**State of Wisconsin**
**DEPARTMENT OF NATURAL RESOURCES**
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April 12, 2018

JP HAMMERTON
ALBANY INTERNATIONAL CORP
3601 ELECTRIC CITY BLVD
KAUKAUNA WI 54130

Subject: Response to Remedial Action Options Report for
Appleton Wire (Former), 908 N. Lawe St., Appleton, WI
DNR BRRTS # 02-45-000015

Dear Mr. Hammerton:

On January 22, 2018, the Wisconsin Department of Natural Resources (DNR) received a *Remedial Action Options Report* (RAOR) dated January 16, 2018 for the above-named site for property located at 908 North Lawe Street, Appleton, Outagamie County, Wisconsin (the "Property"). EnviroForensics, LLC ("EnviroForensics") submitted the RAOR on behalf of Albany International Corp. ("Albany"). The DNR also received the $1,050 review fee in accordance with ch. NR 749, Wis. Adm. Code. The monitoring well locations, French drain and building features referenced throughout this letter are located on the attached Figure 5, *Total Chromium Isoconcentration Contours in Soil 0-5 Feet*, by EnviroForensics dated 11/28/17.

**Summary of Objectives and Selected Remedy**
According to the RAOR, the remedial objectives are to eliminate the existing groundwater treatment system; reduce the contaminant mass in unsaturated soil; reduce chromium concentrations in groundwater to below the enforcement standard or to levels that will naturally attenuate; and mitigate exposure pathways.

The selected remedial action includes the following actions following a pilot injection to select an appropriate reducing agent and establish the site-specific zone of influence:

- Designation of an area of contamination;
- Decommission the existing groundwater collection and treatment system and fill the French drain/collection trench with an amendment solution;
- Inject a reducing agent beneath the basement floor and in the areas of highest groundwater contamination within the building;
- Excavate unsaturated soil contamination along the former chrome plating lines, mix the soil with the selected reducing agent and backfill the basement;
- Confirm conversion of hexavalent chromium to trivalent chromium and formation of insoluble and non-reactive precipitates (fixation);
- Evaluate subsurface geochemistry for continued conversion;
- Assign institutional controls and engineered barriers including entry on the DNR's Geographic Information System (GIS) Registry for residual soil and/or groundwater contamination; and
- Confirm natural attenuation of residual volatile organic compounds (VOCs).

**Determinations**
The DNR makes the following determinations with respect to chs. NR 722 and 724, Wis. Adm. Code:

- Designation of the footprint of the warehouse and undeveloped space on site to the north as an Area of Contamination is approved as allowed under the *Guidance for Hazardous Waste Remediation*, RR-705 (January 2014);
- The selected remedial action of reduction from hexavalent chromium to trivalent chromium and formation of insoluble and non-reactive precipitates is approved conditional upon favorable pilot injection study results;
- Additional information is needed to meet the documentation requirements of s. NR 722.13, Wis. Adm. Code;
- Depending on the on-going additional investigation of VOCs and measured reductive dechlorination, alternative remedial action options may need to be evaluated to address residual VOCs; and
- DNR approval of the Design Report/Remedial Action Plan (RAP) is necessary prior to decommissioning the groundwater collection and treatment system and implementation of a full-scale remedy.

**Additional Information** (ss. NR 722.13 and 722.15, Wis. Adm. Code)
Please submit the additional information discussed below **by June 29, 2018** in a *Supplemental Remedial Action Options Report* along with the appropriate review fee in accordance with ch. NR 749, Wis. Adm. Code:

1. Selected remedial Option 2 does not address residual soil and groundwater contamination north of the warehouse or contamination within the basement foundation fill, which are identified areas of concern discussed in section 4.0 of the RAOR. However, remedial Option 3 (not selected) lists in-situ mixing of residual soil contamination north of the warehouse and injection of a reductant within the fill of the basement's south wall as options to address contamination in these areas. Additional discussion is needed to clarify the remedial goals for these areas of concern identified in the RAOR and whether remedial Option 2 will achieve these goals.

