



**Gannett Fleming**

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June 23, 2021  
File #34283.000

Ms. Shelia Sullivan – SR-6J  
Remedial Project Manager  
Waste Management Division  
USEPA Region V  
77 West Jackson Boulevard  
Chicago, Illinois 60604-3590

Re: Work Plan for a 12-Month Trial Shutdown of Extraction Well EW-6  
USEPA CERCLIS ID WID 006196174  
WDNR BRRTS 02-09-000267 and FID 609038320

Dear Shelia:

On behalf of National Presto Industries, Inc. (NPI), Gannett Fleming, Inc. (GF) is submitting this letter that includes a work plan for a 12-month trial shutdown of extraction well EW-6 located in the Southwest Corner (SWC) at the NPI Superfund site in Eau Claire, Wisconsin. In addition, sections with pertinent background information on EW-6 and our findings and conclusions are presented. During a phone conversation with you on June 15, 2021, it was agreed that GF would submit this work plan on NPI's behalf for you and Candace Sykora at the Wisconsin Department of Natural Resources (WDNR) to consider. This letter is similar to GF's following agency-approved work plans:

- October 2007 work plan for the successful long-term shutdown of EW-1R and EW-2 at the Melby Road Disposal Site (MRDS), located approximately 2,500 feet northeast of EW-6.
- October 2015 work plan for the successful long-term shutdown of EW-5 located in the SWC approximately 530 feet southwest of EW-6.

A certification page for this submittal is also attached.

**Pertinent Background Information on EW-6 and its Proposed Trial Shutdown**

Extraction wells EW-5 and EW-6, cascade aerator #2R, and the associated underground piping currently comprise the component parts to an interim remedy installed to provide hydraulic control and recover impacted groundwater in the SWC, as shown on Figure 1.

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Sand and gravel underlie the NPI site, except in areas where non-native fill was placed during construction or waste disposal activities. Pre-glacial sandstone bedrock valleys are buried beneath the unconsolidated deposits. The valleys, which trend westerly toward the Chippewa River (former Plume 1/2) and northwesterly toward Lake Hallie (former Plumes 3/4 and 5), control the direction of groundwater flow in the unconsolidated deposits in the area. The average groundwater flow velocity in the alluvial deposits in the area is approximately 12.5 feet/day, with an average gradient of about 0.015 in former Plume 1/2 that stretches from the NPI site to the City of Eau Claire’s municipal well field. The average depth to groundwater in the vicinity of EW-5 and EW-6 is approximately 70 feet below ground surface (ft bgs).

The former Plume 1/2 volatile organic compound (VOC) of primary concern in the SWC is trichloroethylene (TCE) because it historically has been detected at concentrations above its Maximum Contaminant Level (MCL) and the NR 140 Enforcement Standard (ES) of 5.0 micrograms per liter ( $\mu\text{g}/\ell$ ) or parts per billion in the groundwater. However, TCE is currently:

- Below its 5.0  $\mu\text{g}/\ell$  MCL/NR 140 ES in all monitoring wells associated with the site.
- Present at concentrations at or above its 0.5  $\mu\text{g}/\ell$  NR 140 Preventive Action Limit (PAL) but only in 6 of the 28 existing SWC monitoring wells and EW-6, as of the May sampling round in 2021 as shown on Figure 2 and per the summary table below. Based on historical analytical results and the persistent groundwater flow regime, the count of 28 assumes that TCE was below the PAL in those 14 former Plume 1/2 SWC monitoring wells not sampled to date in 2021.

SWC Wells with TCE Concentration ( $\mu\text{g}/\ell$ ) at or above its PAL of 0.5 $\mu\text{g}/\ell$ in May 2021						
EW-6	MW-23B	MW-77B	MW-77C	RW-2A	RW-2B	RW-2C
<i>0.75 JA</i>	<i>1.7</i>	<i>1.8</i>	<i>0.67 J</i>	<i>0.87 J</i>	<i>1.7</i>	<i>1.8</i>

NOTES:

Concentrations in micrograms per liter ( $\mu\text{g}/\ell$ ). No results at/above the 5.0  $\mu\text{g}/\ell$  MCL/NR 140 ES for TCE. Results at or above the 0.5  $\mu\text{g}/\ell$  NR 140 PAL for TCE are in red font and italicized.

A = Average concentration of original sample and duplicate.

J = Concentration is between the limit of detection and limit of quantification. The value is estimated.

Other SWC wells sampled in May 2021 that were either non-detect for TCE or had TCE concentrations below 0.5  $\mu\text{g}/\ell$  include MW-4B, MW-23A, MW-34A, MW-68A/B, MW-70A, MW-76A, and MW-77A. See Figure 2 for details.

