Site Name: Electrolux Home Products, Inc., Jefferson

Pre-Remedial Initial Site Screening (ISS)

Project Manager: John Woodland

DRAFT

Date: May 19, 2011

Summarize the site history (past usages, past ownerships, wastes, known or suspected contamination pathways such as tanks, septic tank/tile field, lagoon, land applications, S.W. burial, etc)

The Electrolux Home Products, Inc. (Electrolux) site, spill number 050311-AHB-0948 is located at 601 East Central Street in Jefferson, Iowa. The site was developed in 1960 to manufacture dishwasher motor transmissions. Historical activities at the site included machining, heat treating, degreasing, metal fabrication, powder coating, warehousing, and testing of washing machine transmissions. Electrolux closed the plant in March 2011 and has since decommissioned and removed the manufacturing equipment from the site buildings.

Electrolux used five underground storage tanks (USTs) to store petroleum products, which include cooling oil, used oil, and hydraulic oil. Electrolux removed and/or closed in place all five USTs in the mid to late 1980s and 1990. On January 11, 1991, Electrolux received a No Further Action letter from IDNR regarding the UST removal activities performed in 1990.

The facility had two former aboveground degreasers and one solvent aboveground storage tank (AST). The solvent AST was located in a small building on the western side of the main site building. Multiple machine pits and trenches exist within the former manufacturing area.

Briefly describe the site assessment that was conducted (number of borings, monitoring wells, number of samples, depth of soil samples and monitoring wells, analysis, etc.)

On November 20 and 21, 2011, ten soil borings (MW-1 through MW-9 and boring GP-01) were advanced on the property. One soil boring (GP-01) was advanced to an approximate depth of 30 feet below ground surface (bgs). Borings MW-1 through MW-9 were advanced to depths ranging from 9 to 15 feet bgs for monitoring well installation.

Following the lithologic description, GP-01 was abandoned. Soil samples collected from MW-1 through MW-9 were field screened for the presence of volatile organic compounds (VOCs) using a photoionization detector. VOCs were not detected in soil samples MW-1 through MW-9 and therefore, these soil samples were not submitted for laboratory analysis.

On March 29 and 30, 2011, fifteen additional soil borings (MW-10 through MW-23 and MW-21A) were advanced on the site property. Borings MW-10 through MW-23 were advanced to depths ranging between 8.4 to 14.5 feet bgs for monitoring well installation. One soil sample, was collected just above the water table, from each boring along the southern manufacturing boundary (MW-10 through MW-14) for laboratory analysis. Soil samples were collected continuously from each boring advanced adjacent to the site building for laboratory analysis (i.e., five soil samples per boring: MW-15 through MW-23 and MW-21A). Boring MW-21A was abandoned after collecting the soil samples.

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RCRA

The soil samples were submitted for laboratory analysis of VOCs, total extractable hydrocarbons (TEH), total petroleum hydrocarbons (TPH) as gasoline, oil and grease, and eight Resource Conservation and Recovery Act (RCRA) metals (i.e., arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver). One soil sample from each boring was also analyzed for polychlorinated biphenyls (PCBs).

Monitoring wells were installed in soil borings MW-1 through MW-9 and soil borings MW-10 through MW-23. Groundwater samples were collected from wells MW-5, MW-6, MW-7, MW-9, MW-11 through MW-13 and MW-15 through MW-23. Water levels could not be measured or groundwater samples collected from monitoring wells MW-10 and MW-14 due to standing water over the wells. Groundwater was encountered in the remaining wells between 1.07 to 8.25 feet bgs.

Groundwater samples were submitted for analysis of VOCs and TEHs. One groundwater sample was collected from monitoring well MW-21 for analysis of PCBs.

Summarize the findings and conclusions regarding the contaminants found and their extent and concentrations. Relate those values to known criteria such as statewide standards, MCLs, water quality standards, background levels or other benchmarks used to determine site priority.

