July 13, 2020 Project Reference #11516

Mr. Joseph Martinez
Wisconsin Department of Natural Resources
2300 N. Dr. Martin Luther King, Jr. Drive
Milwaukee, WI 53212

RE: Additional Site Investigation Work Plan
Former Try-Chem Corp, 1333 West Pierce Street, Milwaukee, WI 53204
**BRRTS #02-41-409441**

Dear Mr. Martinez:

At the request of Wisconsin Department of Natural Resources (WDNR) The Sigma Group, Inc. (Sigma) has prepared this work plan to complete additional site investigation activities of the property located at 1333 W. Pierce Street, Milwaukee formerly owned by Try-Chem Corp (hereinafter the "Site") (**Figure 1**). This work plan was prepared to address activities requested in a letter[1] prepared by the WDNR in response to the Case Closure Report submitted by Sigma in November 2019[2]. The WDNR's letter is included as **Attachment 1**.

**BACKGROUND**

The former Try-Chem property has been historically occupied by manufacturing facilities which conducted paint stripping, electroplating, painting, and metal finishing services. The site's industrial/manufacturing history and documented improper materials management have resulted in the presence of soil and groundwater impacts.

Investigation activities completed at the site between 1989 and 2002 indicated that site soils were impacted with elevated concentrations of select volatile organic compounds (VOCs), polynuclear aromatic hydrocarbons (PAHs), and resource conservation and recovery act (RCRA) metals, with more limited amounts of select polychlorinated biphenyls (PCBs), pesticides, and cyanide. Select chlorinated volatile organic compounds (CVOCs) were the main contaminants of concern. The CVOC constituent methylene chloride, which was used for laboratory processing and is considered to be a common laboratory contaminant, was also identified in several soil samples at concentrations greater than groundwater pathway residual contaminant levels (RCLs). In addition, site groundwater was noted to be impacted by elevated concentrations of select CVOCs, arsenic, and cyanide.

Based on the presence of soil and groundwater impacts exceeding State standards, an engineered barrier was constructed in 2013 for purposes of eliminating the potential for direct contact associated with residually impacted soil and to limit additional release of residual impacts to the groundwater via infiltration of precipitation. Groundwater

[1] *Request for Additional Information, Try-Chem Corp., 1333 W. Pierce Street., Milwaukee, WI 53204, DNR BRRTS # 02-41-409441, FID #241078530* by WDNR (dated March 10, 2020)

[2] *Case Closure Form 4400-202* by Sigma (dated November 26, 2019)

monitoring has been conducted on a periodic basis since 2013 to evaluate the impact of the low permeability cap and natural attenuation processes.

Following completion of the site investigation, Sigma submitted a Case Closure report in November 2019 which summarized all site investigation activities completed at the site to date and recommended conditional case closure for the site. The WDNR responded in a letter in March 2020 requesting additional site information to support the case closure request.

## WORK PLAN

### Additional Subsurface Characterization – Hexavalent Chromium

Based on the recorded history of the facility operation including chromium metal plating, Sigma will complete additional subsurface investigation activities to evaluate the potential presence of hexavalent chromium contamination to exist at the Site. Please note, due to the absence of specific facility plating operation documentation it is not clear when the hexavalent chromium was used. Therefore, it is assumed for the purpose of this investigation that the plating operations ended when the facility was shut down in 1985. Therefore, considering the elapsed time since 1985, it is likely that most of the hexavalent chromium released during the facility operation has reduced to trivalent chromium[3]. The proposed subsurface investigation activities described below should provide confirmation.