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Please see GF's March 4, 2021, annual report and the CD submitted to both agencies for complete historical analytical data for all wells prior to 2021, including graphs of the concentrations of TCE over time.

Characteristics of the three SWC well nests with TCE PAL exceedances in May 2021 include:

- Their persistent TCE concentrations in the low single digits (i.e., all  $<2.0 \mu\text{g}/\ell$ ), which could be primarily due to back diffusion of TCE from local/relatively small-scale silt/clay layers interbedded in the predominantly sand-and-gravel aquifer.
- Their locations are 300-970 feet downgradient of EW-6.

Approximately 60 feet upgradient of EW-6, the May 2021 TCE concentration in MW-76A was  $<0.32 \mu\text{g}/\ell$  (see Figures 1 and 2). Viewed from this perspective, it appears:

- The water quality of the three SWC well nests with TCE PAL exceedances gain little, if any, benefit from EW-6 pumping groundwater at a nominal flow rate of 180 gallons per minute (gpm).
- Shutting EW-6 down and letting the relatively clean groundwater that it extracts (e.g., TCE concentration of  $0.75 \mu\text{g}/\ell$  in May 2021) simply move through the aquifer instead is a reasonable alternative to continued pumping.

Originally, the groundwater extraction and treatment system in the SWC included EW-3, EW-4, and cascade aerator #2. The two wells started continuous, full-scale operation in March 1994 and were installed to provide hydraulic control and recover VOC-impacted groundwater associated with former Lagoon #1, located south of NPI's main building. In January 2004, EW-3 was replaced by EW-5 and, in September 2011, EW-4 and cascade aerator #2 were replaced by EW-6 and cascade aerator #2R. These changes were implemented because two other source areas of TCE were identified over time in the SWC, and NPI constructed an addition to its main building in 2011. To address the two other TCE source areas, NPI installed and operates two supplemental soil vapor extraction (SVE) systems, as outlined below.

- The MW-34/70 Area SVE system, located south of the main building and west of former Lagoon #1, operates seasonally to address a TCE degreaser sludge area identified in 2002, as shown on Figures 1-3. This contamination was found primarily from 4 to 8 ft bgs near monitoring well nests MW-34 and MW-70. Overall results indicate that, along with the

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cinder-type fill, a relatively dry sludge from a TCE degreaser was deposited in shallow excavations in this area of the property. The activities associated with the generation of these wastes preceded the production of munitions at the facility and the permitted discharge of waste forge compound to Lagoon #1 that began in 1966. To date, the system operates only during warm weather when the ground is not frozen, and the average ambient air temperature is above freezing. When temperatures are below freezing, it is more difficult to keep the system running because the condensate that collects in the knock-out tank freezes. Furthermore, when frost is in the ground, there is virtually no vertical migration from precipitation. As a result, running the system when the ground is frozen provides little, if any, benefit. Additional details on the MW-34/70 Area SVE system and TCE degreaser sludge are summarized in GF's September 24, 2015, remedial alternative analysis report to the United States Environmental Protection Agency (USEPA).

- The main building SVE system (i.e., vent well VW-1) that operates 24/7 all year to address a TCE source under the main building, as shown on Figures 1-3. Full-time, continuous operation of the main building SVE system began on January 6, 2015. Additional details on the construction and startup of the main building SVE system are presented in GF's March 12, 2015, letter report to the USEPA.

The location of the TCE source area beneath the main building has not been completely defined. However, the MW-76 monitoring well nest is directly downgradient of the source area, and TCE concentrations have historically been elevated in MW-76A. Operation of the main building SVE system to remove VOCs from the vadose zone beneath the building and improve groundwater quality in that area of the site since January 2015 has been primarily successful. TCE concentrations in MW-76A:

- Decreased an order of magnitude in 2015.
- Were below the PAL of 0.5 µg/l in 2016.
- Increased from <0.33 to 4.6 µg/l in March 2017, after EW-6 stopped pumping groundwater in January. However, with EW-6 back online, TCE concentrations in MW-76A decreased from 4.6 to <0.33 µg/l in June 2017, remained below detection limits for the remainder of 2017, and ranged from 0.26U to 0.36J µg/l in 2018. Virtually coincidental with the January through April 2017 trial shutdown of EW-6, it appears the March 2017 TCE spike occurred because historically high-water levels in the second half of 2016 "flushed out" residual TCE previously trapped in or just above the capillary fringe and below/beyond the main

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building SVE system's vapor barrier. GF's February 2018 *Annual Interim Remedial Action Status Report – 2017* provides supplemental detail.

