISTER OF DEEDS FOR IONIA COUNTY, MICHIGAN IN LIBER 223 OF DEEDS ON PAGE 107, TO A POINT WHERE THE EAST LINE OF LOT 57, SUPERVISOR MOON'S PLAT, IF PROJECTED INTO SAID LOT 197 OF SAID SUPERVISOR MOON'S PLAT WOULD INTERSECT THE SOUTHERLY BOUNDARY LINE OF SAID LANDS CONVEYED TO SAID FIRST CONTINENTAL CORPORATION AFORESAID; THENCE SOUTH 7 FEET MORE OR LESS ALONG THE EAST LINE OF SAID LOT 57 OF SAID SUPERVISOR MOON'S PLAT IF PROJECTED INTO LOT 197 OF SAID SUPERVISOR MOON'S PLAT TO THE NORTHEAST CORNER OF LOT 57 OF SUPERVISOR MOON'S PLAT; THENCE WEST ALONG THE NORTH LINE OF SAID LOT 57 OF SAID SUPERVISOR MOON'S PLAT TO THE EAST LINE OF BRIDGE STREET; THENCE NORTH 7 FEET, MORE OR LESS TO THE PLACE OF BEGINNING.

ALSO LOT 61 AND A PORTION OF THE SOUTH PART OF LOT 195 OF SUPERVISOR MOON'S PLAT OF THE CITY OF BELDING, ACCORDING TO THE RECORDED PLAT, THE SAME BEING MORE PARTICULARLY DESCRIBED AS: COMMENCING AT THE SOUTHWEST CORNER OF LOT 61 OF SAID SUPERVISOR MOON'S PLAT; THENCE NORTH ALONG THE WESTERLY BOUNDARY LINE OF SAID LOT 61 AND THE EASTERLY BOUNDARY LINE OF LOT 196 OF SAID SUPERVISOR MOON'S PLAT, A TOTAL DISTANCE OF 117 FEET TO A POINT WHERE THE EASTERLY BOUNDARY LINE OF SAID LOT 196 INTERSECTS THE SOUTHERLY BOUNDARY LINE OF PROPERTY HERETOFORE CONVEYED BY BELDING HEMINWAY COMPANY TO FIRST CONTINENTAL CORPORATION BY DEED NOW OF

RECORD IN THE REGISTER OF DEEDS OFFICE FOR IONIA COUNTY; THENCE EAST ALONG THE SOUTHERLY BOUNDARY LINE OF SAID FIRST CONTINENTAL CORPORATION LAND 66 FEET MORE OR LESS TO A POINT; THENCE SOUTH ALONG THE EASTERLY BOUNDARY LINE OF SAID LOT 61 AS PROJECTED NORTHERLY INTO LOT 195 OF SUPERVISOR MOON'S PLAT AND ALONG THE EASTERLY BOUNDARY LINE OF SAID LOT 61 A TOTAL DISTANCE OF 117 FEET MORE OR LESS TO A POINT WHERE THE EASTERLY BOUNDARY LINE OF SAID LOT 61 INTERSECTS THE SOUTHERLY BOUNDARY LINE OF LOT 61; THENCE WESTERLY ALONG THE SOUTHERLY BOUNDARY LINE OF LOT 61; TO THE PLACE OF BEGINNING.

ALSO, LOT 59 OF SUPERVISOR MOON'S PLAT OF THE CITY OF BELDING, AND THAT OF LOT 197 OF SUPERVISOR MOON'S PLAT DESCRIBED AS: COMMENCING AT THE NORTHWEST CORNER OF LOT 59 OF SAID PLAT; THENCE NORTH 7 FEET MORE OR LESS TO A POINT ON THE SOUTH BOUNDARY LINE OF LAND HERETOFORE CONVEYED BY BELDING HEMINWAY COMPANY TO THE FIRST CONTINENTAL CORPORATION BY WARRANTY DEED RECORDED IN LIBER 223 OF DEED AT PAGE 107 IN THE OFFICE OF THE REGISTER OF DEEDS FOR IONIA COUNTY ON AUGUST 16, 1993; THENCE EAST ALONG SAID SOUTHERLY BOUNDARY LINE OF SAID LAND OF SAID FIRST CONTINENTAL CORPORATION AFORESAID, 66 FEET MORE OR LESS TO A POINT ON SAID SOUTHERLY BOUNDARY LINE OF SAID LAND OF FIRST CONTINENTAL CORPORATION WHICH IS 7 FEET MORE OR LESS NORTH OF THE NORTHEAST CORNER OF SAID LOT 59; THENCE SOUTH 7 FEET MORE OR LESS TO THE NORTHEAST CORNER OF SAID LOT 59; THENCE WEST ALONG THE NORTHERLY BOUNDARY LINE OF SAID LOT 59; 66 FEET MORE OR LESS TO THE PLACE OF BEGINNING.