The soil analytical results are provided in Appendix A, Table 1. Key findings include the following:

- No TEH, VOCs, or TPH gasoline constituents were detected in soil samples collected from the soil borings advanced along the southern manufacturing boundary of the site (MW-10, MW-11, MW-12, MW-13, and MW-14) at concentrations above the laboratory reporting limits. Barium, chromium, lead and arsenic were detected at concentrations consistent with background conditions and oil and grease concentrations at less than 170 milligrams per kilogram (mg/kg).
- Mercury was detected at concentrations just above the laboratory reporting limits in soil samples collected from MW-16, MW-20, MW-21, MW-21A, MW-22, and MW-23. Arsenic, barium, chromium, and lead were detected at concentrations above the laboratory reporting limits at concentrations consistent with background concentrations.
- TPH as gasoline was detected in soil samples collected from soil borings MW-19, MW-21, MW-21A, and MW-22 at concentrations above the laboratory reporting limits. The highest TPH gasoline concentrations were detected in samples collected from the five to ten foot depth interval. The TPH gasoline concentrations decreased with depth and were non-detect in samples collected below 10 feet bgs with the exception of MW-21 (15.3 mg/kg) at 10-12 feet bgs. There are currently no statewide standards for TPH constituents.
- Oil and grease were detected at concentrations above the laboratory reporting limits in most of the soil samples and detected at the highest concentrations (i.e., above 1,000 mg/kg) in soil samples collected from borings MW-17, MW-21, MW-21A, and MW-23. There are currently no statewide standards for oil and grease.
- TEH as diesel was detected above the Iowa Tier 1 Look-Up Table, Soil Leaching to Groundwater of 3800 mg/kg in MW-21 at a concentration of 6,150 mg/kg.

- Chlorinated volatile organic compounds (CVOCs) including trichloroethene (TCE) and 1,1,1 trichloroethane (1,1,1-TCA) were detected in all the soil borings located adjacent to the south side of the site building. The highest detected concentrations of TCE and 1,1,1-TCA were located on the southeastern corner of the manufacturing building (i.e., MW-15, MW-16, MW-17, MW-18, and MW-19). TCE was detected in a soil sample from boring MW-19 (10-12' bgs) at a concentration of 159,000 ug/kg. The statewide standard for TCE in soil is 7,700 ug/kg.
- PCBs were not detected in any of the analyzed soil samples at concentrations above the laboratory reporting limits.

The groundwater analytical results are provided in Appendix A, Table 2. Compounds detected at concentrations above IDNR Statewide Standards for a Protected Groundwater Source are shown in bold. Key findings include the following:

- No VOCs were detected in groundwater samples collected from the monitoring wells installed along the southern manufacturing boundary of the site (MW-5, MW-6, MW-9, MW-11, and MW-13) at concentrations above the laboratory reporting limits with the exception of MW-7 where 1,1,1-TCA and 1,1-dichloroethane (1,1-DCA) were detected at concentrations above the laboratory reporting limits, but below statewide standards.
- TCE was detected at concentrations above the statewide standard of 5 ug/L in groundwater samples collected from monitoring wells along the southeastern corner of the site building (MW-15, MW-16, MW-17, MW-18, MW-19, and MW-20). The highest concentration of TCE was detected in MW-19 at a concentration of 189,000 ug/L.
- Other chlorinated VOCs detected at concentrations above their respective statewide standards include:
    - 1,1,1-Trichloroethane
    - 1,1,2-Trichloroethane;
    - 1,1-dichloroethene;
    - 1,2-dichloroethane;
    - Vinyl chloride;
    - Cis-1,2-dichloroethene;
    - Tetrachloroethene (PCE).
- Elevated TEH as diesel and TEH as waste oil (motor oil) concentrations were detected above the Iowa Tier 1 Look-Up Table, Groundwater Ingestion Actual in wells MW-9, MW-21, MW-22, and MW-23. The standards for TEH as diesel and TEH as waste oil (motor oil) are 1200 ug/L and 400 ug/L, respectively. The highest concentrations of TEH as diesel and TEH as waste oil (motor oil) were detected in MW-21 at 36,000 ug/L and 65,700 ug/L, respectively. TEH as gasoline was also detected at elevated levels in several of the wells. There is no statewide standard for TEH as gasoline in groundwater.
- PCBs were not detected in the groundwater sample collected from MW-21 at concentrations above the laboratory reporting limits.

Identify on-site or off-site potential and actual targets (e.g., municipal wells, private wells, drinking water intakes). What is known of the neighboring area, i.e., are there residences, businesses, public use areas, etc.? Are there utility lines that could be impacted by site contaminants? Identify any other use/location issues that deserve consideration.