2. S. NR 722.13(2)(e)2, Wis. Adm. Code states, the RAOR shall include "a proposed schedule for implementing the selected remedial action option". While is it assumed the remedial action is intended to be performed following the pilot injection and approval of the full-scale injection permit application and remedial action plan, a rough remedial action schedule should be submitted for review. The schedule needs to include timing for decommissioning the groundwater collection and treatments system with respect to the full-scale remediation effort.

3. S. NR 722.13(2)(e)4, Wis. Adm. Code states, the RAOR shall include "an estimate of the time frame needed for the selected remedial action option to comply with the applicable federal or state environmental laws and standards, whichever are more stringent." The RAOR did not include discussion about the projected time frame for completion of the selected remedy or the anticipated post remediation monitoring necessary to verify remedial goals are achieved.

4. S. NR 722.13(2)(e)5, Wis. Adm. Code states, the RAOR shall include "a description of how the performance of the selected remedial action option will be measured". While sections 4.5.2 and 5.0 of the RAOR include mention of the performance soil and groundwater monitoring, it does not include discussion of a measurable remedial goal (e.g., percent contaminant mass reduction) that

will be used to determine if the remedial action was successful or if additional remediation is necessary.

5. S. NR 722.13(2)(e)6, Wis. Adm. Code states, the RAOR shall include "a description of how treatment residuals generated in connection with the selected remedial action option will be managed on-site and, if applicable, off-site." Investigative groundwater waste has been disposed of via the on-site groundwater treatment system. Since the proposal is to decommission this treatment system, an alternative plan for disposal of future remedial and investigative waste (i.e., groundwater) in accordance with s. NR 716.11, Wis. Adm. Code needs to be identified.

6. S. NR 722.13(2)(e)7, Wis. Adm. Code states, the RAOR shall include "a description of how the criteria in s. NR 722.09(2m) regarding sustainable remedial action were addressed".

**Discussion of Continuing Obligations and Closure Strategy** (ss. NR 722.15 and 722.17, Wis. Adm. Code)
Entry on the DNR's GIS Registry for residual soil contamination is anticipated as remedial action is not proposed to remove all unsaturated soil contamination above groundwater pathway, non-industrial direct contact and industrial direct contact residual contaminant levels (RCLs). According to the RAOR, "The extent of hexavalent chromium impacts in shallow soil above the industrial RCL is limited to within the warehouse and beneath a limited portion of the asphalt parking lot on the north side of the warehouse." It is important to clarify that entry on the GIS Registry will be needed where unsaturated soil contamination above any RCL (groundwater pathway, non-industrial direct contact or industrial direct contact) remains after remedial action. This is true for each property where a RCL is exceeded (e.g., 714 East Hancock Street).

Entry on the DNR's GIS Registry for residual groundwater contamination is anticipated unless groundwater restoration in compliance with enforcement standards listed in ch. NR 140, Wis. Adm. Code is successful for all contaminants of concern. Additional monitoring points closer to the southern Property boundary *may* be needed to verify enforcement standard exceedances do not extend onto 714 East Hancock Street after remedial action if groundwater contamination remains at MW-28 and MW-29 but is no longer present in MW-2 and MW-5.

In addition to entry on the DNR's GIS Registry for residual soil and groundwater contamination, engineered barriers will be required to be maintained over residual contamination to maintain the existing impermeable surfaces (asphalt and building) and potentially to prevent direct contact (if non-industrial direct contact RCL exceedances remain). This may include a requirement to maintain soil, concrete or asphalt barriers present at 714 East Hancock Street as well. Cover or barrier maintenance plans are required for each property where engineered barriers are required.