Provided with this work plan, Figures 2 and 3 present June 2019-May 2021 and December 2015-December 2017 SWC TCE groundwater data summaries, respectively. January 2018-May 2019 TCE analytical results are comparable to the June 2019-May 2021 data but are not included in this work plan for brevity.

Given the long-term improvement in SWC groundwater water quality and reliable performance of the main building SVE system since March 2017, NPI is proposing to conduct a 12-month trial shutdown of EW-6 starting in July because it appears 2021 water levels in the TCE source area under the main building are likely about 2 feet lower than in 2020 and 1 foot lower than in 2017. For example, as shown on Figure 4, groundwater elevations in MW-10A were:

- 829.12 feet below mean sea level (ft MSL) on May 24, 2021
- 830.78 ft MSL on June 8, 2020
- 830.05 ft MSL on March 20, 2017

Monitoring well MW-10A, located by the loading dock at the south end of the main building, serves as a conservative benchmark for water levels in the TCE source area under the main building because:

- MW-10A is approximately 720 ft upgradient of EW-6 and outside its cone of depression.
- The TCE source area under the main building is located between MW-10A and EW-6.

Based on the current relatively low water levels in the TCE source area under the main building and SVE operating performance since March 2017, NPI expects that the main building SVE system's vapor barrier will remain effective for the remainder of 2021 and beyond.

### **Work Plan for a 12-Month Trial Shutdown of EW-6**

To evaluate the effect of leaving EW-6 shutdown on a trial basis, starting in July 2021, NPI will:

- Measure water levels in all SWC monitoring wells quarterly.
- Collect quarterly groundwater samples for the NPI short-list VOCs from:
  - Monitoring well nests MW-4, MW-76, MW-77, and RW-2 in the SWC.

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- EW-6. The pump in the well will be turned on for about five minutes, a grab sample will be collected, and the pump will be turned off again. This same procedure of collecting quarterly “grab samples” was used to check TCE concentrations during the trial shutdown of EW-1R and EW2 at the MRDS. However, the procedure could not be used at EW-5 during its 12-month trial shutdown. Over the weekend of September 12-13, 2015, the pump in EW-5 stopped working. Midwest Well Drilling (Midwest) of Cornell, Wisconsin, pulled the pump, observed that it contained stainless-steel shavings, televised the well bore, and discovered a hole in the stainless-steel well screen. Apparently, the pump vibrated enough to wear a hole in or rip/tear the well screen. According to Midwest, the well should be repaired or replaced before sustained pumping at >100 gpm is attempted. Currently, EW-5 remains offline, and there is no pump in the well. If TCE rebound upgradient of EW-5 occurs, then NPI will have a local contractor replace EW-5 with EW-5R (in the same 10-foot-diameter well vault, with two-manhole access) and coordinate its prompt startup and operation. Because the well vault and associated underground piping infrastructure are already installed, NPI estimates that EW-5R could be up and running within 30 days of positive identification of TCE rebound. GF’s November 2016 *EW-5 Status Report* provides supplemental detail.
- Continue routine groundwater sampling for the NPI short-list VOCs from the other monitoring well nests as summarized in GF’s March 2021 annual report.
- Modify the monitoring wells/piezometers sampled, as appropriate, based on the groundwater flow pattern and analytical results in consultation with the agencies.

### **Findings and Conclusions**

Groundwater monitoring results for the SWC monitoring wells to date indicate that the continued operation of EW-6, an interim remedy, is no longer necessary. Consequently, NPI proposes to:

- Conduct a 12-month trial shutdown of the well and perform supplemental monitoring, as outlined in the work plan section above. If TCE rebound occurs, then NPI will promptly resume operation of EW-6.
- Continue year-round operation of the existing main building SVE system because it appears the vapor barrier that it has created, since starting operation in January 2015, is also improving groundwater quality as planned.

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- Continue to seasonally operate the existing MW-34/70 Area SVE system, based on its known long-term success in capturing TCE released by the degreaser sludge and preventing TCE from impacting groundwater.
- Update the agencies on the status of the trial shutdown in the monthly and annual reports that are routinely submitted to the USEPA and WDNR. However, if there is an unusual finding that merits prompt attention, NPI will notify both agencies within 10 days.

Based on the successful shutdown of EW-5, relatively low water levels, and continued year-round operation of the main building SVE system, no adverse impacts to groundwater quality are anticipated due to EW-6 being offline. Additionally, the proposed 12-month trial shutdown of EW-6 would have the added benefit of reducing the project's carbon footprint.