There are no wells located on the site and no wells within a quarter-mile radius. Within a half-mile radius, the is one shallow well (exact depth unknown) used for a residential heat pump and one plugged well.

Rate the site on a scale of 1 to 4, in decreasing order of severity or priority.
2

Summarize the reasoning, knowledge or any other information used in determining your recommendation regarding the priority assigned to this site.

TEH as diesel was detected in a soil sample collected from boring MW-21(5 to 10 feet bgs) at a concentration of 6,150 mg/kg. The Iowa Tier 1 Look-Up Table, Soil Leaching to Groundwater standard is 3800 mg/kg. This soil sample was taken within the groundwater table.

TCE was detected in a soil sample collected from boring MW-19 (10 to 12 feet bgs) at a concentration of 159,000 ug/kg. The statewide standard for TCE in soil is 7,700 ug/kg. This soil sample was taken within the groundwater table.

TEH as diesel was detected above the Iowa Tier 1 Look-Up Table, Groundwater Ingestion Actual of 1200 ug/L in groundwater collected from the following wells:
MW-9; 1,390 ug/L
MW-21; 36,000 ug/L
MW-22; 10,300 ug/L
MW-23; 3,120 ug/L

TEH as waste oil (motor oil) was detected above the Iowa Tier 1 Look-Up Table, Groundwater Ingestion Actual of 400 ug/L in groundwater collected from the following wells:
MW-9; 514 ug/L
MW-21; 65,700 ug/L
MW-22; 1,240 ug/L
MW-23; 440 ug/L

1,1,1-Trichloroethane was detected above the IDNR Statewide Standard for a Protected Groundwater Source of 200 ug/L in groundwater collected from the following wells:
MW-19; 4,590 ug/L
MW-21; 483 ug/L

1,1,2-Trichloroethane was detected above the IDNR Statewide Standard for a Protected Groundwater Source of 5.00 ug/L in groundwater collected from MW-19 at a concentration of 35.1 ug/L.

1,1-Dichloroethane was detected above the IDNR Statewide Standard for a Protected Groundwater Source of 140 ug/L in groundwater from MW-22 at a concentration of 292 ug/L.

1,1-Dichloroethene was detected above the IDNR Statewide Standard for a Protected Groundwater Source of 7.00 ug/L in groundwater collected from MW-19 at a concentration of 3,750 ug/L.

1,2-Dichloroethane was detected above the IDNR Statewide Standard for a Protected Groundwater Source of 5.00 ug/L in groundwater collected from MW-19 at a concentration of 8.91 ug/L.

cis-1,2-Dichloroethene was detected above the IDNR Statewide Standard for a Protected Groundwater Source of 70 ug/L in groundwater collected from MW-19 at a concentration of 120 ug/L.

Tetrachloroethene (PCE) was detected above the IDNR Statewide Standard for a Protected Groundwater Source of 5.00 ug/L in groundwater collected from MW-19 at a concentration of 548 ug/L.

Trichloroethene was detected above the IDNR Statewide Standard for a Protected Groundwater Source of 5.00 ug/L in groundwater collected from the following wells:
MW-16; 223 ug/L
MW-17; 11.2 ug/L
MW-18; 76.3 ug/L
MW-19; 189,000 ug/L
MW-20; 13.3 ug/L

Vinyl Chloride was detected above the IDNR Statewide Standard for a Protected Groundwater Source of 2.00 ug/L in groundwater collected from MW-22 at a concentration of 3.64 ug/L.

Some of the contaminants detected appear to present a significant risk at this time.

Site recommended for:

- ☐ No further action
- ☐ Additional investigation under state program (activity code 2824)
- ☐ Additional investigation under CERCLA (Extended Site Screening)
- ☐ Additional investigation by responsible party
- ☐ Transfer to LUST/UST

Form Reviewed: _____ **Date Reviewed:** _____

Appendix A, Summaries of Detected Contaminants in Soil and Groundwater

May 13, 2011 Project No.: 103-87305

Mr. Cal Lundberg, Supervisor
Iowa Department of Natural Resources
502 E. 9th Street
Des Moines, Iowa 50319-0034

RE: FORMER ELECTROLUX MANUFACTURING FACILITY
601 EAST CENTRAL STREET
JEFFERSON, IOWA
INCIDENT NO.: 050311-AHB-0948

Dear Mr. Lundberg:

In follow-up to our conversation on May 3, 2011, Golder Associates Inc. (Golder), on behalf of Electrolux Home Products, Inc. (Electrolux), is submitting this letter report summarizing Site operational history, geologic and hydrogeologic information, and the findings of our recent soil and groundwater sampling activities at the former Electrolux manufacturing facility located at 601 East Central Street in Jefferson, Iowa (Site) (see Figure 1). The properties surrounding the Site are shown in Figure 2.