- Complete eight Geoprobe® soil borings. During the previous site investigations, most soil impacts were encountered at depths of approximately 10 feet or shallower. Most of the site is currently covered by a two-foot clean clay cap so the proposed soil borings will be advanced to 12 feet below existing ground surface (bgs) to reach this depth. The eight Geoprobe soil borings will be completed at select locations around the site and positioned in approximate locations of historic industrial site features including the unlined dumping pit, the Udelite Line, Van Winkle Line, barrel line, Silver Line, and drains and sumps as noted on a historic process map provided by the WDNR (included as **Attachment 2**), and in the location of previous soil boring SB-11 which had contained a pool of unidentified green chemical substance. The proposed soil boring locations are presented on **Figure 1** and **Figure 2**. **Figure 1** shows the proposed boring locations in relation to all previously installed borings and monitoring wells and **Figure 2** includes the proposed boring locations in relation to the historic process layout of the site and the locations of existing monitoring wells.

- Soil samples will be collected continuously during soil boring advancement, visually characterized and described on the basis of color, texture, grain size, and plasticity, and classified in accordance with the Unified Soil Classification System (USCS) and screened in the field with a photoionization detector (PID) for the presence of VOCs.

- Two soil samples per borehole will be selected, containerized, and submitted for laboratory analysis of hexavalent chromium and total chromium. The soil sample depths will be chosen based on historic site usage and depths to previously identified soil impacts. In addition, one duplicate soil sample will be collected for laboratory

[3] *Natural Attenuation of Hexavalent Chromium in Groundwater and Soils, EPA Groundwater Issue, EPA/540/5-94/505*, October 1994

analysis of hexavalent chromium and total chromium as a means of evaluating laboratory precision.

- Pending variance request (discussed below) approval by the WDNR, two one-inch diameter pre-pack monitoring wells will be installed following soil boring advancement to facilitate the collection of two rounds of groundwater samples.

**Groundwater Quality Evaluation**

In addition to a subsurface soil evaluation, Sigma will complete additional groundwater sampling activities to evaluate the potential for hexavalent chromium groundwater contamination to exist at the site. The proposed groundwater investigation will consist of the following:

- Installation of two small diameter monitoring wells, pending variance request (discussed below) approval by the WDNR. The wells will be placed in the southern and central sections of the site in the locations of historic industrial process where there are currently no monitoring wells present. The monitoring wells will be installed using a Geoprobe drill rig. The monitoring wells will be constructed with a 10-foot, one-inch diameter PVC screen positioned to intersect the groundwater table and will be installed to depths of approximately 15 feet bgs which is consistent with the existing monitoring wells installed at the site.

- Sigma will develop the two small diameter monitoring wells in accordance with Chapter NR 141 to remove sediment from the well casing and establish a hydraulic connection with the surrounding soil formation.

- Sigma will purge and sample three of the remaining monitoring wells located on the site (MW-2A, MW-2R, and MW-4R) and the two newly installed small-diameter monitoring wells in accordance with Chapter NR 141. One round of groundwater sampling is proposed to determine the distribution of chromium in groundwater. The groundwater samples collected will be submitted to the project laboratory for analysis of hexavalent chromium and total chromium to determine the presence of these constituents. In addition, one duplicate groundwater sample will be collected for laboratory analysis of hexavalent chromium and total chromium as a means of evaluating laboratory precision and one equipment blank will be collected for laboratory analysis of hexavalent chromium and total chromium to identify whether cross contamination has occurred during sampling or transportation.

- Purge groundwater will be placed in 55-gallon drums and disposed of at the Port Washington Wastewater Treatment Plant.

- A location and elevation survey of each of the new soil borings and small-diameter monitoring wells will be completed.

Following completion of the proposed site investigation activities, Sigma will prepare a Summary Report to document the completed site investigation activities and present the data.

**Additional Information – Per- and Polyfluoroalkyl Substances**

Based on the recorded history of the site including the use of chromium metal plating, the WDNR has requested Sigma complete an evaluation of the potential for Per- and Polyfluoroalkyl Substances (PFAS) contamination to be present on the site. The use of PFAS is historically associated with chromium metal plating operations. Sigma will complete a review of the historic operation at the site to evaluate whether any products containing PFAS were used in any process services, the duration of PFAS use, the type of PFAS used, and any areas of the site where PFAS may have been used, stored, or discarded.