According to Tables 3a and 3b of the RAOR, *Remedial Action Options Screening – Unsaturated and Saturated Zones*, "Removal of contaminated soil using excavation equipment… may be limited by access restrictions and maintaining the structural integrity of the building". This *may* require assignment of a "structural impediment" continuing obligation which means that there will be a requirement to sample the soil and possibly remediate beneath the building if it becomes accessible in the future. However, if the contamination can be addressed under the selected remedy, it may not be necessary to assign the structural impediment continuing obligation. This will need to be further evaluated as you move forward with the remedy.

**Future Reports**

Kevin McKnight with DNR issued the pilot injection permit for this site on February 9, 2018. The DNR understands EnviroForensics is scheduled to initiate the pilot injection the week of April 23, 2018, following notification of on-site Luvata employees. The RAP required under ss. NR 724.09 and 724.11, Wis. Adm. Code should be submitted following receipt of the pilot injection results. If the timing is appropriate, the *Supplemental Remedial Action Options Report* discussed above can be combined with the RAP.

The RAP needs to include an evaluation of the need for public participation and notification as required under s. NR 714.07, Wis. Adm. Code. At a minimum, the RAP must include a plan for notification of on-site employees and adjacent landowners prior to implementation of the full scale remedial action.

A detailed review of the RAP by DNR prior to implementation of the remedy is appropriate due to the Area of Contamination designation and level of complexity of this proposed remedy. In accordance with s. NR 724.07, DNR approval of the RAP is necessary prior to decommissioning the groundwater collection and treatment system and implementation of a full-scale remedy.

Thank you for the opportunity to review the RAOR and for your work at this site. Please contact me with any questions in Oshkosh by phone at 920-424-7887 or by email at jennifer.borski@wisconsin.gov.

Sincerely,

Jennifer Borski
Hydrogeologist
Remediation & Redevelopment Program

Attachments:

- Figure 5, *Total Chromium Isoconcentration Contours in Soil 0-5 Feet*, by EnviroForensics dated 11/28/17

Copy:

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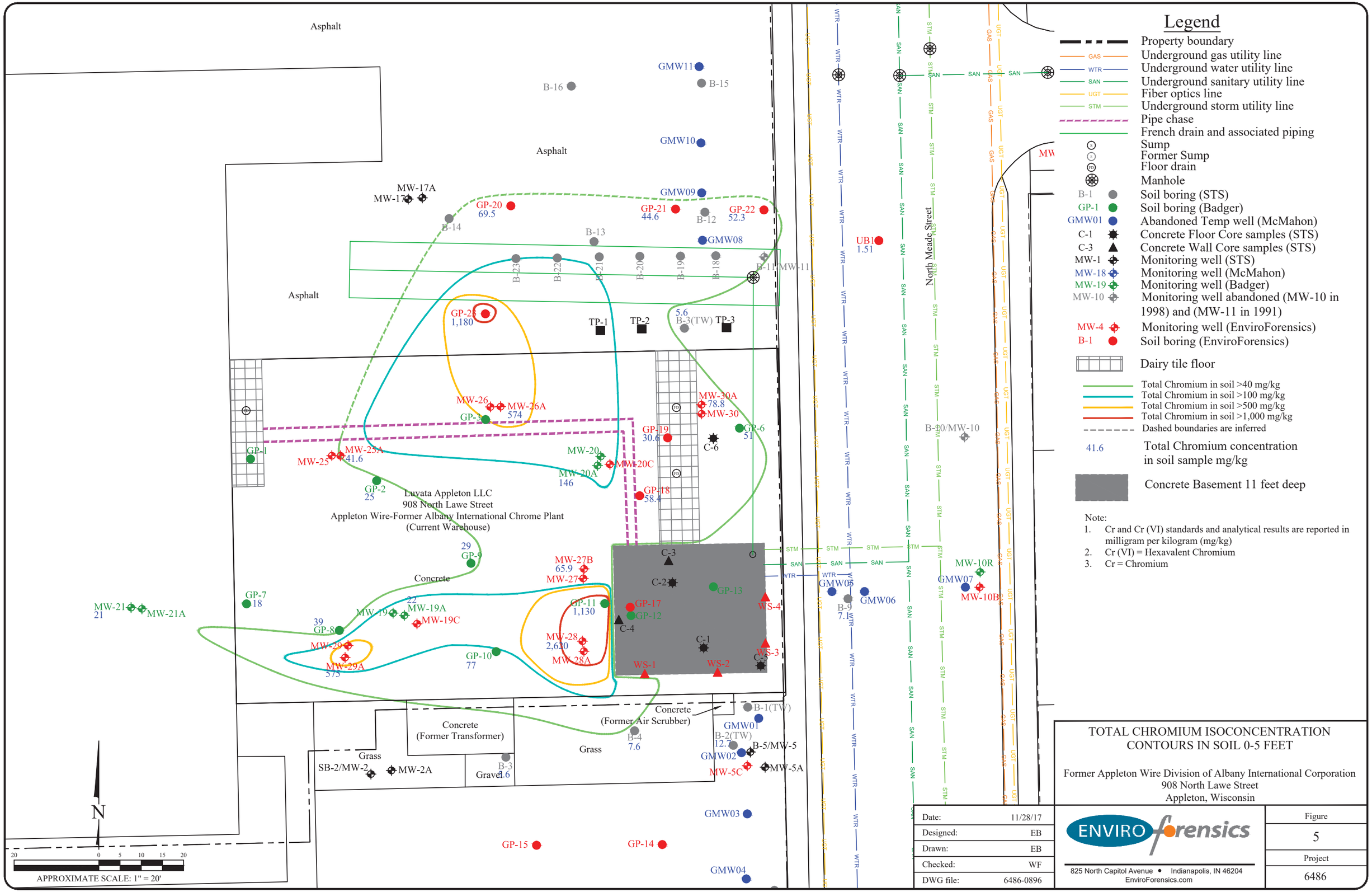