BACKGROUND

The approximately 20.75 acre Site is improved by an approximate 75,542 square-foot single-story former manufacturing/office/warehouse building built in 1960, with additions constructed in 1973, 1980, 1988, and 1992 (see Figure 3). The building, located in the northwest corner of the Site, is currently vacant and scheduled for demolition later this year. The area of the Site formerly used for manufacturing encompasses approximately 40 percent of the property owned by Electrolux. The remainder of the property, south and west of the Site building, is leased for agricultural use as shown in Figure 2.

Electrolux's predecessor, White Consolidated Industries, developed the Site in 1960 to manufacture dishwasher motor transmissions. Historical activities at the Site included machining, heat treating, degreasing, metal fabrication, powder coating, warehousing, and testing of washing machine transmissions. Electrolux closed the plant in March 2011 and has since decommissioned and removed the manufacturing equipment and other items from the Site buildings.

Site records indicate that Electrolux used five underground storage tanks (USTs), registered with IDNR (registration No.: 198603490), to store petroleum products including cooling oil, used oil, and hydraulic oil. Electrolux removed and/or closed in place all five USTs in the mid to late 1980s and 1990. On January 11, 1991, Electrolux received a No Further Action letter from IDNR regarding the UST removal activities performed in 1990. There are no records indicating a release occurred from the closed-in-place and/or removed USTs.

According to Site personnel, the facility had two former aboveground degreasers and one solvent aboveground storage tank (AST). The solvent AST was located in a small building located on the western side of the main Site building. Multiple machine pits and trenches exist within the former manufacturing area.

According to the Greene County Assessor's Office, the Site is currently referenced as Parcel Pin # 11-05-400-007 and is currently serviced by municipal sewer, natural gas (propane tank), electricity, telephone,

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and municipal water as shown in Figure 3. The building was constructed with a slab-on-grade concrete floor, with sub-grade machine pits and trenches, metal walls, and a metal truss roof.

Properties immediately adjacent to the Site include (see Figure 2):

- North: East Central Street and further north, agricultural fields.
- East: Agricultural fields.
- West: A railroad spur servicing a feed grain company located north of the Site and further west, North Cedar Street containing a few residential properties.
- South: Railroad tracks and agricultural fields.

SITE ASSESSMENT ACTIVITIES

In conjunction with the closure of the manufacturing operations, Electrolux commissioned Golder to review the Site history and develop a preliminary assessment plan to evaluate subsurface conditions downgradient and exterior of the Site building. Golder performed the assessment scope of services in two phases including:

1. Groundwater Flow Direction Assessment: Golder advanced ten boreholes and installed nine monitoring wells to assess groundwater flow direction across the developed portion of the Site in November and December 2010.

2. Soil and Groundwater Assessment: Golder assessed soil and groundwater conditions downgradient and exterior of the Site building in March and April 2011.

A summary of the field procedures and assessment findings are provided below.

GROUNDWATER FLOW DIRECTION ASSESSMENT

Boring Program

Golder commissioned Matrix Environmental, LLC of Osseo, Minnesota (Matrix) to advance ten soil borings (designated MW-1 through MW-9 and boring GP-01) at the locations shown in Figure 3. Matrix used a truck-mounted Geoprobe® Direct Push Technology (DPT) rig to push and pneumatically hammer one soil boring (GP-01) to an approximate depth of 30 feet below ground surface (ft bgs) to develop a lithologic profile and the remainder of the borings (MW-1 through MW-9) to depths ranging from 9 to 15 ft bgs for monitoring well installation. Golder collected continuous soil samples from the ground surface or approximate base of the asphalt pavement, in 5-foot intervals, to the bottom of each boring. Following the lithologic description, Matrix abandoned GP-01 using a Portland cement/bentonite grout. The soil boring logs are provided in Appendix A.