Based on the long history of violations and illegal activities at the site, it is likely that the historical records may be incomplete and / or inaccurate. In addition to an evaluation of the site history and records, Sigma will utilize the results of the additional subsurface characterization activities for hexavalent chromium described above to determine if additional subsurface characterization would be necessary for PFAS. If it is determined that additional soil and/or groundwater sampling activities are necessary for PFAS, an additional Work Plan will be prepared for these activities.

**Reporting**

Following the completion of subsurface investigation activities of Sigma will prepare a letter report summarizing the results of the chromium and PFAS related evaluation including additional soil and groundwater information and identify the need for further assessment.

## VARIANCE REQUEST FOR CHAPTER NR 141 MONITORING WELL INSTALLATION

Sigma, on behalf of the City of Milwaukee, would like to request a variance for the installation of two small diameter Chapter NR 141 groundwater monitoring wells. This request is presented in accordance with Chapter NR 141.31(1) Special Circumstances and Exceptions.

In consideration of the site limitations, Sigma proposes installing two small diameter pre-constructed or prepack monitoring wells using Geoprobe® direct push drilling methods. To install the prepack monitoring well, Sigma will drill a 2.25- or 3-inch outer diameter soil boring to an appropriate depth below the ground surface. The prepack monitoring well assembly will then be lowered into the probe rod string with threaded riser pipe. Once the assembly is lowered to the bottom of the probe string, the probe rods will be retracted to directly above the well screen (10 feet of 0.010-inch slotted PVC pipe). An additional sand barrier installed directly above the well screen will prevent the bentonite seal from entering the screen. Factors that limit the use of a typical 2-inch diameter monitoring well include additional project costs and limiting damage to the site wide surface cap. The proposed monitoring well locations are shown on **Figure 1**.

Use of the prepack wells for additional, post-remedial groundwater monitoring at the site will allow for the collection of representative groundwater samples from the subsurface without installation of larger diameter soil borings. The wells will be sufficiently purged prior to sample collection.

If the Variance to Chapter NR 141 for the installation of small-diameter monitoring wells is approved, please sign, date, and return a copy of the attached variance request form via facsimile (414-643-4210) or electronic (email) response. If you have any questions, please contact me at 414-643-4200. Following receipt of approval for the variance request, the soil boring and well installation work will be scheduled.

**WORK PLAN IMPLEMENTATION SCHEDULE**
It is anticipated that the field investigation activities could be completed within four to six weeks depending upon drilling contractor availability followed by additional two to three weeks to receive laboratory analytical reports. A summary report is anticipated to be completed within four to six weeks of the receipt of the lab report.

If you have any questions or need additional information, please call us at (414) 643-4200.

Sincerely,

**THE SIGMA GROUP, INC.**

Steven Kikkert, E.I.T.
Staff Engineer

Mafizul Islam, P.E.
Senior Engineer

Kristin Kurzka, P.E., P.G.
Geoscience Manager

List of Attachments:

Figure 1 – Proposed Borehole Location Map with Previous Borings
Figure 2 – Proposed Borehole Location Map with Historic Process Layout

Attachment 1 – WDNR Response Letter
Attachment 2 – Former Tri-Chem Facility Process Layout

cc: Mathew Reimer / City of Milwaukee

**REQUEST FOR VARIANCE TO CHAPTER NR 141 MONITORING WELL INSTALLATION**
**FORMER TRY-CHEM CORP. SITE**
**1333 W. PIERCE STREET, MILWAUKEE, WI 53204**
**BRRTS #02-41-409441**

The Sigma Group, Inc. (Sigma), on behalf of the City of Milwaukee, would like to request a variance for the installation of two small diameter Chapter NR 141 groundwater monitoring wells at the above-referenced site. This request is presented in accordance with Chapter NR 141.31(1) Special Circumstances and Exceptions.