Please let us know if you concur with NPI's work plan for the trial shutdown of EW-6, and feel free to contact me and/or the Project Manager, Chelsea Payne, if you have any questions or need additional information.

Sincerely,

GANNETT FLEMING, INC.




Clifford C. Wright, P.E., P.G.  
Project Engineer

CCW/jec  
Enc.

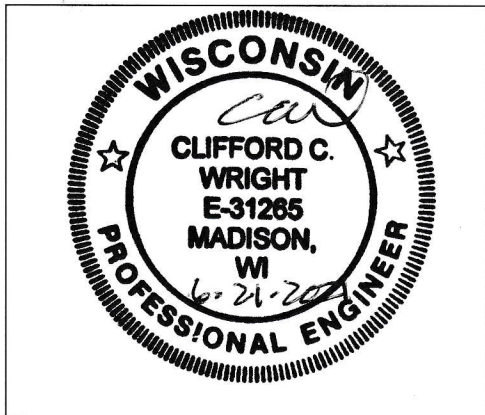
ecc: Candace Sykora (WDNR/Baldwin)  
Derrick Paul (NPI)  
Chelsea Payne (Gannett Fleming)

**ENGINEERING AND HYDROGEOLOGIST CERTIFICATIONS**


I hereby certify that I am a registered professional engineer in the State of Wisconsin, registered in accordance with the requirements of ch. A-E 4, Wis. Adm. Code; that this document has been prepared in accordance with the rules of Professional Conduct in ch. A-E 8, Wis. Adm. Code; and that, to the best of my knowledge, all information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. NR 700 to 726, Wis. Adm. Code.

Print Name Clifford C. Wright	Title Project Engineer/Geologist
Signature 	Date 6.21.2021

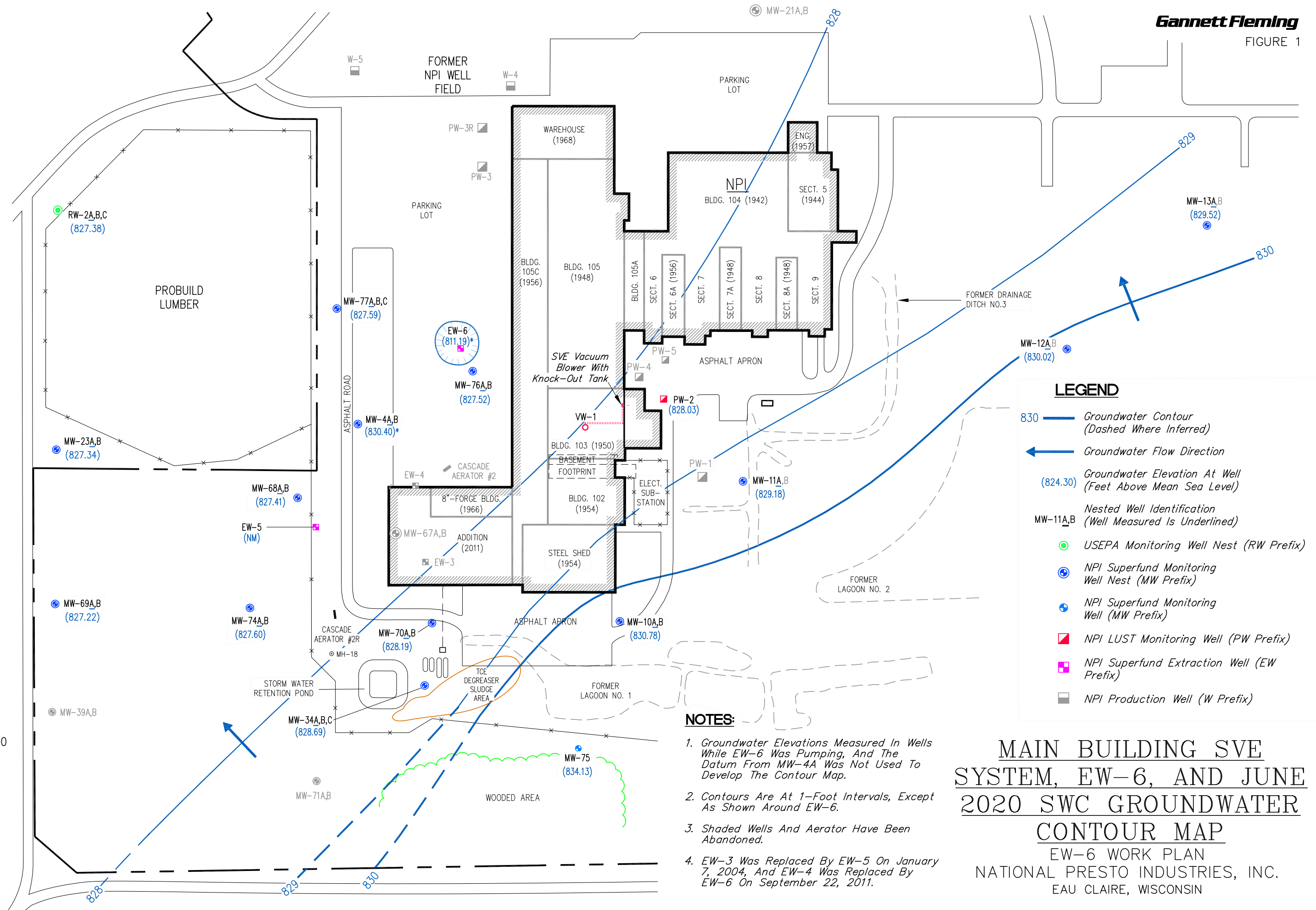
P.E. Seal for E-31265:



