



Gannett Fleming

Excellence Delivered *As Promised*

August 31, 2020

File #34286.009

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

Ms. Candace Sykora
Wisconsin Department of Natural Resources
890 Spruce Street
Baldwin, Wisconsin 54002

Re: Updated Operation and Maintenance Plan for the MRDS Cap and SVE System
National Presto Industries, Inc., Superfund Site, Eau Claire, Wisconsin
USEPA CERCLIS ID WID006196174
WDNR BRRTS 02-09-000267 and FID 609038320

Dear Howard and Candace:

On behalf of National Presto Industries, Inc. (NPI), Gannett Fleming Inc. (GF) is submitting this updated operation and maintenance (O&M) plan for the Melby Road Disposal Site (MRDS) cap and soil vapor extraction (SVE) system at NPI's Superfund site in Eau Claire, Wisconsin. The document has been updated to replace GF's October 22, 1998, O&M plan for the cap and system and provide guidelines for the system's seasonal operation, as Howard suggested during the December 2019 annual meeting at NPI. However, the framework of the agency-approved October 1998 O&M plan was maintained for consistency.

A completed certification page for this submittal is also attached. In addition:

- Attachment A (a copy of GF's August 2020 *MRDS SVE System Fourth Trial Seasonal Shutdown Assessment* report) provides background information on the MRDS SVE system and cap, etc. for reference. See Figure 1 to Attachment A for a layout of the system, including the locations of the SVE equipment building; 12 vent wells VW-1 through VW-12; 4 interior soil gas monitoring points MP-1, MP-3, MP-5, and MP-6; 13 perimeter soil gas monitoring points MP-10, MP-11, MP-12, and MP-14 through MP-23; and 2 groundwater extraction wells EW-1R and EW-2. Both EW-1R and EW-2 at the MRDS are currently turned off, as approved by both agencies.
- Supplemental correspondence describing the details of the placement of residual waste forge compound/soil and installation of the multi-layer cap at the MRDS is on file with the United

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States Environmental Protection Agency (USEPA) and the Wisconsin Department of Natural Resources (WDNR).

Updated O&M Plan for the MRDS SVE System and Cap

The multi-layer cap at the MRDS provides year-round protection of groundwater quality. The MRDS SVE system maintains a seasonal vapor barrier as backup or secondary defense. Continued full-time operation of the system for the protection of groundwater quality appears unnecessary. As summarized in GF's August 2020 assessment report (see Attachment A), no issues were observed related to four trial seasonal shutdowns of the MRDS SVE system from December 2016 through June 2017, December 2017 through June 2018, December 2018 through June 2019, and December 2019 through June 2020. As a result, NPI staff will continue to operate the SVE system seasonally, maintain its equipment following manufacturers' recommended schedules, and periodically inspect the cap at the MRDS, with technical oversight provided as necessary by GF.

Equipment Schedule

MRDS SVE system equipment consists of three vacuum blowers; one variable frequency drive (VFD); one condensate knock-out tank and transfer pump; a sump and sump pump; and associated underground piping. The blowers, VFD, and condensate knock-out tank are housed in the SVE equipment building, and the sump is located beneath the SVE equipment building. Tables 1-3 include a "Task" column that describes how the equipment and installed components are maintained.

Normal O&M

Normal operations are defined herein to include seasonal shutdown periods as described below.

Normal Operations

The SVE system will operate continuously with 9 of the 12 vent wells open, except during system maintenance and seasonal shutdown periods, when the system will be switched off manually. Following past practice, when the system is operating, the monthly vent-well sequence is for VW-

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1, VW-5, and VW-9 to be off first; followed by VW-2, VW-6, and VW-10, etc. Advantages to this operational approach include:

- All three vent wells that are offline at any one time are equidistant from the blower(s), increasing the likelihood of relatively balanced flow from the nine vent wells that are online.
- It prevents the development of stagnation zones between vent wells long term.

Condensate from the SVE system can collect in both the knock-out tank and sump. Condensate is discharged to the same cascade aeration system (i.e., CAS-1) that serves MRDS groundwater extraction wells EW-1R and EW-2, when operating. The pumps used to discharge the condensate are controlled by float switches or probes in both the knock-out tank and sump. A high-level switch or probe automatically shuts the vacuum blower(s) down if the tank or sump fills with condensate before either the transfer pump can drain the tank or the sump pump can drain the sump.

During normal operation:

- The gate valve on the inlet side of each operating vacuum blower should be 100 percent open, and the inlet side gate valve at each blower that is off should be 100 percent closed.
- The vacuum relief valves on the blowers should not open. They are set to open at approximately 80 inches of water column (inch wc) compared to typical blower inlet vacuums of less than 35 inch wc.
- The VFD is available to modulate flow, which helps to minimize condensate production.

A summary of the 12-month on/off seasonal operating schedule for the MRDS SVE system follows. NPI will:

- Start six-month seasonal operation of the system with one blower running at normal flow (i.e., 570 acfm) in June.
- Field screen the 12 vent wells (VW-1 through VW-12) and SVE exhaust gas with a portable flame-ionization detector (FID) for volatile organic compounds (VOCs) and methane quarterly.

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- Sample the SVE exhaust gas samples for laboratory analysis of trichloroethylene (TCE); 1,1,1-trichloroethane (TCA); tetrachloroethylene (PCE); and 1,1-dichloroethane (1,1-DCA) quarterly. Analysis for the 34 VOCs on the USEPA target compound list (TCL) will resume if FID readings indicate increasing VOC concentrations.
- Continue to use a contingency plan reflective of the current groundwater standards of 5 and 200 micrograms per liter ($\mu\text{g}/\ell$), respectively, for TCE and TCA. These concentrations correspond to vapor-phase threshold values of 1.0 and 60 $\mu\text{g}/\ell$, respectively.
- Turn the blower(s) off in December and leave the system shut down for six months.
- Operate the system for 48 - 180 hours (i.e., from 2 to 7.5 days) with one blower running at low flow (i.e., 150 - 240 acfm) for quarterly field screening and sampling in March.
- Resume six-month seasonal operation of the system with one blower running at normal flow in June.
- Continue to perform all relevant O&M work, as described below.

Normal O&M Tasks

Normal O&M tasks will include periodically checking the SVE system to confirm that it is running within its operating parameters, conducting system maintenance, visually inspecting the cap and cover system, and mowing the cap as necessary to keep the average height of the grass from exceeding 12 inches. See Tables 1 - 3 for details.

Prescribed Operating Conditions and O&M Task Schedule

Tables 1 and 2 include an “Operating Range” category with “Historical” and “Acceptable” columns for reference. The two columns summarize the prescribed operating conditions for all components of the SVE system. Tables 1 - 3 also provide a schedule showing the frequency of each O&M task.

Potential Operating Problems

Tables 1 - 3 include “Service/Action Required” and “Recommended Action” columns. See them for descriptions of typical problems, suggested information sources, and summaries of common and/or anticipated remedies based on site history and professional experience.

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Routine System Maintenance, Inspections, Monitoring Tasks, and Laboratory Testing

Tables 1 - 3 summarize the required system maintenance and inspections. Attachment B includes blank field data forms for reference.

Routine Monitoring Tasks

Tables 1 - 3 also summarize the required system monitoring. Routine monitoring tasks not summarized in Tables 1 - 3 include quarterly:

- Field screening of the individual vent wells and SVE exhaust gas with a portable FID for VOCs and methane.
- Sampling of the SVE exhaust gas for laboratory analysis of TCE; TCA; PCE; and 1,1-DCA. Past quality assurance/quality control (QA/QC) procedures that will continue to be followed when collecting and shipping the exhaust gas sample are outlined below.
 - Use disposable gloves when collecting samples.
 - Complete a chain of custody record to accompany each sample shipment.
 - Ship samples for analysis by overnight courier service.

The exhaust gas samples are submitted to an independent laboratory for analysis. GF's October 2017 quality assurance plan (QAPP) for NPI provides additional details.

Alternative O&M Procedures and Corrective Action

The primary purpose of the multi-layer cap and SVE system installed at the MRDS is to prevent vapor-phase transport of VOCs to the groundwater. Should they fail to do so, then pumping of groundwater from EW-1R and EW-2 will resume to capture and control any release of dissolved-phase VOCs that may endanger public health or the environment.

The MRDS SVE system contingency plan calls for NPI to resume operation of all three vacuum blowers if vapor-phase TCE/TCA concentrations in exhaust gas samples rebound such that impacts to groundwater are likely (i.e., ≥ 50 percent of a calculated threshold value). Alternatively, in the event vapor-phase VOC concentrations rebound such that impacts to

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groundwater may be possible (10-50% of a calculated threshold value), then NPI would resume operation of one vacuum blower at 570 acfm. The contingency plan is reflective of the current groundwater standards of 5 and 200 µg/l, respectively, for TCE and TCA. These concentrations correspond to vapor-phase threshold values of 1.0 and 60 µg/l, respectively.

During the four trial seasonal shutdowns of the system from December 2016 through June 2020, vapor-phase TCE and TCA concentrations remained more than two orders of magnitude below calculated threshold levels. See GF's August 2020 assessment report in Attachment A for details.

Safety Plan

Following current practice, site personnel will be required to:

- Wear hearing protection and safety glasses at all times while inside the remediation building if one or more of the vacuum blowers is operating.
- Use disposable gloves when collecting exhaust gas samples.

Otherwise, it is not anticipated that site personnel will be required to wear or use any special personal protective equipment or to perform any special safety tasks in the event of a system failure. However, site personnel are advised to consult with an electrician and/or engineer before attempting any repair, as shown in Tables 1 - 3.

Records and Reporting Mechanisms

O&M records, using the NPI MRDS cap and SVE field data forms or equivalent provided in Attachment B, are completed as listed in Tables 1 - 3. NPI will continue to submit both monthly progress and annual reports to the agencies. However, once the agencies agree that monthly reporting is no longer necessary, then that routine formal correspondence will cease. Electronic copies of the field data sheets for any time period of interest will be available upon request.

In each annual report, the vapor-phase NPI VOC analytical results will be reviewed. Based on the TCE/TCA and FID data, NPI may propose changes to the:

- Frequency, parameters, and/or analytical techniques of the exhaust gas sampling and vent well/exhaust gas field screening programs.

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- Seasonal operating schedule (e.g., run the system three months a year instead of six).

SVE System Shutdown and Well Abandonment

Seasonal to full-time operation of the SVE system will continue, as necessary, until the lead agency approves it for closure. Once closure approval is obtained, the aboveground piping and equipment will be dismantled, and all related accessible subsurface wells will be abandoned in accordance with NR 141 standards and Section 2G of the October 1998 technical specifications. Well abandonment forms will be completed and submitted to the WDNR.

Feel free to contact me at 608-327-5047, 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.

