

September 30, 2010

Project Reference #12101

Ms. Victoria Stovall
Wisconsin Dept. of Natural Resources
2300 N. Martin Luther King Jr. Drive
Milwaukee, WI 53212

RE: Notification of Phase II Sampling Results and Request for Case Closure
Former Midwest Tanning Property
1200 Davis Avenue
South Milwaukee, Wisconsin

FID #246160200

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02-41-

Dear Ms. Stovall:

On behalf of Innovations Park, LLC, Sigma Environmental Services, Inc. (Sigma) has prepared this letter in order to notify WDNR of Phase II soil and groundwater sampling results for a property located at 1200 Davis Avenue in the city of South Milwaukee, Wisconsin, and to request case closure for the low-level subsurface impacts detected. Sigma and Innovations Park, LLC are making this request due to detections of various constituents in the Phase II sampling results, as described further below. A completed WDNR Form 4400-202 (Case Closure Request) is included as **Appendix A**.

This report includes the following attachments:

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| Table 1 | Soil Sample Laboratory Results (2001 Phase II Assessment) |
| Table 2 | Groundwater Sample Laboratory Results (2001 Phase II Assessment) |
| Figure 1 | Site Location Map |
| Appendix A | Form 4400-202 (Case Closure Request) |
| Appendix B | Record of Communication re: Property Zoning |
| Appendix C | Figures 4 and 5 from October 2, 2001 Phase II Assessment report by Hygienetics |
| Appendix D | October 2, 2001 Phase II Assessment report by Hygienetics |
| Appendix E | Soil Screening Level Documentation |

BACKGROUND

The site consists of a roughly rectangular land parcel with an industrial zoning code (**Appendix B**). On the property are a rectangular former tannery building, generally referred to as the main building, and an outbuilding to the east of the main building formerly housing wastewater treatment operations. The site was used by Midwest Tanning Company from 1918 through 2001 for their leather tannery operations. The property and buildings are shown on **Figures 4 and 5** from an October 2, 2001 Phase II Environmental Site Assessment report by Hygienetics Environmental Services, Inc. ("Hygienetics"), which are included in the present report as **Appendix C**. In the time since Midwest Tanning vacated the property and the Phase II site assessment was completed, modifications to the main building were completed and the site was transformed into Innovations Park, consisting of multi-tenant commercial and light industrial space, which is currently leased

to various companies for these uses. Two closed leaking underground storage tank (LUST) case files exist for the site, with tracking numbers 03-41-000468 and 03-41-250101. These LUST case files were closed in 1992 and 2001, respectively. The case files corresponded to a former kerosene underground storage tank (UST) and two former diesel USTs which had been converted from fuel oil storage, respectively. The latter case file received case closure shortly after the October 2001 Hygienetics report was completed.

The subject of the present letter report are the results of a Phase II Environmental Site Assessment completed in 2001 by Hygienetics as tannery operations were ceasing, which together with previous activities completed by CBC Environmental Services in 1987 are summarized in the above-mentioned October 2, 2001 report, included as **Appendix D**. During the Phase II assessment, chromium and various other substances were detected in soil and groundwater samples from the site. Sigma has reviewed the Phase II site assessment analytical data, developed preliminary site-specific residual contaminant levels for detected compounds where needed, and considered the results in light of the other environmental activities at the site and its layout and history.

SITE ASSESSMENT RESULTS

As outlined in Hygienetics' site assessment report, the soil and groundwater sampling locations selected in the 2001 Phase II assessment were based on a thorough review of the tannery's processes, as well as site observations and employee interviews. The sampling locations are shown on attached Hygienetics **Figures 4** and **5**. During the site assessment, as well as Sigma's 1987 limited investigation, various soil and groundwater constituents were reported in laboratory analyses of samples from the corresponding media. The soil and groundwater sample analytical results are summarized on **Tables 1** and **2**. These detections are discussed individually in the following paragraphs. For clarity, the areas of concern identified in the October 2, 2001 report by Hygienetics are grouped by contaminant type.