I hereby certify that I am a hydrogeologist as that term is defined in s. NR 712.03(1), Wis. Adm. Code, am registered in accordance with the requirements of ch. GHSS 2, Wis. Adm. Code, or licensed in accordance with the requirements of ch. GHSS 3, Wis. Adm. Code, and that, to the best of my knowledge, all information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. NR 700 to 726, Wis. Adm. Code.

Print Name Clifford C. Wright	Title Project Engineer/Geologist
Signature 	Date 6.21.2021





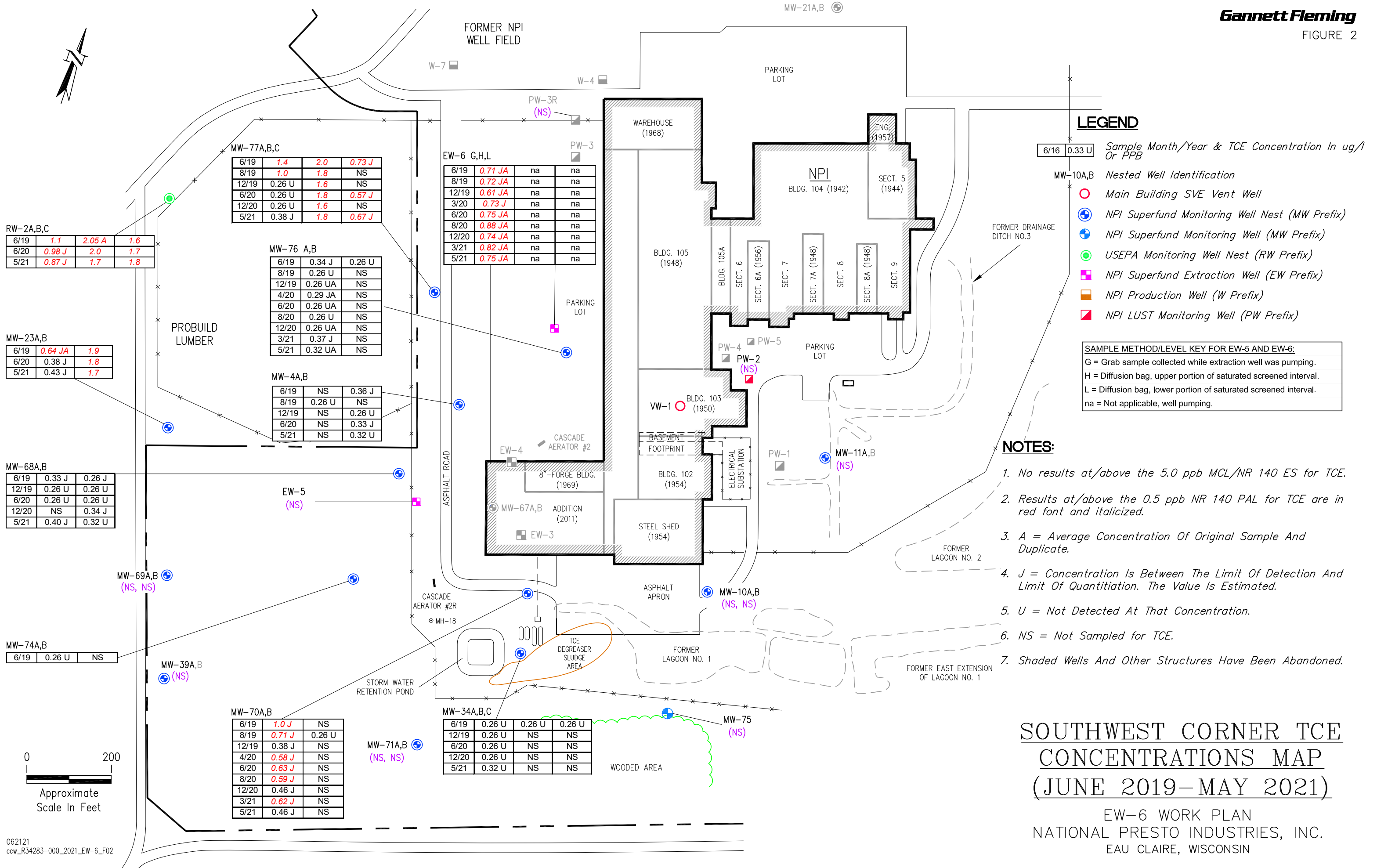
**LEGEND**

- 830 — Groundwater Contour (Dashed Where Inferred)
- ← Groundwater Flow Direction
- (824.30) Groundwater Elevation At Well (Feet Above Mean Sea Level)
- MW-11A,B Nested Well Identification (Well Measured Is Underlined)
- USEPA Monitoring Well Nest (RW Prefix)
- ⊕ NPI Superfund Monitoring Well Nest (MW Prefix)
- ⊕ NPI Superfund Monitoring Well (MW Prefix)
- ▣ NPI LUST Monitoring Well (PW Prefix)
- ⊕ NPI Superfund Extraction Well (EW Prefix)
- NPI Production Well (W Prefix)

- NOTES:**
1. Groundwater Elevations Measured In Wells While EW-6 Was Pumping, And The Datum From MW-4A Was Not Used To Develop The Contour Map.
  2. Contours Are At 1-Foot Intervals, Except As Shown Around EW-6.
  3. Shaded Wells And Aerator Have Been Abandoned.
  4. EW-3 Was Replaced By EW-5 On January 7, 2004, And EW-4 Was Replaced By EW-6 On September 22, 2011.

**MAIN BUILDING SVE SYSTEM, EW-6, AND JUNE 2020 SWC GROUNDWATER CONTOUR MAP**  
 EW-6 WORK PLAN  
 NATIONAL PRESTO INDUSTRIES, INC.  
 EAU CLAIRE, WISCONSIN





**LEGEND**

- 6/16 0.33 U Sample Month/Year & TCE Concentration In ug/l Or PPB
- MW-10A,B Nested Well Identification
- Main Building SVE Vent Well
- ⊕ NPI Superfund Monitoring Well Nest (MW Prefix)
- ⊕ NPI Superfund Monitoring Well (MW Prefix)
- ⊕ USEPA Monitoring Well Nest (RW Prefix)
- ⊕ NPI Superfund Extraction Well (EW Prefix)
- ⊕ NPI Production Well (W Prefix)
- ⊕ NPI LUST Monitoring Well (PW Prefix)