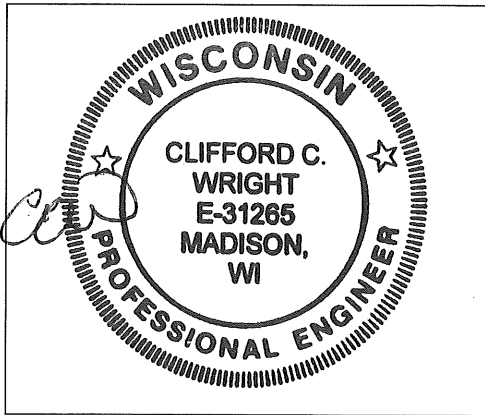
ecc: Derrick Paul (NPI)
Chelsea Payne and Dennis Kugle (GF)

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 <i>Clifford C. Wright</i>	Date 8.31.2020

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 <i>Clifford C. Wright</i>	Date 8.31.2020

NATIONAL PRESTO INDUSTRIES, INC.
EAU CLAIRE, WISCONSIN

TABLE 1

VACUUM BLOWER NORMAL FLOW O&M TASKS FOR THE MRDS SVE SYSTEM⁽¹⁾

Description ⁽²⁾ Task	Frequency	Operating Range		Service/Action Required	Recommended Action
		Historical ⁽³⁾	Acceptable		
Vacuum blower(s), vent well piping/manifold, and interior soil gas monitoring point measurements (MP-1, MP-3, MP-5, and MP-6)					
Check & record blower inlet vacuum(s)	Daily to weekly	15-35 inch wc	0-100 inch wc	>75 inch wc	Check other items on this list to determine if inlet obstruction is present.
Check & record blower discharge flow rate(s)	Daily to weekly	560-580 acfm	Not applicable	<450 acfm	Check/adjust gate valve. Check inlet & discharge piping for obstructions. Check/change air filter media.
Check & record exhaust gas discharge pressure(s)	Daily to weekly	0-1 psig	0-1 psig	>1 psig	Check discharge piping/exhaust gas stack for obstructions.
Check & record exhaust gas discharge temp(s)	Daily to weekly	60-110° F	40-150° F	>150° F	Check system operating vacuum and differential pressure across vacuum blower(s).
Check & record vent well inlet temperatures (VW-1 thru VW-12)	Daily to weekly	45-65° F	Not applicable	>70° F	Check for/replace broken plastic butterfly valve parts, but temp >70° F for closed vent wells is okay.
Record blower run-time clock reading(s)	Daily to weekly	Not applicable	Not applicable	Excessive downtime	Check condensate & high level float switches for normal operation. Consult electrician/engineer.
Check & record differential pressure across blower inlet filter(s)	Daily to weekly	3-10 inch wc	0-20 inch wc	>20 inch wc	Check filter element; clean or replace as required.
Record interior soil gas monitoring point vacuums in MP-1, MP-3, MP-5, and MP-6	Daily to weekly	0.20-1.0 inch wc	Not applicable	0 inch wc	Check vacuum gauge and tubing; consult engineer.
Condensate pump (CP), condensate tank (CT), & groundwater extraction wells EW-1R/EW-2, if operating (EW-1R & EW-2 are currently shut down, as approved by both agencies)					
Check & record CP run time, CT count, and CT flow meter	Daily to weekly	Pump out sump and CT 0-5 times/day	0-24 times/day	Cycle times <1 hr	Consult engineer.
Check & record groundwater discharge if EW-1R and EW-2 are operating	Daily to weekly	EW-1R and EW-2 run continuously, when operating.		Pump(s) not running	Consult electrician.

NOTE:

Units of measure used include inches of water column (inch wc) for vacuum, pounds per square inch, gauge (psig) for pressure, and actual cubic feet per minute (acfm) for flow.

FOOTNOTES:

(1) Adapted from Oct 1998 Table D-1 based on historical operating data.

(2) Description = Equipment type/measurement grouping, as shown.

(3) Historical = Normal operating range based on historical data, since October 1999, with one vacuum blower running.

TABLE 2

VACUUM BLOWER LOW FLOW O&M TASKS FOR THE MRDS SVE SYSTEM

Description ⁽¹⁾ Task	Frequency	Operating Range		Service/Action Required	Recommended Action
		Historical ⁽²⁾	Acceptable		
Vacuum blower(s), vent well piping/manifold, and interior soil gas monitoring point measurements (MP-1, MP-3, MP-5, and MP-6)					
Check & record blower inlet vacuum(s)	Daily to weekly	0-5 inch wc	0-100 inch wc	>75 inch wc	See Table 1 entry for this task and/or check the variable frequency drive (VFD).
Check & record blower discharge flow rate(s)	Daily to weekly	140-250 acfm	Not applicable	<100 acfm	Check/adjust gate valve. Check inlet & discharge piping for obstructions. Check/change air filter media.
Check & record exhaust gas discharge pressure(s)	Daily to weekly	0-0.1 psig	0-1 psig	>1 psig	Check discharge piping/exhaust gas stack for obstructions.
Check & record exhaust gas discharge temp(s)	Daily to weekly	60-75° F	40-150° F	>150° F	Check system operating vacuum and differential pressure across vacuum blower(s).
Check & record vent well inlet temperatures (VW-1 thru VW-12)	Daily to weekly	50-65° F	Not applicable	>70° F	Check for/replace broken plastic butterfly valve parts, but temp >70° F for closed vent wells is okay.
Record blower run-time clock reading(s)	Daily to weekly	Not applicable	Not applicable	Excessive downtime	Check condensate & high level float switches for normal operation. Consult electrician/engineer.
Check & record differential pressure across blower inlet filter(s)	Daily to weekly	3-4 inch wc	0-20 inch wc	>20 inch wc	Check filter element; clean or replace as required.
Record interior soil gas monitoring point vacuums in MP-1, MP-3, MP-5, and MP-6	Daily to weekly	0-0.35 inch wc	Not applicable	0 inch wc in all four monitoring points	Check vacuum gauges and tubing; consult engineer.
Condensate pump (CP), condensate tank (CT), & groundwater extraction wells EW-1R/EW-2, if operating (EW-1R & EW-2 are currently shut down, as approved by both agencies)					
Check & record CP run time, CT count, and CT flow meter ⁽³⁾	Daily to weekly	Pump out sump and CT 0-5 times/day	0-24 times/day	Cycle times <1 hr	Consult engineer.
Check & record groundwater discharge if EW-1R and EW-2 are operating ⁽⁴⁾	Daily to weekly	EW-1R and EW-2 run continuously, when operating.		Pump(s) not running	Consult electrician.

NOTE:

Units of measure used include inches of water column (inch wc) for vacuum, pounds per square inch, gauge (psig) for pressure, and actual cubic feet per minute (acfm) for flow.

FOOTNOTES:

(1) Description = Equipment type/measurement grouping, as shown.

(2) Historical = Normal operating range based on historical data with one blower running at low flow.

(3) At low flow, condensate production is unlikely. However, the CP/CT tasks should continue for consistency.

(4) If EW-1R & EW-2 resume pumping, then it's unlikely the MRDS SVE system would operate at low flow. However, this task is included for completeness.

NATIONAL PRESTO INDUSTRIES, INC.
EAU CLAIRE, WISCONSIN

TABLE 3

MISCELLANEOUS O&M TASKS FOR THE MRDS SVE SYSTEM AND CAP⁽¹⁾

Description ⁽²⁾ Task	Frequency	Comment	Service/Action Required	Recommended Action
SVE system equipment/controls in remediation building				
Check electrical controls and breakers	Daily to weekly	None	Tripped breakers or non-functioning equipment	Consult electrician.
Lubricate mechanical equipment	Per manufacturer's recommendation	None	See <i>Recommended Action</i> column	Conduct per manufacturer's recommendations. The vacuum blowers require no oil changes.
Test condensate pump control circuit and probes	Biannual	See <i>Recommended Action</i> column		Clean probes. Consult electrician as necessary.
Inspect condensate sump and knock-out tank	Biannual	None	Large accumulation of soil residue or other matter	Clean as necessary.
Exercise vent well VW-1 thru VW-12 condensate discharge valves	Monthly to quarterly	See <i>Task</i> column		
Cap and cover system, perimeter drainage ditch, stormwater retention basin, and perimeter soil gas monitoring points (MP-10 thru MP-12 and MP-14 thru MP-23)				
Inspect perimeter drainage ditch and stormwater retention basin	Monthly and following heavy precipitation	None	No erosion or sediment buildup; no standing water	Repair erosion/remove sediment; scarify base of stormwater retention basin as required.
Inspect cap and cover system	Monthly and following heavy precipitation	Conduct and record results of annual cap inspection as well.	Any signs of cracking, settlement, swelling, or erosion. Any visible GCL or geomembrane material.	Signs of cracking, settlement, or swelling shall be reported to the Engineer immediately. Severe erosion to the cap surface should be re-graded and re-seeded.
Maintain cap surface vegetation	See <i>Recommended Action</i> column		Vegetation height >12 inch	Mow cap as necessary. Growth of trees on the cap surface, especially those with deep tap roots, is not recommended.
Inspect perimeter drainage culvert inlets and outlets	Annual	Brush/vegetation can impede stormwater flow		Clear brush/vegetation as necessary.
Check perimeter soil gas monitoring points	Annual	None	Damaged casing/surface seal	Repair as necessary

NOTE:

GCL = Geosynthetic clay liner.

FOOTNOTES:

(1) Adapted from Oct 1998 Table D-1 based on historical operating data & cap/cover system performance.

(2) Description = Equipment type/measurement/cap-cover system grouping, as shown.

ATTACHMENT A

MRDS SVE SYSTEM FOURTH TRIAL SEASONAL SHUTDOWN ASSESSMENT REPORT



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Wisconsin Department of Natural Resources
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Baldwin, Wisconsin 54002

Re: MRDS SVE System Fourth Trial Seasonal Shutdown Assessment Report
National Presto Industries, Inc., Superfund Site, Eau Claire, Wisconsin
USEPA CERCLIS ID WID006196174
WDNR BRRTS 02-09-000267 and FID 609038320

Dear Howard and Candace:

On behalf of National Presto Industries, Inc. (NPI), Gannett Fleming Inc. (GF) is submitting this letter report assessing the fourth trial seasonal shutdown of the Melby Road Disposal Site soil vapor extraction (MRDS SVE) system at NPI's Superfund site in Eau Claire, Wisconsin. The first four trial seasonal shutdowns were conducted from December 2016 through June 2017, December 2017 through June 2018, December 2018 through June 2019, and December 2019 through June 2020, respectively, following protocol presented in GF's April 14, 2016, *Modified Cold Weather Operation Assessment* report, as approved by USEPA. GF's:

- August 2017 *MRDS SVE System Trial Seasonal Shutdown Assessment* report presented results from the first trial shutdown.
- August 2018 *MRDS SVE System Second Trial Seasonal Shutdown Assessment* report provided results from the second trial shutdown.
- October 2019 *MRDS SVE System Third Trial Seasonal Shutdown Assessment* report summarized results from the third trial shutdown.
- July 2020 *NPI Monthly Progress Report for June 2020* stated that GF would submit this fourth assessment report on NPI's behalf.