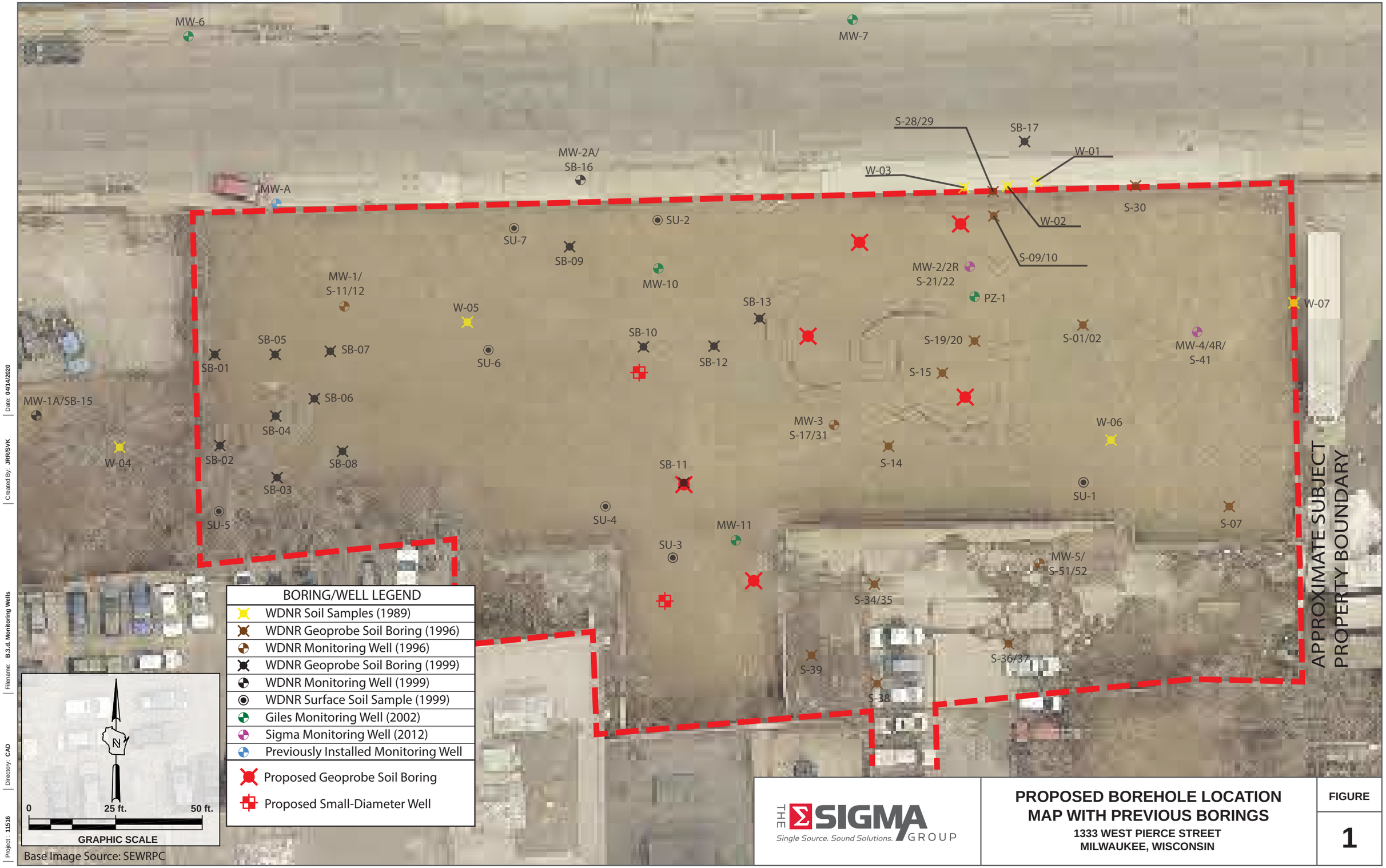
If approved, please sign, date and return a copy of this variance request via facsimile (414-643-4210) or electronic (email) response. If you have any questions, please contact Steven Kikkert at 414-643-4200. Following receipt of approval for the variance request, the soil boring and well installation work will be scheduled