Chromium

Chromium was detected in soil samples at concentrations exceeding typical naturally occurring concentrations for southeast Wisconsin, but below the trivalent chromium NR 720 direct contact generic RCL and the groundwater pathway soil screening level (SSL) discussed below, in the following areas:

- Exterior Area of Concern 1 – West of Plant: 417 milligrams per kilogram (mg/kg) (soil boring SB-1, 2 – 4 ft)
- Exterior Area of Concern 6 – South of Plant: 1,100 mg/kg (SB-15, 5 – 6 ft)
- Interior Area of Concern 2 – Shaver Room: 672 mg/kg (SB-32, 4 – 5 ft)
- Interior Area of Concern 3 – South plant:
 - 60 mg/kg (SB-34, 4 – 8 ft)
 - 57 mg/kg (SB-43, 5 – 6.5 ft)
 - 54 mg/kg (SB-44, 4 – 7 ft)

These four areas where elevated chromium concentrations in soil were detected are clustered near the southwest corner of the main building. The chromium soil data should be viewed from this perspective. The extent of elevated chromium impacts is delineated by the background concentrations reported in samples collected from surrounding soil borings

SB-2, SB-22, SB-31, SB-33, SB-37, SB-38, SB-40. The detected chromium appears to be in the less mobile and less toxic trivalent form, based on speciation-specific analyses (**Table 1**) for the samples located closest to the chrome tank location (**Figure 5**). The soil boring SB-1 and SB-15 locations where elevated chromium concentrations were detected are adjacent to property boundaries; however, other site information on these areas suggests an unlikelihood of off-site migration potential, as discussed in the following points.

- Soil boring SB-1 was located in an area used for disposal of solid material (unused hides based on information from 1950 according to the October 2, 2001 Hygienetic report). The SB-1 soil boring log indicates the presence of construction fill and cinders in the upper approximately 2¼ feet of this soil boring. Such historic fill associated with low-level chromium concentrations (417 mg/kg in the SB-1, 2 – 4 ft sample) are not indicative of a significant potential for off-site chromium impacts.
- Soil boring SB-15 was located in the area of (potentially within the footprint of) a former sump used for disposal. A temporary monitoring well was installed in this soil boring. Chromium was reported at a concentration exceeding the NR 140 Enforcement Standard in the initial groundwater sample from this temporary well (**Table 2**). However, chromium was reported at 13.3 µg/kg in a subsequent sample collected approximately one month later (following presumed removal of particulate matter via sampling during the first event and additional time for particles to settle out of the water column). Based on a chromium groundwater concentration below the Enforcement Standard in the sump area itself, there does not appear to be a significant potential for off-site chromium impacts.

The October 2, 2001 Hygienetics report cites additional chromium investigation activities in another portion of the site by CBC Environmental Services in 1987. The activities were conducted in a topographic depression to the north of the main building where solid material was allegedly disposed of by the tannery from the 1930's through the 1950's. Twelve soil borings were advanced in this area, and soil samples from three of the soil borings (six soil samples total) were selected for laboratory analysis of chromium, pH, and PCBs. Results for pH and PCBs (which were not detected) are discussed in later sections of this report. Chromium results were generally representative of background concentrations, but concentrations of 1,700 mg/kg and 1,200 mg/kg were reported in soil samples from the 0 – 1 ft interval of two soil borings. Chromium was reported at 71 and 14 mg/kg, respectively, in soil samples from the 1 – 2 ft interval in both locations, indicating that the chromium impacts had no significant vertical extent. Limited information available to Hygienetics at the time of their 2001 report indicated that two monitoring wells were installed in the area shortly after the soil boring activities, but that they did not produce water.

Based on the number of soil samples submitted for chromium analysis in these two areas of the site, and the absence of reported chromium concentrations sufficiently elevated to pose a direct contact or groundwater degradation threat, the area of chromium soil impacts has been adequately defined, and a case closure decision by WDNR appears to be appropriate.