A completed certification page for this submittal is also attached.

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Background Information on the MRDS SVE System

Between 1966 and 1970, waste forge compound was landfilled at the MRDS in trenches up to 20 feet deep. In its pure form, the forge compound consisted of approximately equal parts of graphite, asphalt, and mineral oil and was used to manufacture military ordnance (i.e., shells and projectiles). The waste forge compound that was generated contained metals, volatile organic compounds (VOCs), and semi-volatile organic compounds. The primary chemical of concern associated with the waste forge compound is 1,1,1-trichloroethane (TCA), a solvent that was used to remove the forge compound from the projectile manufacturing equipment. As described in GF's July 14, 1999, status report, a vapor-phase concentration of 12 micrograms per liter ($\mu\text{g}/\text{l}$) was established as the threshold value corresponding to the 40 $\mu\text{g}/\text{l}$ NR 140 preventive action limit (PAL) for dissolved-phase TCA in groundwater. Applying the same formula to trichloroethylene (TCE), a vapor-phase threshold value of 0.10 $\mu\text{g}/\text{l}$, corresponding to the 0.5 $\mu\text{g}/\text{l}$ PAL for dissolved-phase TCE in groundwater, is calculated. It should be noted that the groundwater clean-up goals for the site are now the NR 140 Enforcement Standard/ federal Maximum Concentration Limit (ES/MCL), which are 10 times the PAL for TCE and 5 times the PAL for TCA. Hence, the corresponding vapor-phase thresholds are 1.0 and 60 $\mu\text{g}/\text{l}$ for TCE and TCA, respectively. Based on analytical results from long-term monitoring, other VOCs that have contributed ≥ 10 percent of the mass per unit volume of MRDS exhaust gas emissions include 1,1-dichloroethane (DCA) and tetrachloroethylene (PCE).

During the summer of 1998 before the SVE system began operating, about 20,000 cubic yards of waste forge compound/soil from other areas on the NPI site were consolidated at the MRDS, and a multi-layer cap that included a synthetic geomembrane and geosynthetic clay liners was installed over the top of the material to prevent precipitation from infiltrating through it and the underlying waste. The capped area covers approximately 10 acres. The average depth to the water table is approximately 70 feet below the bottom of the multi-layer cap, and the native soil above the water tables consists of sand and gravel. Correspondence describing the details of the placement of the waste forge compound/soil and installation of the multi-layer cap is on file with the United States Environmental Protection Agency (USEPA) and the Wisconsin Department of Natural Resources (WDNR).

Figure 1 shows the layout of the SVE system, which consists of 12 vent wells, VW-1 through VW-12; three vacuum blowers; one condensate knock-out tank; a sump; and associated underground piping. The blowers and the condensate knock-out tank are housed in the SVE equipment building, and the sump is located beneath the SVE equipment building shown on Figure 1. As

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described in GF's first status report, a start-up test of the SVE system was conducted on October 14, 1998, and the system began operating full time on October 28, 1998. As stipulated in the May 1996 Record of Decision (ROD), the MRDS SVE was designed and installed to reduce the volume of VOCs in on-site soils and create a vapor barrier to prevent future releases of VOCs into the groundwater. To prevent stagnation zones from developing between any pair of wells long term, only 9 of the 12 vent wells operate at a time, and a different set of 3 wells is turned off each month, when the system is operating.

Individual vent well and SVE exhaust samples are collected in Tedlar bags and Summa canisters to measure performance and compliance monitoring criteria. The samples in the Tedlar bags are field-screened for VOCs and methane using a portable flame-ionization detector (FID). These FID readings serve as a screening tool and are used to identify the occasional elevated reading in a well and to determine whether these readings are due primarily to methane or VOCs. The Summa canisters are currently submitted to Pace Analytical (Pace) in Minneapolis, Minnesota, and the air samples are analyzed for 1,1-DCA, PCE, TCA, and TCE, as approved by both agencies. For the purpose of this report, 1,1-DCA, PCE, TCA, and TCE will hereafter be referred to as the NPI VOCs. Pace analyzes for the NPI VOCs by gas chromatography/mass spectrometry (GC/MS) using Method TO-15. Prior to June 2016, exhaust gas samples were analyzed for the 34 VOCs on the USEPA target compound list (TCL).

Field screening of the individual vent wells and SVE exhaust gas has typically resulted in 0.0 parts per million volume (ppmv) readings. When a positive reading has occurred, it has routinely been attributable to the presence of methane. Historically, 10 of the 34 VOCs on USEPA's target compound list (TCL VOCs) have been detected at or above 0.1 µg/l in the exhaust gas samples analyzed in the laboratory. In a November 20, 2014, letter from Howard, the USEPA approved monitoring of the vent wells and SVE exhaust quarterly rather than monthly. However, submittal of one-page monthly reports is still required. Quarterly sampling began in 2015. Cumulative emissions of total VOCs from the SVE system in 2019 were approximately 0.70 pound. Since the SVE system began operation in October 1998, the estimated cumulative emissions have been approximately 170 pounds. See GF's March 2020 *Annual Interim Remedial Action Status Report – 2019* for additional details on emissions.

Between October 28, 1998, and October 11, 1999, all three blowers operated continuously to extract approximately 1,710 actual cubic feet per minute (acfm) of soil gas from nine vent wells at a time. This produced an average soil gas extraction rate of 190 acfm per well. Vacuum readings

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on the SVE vent well manifold in the equipment building ranged from 18 to 25 inches of water column (inch wc).

Based on the first-year performance of the SVE system, the USEPA and WDNR approved the use of a single blower, and two of the three blowers were shut down on October 11, 1999. The agencies allowed NPI to turn two of the three blowers off because the vapor-phase concentrations of VOCs under the capped area had decreased to the point where their effects on groundwater were negligible. The contingency plan calls for NPI to resume operating all three blowers if vapor-phase VOC concentrations rebound such that impacts to groundwater are likely.

Since October 11, 1999, the system has operated with one blower running at an average flow rate of approximately 570 acfm. With nine vent wells open, this produces an average soil gas extraction rate of 63 acfm per well. Manifold vacuum readings in the equipment building have ranged from 4 to 32 inches wc.

In addition, after operation of the system began in October 1998, NPI periodically field-screened soil gas at 17 monitoring points, comprised of 4 interior locations (MP-1, MP-3, MP-5, and MP-6) and 13 perimeter locations (MP-10, MP-11, MP-12, and MP-14 through MP-23). Field-screening of the soil gas at the interior and perimeter monitoring points was discontinued in January 2000 and July 2001, respectively, because VOC concentrations in the soil gas were low to non-detect and collection of additional data was not necessary.

Because the multi-layer cap prevents precipitation from infiltrating through it and the underlying waste, the primary driving force behind the downward migration of VOCs to the groundwater has been eliminated. Isolated under the cap, the waste now releases previously sorbed VOCs only by diffusion, a relatively slow process. In addition, there is a low-level source of methane under the cap. Since October 1999, the system has continued to operate with just one blower running. It captures the vapor-phase VOCs diffusing from the forge compound before they reach the groundwater and controls the methane being generated.

There are also two groundwater extraction wells (EW-1R and EW-2) and three groups of current/former groundwater monitoring well nests (MW-5A/B, MW-62A/B/C, and MW-63A/B) in the MRDS area, as shown on Figure 1. In April 2020, piezometers MW-5B, MW-62C, and MW-63B were abandoned, as approved by both agencies. Otherwise, monitoring wells MW-5A, MW-62A, and MW-63A and piezometer MW-62B are sampled periodically for five VOCs: TCA, TCE,

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PCE, 1,1-DCA, and 1,1-dichloroethene (1,1-DCE). When EW-1R and EW-2 are not pumping, groundwater beneath the site flows to the north-northwest.

Extraction wells EW-1R and EW-2 at the MRDS are currently turned off. An 18-month trial shutdown of EW-1R and EW-2 ended in March 2012. A May 23, 2012, report from GF to the agencies documented the analytical results of six rounds of groundwater sampling from the trial shutdown. The report concluded that the trial shutdown of the extraction wells, an interim remedy prior to construction of a cap and SVE system, did not result in any adverse impacts to groundwater quality at and downgradient from the MRDS. It also concluded that continued operation of the extraction wells was no longer necessary to protect groundwater quality at and downgradient from the MRDS. The USEPA and WDNR verbally agreed with these conclusions in a December 13, 2012, meeting at NPI. The USEPA requested that NPI amend the Operating and Maintenance (O&M) Plan for the MRDS to document the shutdown of EW-1R and E-2 and the agencies' approvals of the long-term shutdown of the extraction wells. The amendment was completed and provided to both agencies via e-mail on July 17, 2013.

Historical Exhaust Gas Analytical Results for the MRDS SVE System

Table 1 summarizes the laboratory analytical results for the 10 TCL VOCs identified in the SVE exhaust at or above 0.1 µg/l since January 2004. Based on Table 1, Figures 2 and 3 both show the concentrations of three select VOCs detected in the SVE exhaust gas (i.e., TCA, TCE, and PCE). Figure 2 shows the VOC concentrations plotted on an arithmetic scale. Figure 3 shows the concentrations plotted on a log scale. Both plots show that VOC concentrations decreased rapidly during the first two months of operation of the SVE system and that they have remained below 1.0 µg/l since January 1999. In addition, as summarized in Table 1, since 08/12/09 (i.e., over the past ten-plus years), the maximum measured TCE concentration was 0.0088 µg/l on 02/25/13, more than two orders of magnitude below the 1.0 µg/l vapor-phase threshold value corresponding to the 5.0 µg/l dissolved-phase ES/MCL for TCE in groundwater.

Modified Cold Weather Operation at the MRDS SVE System (December 2015-March 2016)

Since EW-1R and EW-2 were shut down at the MRDS, the constant flow of water to cascade air stripper #1 (CAS-1) was eliminated. Without the constant flow of pumped water from the extraction wells, the 30-gallon batches of condensate generated through operation of the SVE system tend to freeze in the underground pipe running to CAS-1 (located about 250 feet southwest of the MRDS SVE equipment building) during cold weather. To address the issue during the winter of 2014-2015, the SVE system was periodically turned off, the condensate that

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had accumulated in the sump was pumped into drums, and the drums were emptied into CAS-2R.