ALSO, LOT 60 OF SUPERVISOR MOON'S PLAT OF THE CITY OF BELDING, ACCORDING TO THE RECORDED PLAT THEREOF, AND THAT PART OF LOT 197 OF SUPERVISOR MOON'S PLAT TO THE CITY OF BELDING, DESCRIBED AS; COMMENCING AT A POINT AT THE NORTHWEST CORNER OF SAID LOT 60 OF SAID PLAT; THENCE NORTH 7 FEET MORE OR LESS TO THE SOUTHERLY BOUNDARY LINE OF LANDS HERETOFORE CONVEYED TO THE FIRST CONTINENTAL CORPORATION BY WARRANTY DEED FROM BELDING HEMINWAY COMPANY IN AUGUST 1933, SAID DEED BEING RECORDED IN THE OFFICE OF THE REGISTER OF DEEDS FOR IONIA COUNTY, IN LIBER 223 PAGE 107; THENCE EASTERLY ALONG THE SOUTHERLY BOUNDARY LINE OF SAID FIRST CONTINENTAL CORPORATION LAND, 66 FEET MORE OR LESS TO A POINT WHERE THE SAID SOUTHERLY BOUNDARY LINE OF SAID FIRST CONTINENTAL CORPORATION LAND INTERSECTS THE EASTERLY BOUNDARY LINE OF LOT 197 OF SUPERVISOR MOON'S PLAT; THENCE SOUTH 7 FEET MORE OR LESS TO THE NORTHEAST CORNER OF LOT 60 OF SUPERVISOR MOON'S PLAT; THENCE WESTERLY 66 FEET MORE OR LESS TO THE PLACE OF BEGINNING.

ALSO, THE SOUTH 117 FEET MORE OR LESS OF LOT 196 OF SUPERVISOR MOON'S PLAT OF THE CITY OF BELDING, MORE PARTICULARLY DESCRIBED AS: COMMENCING AT A POINT AT THE SOUTHEAST CORNER OF LOT 60 SAID SUPERVISOR MOON'S PLAT ; THENCE NORTH 117 FEET MORE OR LESS ALONG THE EASTERLY BOUNDARY LINE OF LOT 60 OF SUPERVISOR MOON'S PLAT AND THE EASTERLY BOUNDARY OF LOT 197 OF SUPERVISOR MOON'S PLAT TO A POINT THEREON WHERE THE SAME INTERSECTS THE SOUTHERLY BOUNDARY LINE OF LAND HERETOFORE CONVEYED BY BELDING HEMINWAY COMPANY TO FIRST CONTINENTAL CORPORATION BY WARRANTY DEED RECORDED IN LIBER 223 OF DEED AT PAGE 107 IN THE OFFICE OF THE REGISTER OF DEEDS FOR IONIA COUNTY ON AUGUST 16, 1933; THENCE EAST ALONG SAID SOUTHERLY BOUNDARY LINE OF FIRST CONTINENTAL CORPORATION LAND 66 FEET MORE OR LESS TO A POINT WHERE SAID SOUTHERLY BOUNDARY LINE INTERSECTS THE EASTERLY BOUNDARY LINE OF LOT 196; THENCE SOUTH ALONG THE EASTERLY BOUNDARY LINE OF LOT 196, 117 FEET MORE OR LESS TO THE SOUTHERLY BOUNDARY LINE OF LOT 196; THENCE WEST ALONG THE SOUTHERLY BOUNDARY LINE OF SAID LOT 196, 66 FEET MORE OR LESS TO THE PLACE OF BEGINNING. ALL OF THE ABOVE DESCRIBED PROPERTY BEING RECORDED IN THE REGISTER OF DEEDS OFFICE, FOR IONIA COUNTY, MICHIGAN IN LIBER 1 OF PLATS PAGE 60. SUBJECT TO WAREHOUSE LEASES RECORDED IN LIBER 327 ON PAGE 287 AND LIBER 328 ON PAGE 172, IONIA COUNTY RECORDS.