## Legend

- Property boundary
- Underground gas utility line
- Underground water utility line
- Underground sanitary utility line
- Fiber optics line
- Underground storm utility line
- Pipe chase
- French drain and associated piping
- Sump
- Former Sump
- Floor drain
- Manhole
- B-1 — Soil boring (STS)
- GP-1 — Soil boring (Badger)
- GMW01 — Abandoned Temp well (McMahon)
- C-1 — Concrete Floor Core samples (STS)
- C-3 — Concrete Wall Core samples (STS)
- MW-1 — Monitoring well (STS)
- MW-18 — Monitoring well (McMahon)
- MW-19 — Monitoring well (Badger)
- MW-10 — Monitoring well abandoned (MW-10 in 1998) and (MW-11 in 1991)
- MW-4 — Monitoring well (EnviroForensics)
- B-1 — Soil boring (EnviroForensics)
- Dairy tile floor
- Total Chromium in soil >40 mg/kg
- Total Chromium in soil >100 mg/kg
- Total Chromium in soil >500 mg/kg
- Total Chromium in soil >1,000 mg/kg
- Dashed boundaries are inferred
- 41.6 — Total Chromium concentration in soil sample mg/kg
- Concrete Basement 11 feet deep

Note:
1. Cr and Cr (VI) standards and analytical results are reported in milligram per kilogram (mg/kg)
2. Cr (VI) = Hexavalent Chromium
3. Cr = Chromium

# TOTAL CHROMIUM ISOCONCENTRATION CONTOURS IN SOIL 0-5 FEET

Former Appleton Wire Division of Albany International Corporation
908 North Lawe Street
Appleton, Wisconsin

| | |
|---|---|
| Date: | 11/28/17 |
| Designed: | EB |
| Drawn: | EB |
| Checked: | WF |
| DWG file: | 6486-0896 |

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| | |
|---|---|
| Figure | 5 |
| Project | 6486 |