Based on the existing multi-layer cap at the MRDS, the extensive unsaturated zone extending 50 feet or more from the bottom of the buried/capped waste forge compound to the top of the water table, consistently low FID readings and laboratory analytical results for VOCs in the MRDS SVE exhaust gas since 2001, and the effective protection of groundwater quality associated with the MW-34/70 area SVE system (without a cap) that is turned off each year during cold weather months, NPI did the following:

1. Installed a variable frequency drive (VFD) in the MRDS SVE equipment building in the fall of 2015 to control the flow from the vacuum blowers.
2. Used the VFD to decrease flow from 570 to 150 acfm starting on December 2, 2015. Operated the system at flows ranging from 150-220 acfm from December 2, 2015, through March 22, 2016. With nine vent wells open, this produced average soil gas extraction rates of 17-24 acfm per well. Manifold vacuum readings in the equipment building decreased to <1 inch wc, and condensate production dropped to zero.
3. Collected SVE exhaust gas samples monthly in December 2015 and January through March 2016 to monitor TCA and TCE concentrations relative to their calculated threshold levels of 60 and 1.0 $\mu\text{g}/\ell$, respectively, and submitted them to Pace for routine analysis.
4. Maintained the existing contingency plan, which calls for NPI to resume operation of all three blowers if vapor-phase TCE/TCA concentrations rebound such that impacts to groundwater are likely (i.e., ≥ 50 percent of a calculated threshold value). Alternatively, in the event vapor-phase VOC concentrations rebounded such that impacts to groundwater may be possible (10-50% of a calculated threshold value), then NPI would resume operation of one blower at 570 acfm.
5. Continued standard O&M of the system and monthly reporting to the agencies, except as described in Items #2 through #4, above.
6. Used the VFD to increase flow from 150 to 570 acfm and resumed normal operation of the SVE system on March 22, 2016.
7. Submitted an assessment report to the agencies documenting the success of the modified cold weather operation and proposing a trial seasonal shutdown of the MRDS SVE system. See GF's April 2016 *Modified Cold Weather Operation* report for details, including a work plan.

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Fourth Trial Seasonal Shutdown of the MRDS SVE System (December 2019-June 2020)

On December 4, 2019, the MRDS SVE system was shut down for a fourth 6-month trial period, as approved by both agencies. Prior to shutdown, routine quarterly sampling was conducted with a single vacuum blower running in low-flow mode at 240 acfm. In addition, the SVE system operated for 96.5 hours between March 20 and 24, 2020, with one blower running and the VFD dialed down to its low-flow setting (<250 acfm) for quarterly sampling.

On June 1, 2020, low-flow operation of the SVE system resumed. The system was off on June 2nd or 3rd for approximately 5.1 hours while the MRDS remediation equipment building was cleaned. On June 10th, the VFD was adjusted for normal seasonal operation. Data collected between June 1st and 30th show that the blower ran at average flow rates of 220 and 570 acfm and manifold vacuums were <1 inch wc and steady at 6 inch wc under low and normal flow conditions, respectively, when operating. Additional monitoring performed on June 10th, just before the flow rate was increased from 220 to 570 acfm, included:

- Field screening the 12 vent wells (VW-1 through VW-12) and SVE exhaust gas with a portable FID for VOCs and methane.
- Collecting samples of the SVE exhaust gas for laboratory analysis of the NPI VOCs.

Everything was done according to GF's April 2016 work plan, with USEPA's approval. See GF's August 2017, August 2018, and October 2019 assessment report for details of the first, second, and third trial seasonal shutdowns, respectively. Copies of the laboratory analytical results and field data sheets are available upon request.

Assessment of the Trial Seasonal Shutdown Results

The FID readings and lab data collected during the four trial seasonal shutdowns were consistent with historical results when the SVE system was operated at 570 acfm. As anticipated, there was a measureable increase in overall NPI VOC concentrations from December 2016 through June 2017, December 2017 through June 2018, December 2018 through June 2019, and December 2019 through June 2020 due to the gradual accumulation of vapors from the landfilled waste forge compound under the cap. However, vapor-phase TCA and TCE concentrations remained more than two orders of magnitude below calculated threshold levels corresponding to the ES/MCL for both compounds in groundwater, as summarized in GF's April 2016 work plan. No issues related to the trial seasonal shutdowns were observed.

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Table 2 summarizes the June 2016 through June 2020 NPI VOC concentration data and calculated fractional changes and ratios for comparison. Example computations are provided on Page 2 of Table 2. Based on the overall results, GF believes the trial shutdown data support shutting the MRDS SVE down seasonally, like at the MW-34/70 area. Details are described in the following section.

Record of Decision Considerations and Future Work

As required by the May 1996 ROD, NPI installed an SVE system at the MRDS “to remove VOCs from the soils and to provide a vapor barrier to prevent the migration of VOCs into the groundwater.” Since October 1998, NPI has operated the MRDS SVE system and met both objectives. However, there is no specific requirement for continuous operation of the system in the May 1996 ROD. In addition, monitoring results from the December 2016 through June 2017, December 2017 through June 2018, December 2018 through June 2019, and December 2019 through June 2020 trial seasonal shutdowns document that continuous operation of the system is not necessary. The multi-layer cap at the MRDS has essentially eliminated infiltration of precipitation and vertical migration of contaminants and has proven to provide reliable protection of groundwater quality, provided the gradual buildup of vapor-phase TCE and TCA in the vadose zone between the buried waste and water table is periodically addressed. Consequently, going forward, NPI proposes to:

- Continue to operate the MRDS SVE system with one blower running at 570 acfm through November 2020, conduct standard O&M, and provide monthly progress reports to the agencies.
- In December 2020, turn the blower(s) off and leave the system shut down for six months. In March 2021, the system will operate for about one week with one blower running at 150-240 acfm for quarterly field screening and sampling.
- Resume six-month seasonal operation of the system with one blower running at 570 acfm starting in June 2021.
- Field screen its exhaust gas for VOCs and methane quarterly using a portable FID.
- Collect and analyze exhaust gas samples for TCE; TCA; PCE; and 1,1-DCA quarterly. Analysis for the 34 TCL VOCs will resume if FID readings indicate increasing VOC concentrations.

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- Continue to use a contingency plan reflective of the current groundwater standards of 5 and 200 $\mu\text{g}/\ell$, respectively, for TCE and TCA. These concentrations correspond to vapor-phase threshold values of 1.0 and 60 $\mu\text{g}/\ell$, respectively.
- Update GF's October 22, 1998, final O&M plan for the MRDS SVE system to include seasonal operation, etc. and submit it for agency review and comment, as Howard suggested during the December 2019 annual meeting at NPI.

This approach will continue to meet ROD requirements (i.e., remove VOCs from soils and protect groundwater quality) and have the added benefit of reducing the project's environmental footprint. Please let me know if you concur with NPI's proposed path forward, and feel free to contact me at 608-327-5047, if you have any questions or need additional information.

Sincerely,

GANNETT FLEMING, INC.



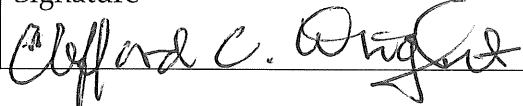
Clifford C. Wright, P.E., P.G.
Project Engineer

CCW/jec/Enc.

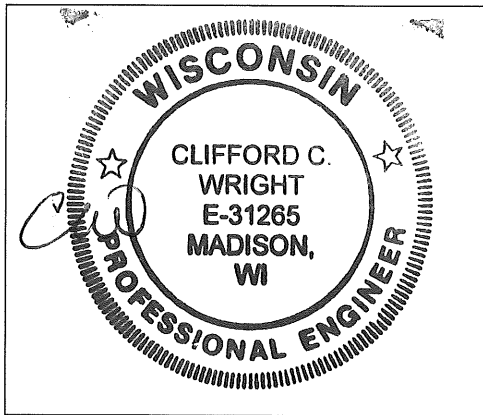
ecc: Derrick Paul (NPI)
Chelsea Payne and Dennis Kugle (GF)

ENGINEERING AND HYDROGEOLOGIST CERTIFICATIONS

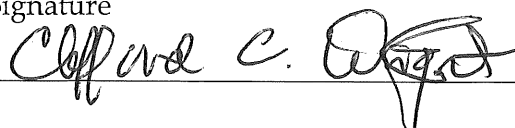
I hereby certify that I am a registered professional engineer in the State of Wisconsin, registered in accordance with the requirements of ch. A-E 4, Wis. Adm. Code; that this document has been prepared in accordance with the rules of Professional Conduct in ch. A-E 8, Wis. Adm. Code; and that, to the 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.

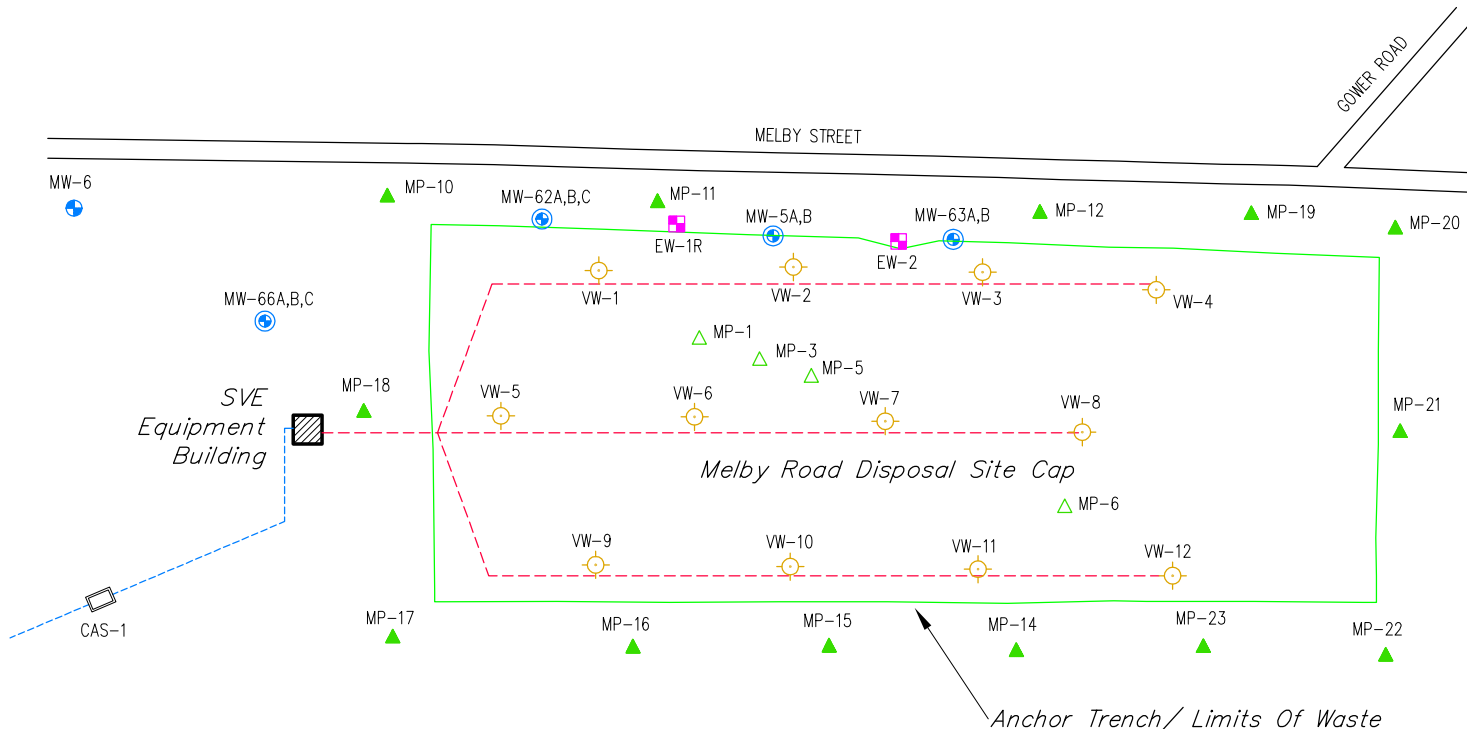
Print Name Clifford C. Wright	Title Project Engineer/Geologist
Signature 	Date 08/5/2020