ALSO, COMMENCING AT AN IRON STAKE SET IN THE EASTERLY LINE OF BRIDGE STREET IN THE

CITY OF BELDING, MICHIGAN, WHICH SAID IRON STAKE IS 362 FEET NORTHERLY ALONG THE EAST LINE OF BRIDGE STREET IN THE SAID CITY OF BELDING, MICHIGAN FROM THE SOUTHWEST CORNER OF LOT 57 OF SUPERVISOR MOON'S PLAT OF THE VILLAGE (NOW CITY) OF BELDING; THENCE SOUTH 82 DEG 25' EAST 70 FEET TO AN IRON STAKE; THENCE SOUTH 69 DEG 35' EAST 90 FEET TO AN IRON STAKE; THENCE SOUTH 75 DEG 40' EAST 28.5 FEET TO AN IRON STAKE; THENCE SOUTH 84 DEG 25' EAST 46 FEET TO AN IRON STAKE; THENCE DUE EAST 126.5 FEET, MORE OR LESS TO THE HIGH WATER LINE ON THE SOUTHERLY BANK OF FLAT RIVER IN THE CITY OF BELDING; THENCE IN A NORTHWESTERLY DIRECTION FOLLOWING THE HIGH WATER LINE ALONG THE SOUTHERLY BANK OF FLAT RIVER IN THE CITY OF BELDING TO THE INTERSECTION OF SAID HIGH WATER LINE WITH A POINT ON THE SOUTHERLY BOUNDARY LINE OF THE PERE MARQUETTE RAILROAD COMPANY RIGHT-OF-WAY AS DEFINED IN THOSE TWO CERTAIN DEEDS NOW RECORDED IN THE REGISTER OF DEEDS FOR IONIA COUNTY IN LIBER 108 OF DEEDS, PAGE 355 AND LIBER 182; PAGE 585 OF DEEDS; THENCE FOLLOWING THE SOUTHERLY BOUNDARY LINE OF SAID RIGHT-OF-WAY OF SAID PERE MARQUETTE RAILWAY COMPANY AS DEFINED IN SAID DEEDS LAST AFORESAID TO A POINT ON THE EASTERLY LINE OF BRIDGE STREET, IN SAID CITY OF BELDING, MICHIGAN WHERE THE SAID SOUTHERLY BOUNDARY LINE OF SAID RIGHT-OF-WAY INTERSECTS SAID EASTERLY LINE OF BRIDGE STREET IN SAID CITY OF BELDING, MICHIGAN, THENCE SOUTHERLY ALONG THE EASTERLY LINE OF BRIDGE STREET IN THE SAID CITY OF BELDING, MICHIGAN 8 FEET TO THE PLACE OF BEGINNING, IN TOWN 8 NORTH, RANGE 8 WEST. SUBJECT TO FLOWAGE, BOOMAGE AND WATER RIGHT AS ESTABLISHED BY DECREE RECORDED IN LIBER 227 OF DEEDS ON PAGE 35, IONIA COUNTY RECORDS.

ALSO, PARTS OF LOTS 195, 196, 197, 199 AND ALL OF LOTS 198, 53, 54, 55 AND 56 OF SUPERVISOR MOON'S PLAT OF THE VILLAGE, NOW CITY OF BELDING, IONIA COUNTY AND STATE OF MICHIGAN WHICH SAID PLAT IS NOW RECORDED IN THE OFFICE OF THE REGISTER OF DEEDS FOR IONIA COUNTY, MICHIGAN AND MORE PARTICULARLY DESCRIBED AS: COMMENCING AT A POINT ON THE EAST LINE OF BRIDGE STREET IN THE CITY OF BELDING, 7 FEET NORTH OF THE SOUTHWEST CORNER OF LOT 197 OF SUPERVISOR MOON'S PLAT; THENCE NORTH ON THE EAST LINE OF BRIDGE STREET 245 FEET TO A POINT ON THE EAST LINE OF BRIDGE STREET; THENCE SOUTH 82 DEG 25' EAST 70 FEET; THENCE SOUTH 69 DEG 35' EAST 90 FEET; THENCE SOUTH 75 DEG 40' EAST 28.5 FEET; THENCE SOUTH 84 DEG 25' EAST 46 FEET; THENCE EAST 126.5 FEET MORE OR LESS TO THE HIGH WATER LINE ON THE SOUTHERLY BANK OF FLAT RIVER IN THE CITY OF BELDING; THENCE SOUTHEASTERLY FOLLOWING THE HIGH WATER LINE ALONG THE SOUTHERLY BANK OF FLAT RIVER IN THE CITY OF BELDING 235.4 FEET MORE OR LESS TO A POINT THAT IS 7 FEET NORTH AND 36 FEET EAST OF THE NORTHWEST CORNER OF LOT 193 SUPERVISOR MOON'S PLAT; THENCE WEST 564 FEET TO THE PLACE OF BEGINNING, IN TOWN 8 NORTH, RANGE 8 WEST, SUBJECT TO FLOWAGE, BOOMAGE AND WATER RIGHTS ESTABLISHED BY DECREE RECORDED IN LIBER 227 OF DEEDS ON PAGE 35, IONIA COUNTY RECORDS.