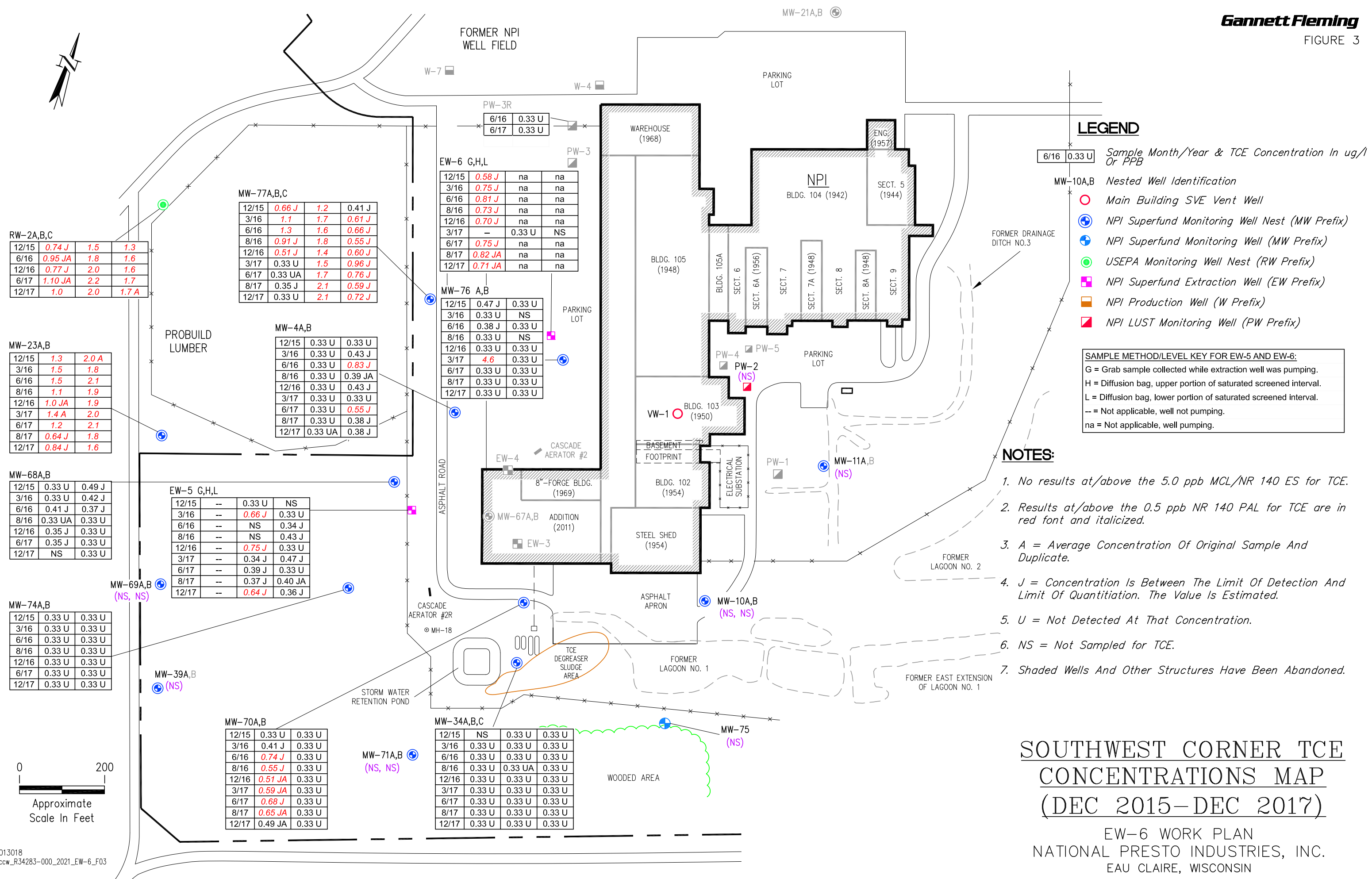
**SAMPLE METHOD/LEVEL KEY FOR EW-5 AND EW-6:**  
 G = Grab sample collected while extraction well was pumping.  
 H = Diffusion bag, upper portion of saturated screened interval.  
 L = Diffusion bag, lower portion of saturated screened interval.  
 na = Not applicable, well pumping.

**NOTES:**

1. No results at/above the 5.0 ppb MCL/NR 140 ES for TCE.
2. Results at/above the 0.5 ppb NR 140 PAL for TCE are in red font and italicized.
3. A = Average Concentration Of Original Sample And Duplicate.
4. J = Concentration Is Between The Limit Of Detection And Limit Of Quantitation. The Value Is Estimated.
5. U = Not Detected At That Concentration.
6. NS = Not Sampled for TCE.
7. Shaded Wells And Other Structures Have Been Abandoned.

**SOUTHWEST CORNER TCE CONCENTRATIONS MAP (JUNE 2019–MAY 2021)**

EW-6 WORK PLAN  
 NATIONAL PRESTO INDUSTRIES, INC.  
 EAU CLAIRE, WISCONSIN



LEGEND

- 6/16 0.33 U Sample Month/Year & TCE Concentration In ug/l Or PPB
- MW-10A,B Nested Well Identification
- Main Building SVE Vent Well