P.E. Seal for E-31265:



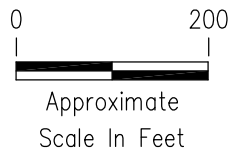
I hereby certify that I am a hydrogeologist as that term is defined in s. NR 712.03(1), Wis. Adm. Code, am registered in accordance with the requirements of ch. GHSS 2, Wis. Adm. Code, or licensed in accordance with the requirements of ch. GHSS 3, Wis. Adm. Code, and that, to the best of my knowledge, 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 08/5/2020



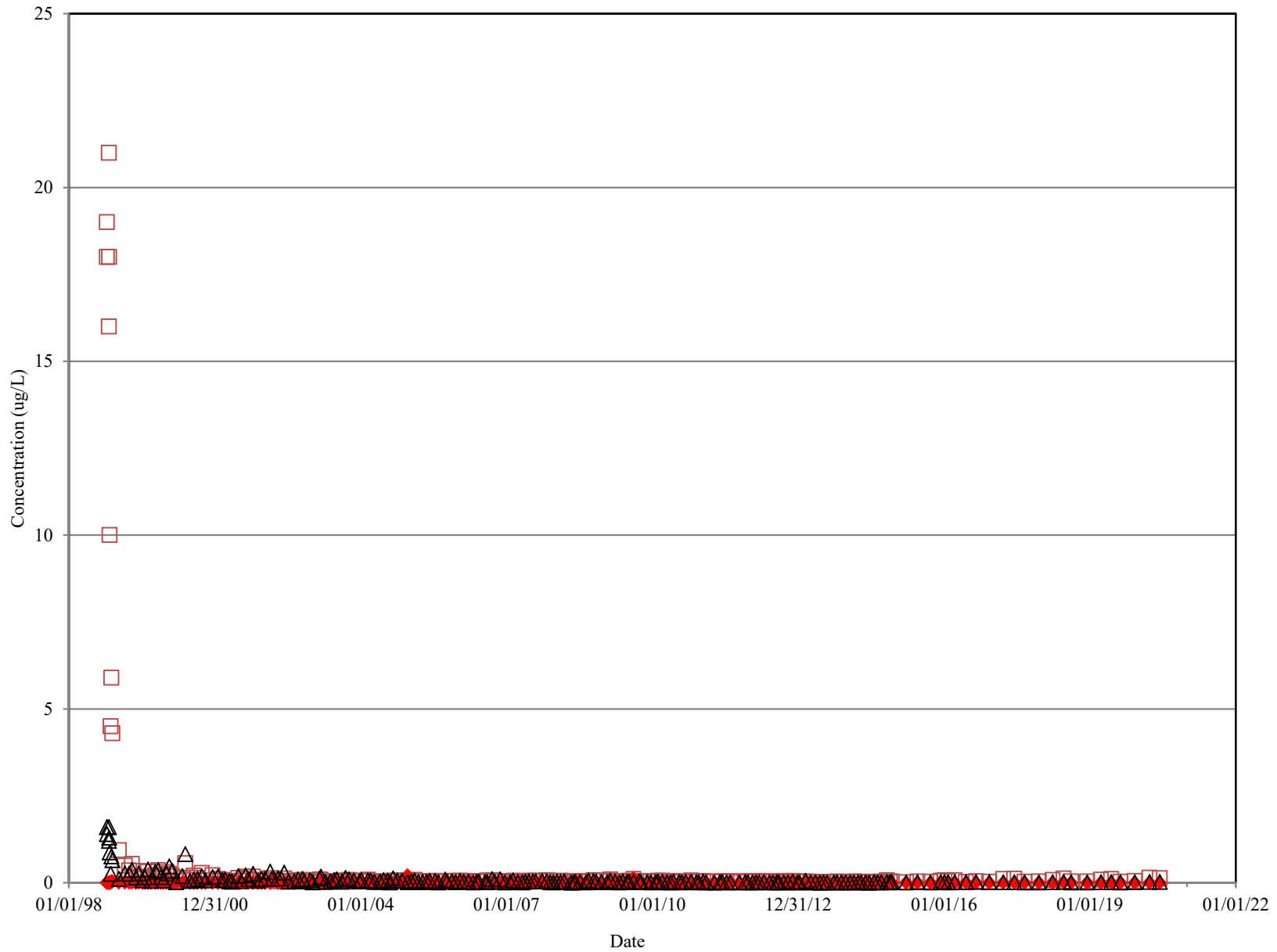
LEGEND

- Soil Vapor Extraction Vent Well
- Perimeter Soil Gas Monitoring Point
- Interior Soil Gas Monitoring Point
- Groundwater Monitoring Well Nest
- Groundwater Monitoring Well
- Groundwater Extraction Well
- Cascade Aerator
- Underground Piping For SVE
- Underground Discharge Line For SVE
- Condensate/Pumped Groundwater (When EW-1R/EW-2 Are Operating)



**MELBY ROAD DISPOSAL SITE
SOIL VAPOR EXTRACTION SYSTEM**
NATIONAL PRESTO INDUSTRIES, INC.
EAU CLAIRE, WISCONSIN

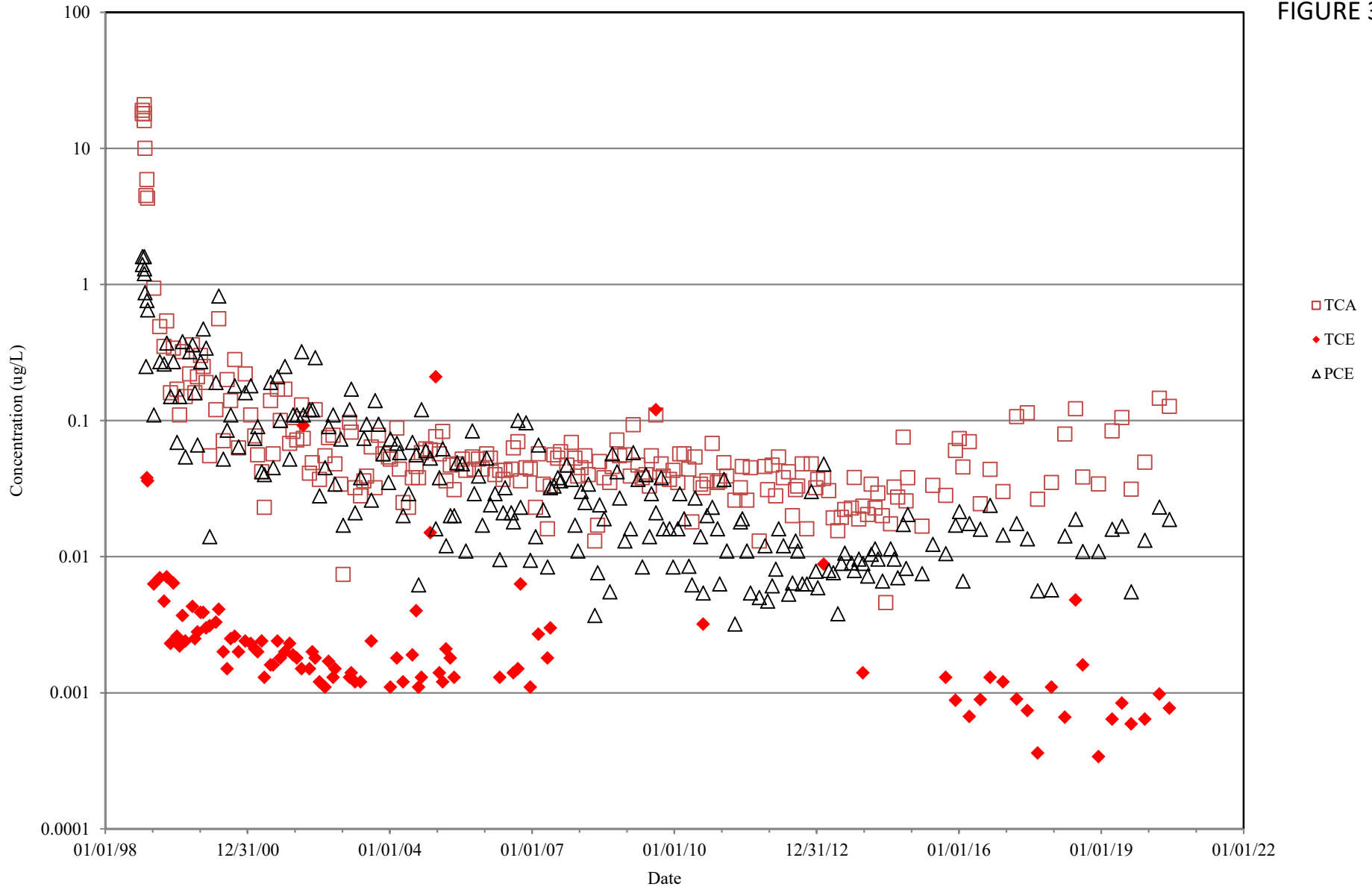
FIGURE 2



PRIMARY CHLORINATED VOCs IN THE MRDS SVE EXHAUST (ARITHMETIC SCALE)

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FIGURE 3



PRIMARY CHLORINATED VOCs IN THE MRDS SVE EXHAUST (LOG SCALE)

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TABLE 1

SUMMARY OF MRDS SVE SYSTEM EXHAUST GAS ANALYTICAL RESULTS (JANUARY 2004 - JUNE 2020)