_____ _____

Signature Date

Mr. Joseph Martinez
Hydrogeologist – Remediation and Redevelopment Program
Wisconsin Department of Natural Resources
2300 N. Dr. Martin Luther King, Jr. Drive
Milwaukee, WI 53212

# FIGURES




Created By: JRR/SVK | Date: 04/14/2020
Filename: B.3.d. Monitoring Wells | Directory: CAD
Project : 11516

THE SIGMA GROUP
Single Source. Sound Solutions.

# PROPOSED BOREHOLE LOCATION MAP WITH PREVIOUS BORINGS

1333 WEST PIERCE STREET
MILWAUKEE, WISCONSIN

FIGURE
1

MW-2A/
SB-16

MW-2/2R
S-21/22

MW-4/4R/
S-41

APPROXIMATE SUBJECT
PROPERTY BOUNDARY

N

0 25 ft. 50 ft.
GRAPHIC SCALE

| BORING/WELL LEGEND |
| --- |
| WDNR Monitoring Well (1999) |
| Sigma Monitoring Well (2012) |
| Proposed Geoprobe Soil Boring |
| Proposed Small-Diameter Well |

Base Image Source: SEWRPC

THE SIGMA GROUP
Single Source. Sound Solutions.

# PROPOSED BOREHOLE LOCATION MAP WITH HISTORIC PROCESS LAYOUT

1333 WEST PIERCE STREET
MILWAUKEE, WISCONSIN

FIGURE
2

Project: 11516 | Directory: CAD | Filename: B.3.d. Monitoring Wells | Created By: JRR/SVK | Date: 07/07/2020

**ATTACHMENT 1**

**State of Wisconsin**
**DEPARTMENT OF NATURAL RESOURCES**
**2300 N. Dr. Martin Luther King, Jr. Drive**
**Milwaukee WI 53212-3128**

**Tony Evers, Governor**
**Preston D. Cole, Secretary**
Telephone 608-266-2621
Toll Free 1-888-936-7463
TTY Access via relay - 711

March 10, 2020

Mathew Reimer
Redevelopment Authority of the City of Milwaukee
809 North Broadway
Milwaukee, WI 53202

Subject: Request for Additional Information
Try-Chem Corp., 1333 W. Pierce St., Milwaukee, WI 53204
DNR BRRTS # 02-41-409441, FID # 241078530

Dear Mr. Reimer:

On January 9, 2020, the Wisconsin Department of Natural Resources (DNR) reviewed the closure request for the case identified above. The closure request was prepared and submitted by The Sigma Group (Sigma) on behalf of the Redevelopment Authority of the City of Milwaukee. The DNR reviews environmental remediation cases for compliance with applicable local, state and federal laws. The following actions are required prior to the DNR granting you case closure in compliance with Wis. Stat. ch. 292 and Wis. Adm. Code chs. NR 700-754. Upon completion of these actions, your closure request will be reconsidered.

**Background**
From 1916 to 1985 the site was utilized for metal treating operations including electroplating, paint stripping, and painting. The site buildings were razed in 1995 and the foundations and other improvements were removed in 2009. The site is currently vacant. Poor waste management practices at the site are well documented. Waste management practices included waste burial and the unlicensed acceptance of waste from other facilities. The United States Environmental Protection Agency completed a removal of hazardous waste in 1988. Site investigation activities have identified the presence of polycyclic aromatic hydrocarbons (PAHs), metals, volatile organic compounds (VOCs), and polychlorinated biphenyls (PCBs) in the groundwater and/or soil at the site.

**Request for Additional Information**
As noted above, additional work is necessary to meet the requirements for case closure because the site investigation is incomplete and revisions to the case closure request are needed. Additional assessment and potential sampling are needed to define the degree and extent of contamination per Wis. Admin. Code § NR 716.11.