Golder collected composite soil samples from each five-foot sample interval, placed the soil samples in 16-ounce glass containers, covered the jars with aluminum foil, and allowed the samples to equilibrate to approximately 60 to 70 degrees Fahrenheit to permit volatilization of volatile organic compounds (VOCs), if present. Golder field screened the soil samples for the presence of VOCs using a Photovac Microtip organic vapor analyzer (OVA) equipped with a photoionization detector (PID) with a 10.6 eV lamp. Golder calibrated the PID in accordance with the manufacturer's specifications to a 100 parts per million (ppm) isobutylene reference gas at least once a day. Golder did not detect any VOCs in the soil samples and therefore, did not submit any soil samples for laboratory analysis.

Monitoring Well Installation and Groundwater Flow Determination

Matrix installed monitoring wells in soil borings MW-1 through MW-9 at the locations shown in Figure 3. Matrix constructed the wells using 1.5-inch diameter polyvinyl chloride (PVC) pipe with five feet of 0.01-inch slotted pre-packed screen. Matrix completed the monitoring wells by adding sand into the borehole

and placing an approximate two-foot-thick bentonite seal to reduce the potential for impacts from surface runoff. The monitoring well construction details are summarized in Table 1 and the borehole/monitoring well logs area provided in Appendix A.

Golder commissioned JEO Consulting Group, Inc. (JEO) of Carroll, Iowa, a licensed surveyor, to survey top of casing elevations and ground surface elevation of the nine newly installed monitoring wells and the ground surface at GP-1. The JEO survey is based on the Iowa State Plane North 1401 Coordinate System and the vertical datum is North American Vertical Datum (NAVD) 88. JEO personnel surveyed the points of interest to a vertical accuracy of 0.01 foot. Golder used these data in its evaluation of Site groundwater flow direction.

Golder measured depth-to-water levels relative to the top-of-casing in each of the newly-installed wells approximately 12 days after well installation on December 3, 2010. During installation of the monitoring wells, Golder noted that recharge into the monitoring wells was very slow (e.g., in some wells only a few inches of water entered the well over a three-day period). Golder calculated the groundwater elevation measured at each monitoring well by subtracting the measured depth to groundwater from the elevation of the top-of-casing in each respective well. The water table elevation measurements are provided in Table 2.

Geologic and Hydrogeologic Conditions

During advancement of the 10 soil borings, Golder observed a soft to stiff, light olive gray to gray/dark gray sandy clay, with trace gravel. The sandy clay had intermittent thin (i.e. 0.25 to 1-inch) sand seams at several locations. The moisture content of the clay was dependent on the density of the clay (i.e., the softer the clay the higher the water content). Golder did not encounter bedrock during this assessment program.

Figure 4 presents an interpreted groundwater elevation contour map based on water levels measured in March 2011 which indicates that shallow groundwater flows towards the south.

SOIL AND GROUNDWATER ASSESSMENT

Boring Program

Golder commissioned Matrix to advance 15 additional soil borings (designated MW-10 through MW-23 and boring MW-21A) at the locations shown in Figure 3 in March 2011. Matrix and Golder personnel used similar boring and well installation methods as described above.

Golder selected one soil sample, just above the water table, from each boring along the southern manufacturing boundary (MW-10 through MW-14) for laboratory analysis. Golder submitted the soil samples to TestAmerica in Cedar Falls, Iowa for analysis of VOCs using EPA Method 8260B, Total Extractable Hydrocarbons (TEH) using Iowa Method OA-2, Total Petroleum Hydrocarbons (TPH) gasoline using Iowa Method OA-1, oil and grease using EPA Method 1664A, and eight Resource Conservation and Recovery Act (RCRA) metals (i.e., arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver) using EPA Methods 6010B, 7060S (arsenic), and 7471A (mercury).

Golder collected continuous soil samples from each boring advanced adjacent to the Site building for laboratory analysis (i.e., approximately five soil samples per boring – MW-15 through MW-23 and MW-21A). Golder submitted the soil samples to TestAmerica for the same analyses listed above. One soil sample from each boring was also analyzed for polychlorinated biphenyls (PCBs) using EPA Method 8082. Matrix abandoned boring MW-21A using a Portland cement/bentonite grout after collecting the soil samples.