Petroleum-related Compounds

Low-level petroleum-related compounds were detected in soil samples from the following areas:

- Exterior Area of Concern 1 – West of Plant: Four petroleum-related VOCs (10 – 43 $\mu\text{g}/\text{kg}$) (soil boring SB-1, 2 – 4 ft)
- Interior Area of Concern 3 – South plant
 - Chrome Tank Room: 1,2,4-trimethylbenzene, 6.8 $\mu\text{g}/\text{kg}$ (SB-34, 4 – 8 ft)
 - Boiler Room (SB-44, 4 – 7 ft):
 - Two PAHs, 632 and 1,340 $\mu\text{g}/\text{kg}$
 - Seven petroleum-related VOCs (148 – 2,420 $\mu\text{g}/\text{kg}$)

West of Plant and Chrome Tank Room. Of the compounds reported in the soil samples from nearby soil borings SB-1 and SB-34, SSLs can be calculated only for 1,2,4-trimethylbenzene. The reported 1,2,4-trimethylbenzene concentrations were miniscule, namely 6.8 and 43 $\mu\text{g}/\text{kg}$, falling far below the SSLs. These two soil borings are located near to one another in the area of chromium impacts near the southwest corner of the main building and, like these chromium impacts, the low-level petroleum compound impacts are delineated by surrounding soil sample locations where no petroleum compounds were reported, including SB-2, SB-13, SB-14, SB-32, SB-33, SB-35, and SB-36. Therefore a case closure decision by WDNR appears to be appropriate for the petroleum-related compounds in this area of the site.

Boiler Room. The petroleum-related compounds detected in the boiler room sample (SB-44, 4 – 7 ft) for which SSLs or other health-based levels can be cited are limited to 1,2,4-trimethylbenzene, fluorine, and phenanthrene, which fell below their respective groundwater pathway and residential direct contact SSLs or suggested generic RCLs. The October 2, 2001 Hygienetics report cites fuel oil piping as a likely source of petroleum impacts in this area of the site. Hygienetics references Sigma's closure report to WDNR, which had been received but not yet responded to at the time of the Hygienetics report, for the diesel (formerly fuel oil) UST system discussed above in the "Background" section of the present report. Agency jurisdiction was transferred to the Department of Commerce, and closure was received shortly after the Hygienetics report was completed.

The extent of these boiler room area petroleum compounds is limited horizontally based on surrounding soil sample locations where no petroleum compounds were reported, including SB-15, SB-16, SB-17, SB-20, SB-21, SB-22, SB-41, SB-42, and SB-46 (**Table 1**), and also limited vertically by an absence of detections in a deeper sample collected from soil boring SB-44 (**Table 1**). Additionally, a temporary monitoring well was installed in this soil boring, and no petroleum compounds were detected in a groundwater sample collected from the well (**Table 2**). Based on the reported concentrations of petroleum compounds in this area of the site, their localized extent, and their probable connection to a closed LUST case file, a case closure decision by WDNR appears to be appropriate.

Other Substances

The following detections of other substances were reported:

- Interior Area of Concern 2 – Shaver Room: sulfide, 50.6 mg/kg (SB-30, 8.5 – 10 ft)
- Interior Area of Concern 3 – South plant
 - Chrome Tank Room:
 - sulfide, 134 mg/kg (SB-35, 0 – 6 ft)
 - ammonia, 506 mg/kg (SB-34, 4 – 8 ft)
 - Boiler Room: N-Nitrosodiphenylamine, 753 μ g/kg (SB-44, 4 – 7 ft)

Sulfide and Ammonia. These sulfur and nitrogen species, while likely present due to tannery processes, are both often present naturally in soil at the mg/kg level and are expected to attenuate through natural subsurface processes. No ammonia or sulfide SSLs are available.