- ⊕ NPI Superfund Monitoring Well Nest (MW Prefix)
- ⊕ NPI Superfund Monitoring Well (MW Prefix)
- ⊕ USEPA Monitoring Well Nest (RW Prefix)
- ⊕ NPI Superfund Extraction Well (EW Prefix)
- ⊕ NPI Production Well (W Prefix)
- ⊕ NPI LUST Monitoring Well (PW Prefix)

**SAMPLE METHOD/LEVEL KEY FOR EW-5 AND EW-6:**  
 G = Grab sample collected while extraction well was pumping.  
 H = Diffusion bag, upper portion of saturated screened interval.  
 L = Diffusion bag, lower portion of saturated screened interval.  
 -- = Not applicable, well not pumping.  
 na = Not applicable, well pumping.

NOTES:

1. No results at/above the 5.0 ppb MCL/NR 140 ES for TCE.
2. Results at/above the 0.5 ppb NR 140 PAL for TCE are in red font and italicized.
3. A = Average Concentration Of Original Sample And Duplicate.
4. J = Concentration Is Between The Limit Of Detection And Limit Of Quantitation. The Value Is Estimated.
5. U = Not Detected At That Concentration.
6. NS = Not Sampled for TCE.
7. Shaded Wells And Other Structures Have Been Abandoned.