ALSO, COMMENCING AT A POINT 101.057 FEET NORTH OF THE SOUTHWEST CORNER OF LOT 192 OF SUPERVISOR MOON'S PLAT TO THE CITY OF BELDING, SECTION 10 TOWN 8 NORTH, RANGE 8 WEST; THENCE NORTH 15.943 FEET ALONG THE WEST LINE AND THE EXTENSION THEREOF, OF SAID LOT 192 TO A POINT 117 FEET NORTH OF THE SOUTHWEST CORNER OF SAID LOT 192; THENCE EAST AND PARALLEL WITH THE NORTH LOT LINE OF SAID LOT 192, A DISTANCE OF 33.66 FEET; THENCE IN A SOUTHWESTERLY DIRECTION A DISTANCE OF 37.2 FEET MORE OR LESS TO THE POINT OF BEGINNING.

**APPENDIX C**

**Golder Associates Inc. Certificate of Insurance**



# CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)  
4/30/2014

**THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.**

**IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).**

<b>PRODUCER</b> Commercial Lines - (404) 923-3700 Wells Fargo Insurance Services USA, Inc. 3475 Piedmont Road NE, Suite 800 Atlanta, GA 30305-2886	<b>CONTACT NAME:</b> Shelley C. Taylor <b>PHONE (A/C, No, Ext):</b> (404) 923-3642 <b>FAX (A/C, No):</b> (877) 362-9069 <b>E-MAIL ADDRESS:</b> shelley.taylor@wellsfargo.com														
<b>INSURED</b> Golder Associates Inc. (GAI) Attn: Rita Rasor 3730 Chamblee Tucker Road Atlanta, GA 30341	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">INSURER(S) AFFORDING COVERAGE</th> <th style="text-align: center;">NAIC #</th> </tr> </thead> <tbody> <tr> <td>INSURER A : Zurich American Insurance Co</td> <td style="text-align: center;">16535</td> </tr> <tr> <td>INSURER B : American Zurich Insurance Company</td> <td style="text-align: center;">40142</td> </tr> <tr> <td>INSURER C : Steadfast Insurance Company</td> <td style="text-align: center;">26387</td> </tr> <tr> <td>INSURER D :</td> <td></td> </tr> <tr> <td>INSURER E :</td> <td></td> </tr> <tr> <td>INSURER F :</td> <td></td> </tr> </tbody> </table>	INSURER(S) AFFORDING COVERAGE	NAIC #	INSURER A : Zurich American Insurance Co	16535	INSURER B : American Zurich Insurance Company	40142	INSURER C : Steadfast Insurance Company	26387	INSURER D :		INSURER E :		INSURER F :	
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INSURER E :															
INSURER F :															

**COVERAGES**
**CERTIFICATE NUMBER: 7664131**
**REVISION NUMBER: See below**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	<input checked="" type="checkbox"/> <b>COMMERCIAL GENERAL LIABILITY</b> <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR  GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC OTHER:			GLO539392111	05/01/2014	05/01/2015	EACH OCCURRENCE \$ 1,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 1,000,000 MED EXP (Any one person) \$ 5,000 PERSONAL & ADV INJURY \$ 1,000,000 GENERAL AGGREGATE \$ 2,000,000 PRODUCTS - COMP/OP AGG \$ 2,000,000 \$
B	<input checked="" type="checkbox"/> <b>AUTOMOBILE LIABILITY</b> <input checked="" type="checkbox"/> ANY AUTO ALL OWNED AUTOS <input type="checkbox"/> SCHEDULED AUTOS <input checked="" type="checkbox"/> HIRED AUTOS <input checked="" type="checkbox"/> NON-OWNED AUTOS			BAP539392011	05/01/2014	05/01/2015	COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$ \$
	<input type="checkbox"/> <b>UMBRELLA LIAB</b> <input type="checkbox"/> OCCUR <input type="checkbox"/> <b>EXCESS LIAB</b> <input type="checkbox"/> CLAIMS-MADE DED    RETENTION \$						EACH OCCURRENCE \$ AGGREGATE \$ \$
A	<b>WORKERS COMPENSATION AND EMPLOYERS' LIABILITY</b> ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	Y/N <input checked="" type="checkbox"/> N	N/A	WC539391712	05/01/2014	05/01/2015	<input checked="" type="checkbox"/> PER STATUTE <input type="checkbox"/> OTH-ER E.L. EACH ACCIDENT \$ 1,000,000 E.L. DISEASE - EA EMPLOYEE \$ 1,000,000 E.L. DISEASE - POLICY LIMIT \$ 1,000,000
C	Professional Liability			EEC589909601	05/01/2014	05/01/2015	\$1,000,000 Per Claim \$3,000,000 Aggregate

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

Evidence of Insurance

**CERTIFICATE HOLDER**
**CANCELLATION**

Golder Associates Inc. 3730 Chamblee Tucker Road Atlanta GA 30341	<p>SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.</p> <p>AUTHORIZED REPRESENTATIVE</p> <p style="text-align: center;"><i>Jeanne Bruden</i></p>
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