N-Nitrosodiphenylamine. The reported detection of this compound (which has not been confirmed in further samples) fell below its residential direct contact SSL but exceeds its groundwater pathway SSL. Other than chemical manufacturing, which was not done at the site, uses for this compound cited in the Agency for Toxic Substances and Disease Registry's (ATSDR's) *Toxicological Profile for N-Nitrosodiphenylamine* were limited to rubber processing, mainly for tire production, where it was phased out in the 1980's. The October 2, 2001 Hygienetics report does not list it as a process chemical in the tannery. The Occupational Safety and Health Administration's "OSHA Safety Hazard Information Bulletin on N-Nitroso Compounds in Industry" cites one of the N-nitroso family of compounds, but not N-nitrosodiphenylamine, as being produced by side reactions of a common tannery unhairing process chemical.

In the absence of a tannery process explanation for the detection at the site, historic fill may be cited as a possible source. The compound was not detected in groundwater samples collected from the SB-13, SB-14, or SB-16 temporary monitoring wells, located in alleged fill locations near to where the compound was detected (soil boring SB-44). N-nitrosodiphenylamine was also not reported in soil samples collected from soil borings SB-14, SB-22, and SB-42, which surround the SB-44 boring location, or in soil samples collected from other portions of the site. The compound was also not detected in a deeper soil sample collected from SB-44 at 9 – 20 ft bgs. These data indicate that the N-nitrosodiphenylamine impacts (if in fact present) are defined and have a small horizontal and vertical extent. Based on these factors, a case closure decision by WDNR appears to be appropriate for the N-nitrosodiphenylamine detection.

No PCBs were detected in the soil samples collected by CBC Environmental Services in 1987 from the fill area north of the main building.

Soil pH

Numerous pH analyses of soil samples completed during Hygienetics Phase II assessment, as well as in the fill area north of the main building by CBC Environmental Services in 1987, indicated that soil pH was generally alkaline, typically falling in the 8.0 – 9.6 range. Both basic (a.k.a. alkaline) and acidic solutions were used by the tannery according to the October 2, 2001 Hygienetics report. The sample locations with more alkaline pH results

tended to be within the western half of the main building footprint but have no clear association with wet operations areas or contaminant detections, and were also located sporadically in other areas of the site. This tends to indicate they are not associated with major liquid discharges, spills, etc. Alkaline pH's are found naturally in soils rich in marl or other carbonates, which are abundant in southeast Wisconsin due to its limestone rock. Hard well water, marl lake, and ocean water pH ranges up to 8.4, and arid region mineral soil pH ranges above 9.0. Sigma is not aware of soil pH criteria or guidance based on WDNR sources or NR 720; however, based on the above factors, a case closure decision by WDNR appears to be appropriate for the alkaline soil pH results.

SOIL SCREENING LEVELS

For reference, Sigma compared reported chromium and other soil constituent concentrations to Wisconsin Administrative Code, ch. NR 720 generic residual contaminant levels ("NR 720 generic RCLs") or NR 746 Table 2 direct contact standards, where available, or to calculated site-specific soil screening levels or WDNR's suggested generic RCLs. The site-specific Soil Screening Levels (SSLs) were calculated with EPA's Chemical Soil Screening Guidance Tool for Superfund web tool (i.e. "the EPA Soil Screening Level web site") using Wisconsin default parameters as indicated in WDNR's guidance document RR-682, "Determining Residual Contaminant Levels Using the EPA Soil Screening Level Web Site" (January 11, 2002) and a site area of 5 acres. The derivation of these SSLs is documented in **Appendix E**. The resulting direct contact SSLs for residential sites are shown on **Table 1**. Groundwater pathway SSLs were calculated as per Appendix D of publication RR-682 using parameters also documented in **Appendix E**. The resulting groundwater pathway SSLs are also shown on **Table 1**. Reported PAH compound concentrations were compared to suggested generic RCLs for PAHs indicated in WDNR's guidance document RR-519-97, "Soil Cleanup Levels for Polycyclic Aromatic Hydrocarbons (PAHs) Interim Guidance" (April 1997).