Per- and Polyfluoroalkyl Substances (PFAS)
The DNR has identified the site as a potential source for per- and polyfluoroalkyl substances (PFAS). The DNR believes this emerging contaminant may be present in soil and groundwater on the site. The DNR has regulatory authority to ask responsible parties to evaluate hazardous substance discharges and environmental pollution including emerging contaminants.

As stated above, metal treating operations, including metal plating, occurred on-site from 1916 to 1985. Chromium metal plating is documented to have occurred at the site. The use of PFAS is associated with chromium metal plating operations in Wisconsin and throughout the United States. This site may be a source of PFAS contamination.

The information previously provided for this facility indicates there was a discharge from chromium metal plating

activities which are historically linked to PFAS use. Site investigation scoping (Wis. Admin. Code § NR 716.07) and the site investigation work plan (Wis. Admin. Code § NR 716.09) require an evaluation of the history of the facility, previous discharges, and uses on the site that may be associated with discharges of hazardous substances.

In accordance with Wis. Admin. Code § NR 716.09, the DNR requires that you submit a site investigation work plan that includes an assessment of PFAS, and per Wis. Admin. Code § NR 716.07 (4), all environmental media affected or potentially affected by the contamination must be evaluated. As stipulated in Wis. Admin. Code § NR 716.07 and Wis. Admin. Code § NR 716.09, the work plan should include a written evaluation of potential PFAS compounds that, were historically produced, used, handled, or stored at the site. The evaluation should include any available information regarding whether any products containing PFAS were used in any process services, the duration of PFAS use, the type of PFAS used, and any areas of the site where PFAS may have been used, stored, or discarded. The site investigation work plan shall follow Wis. Admin. Code § NR 716.09. If sampling for PFAS is deemed necessary, the work plan shall include a sampling and analysis strategy to be used during field investigation that considers all information in the evaluation conducted under Wis. Admin. Code § NR 716.07.

Hexavalent Chromium

A Phase I Environmental Assessment Report prepared by the DNR, dated August 1996, indicates that hexavalent chromium was used at the site. In addition, information previously provided for this facility indicates there was a discharge from chromium metal plating activities which are historically linked to hexavalent chromium use. Site investigation scoping and the site investigation work plan require an evaluation of the history of the facility, previous discharges, and uses on the site that may be associated with discharges of hazardous substances.

In accordance with Wis. Admin. Code § NR 716.09, the DNR requires that you submit a site investigation work plan that includes an assessment of hexavalent chromium, and per Wis. Admin. Code § NR 716.07 (4), all environmental media affected or potentially affected by the contamination must be evaluated. As stipulated in Wis. Admin. Code §§ NR 716.07, NR 716.09, the work plan should include a written evaluation detailing available information on the duration of hexavalent chromium use and any areas of the site where hexavalent chromium may have been used, stored, or discarded. The site investigation work plan shall follow Wis. Admin. Code § NR 716.09. If sampling for hexavalent chromium is deemed necessary, the work plan shall include a sampling and analysis strategy to be used during field investigation that considers all information in the evaluation conducted under Wis. Admin. Code § NR 716.07.

Documentation

The following information is necessary to meet the case closure requirements of Wis. Admin Code. ch. NR 726.

- Provide a revised detailed site map which includes the potential sources of contamination formerly located at the site. Include pits, drywells, known dumping locations, USTs, ASTs, vats, transformers, locations of former metal treating operations, etc.
- The figure titled "Cap Location Map" (Figure D.2) in the case closure submittal is inconsistent with design sheets C100 and C300 contained in the *Construction Documentation Report*, prepared by Sigma, dated January 21, 2020. Specifically, Figure D.2 identifies an elevated area in the southwest corner of the site near the former transformer as "Engineered Greenspace Cap;" whereas the design sheets indicate that a clay cap was not placed in this area. Determine the current surface cover in this area and determine whether the current surface cover is an acceptable remedy to address the direct contact exposure pathway in this area. Revise Figure D.2 as necessary.
- Remove saturated samples from the residual soil table (Table A.3).
- Revise all appropriate figures to reflect the conceptual site model (CSM) of sitewide PAH and metal contamination in soil.