Date	Detected Target Compound List Volatile Organic Compound Concentrations ⁽¹⁾											TCL VOCs
	Acetone RQ	2-Butanone RQ	Chloroethane	1,1-DCA	Ethylbenzene	PCE	Toluene RQ	TCA	TCE RQ	Xylenes RQ		
01/07/04	0.019	0.0079	<0.0011	0.010	<0.00087	0.073	0.0018	0.052	0.0011	0.0051		0.1699
02/24/04	0.024	0.011	<0.0012	0.021	0.093	0.068	0.19	0.088	0.0018	0.44		0.9368
03/16/04	0.027	0.015	<0.0011	0.011	0.0058	0.058	0.010	0.044	<0.0011	0.046		0.2168
04/13/04	0.013	0.0067	<0.0011	0.012	0.0011	0.020	0.025	0.025	0.0012	0.0072		0.1112
05/25/04	0.0055	0.0042	<0.0011	0.0063	0.0014	0.029	0.0087	0.023	<0.0011	0.010		0.0881
06/23/04	0.055	0.040	<0.0011	0.011	0.015	0.069	0.29	0.038	0.0019	0.059		0.5789
07/22/04	0.0026	<0.0029	<0.0011	0.014	<0.00087	0.056	<0.0011	0.046	0.0040	<0.0022		0.1226
08/10/04	0.011	0.0078	<0.0011	0.013	0.0095	0.0062	0.10	0.038	0.0011	0.058		0.2446
09/02/04	0.044	0.017	<0.0011	0.013	0.0081	0.12	0.023	0.058	0.0013	0.042		0.3264
10/04/04	0.010	0.0071	<0.0011	0.018	0.0068	0.060	0.013	0.062	<0.0011	0.041		0.2179
11/08/04	0.025	0.0078	<0.0011	0.017	0.0014	0.053	0.0025	0.061	0.015	0.011		0.1937
12/20/04	0.019	0.0066	<0.0011	0.022	0.00094	0.016	0.0015	0.076	0.21	0.0022		0.3542
01/17/05	0.014	0.012	<0.0011	0.011	0.0045	0.038	0.037	0.057	0.0014	0.023		0.1979
02/11/05	0.016	0.02	<0.0011	0.022	0.0076	0.062	0.0087	0.083	0.0012	0.047		0.2675
03/10/05	0.013	0.0045	<0.0011	0.012	<0.00087	0.012	0.002	0.036	0.0021	0.0051		0.0867
04/12/05	0.059	0.14	<0.0011	0.01	0.055	0.02	0.099	0.047	0.0018	0.31		0.7418
05/12/05	0.044	0.062	<0.0011	0.0091	0.0066	0.02	0.0088	0.031	0.0013	0.046		0.2288
06/03/05	<0.0019	<0.0024	<0.00087	0.015	<0.00014	0.049	<0.0012	0.048	<0.0018	0.0098		0.1218
07/12/05	0.010	0.0042	<0.0011	0.015	<0.00087	0.048	0.0025	0.052	<0.0011	<0.0022		0.1317
08/09/05	0.042	0.062	<0.0011	0.015	0.0010	0.011	0.0026	0.043	<0.0011	0.0095		0.1861
09/27/05	0.030	<0.0029	<0.0011	0.013	0.00093	0.084	0.0013	0.054	<0.0011	0.0094		0.1926
10/12/05	0.012	<0.0029	<0.0011	0.01	0.0012	0.029	0.014	0.044	<0.0011	0.0084		0.1186
11/15/05	0.0036	<0.0029	<0.0011	0.015	<0.00087	0.039	0.0052	0.052	<0.0011	<0.0022		0.1148
12/15/05	0.0083	0.0031	<0.0011	0.015	0.0022	0.017	0.0022	0.044	<0.0011	0.017		0.1088
01/17/06	0.022	0.0045	<0.0011	0.0083	0.0017	0.053	0.011	0.057	<0.0011	0.011		0.1685
02/14/06	0.014	<0.0029	<0.0011	0.012	0.011	0.024	0.0093	0.053	<0.0011	0.069		0.1924
03/22/06	0.010	0.0041	<0.0011	0.0086	0.0021	0.029	0.0033	0.04	<0.0011	0.016		0.1131
04/27/06	0.010	0.0036	<0.0011	0.0096	0.0015	0.0095	0.0016	0.043	0.0013	0.010		0.0901
05/23/06	0.018	0.0037	<0.0011	0.015	0.0030	0.021	0.004	0.037	<0.0011	0.025		0.1267
06/07/06	0.018	0.0044	<0.0011	0.011	0.00097	0.032	0.0013	0.043	<0.0011	0.0082		0.1189
07/25/06	0.020	0.014	<0.0011	0.013	<0.00087	0.021	0.0014	0.044	<0.0011	0.0062		0.1196
08/10/06	0.019	0.026	<0.0011	0.018	0.0050	0.018	0.0075	0.063	0.0014	0.043		0.2009
09/14/06	0.036	0.022	<0.0011	0.016	0.0057	0.1	0.0079	0.07	0.0015	0.046		0.3051
10/05/06	0.010	0.0031	<0.0011	0.0078	0.0013	0.023	0.0014	0.036	0.0063	0.0095		0.0984
11/15/06	0.0082	<0.0029	<0.0011	0.013	<0.00087	0.096	<0.0011	0.045	<0.0011	<0.0022		0.1622
12/19/06	0.0044	0.0031	<0.0011	0.013	<0.00087	0.0094	0.0014	0.044	0.0011	0.0055		0.0819
01/29/07	0.0060	<0.0029	<0.0011	0.0037	0.00089	0.014	0.0024	0.023	<0.0011	0.0065		0.0565
02/19/07	0.010	<0.0029	<0.0011	0.012	<0.00087	0.066	<0.0011	0.057	0.0027	0.0046		0.1523
03/28/07	0.015	0.0045	<0.0011	0.0091	0.034	0.022	0.087	0.034	<0.0011	0.18		0.3856
04/30/07	0.010	0.0069	<0.0011	0.0033	0.010	0.0084	0.022	0.016	0.0018	0.054		0.1324
05/23/07	0.0080	<0.0029	<0.0011	0.013	<0.00087	0.032	<0.0011	0.033	0.0030	<0.0022		0.0890
06/18/07	0.010	0.010	0.0021	0.018	0.11	0.033	0.13	0.056	<0.0011	0.57		0.9391
07/18/07	0.0082	0.12	<0.0011	0.014	0.015	0.038	0.0079	0.053	<0.0022	0.11		0.3661
08/10/07	0.024	0.0050	<0.0011	0.018	0.057	0.036	0.042	0.059	<0.0022	0.035		0.2760
09/26/07	0.0065	0.0029	<0.0011	0.011	0.0064	0.047	0.015	0.047	<0.0022	0.043		0.1788
10/30/07	0.013	<0.0029	<0.0011	0.015	0.0018	0.037	0.0014	0.069	<0.0022	0.016		0.1532
11/27/07	0.010	<0.0029	<0.0011	0.012	0.0014	0.017	0.0015	0.053	<0.0022	0.013		0.1079
12/19/07	0.0083	<0.0029	<0.0011	0.011	<0.0013	0.011	0.0013	0.039	<0.0022	0.0061		0.0767
01/15/08	0.0054	<0.0029	<0.0011	0.0049	<0.0013	0.030	0.0012	0.045	<0.0022	<0.0026		0.0865
02/13/08	0.0095	<0.0029	<0.0011	0.013	<0.0013	0.025	0.0054	0.055	<0.0022	<0.0026		0.1079
03/10/08	0.0075	0.0035	<0.0011	0.0099	<0.0013	0.034	<0.0011	0.040	<0.0022	<0.0026		0.0949
04/29/08	0.0059	0.0038	<0.0011	0.0029	<0.0013	0.0037	0.0025	0.013	<0.0022	0.0041		0.0359
05/20/08	0.0036	<0.0030	<0.0011	0.0020	<0.0013	0.0076	<0.0011	0.017	<0.0022	<0.0026		0.0302
06/03/08	0.0092	<0.0029	<0.0011	0.010	<0.0013	0.024	0.0014	0.050	<0.0021	0.0071		0.1017
07/08/08	0.016	0.0068	<0.0011	0.013	<0.0013	0.019	0.0013	0.038	<0.0021	0.0059		0.1000
08/21/08	0.029	0.0058	<0.0011	0.011	<0.0013	0.0055	0.0017	0.035	<0.0021	0.0064		0.0944
09/10/08	0.032	0.023	<0.0011	0.012	<0.0013	0.057	<0.0011	0.046	<0.0021	0.0036		0.1736

TABLE 1

SUMMARY OF MRDS SVE SYSTEM EXHAUST GAS ANALYTICAL RESULTS (JANUARY 2004 - JUNE 2020)