These NR 720 generic RCLs, WDNR suggested generic RCLs, or SSLs were used to generally determine whether the compounds reported at the site had the potential to exceed appropriate site-specific RCL's if calculated. In each case, a greater level of effort than was employed here in calculating site-specific SSLs would likely indicate that less restrictive input values and hence larger SSLs were appropriate for the direct contact pathway. Therefore, the direct contact SSLs presented here are likely conservative.

The EPA Soil Screening Level web site does not yield useful direct contact or groundwater SSLs for ammonia and sulfide. The web site generates an ammonia direct contact SSL exceeding the theoretical maximum possible concentration of 1 million parts per million for the inhalation of fugitive dust pathway, and a hydrogen sulfide SSL for this pathway of 218,000 mg/kg. The web site is not able to calculate SSLs for the other direct contact pathways for these species or for other potential ammonia or sulfide substitutes (e.g. simple ammonium or sulfide salts). It is worth noting that sulfide and ammonia do not have NR 140 Enforcement Standards or Preventive Action Limits; while these standards apply to groundwater and not soil concentrations, the absence of groundwater standards for a substance generally indicates an absence of regulatory attention due to a lack of significant toxicity in small concentrations; therefore, together with the relatively small ammonia and sulfide concentrations reported at the site, the absence of levels for comparison to site soil concentrations is likely not a significant limitation for this site.

The other petroleum-related VOCs detected at the site (n-butylbenzene, sec-butylbenzene, isopropylbenzene, p-isopropyltoluene, and n-propylbenzene) are not included in the EPA Soil Screening Level web site; therefore, no applicable reference levels were available. As with ammonia and sulfide discussed above, the absence of groundwater standards for these other compounds and their relatively small reported concentrations suggest that they are not a concern at the site.

RECOMMENDATIONS

Leather tanning operations have not been performed at the subject industrial facility since the completion of the Hygienetics Phase II site assessment report in 2001. Petroleum tank system closure, investigative and remedial activities, and case closure were completed for several tank systems and associated petroleum impacts. Low levels of chromium and several additional substances were detected in soil across the site in the Hygienetics Phase II site assessment.

Based on numerous soil sample analyses, the detected soil constituents that are present as defined areas at the site (i.e. chromium and petroleum compounds) do not appear to be present at high enough concentrations to pose groundwater degradation or direct contact concerns. Other substances or conditions were sporadically detected at the site and also do not appear to pose risks to receptors based on the reported values (i.e. sulfide, ammonia, moderately alkaline soil pH), or were reported as a single unconfirmed detection only (i.e. N-nitrosodiphenylamine).

Based on the above information, a case closure decision appears to be appropriate for the results presented in Hygienetics' 2001 Phase II assessment report. Sigma on behalf of Innovations Park, LLC requests that WDNR issue a case closure decision for the former Midwest Tanning property with respect to the Phase II site assessment data.

If you have any questions regarding the project, please contact the undersigned at (414) 643-4200.

Sincerely,

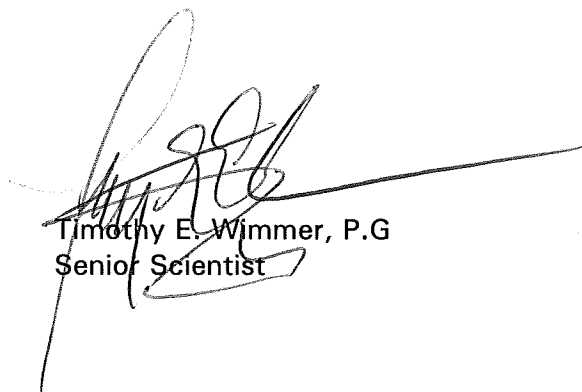
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Attachments