- Revise Figures B.2.a.1 and B.2.b.1 to include the extent of VOC contamination identified in the ROW (SB-17) and remove the circles around SU-6, MW-10, and MW4/4R. Also revise Figure B.3.a.2 to reflect these changes.
- The vinyl chloride groundwater plume appears to be more expansive than is represented on Figure B.3.b. Expand the extent of vinyl chloride groundwater contamination greater than the enforcement standard to include MW-2A, MW3, and MW4/4R. Also, send a revised notification of continuing obligations and residual contamination to the ROW which includes a notification of groundwater contamination. Revise Table 5 of the Case Closure Form (Form 4400-202) to reflect this continuing obligation.
- Provide a groundwater iso-concentration figure which illustrates the extent of metal contamination in groundwater.
- Provide cross-sections which include the degree and extent of groundwater contamination.
- Discuss the source of contamination at W-07 and determine whether a notification of residual contamination to the eastern adjacent property, 1241 W. Pierce St., Milwaukee, is necessary.
- If not done previously, request access to 1411 W. Pierce St., Milwaukee, in order to locate MW-1A and determine if this well was abandoned or has been lost. If MW-1A cannot be located, describe attempts to locate the well and notify the property owner of their continuing obligation due to this lost well. Also revise Table G to reflect this continuing obligation if necessary.
- On Table 5 of the Case Closure Form (Form 4400-202), uncheck box viii in the ROW column which states "residual soil contamination meets NR720 industrial soil RCLs, land use is classified as industrial."
- On the Case Closure Form (Form 4400-202), revise the response to question 3.B.ii. to be consistent with the response to question 4.G.

**Schedule**

In accordance with Wis. Admin Code § NR 716.09(1), the DNR requests that you submit a work plan to evaluate potential PFAS and hexavalent chromium contamination at the site within 60 days of the date of this letter, by May 9, 2020.

**Until requirements are met, your site will remain "open"** and you are required to submit semi-annual progress reports, per Wis. Admin. Code § NR 700.11. You are also responsible for any operation and maintenance activities required under Wis. Admin. Code § NR 724.13. Once the additional work has been completed, documentation should be submitted to the DNR to demonstrate that the applicable requirements have been met, per the timelines above.

**Conclusion**

If you have any questions regarding the information in this letter, please contact the DNR Project Manager, Joseph Martinez, at 414-263-8705 or by email at joseph.martinez@wisconsin.gov.

The DNR appreciates your efforts to restore the environment at this site.

Sincerely,

Joseph J. Martinez
Hydrogeologist, Southeast Region
Remediation & Redevelopment Program

cc: Steven Kikkert, The Sigma Group – e-copy
Mafiul Islam, The Sigma Group – e-copy

**ATTACHMENT 2**

LAB

OFFICE

MEN'S LOCKER

PIT 54'6" X 50'0"

MAINT.