Date	Detected Target Compound List Volatile Organic Compound Concentrations ⁽¹⁾												TCL VOCs
	Acetone RQ	2-Butanone RQ	Chloroethane	1,1-DCA	Ethylbenzene	PCE	Toluene RQ	TCA	TCE RQ	Xylenes RQ			
10/16/08	0.015	<0.0029	<0.0011	0.016	<0.0013	0.042	<0.0011	0.072	<0.0021	0.0063		0.1513	
11/05/08	0.018	0.0042	<0.0011	0.016	<0.0013	0.027	0.0020	0.055	<0.0021	0.0076		0.1298	
12/15/08	0.0035	<0.0029	<0.0011	0.013	<0.0013	0.013	0.0020	0.056	<0.0021	0.0028		0.0903	
01/27/09	0.0097	0.0032	<0.0011	0.0049	<0.0013	0.016	<0.0011	0.039	<0.0021	<0.0013		0.0728	
02/18/09	0.0056	<0.0029	<0.0011	0.018	0.0021	0.058	0.0075	0.093	<0.0021	0.012		0.1962	
03/26/09	0.0043	<0.0029	<0.0011	0.0098	0.0030	0.037	0.011	0.047	<0.0021	0.015		0.1271	
04/29/09	0.016	0.0035	<0.0011	0.0034	<0.0013	0.0084	0.0011	0.038	<0.0021	<0.0013		0.0704	
05/26/09	0.036	0.0047	<0.0011	0.013	<0.0013	0.040	<0.0011	0.040	<0.0021	<0.0013		0.1337	
06/24/09	0.010	<0.0029	<0.0011	0.011	0.0043	0.014	0.018	0.033	<0.0021	0.019		0.1093	
07/07/09	0.012	<0.0029	<0.0011	0.015	<0.0013	0.029	<0.0011	0.055	<0.0021	<0.0013		0.1110	
08/12/09	0.027	0.0076	<0.0011	0.022	0.0028	0.021	0.022	0.11	0.12	0.018		0.3504	
09/22/09	0.026	0.0079	<0.0011	0.012	0.013	0.038	0.028	0.048	<0.0021	0.070		0.2429	
10/07/09	0.0048	<0.0029	<0.0011	0.0089	0.016	0.016	0.015	0.039	<0.0021	0.10		0.1997	
11/24/09	0.012	0.0036	<0.0011	0.012	<0.0013	0.016	0.0023	0.037	<0.0021	0.0077		0.0906	
12/22/09	0.016	0.0033	<0.0011	0.010	0.0016	0.008	0.0039	0.043	<0.0021	0.0084		0.0946	
01/27/10	0.022	<0.0029	<0.0011	0.0059	<0.0013	0.016	0.0039	0.035	<0.0021	0.0056		0.0884	
02/11/10	0.0064	<0.0029	<0.0011	0.012	<0.0013	0.029	0.0014	0.057	<0.0021	<0.0013		0.1058	
03/16/10	0.013	0.0060	<0.0011	0.0078	0.0081	0.019	0.015	0.057	<0.0021	0.063		0.1889	
04/22/10	0.0035	<0.0029	<0.0011	0.0037	<0.0013	0.0085	0.0012	0.044	<0.0021	<0.0013		0.0609	
05/17/10	0.011	<0.0029	<0.0011	0.0061	<0.0013	0.0062	<0.0011	0.018	<0.0021	<0.0013		0.0413	
06/10/10	0.011	0.0030	<0.0011	0.016	<0.0013	0.027	<0.0011	0.054	<0.0021	<0.0013		0.1110	
07/22/10	0.014	0.0097	<0.0011	0.013	<0.0013	0.014	0.0012	0.034	<0.0021	0.0029		0.0888	
08/10/10	0.023	0.0041	<0.0011	0.0090	0.0013	0.0054	0.0015	0.032	0.0032	0.0040		0.0835	
09/09/10	0.0035	<0.0029	<0.0011	0.011	0.016	0.020	0.044	0.036	<0.0021	0.080		0.2105	
10/20/10	0.0048	<0.0029	<0.0011	0.015	<0.0013	0.023	<0.0011	0.068	<0.0021	<0.0013		0.1108	
11/30/10	0.019	0.0036	<0.0011	0.010	<0.0013	0.016	<0.0011	0.035	<0.0021	<0.0013		0.0836	
12/16/10	0.0048	<0.0029	<0.0011	0.0086	<0.0013	0.0063	0.0024	0.036	<0.0021	<0.0013		0.0581	
01/18/11	0.0073	<0.0029	<0.0011	0.0076	<0.0013	0.037	0.0011	0.049	<0.0021	<0.0013		0.1020	
02/09/11	0.0036	<0.0029	<0.0011	0.0073	<0.0013	0.011	0.0013	0.039	<0.0021	<0.0013		0.0622	
04/12/11	0.012	<0.0029	<0.0011	0.0031	<0.0013	0.0032	<0.0011	0.026	<0.0021	<0.0013		0.0443	
05/24/11	0.0052	<0.0024	<0.0021	0.015	<0.0017	0.018	<0.0015	0.032	<0.0021	<0.0017		0.070	
06/09/11	0.011	0.0032	<0.0021	0.012	<0.0017	0.019	0.0044	0.046	<0.0021	<0.0017		0.0956	
07/13/11	0.0094	0.0027	<0.0021	0.0083	<0.0017	0.011	<0.0015	0.026	<0.0021	<0.0017		0.0574	
08/10/11	0.0088	0.0029	<0.0021	0.011	<0.0017	0.0054	0.0015	0.045	<0.0021	<0.0017		0.0746	
10/17/11	0.0095	0.0031	<0.0021	0.0021	<0.0017	0.0050	<0.0015	0.013	<0.0021	<0.0017		0.0327	
11/30/11	0.0051	<0.0024	<0.0021	0.010	<0.0017	0.012	<0.0015	0.046	<0.0021	<0.0017		0.0731	
12/21/11	0.011	0.0028	<0.0021	0.011	<0.0017	0.0047	<0.0015	0.031	<0.0021	<0.0017		0.0605	
01/24/12	0.015	0.0043	<0.0021	0.0053	<0.0017	0.0061	<0.0015	0.047	<0.0021	<0.0017		0.0777	
02/21/12	0.0081	<0.0024	<0.0021	0.0048	<0.0017	0.0081	0.0020	0.028	<0.0021	<0.0017		0.0510	
03/14/12	0.0078	0.0024	<0.0021	0.010	<0.0017	0.016	0.0020	0.054	<0.0021	<0.0017		0.0922	
04/19/12	0.0079	<0.0024	<0.0021	0.012	<0.0017	0.012	0.0023	0.038	<0.0021	<0.0017		0.0722	
05/30/12	0.0084	0.0025	<0.0021	0.0096	<0.0017	0.0053	<0.0015	0.042	<0.0021	<0.0017		0.0678	
06/28/12	0.017	0.0034	<0.0021	0.0035	<0.0017	0.0064	<0.0015	0.020	<0.0021	<0.0017		0.0503	
07/23/12	0.018	0.0055	<0.0021	0.0070	<0.0017	0.013	<0.0015	0.031	<0.0021	0.0030		0.0775	
08/08/12	0.035	0.0039	<0.0021	0.012	<0.0017	0.011	<0.0015	0.033	<0.0021	<0.0017		0.0949	
09/12/12	0.0095	<0.0024	<0.0026	0.010	<0.0017	0.0063	<0.0015	0.048	<0.0021	<0.0017		0.0738	
10/17/12	0.011	<0.0024	<0.0040	0.0024	<0.0017	0.0063	<0.0015	0.016	<0.0021	<0.0017		0.0357	
11/20/12	0.0068	<0.0024	<0.0040	0.011	<0.0017	0.030	<0.0015	0.048	<0.0021	0.0094		0.1052	
12/26/12	0.0071	<0.0024	<0.0040	0.0090	<0.0017	0.0078	<0.0015	0.032	<0.0021	<0.0017		0.0559	
01/10/13	0.0080	0.0033	<0.0040	0.0079	<0.0017	0.0059	<0.0015	0.037	<0.0021	<0.0017		0.0621	
02/25/13	0.782	0.776	<0.00097	0.0143	0.0032	0.0478	0.0097	0.0376	0.0088	0.0124		1.6918	
04/04/13	0.0096	0.0027	<0.00091	0.0072	<0.0015	0.0079	0.0018	0.0306	<0.00092	<0.0045		0.0598	
05/09/13	0.0134	0.0053	<0.00056	0.0061	0.0024	0.0076	0.0052	0.0193	<0.00073	0.0102		0.0695	
06/13/13	0.011	0.0025	<0.001	<0.0015	<0.0016	0.0038	0.0018	0.0155	<0.001	<0.0049		0.0346	
07/11/13	0.0032	0.0020	<0.00075	0.0070	<0.0012	0.0089	0.0020	0.0194	<0.00076	<0.0036		0.0425	
08/06/13	0.0056	0.011	<0.00075	0.0067	0.0047	0.0106	0.0188	0.0222	<0.00076	0.0251		0.1047	
09/26/13	0.0170	0.0057	<0.00091	0.0085	0.0335	0.0090	0.0635	0.0227	<0.00092	0.1562		0.3161	
10/17/13	0.0038	0.0018	<0.00072	0.0112	<0.0012	0.0079	0.0034	0.0381	<0.00074	0.0052		0.0714	
11/21/13	0.0163	0.0056	<0.00094	0.0044	0.0026	0.0096	0.0032	0.0189	<0.00096	0.0064		0.0670	
12/23/13	0.0558	0.0183	<0.00094	0.0063	0.002	0.0089	0.0116	0.0235	0.0014	0.0069		0.1347	

TABLE 1

SUMMARY OF MRDS SVE SYSTEM EXHAUST GAS ANALYTICAL RESULTS (JANUARY 2004 - JUNE 2020)

Date	Detected Target Compound List Volatile Organic Compound Concentrations ⁽¹⁾												TCL VOCs
	Acetone RQ	2-Butanone RQ	Chloroethane	1,1-DCA	Ethylbenzene	PCE	Toluene RQ	TCA	TCE RQ	Xylenes RQ			
01/28/14	0.0142	0.0026	<0.00072	0.0072	<0.0012	0.0072	0.0026	0.0204	<0.00074	<0.0036		0.0542	
02/25/14	0.0095	0.0103	<0.00078	0.0072	<0.0013	0.0104	0.0017	0.0341	<0.00079	<0.0038		0.0732	
03/27/14	0.0093	0.0021	<0.00080	0.0064	<0.0013	0.0114	0.0057	0.0227	<0.00082	0.0056		0.0632	
04/18/14	0.0176	0.0078	<0.00091	0.0087	0.0508	0.0096	0.0014	0.0293	<0.00092	0.423		0.5482	
05/22/14	0.0282	0.0056	<0.00091	0.0064	<0.0015	0.0066	<0.0013	0.0200	<0.00092	<0.0045		0.0668	
06/18/14	<0.0035	<0.00086	<0.00078	0.0012	<0.0013	<0.00099	0.0015	0.0046	<0.00079	<0.0038		0.0073	
07/25/14	0.0051	0.0022	<0.00075	0.0043	<0.0012	0.0114	<0.0011	0.0174	<0.00076	<0.0055		0.0404	
08/20/14	0.0140	0.0022	<0.00072	0.0089	<0.0012	0.0096	0.0026	0.0325	<0.00074	0.0036 U		0.0734	
09/17/14	<0.0032	0.00083	<0.00072	0.0110	<0.0012	0.0070	<0.0010	0.0274	<0.00074	<0.0036		0.0462	
10/30/14	<0.0034	<0.00083	<0.00075	0.0160	<0.0012	0.0172	<0.0011	0.0754	<0.00076	<0.0036		0.1086	
11/21/14	0.0101	0.0023	<0.00072	0.0085	0.0068	0.0082	0.0030	0.0257	<0.00074	0.0542		0.1188	
12/03/14	0.0086	0.0018 J	<0.00024	0.0068	<0.00027	0.0204	0.0020 J	0.0380	<0.00027	<0.00087		0.0776	
03/23/15	<0.0016	0.00057 J	<0.00022	0.0049	<0.00024	0.0075	0.00061 J	0.0167	<0.00024	0.00195 J		0.0322	
06/15/15	0.0022 J	0.0050	<0.00029	0.0119	<0.00063	0.0123	<0.00023	0.0334	<0.00041	<0.00172		0.0648	
09/22/15	0.0032 J	0.0020 J	<0.00027	0.0123	<0.00059	0.0105	0.0065	0.0282	0.0013	0.00219 J,U		0.0662	
12/07/15	0.0065 J	0.0021 J	<0.00026	0.0114	<0.00057	0.0170	0.0022	0.0603	0.00088	0.00187 J,U		0.1023	
01/04/16	0.0042 J	<0.0020	<0.00042	0.0148	<0.00059	0.0214	<0.00051	0.0738	<0.00037	0.00395 J		0.11815	
02/02/16	0.0036	<0.00031	<0.00026	0.0147	<0.00057	0.0066	0.001 J	0.0455	<0.00037	0.00197 J,U		0.07337	
03/22/16	0.005	0.0019 J	<0.00027	0.0126	<0.00059	0.0175	<0.00021	0.0698	0.00067 J	0.00269 J		0.11016	
06/14/16	--	--	--	0.0051	--	0.0159	--	0.0245	0.00089	--		0.04639	
08/29/16	--	--	--	0.0168	--	0.0238	--	0.0437	0.0013	--		0.0856	
12/06/16	--	--	--	0.0081	--	0.0144	--	0.0301	0.00120	--		0.0538	
03/21/17	--	--	--	0.0146	--	0.0175	--	0.107	0.00090	--		0.1400	
06/12/17	--	--	--	0.0188	--	0.0135	--	0.114	0.00074 J	--		0.14704	
08/29/17	--	--	--	0.0116	--	0.0056	--	0.0264	0.00036 U	--		0.04396	
12/14/17	--	--	--	0.00033	--	0.0057	--	0.0350	0.0011 J	--		0.04213	
03/27/18	--	--	--	0.0133	--	0.0142	--	0.0797	0.00066 J	--		0.10786	
06/18/18	--	--	--	0.0192	--	0.0188	--	0.1220	0.0048 J	--		0.16480	
08/13/18	--	--	--	0.0145	--	0.0109	--	0.0384	0.0016	--		0.0654	
12/11/18	--	--	--	0.0100	--	0.0109	--	0.0342	0.00034 U	--		0.05544	
03/26/19	--	--	--	0.0141	--	0.0159	--	0.0839	0.00064 J	--		0.11454	
06/10/19	--	--	--	0.0189	--	0.0167	--	0.1050	0.00084	--		0.14144	
08/20/19	--	--	--	0.0152	--	0.0055	--	0.0313	0.00059 J	--		0.05259	
12/04/19	--	--	--	0.0115	--	0.0132	--	0.0493	0.00064 J	--		0.07464	
03/24/20	--	--	--	0.0221	--	0.0231	--	0.1460	0.00098 J	--		0.19218	
06/10/20	--	--	--	0.0251	--	0.0187	--	0.1270	0.00077	--		0.17157	