Monitoring Well and Groundwater Monitoring Program

Matrix installed monitoring wells in soil borings MW-10 through MW-23 at the locations shown in Figure 3. Matrix constructed the wells using 1.5-inch diameter PVC pipe with ten feet of 0.01-inch slotted pre-

packed screen. Matrix completed the monitoring wells by adding sand into the borehole and placing an approximate one-foot-thick bentonite seal to reduce the potential for impacts from surface runoff. The monitoring well construction details are summarized in Table 1 and the borehole/monitoring well logs area provided in Appendix A.

After allowing groundwater to equilibrate for approximately two weeks following well installation, Golder collected groundwater samples from the 12 newly-installed monitoring wells and from the four previously-installed monitoring wells located along the southern manufacturing boundary (MW-5, MW-6, MW-7, and MW-9). Golder was unable to measure water levels or collect groundwater samples from monitoring wells MW-10 and MW-14 due to ponded water over the wells. After measuring the water level in each accessible well, Golder used a peristaltic pump and dedicated polyethylene and silicon tubing to purge and collect groundwater samples from the wells using low-flow sampling techniques. Golder monitored water quality parameters during well purging activities including temperature, specific conductivity, pH, and dissolved oxygen. Groundwater samples were collected following the stabilization of field water quality parameters (to within 10 percent of the previous two readings) or after groundwater recharged the well.

Golder submitted the groundwater samples to TestAmerica for analysis of VOCs using EPA Method 8260B and for TEH using Iowa Method OA-2. Golder also collected one groundwater sample from monitoring well MW-21 for analysis of PCBs and submitted trip blanks for VOC analysis. The laboratory analytical report is presented in Appendix B.

Golder commissioned JEO to survey top of casing elevations and ground surface elevation of the 14 newly-installed monitoring wells and the ground surface at MW-21A.

Subsurface Assessment Findings

Soil Analytical Results

The soil analytical results are provided in Table 3. Key findings include the following:

- No TEH, VOCs, or TPH gasoline constituents were detected in soil samples collected from the soil borings advanced along the southern manufacturing boundary of the Site (MW-10, MW-11, MW-12, MW-13, and MW-14) at concentrations above the laboratory reporting limits. Certain metals were detected at concentrations consistent with background conditions and oil and grease concentrations at less than 170 milligrams per kilogram (mg/kg).
- Mercury was detected at concentrations just above the laboratory reporting limits in soil samples collected from MW-16, MW-20, MW-21, MW-21A, MW-22, and MW-23. Arsenic, barium, chromium, and lead were detected at concentrations above the laboratory reporting limits at concentrations consistent with background concentrations.
- TPH as gasoline was detected in soil samples collected from soil borings MW-19, MW-21, MW-21A, and MW-22 at concentrations above the laboratory reporting limits. The highest TPH gasoline concentrations were detected in samples collected from the five to ten foot depth interval. The TPH gasoline concentrations decreased with depth and were non-detect in samples collected below 10 ft bgs with the exception of MW-21 (15.3 mg/kg) at 10-12 ft bgs.
- Oil and grease were detected at concentrations above the laboratory reporting limits in most of the soil samples and detected at the highest concentrations (i.e., above 1,000 mg/kg) in soil samples collected from borings MW-17, MW-21, MW-21A, and MW-23.
- TEH was detected at concentrations above 1,000 mg/kg in soil samples collected from borings MW-17, MW-21, MW-21A, and MW-22. The TEH concentrations decreased with depth to below laboratory reporting limits or one to two orders of magnitude lower than the concentrations reported for the preceding interval.

- Certain chlorinated volatile organic compounds (CVOCs) including trichloroethene (TCE) and 1,1,1 trichloroethane (1,1,1-TCA) were detected in all the soil borings located adjacent to the south side of the Site building. The highest detected concentrations of TCE and 1,1,1-TCA were located on the southeastern corner of the manufacturing building (i.e., MW-15, MW-16, MW-17, MW-18, and MW-19).
- PCBs were not detected in any of the analyzed soil samples at concentrations above the laboratory reporting limits.