UDELITE LINE

SILVER LINE

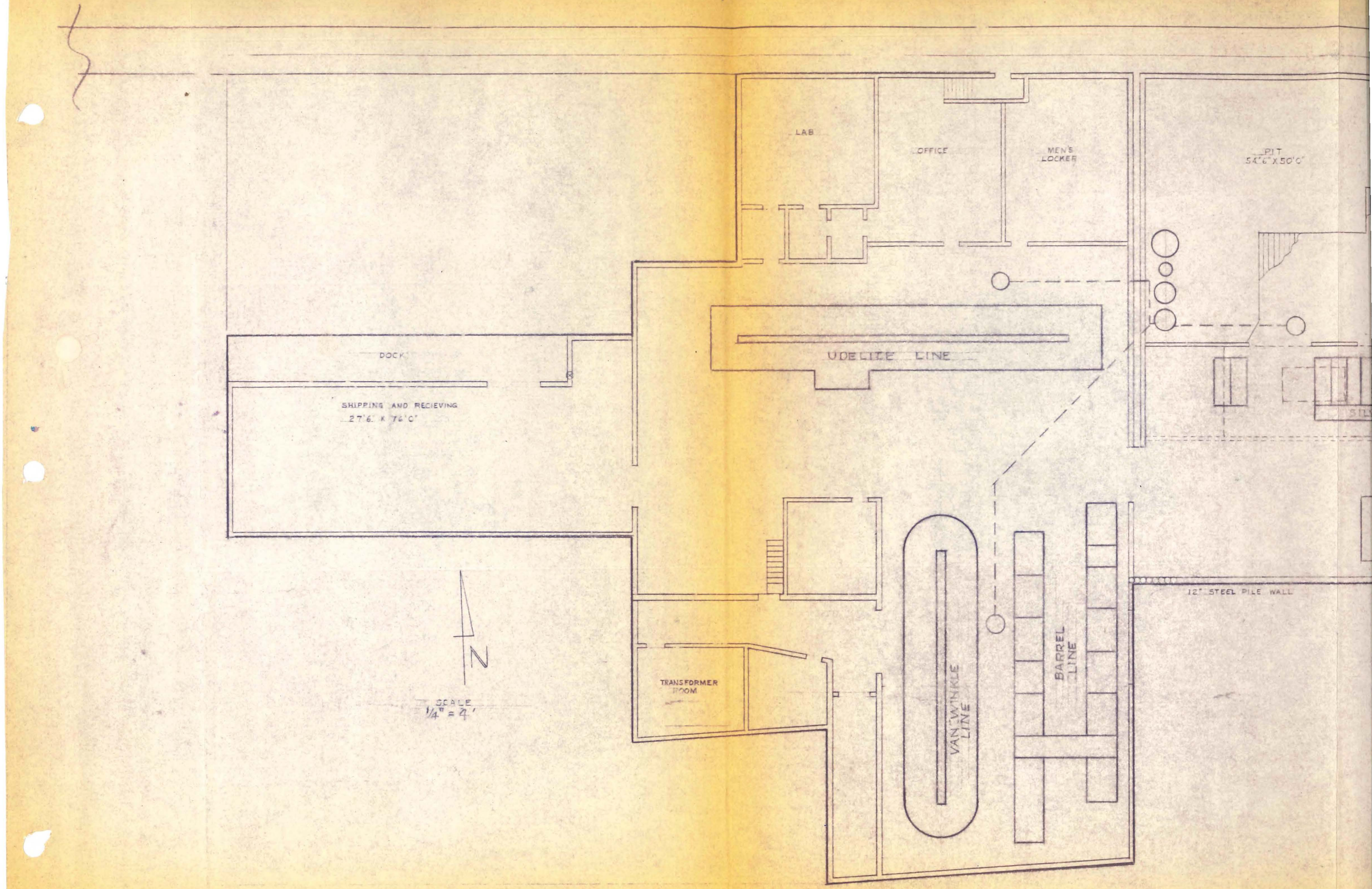
TRANSFORMER ROOM

VAN WINKLE LINE

BARREL LINE

12" STEEL PILE WALL

PLAN
TRY-CHEM CORP.
1333 W. PIERCE ST.
MILWAUKEE, WIS
1/1/65 tel


LAB
OFFICE
MEN'S LOCKER
PIT
54'6" X 50'0"
DOCK
SHIPPING AND RECIEVING
27'6" X 76'0"
UDELITE LINE
TRANSFORMER ROOM
VAN-WINKLE LINE
BARREL LINE
12" STEEL PILE WALL
N
SCALE
1/4" = 1'