**SOUTHWEST CORNER TCE CONCENTRATIONS MAP (DEC 2015-DEC 2017)**

EW-6 WORK PLAN  
 NATIONAL PRESTO INDUSTRIES, INC.  
 EAU CLAIRE, WISCONSIN

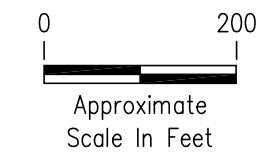
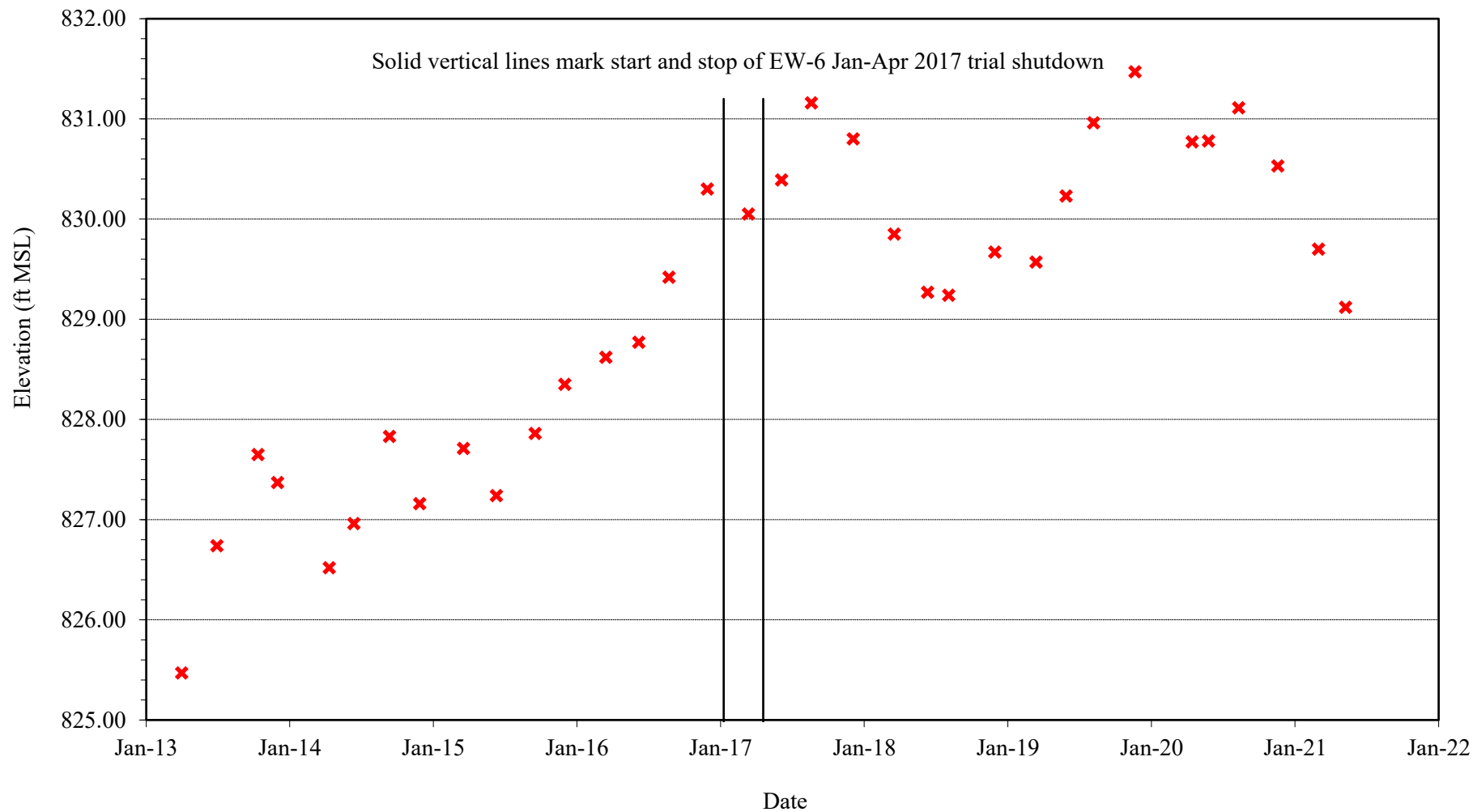


FIGURE 4



MW-10A GROUNDWATER ELEVATION DATA (APR 2013-MAY 2021)

NATIONAL PRESTO INDUSTRIES, INC.  
EAU CLAIRE, WI