Groundwater Analytical Results

The groundwater analytical results are provided in Table 4. Compounds detected at concentrations above Environmental Protection Agency's (EPA) Drinking Water Maximum Contaminant Levels (MCLs) are highlighted. Figure 5 illustrates detected concentrations of TEH and TCE in Site groundwater. Key findings include the following:

- No VOCs were detected in groundwater samples collected from the monitoring wells installed along the southern manufacturing boundary of the Site (MW-5, MW-6, MW-9, MW-11, and MW-13) at concentrations above the laboratory reporting limits with the exception of MW-7 where 1,1,1-TCA and 1,1-dichloroethane (1,1-DCA) were detected at concentrations above the laboratory reporting limits but below the MCLs.
- Elevated TEH concentrations were detected above 1,000 micrograms per liter (ug/L) in groundwater samples collected from monitoring wells MW-9, MW-19, MW-21, MW-22, and MW-23.
- TCE was detected at concentrations above the MCL of 5 ug/L in groundwater samples collected from monitoring wells along the southeastern corner of the Site building (i.e., MW-15, MW-16, MW-17, MW-18, MW-19, and MW-20).
- Other CVOCs detected at concentrations above their respective MCLs include:
  - 1,1,2-dichloroethane;
  - 1,1-dichloroethene;
  - 1,2-dichloroethane;
  - Vinyl chloride;
  - Cis-1,2-dichloroethene; and
  - Tetrachloroethene (PCE).
- PCBs were not detected in the groundwater sample collected from MW-21 at concentrations above the laboratory reporting limits.

SUMMARY

Golder has completed a soil and groundwater assessment at the former Electrolux manufacturing facility in Jefferson, Iowa. A summary of the key findings includes:

- The Site is underlain by a soft to stiff, light olive gray to gray/dark gray sandy clay, with trace gravel. The sandy clay has intermittent thin (i.e. 0.25 to 1-inch) sand seams to a depth of at least of 30 feet (the deepest boring on Site). Bedrock was not encountered.
- Site groundwater flows to the south. Given the low permeability soils (as evidenced by slow groundwater recharge into Site monitoring wells) and the relatively shallow hydraulic gradient, groundwater flow velocities are expected to be low.
- Golder did not detect any impacted soil along the southern manufacturing boundary.

- Petroleum and CVOC-impacted soil and groundwater appear to be limited to the developed portion of the Site. Golder did not detect any VOCs or petroleum compounds above the MCLs and/or laboratory reporting limits in the groundwater samples collected from the monitoring wells installed along the southern manufacturing boundary of the Site. Agricultural fields, owned by Electrolux, are located south and east of the developed portion of the Site. Due to the groundwater quality along the southern manufacturing boundary of the Site and sandy clay soils limiting groundwater flow, it is Golder's opinion that impacted groundwater has not migrated off the property owned by Electrolux.
- Petroleum and CVOC-impacted soil and groundwater are present adjacent to the southern portion of the Site building. The source of the petroleum-impacted soils and groundwater may potentially be from a historical release of cutting/machining oil from pits and trenches located within the Site building. The source of the CVOCs may potentially be from a historical release of degreasing solvents including TCE and 1,1,1-TCA.

CLOSING

We understand that upon review of the information provided in this letter report, IDNR will advise Electrolux on whether additional Site assessment or corrective actions are required. Please don't hesitate to contact the undersigned if you have any questions regarding this report.

Sincerely,

GOLDER ASSOCIATES INC.

James S. Peace, P.G.
Senior Hydrogeologist

Alistair P. T. Macdonald, CPG, LSP
Program Leader and Principal

cc: John Heer – Electrolux Home Products Inc.
Doug Ucci – Quantum Management Group, Inc.

Attachments:

Table 1	Summary of Monitoring Well Construction Details
Table 2	Groundwater Elevations
Table 3	Summary of Detected Constituents in Soil
Table 4	Summary of Detected Constituents in Groundwater
Figure 1	Site Location Map
Figure 2	Site Vicinity Map
Figure 3	Site Map
Figure 4	March 2011 Phreatic Surface Map
Figure 5	April 2011 Trichloroethene and Total Extractable Hydrocarbon Groundwater Distribution Map
Appendix A	Boring and Monitoring Well Logs
Appendix B	Laboratory Analytical Results

TABLES