NOTES:

Concentrations are in micrograms per liter (µg/ℓ).

Continuous, full-time operation of the SVE began on 10/28/98.

1,1-DCA = 1,1-Dichloroethane.

PCE = Tetrachloroethylene.

TCA = 1,1,1-Trichloroethane.

TCE = Trichloroethylene.

J = Estimated concentration below laboratory quantitation level.

RQ = Results qualifier.

TCL VOC = Target compound list volatile organic compound.

TCL VOCs = Summation of detected TCL VOC concentrations. Includes xylenes, prior to 06/14/16, if one xylene isomer-type was detected and the other was not.

U = Indicates either VOC analyzed for, but not detected, or one of the two xylene isomer-types (i.e., m&p-Xylene or o-Xylene) was analyzed for, but not detected.

-- = Not analyzed.

FOOTNOTE:

(1) Includes only those TCL VOCs detected at concentrations at or above 0.1 µg/ℓ in one or more samples. In addition, starting on 06/14/16, the analytes include 1,1-DCA; PCE; TCA; TCE only, as approved by both agencies.

NATIONAL PRESTO INDUSTRIES, INC.
EAU CLAIRE, WISCONSIN

TABLE 2

EVALUATION OF MRDS SVE SYSTEM EXHAUST GAS ANALYTICAL DATA (JUNE 2016 - JUNE 2020)

Date	NPI VOC Concentration ($\mu\text{g}/\ell$) and Results Qualifier (RQ)				NPI VOCs	Comments				
	1,1-DCA	RQ	PCE	RQ			TCA	RQ	TCE	RQ
06/14/16	0.0051		0.0159		0.0245		0.00089		0.0464	
08/29/16	0.0168		0.0238		0.0437		0.0013		0.0856	
12/06/16	0.0081		0.0144		0.0301		0.00120		0.0538	Start of first trial seasonal shutdown
03/21/17	0.0146		0.0175		0.107		0.00090		0.1400	
06/12/17	0.0188		0.0135		0.114		0.00074	J	0.1470	End of first trial seasonal shutdown
08/29/17	0.0116		0.0056		0.0264		0.00036	U	0.0440	
12/14/17	0.00033	U	0.0057		0.0350		0.0011	J	0.04213	Start of second trial seasonal shutdown
03/27/18	0.0133		0.0142		0.0797		0.00066	J	0.10786	
06/18/18	0.0192		0.0188		0.122		0.0048	J	0.1648	End of second trial seasonal shutdown
08/13/18	0.0145		0.0109		0.0384		0.0016		0.0654	
12/11/18	0.0100		0.0109		0.0342		0.00034	U	0.05544	Third trial shutdown started 12/14/18
03/26/19	0.0141		0.0159		0.0839		0.00064	J	0.11454	
06/10/19	0.0189		0.0167		0.105		0.00084		0.14144	End of third trial seasonal shutdown
08/20/19	0.0152		0.0055		0.0313		0.00059	J	0.05259	
12/04/19	0.0115		0.0132		0.0493		0.00064	J	0.07464	Start of fourth trial seasonal shutdown
03/24/20	0.0221		0.0231		0.146		0.00098	J	0.19218	
06/10/20	0.0251		0.0187		0.127		0.00077		0.17157	End of fourth trial seasonal shutdown
Fractional Change Compared to 12/06/16 Concentration for 03/21/17 and 06/12/17 Concentrations										
03/21/17	1.80		1.22		3.6		0.75		2.6	
06/12/17	2.32		0.94		3.8		0.62		2.7	
Fractional Change Compared to 12/14/17 Concentration for 03/27/18 and 06/18/18 Concentrations										
03/27/18	40.3		2.5		2.3		0.60		2.6	
06/18/18	58.2		3.3		3.5		4.4		3.9	
Fractional Change Compared to 12/11/18 Concentration for 03/26/19 and 06/10/19 Concentrations										
03/26/19	1.41		1.46		2.5		1.88		2.1	
06/10/19	1.89		1.53		3.1		2.5		2.6	
Fractional Change Compared to 12/04/19 Concentration for 03/24/20 and 06/10/20 Concentrations										
03/24/20	1.92		1.75		3.0		1.53		2.6	
06/10/20	2.2		1.42		2.6		1.20		2.3	
Ratio of 1/10 th Threshold Concentration for TCA (threshold = 60 $\mu\text{g}/\ell$) and TCE (threshold = 1.0 $\mu\text{g}/\ell$) to measured concentration										
03/21/17	na		na		56		111		na	
06/12/17	na		na		53		135		na	
03/27/18	na		na		75		152		na	
06/18/18	na		na		49		21		na	
03/26/19	na		na		72		156		na	
06/10/19	na		na		57		119		na	
03/24/20	na		na		41		102		na	
06/10/20	na		na		47		130		na	

NOTES:

NPI VOC concentrations are in micrograms per liter ($\mu\text{g}/\ell$).

See Page 2 for example calculations.

1,1-DCA = 1,1-Dichloroethane.

PCE = Tetrachloroethylene.

TCA = 1,1,1-Trichloroethane.

TCE = Trichloroethylene.

RQ = Results qualifier.

J = Estimated concentration below laboratory quantitation level.

na = Not applicable for ratio comparisons.

NPI VOCs = Summation of the detected NPI VOC concentrations.

U = Indicates compound was analyzed for, but not detected.

TABLE 2

EVALUATION OF MRDS SVE SYSTEM EXHAUST GAS ANALYTICAL DATA (JUNE 2016 - JUNE 2020)

EXAMPLE CALCULATIONS:

Fractional change in TCA concentrations, 03/21/17 compared to 12/06/16:

$$\frac{\text{TCA on 03/21/17}}{\text{TCA on 12/06/16}} = \frac{0.107}{0.0301} = 3.6$$

Ratio of one-tenth threshold concentration (60 µg/ℓ) to measured concentration for TCA on 03/21/17:

$$\frac{0.1 \times \text{TCA threshold}}{\text{TCA on 03/21/17}} = \frac{6.0}{0.107} = 56$$

Ratio of one-tenth threshold concentration (1.0 µg/ℓ) to measured concentration for TCE on 03/21/17:

$$\frac{0.1 \times \text{TCE threshold}}{\text{TCE on 03/21/17}} = \frac{0.10}{0.00090} = 111$$

ATTACHMENT B

NPI MRDS CAP AND SVE SYSTEM FIELD DATA FORMS

Month: _____

Year: _____

MRDS Vent Well Temp & Interior Soil Gas Monitoring Point Vacuum Data Sheet (GF #34286.009 NPI)

Day	Clock Time	BP (mm Hg)	X	Temperature (° F)												X	Vacuum (inch wc)			
				VW-1	VW-2	VW-3	VW-4	VW-5	VW-6	VW-7	VW-8	VW-9	VW-10	VW-11	VW-12		X	MP-1	MP-3	MP-5
1			X													X				
2			X													X				
3			X													X				
4			X													X				
5			X													X				
6			X													X				
7			X													X				
8			X													X				
9			X													X				
10			X													X				
11			X													X				
12			X													X				
13			X													X				
14			X													X				
15			X													X				
16			X													X				
17			X													X				
18			X													X				
19			X													X				
20			X													X				
21			X													X				
22			X													X				
23			X													X				
24			X													X				
25			X													X				
26			X													X				
27			X													X				
28			X													X				
29			X													X				
30			X													X				
31			X													X				

BP = Barometric pressure in millimeters of mercury (mm Hg).

Field team initials: _____

Date: _____

Field screen SVE exhaust upon arrival:

GF #34286.009 NPI

3 Vent Wells Closed	FID (ppmv)		Manifold Vacuum (inch wc)	Start Time	Building Temp (°F)	Outdoor Temp (°F)
	w/o charcoal	With				
Field screen individual wells (with all 12 open)			Well Temp (°F)	Comments		
VW-1						
VW-2						
VW-3						
VW-4						
VW-5						
VW-6						
VW-7						
VW-8						
VW-9						
VW-10						
VW-11						
VW-12						

Field screen SVE exhaust prior to departure (and sampling, if initial FID ≤5 ppmv):

3 Vent Wells Closed	FID (ppmv)		Manifold Vacuum (inch wc)	Stop Time	Comments
	w/o charcoal	With			

Field screen SVE exhaust upon arrival:

EXAMPLE

Date: 7/27/00

3 Vent Wells Closed	FID (ppmv)		Manifold Vacuum (inch wc)	Start Time	Building Temp (°F)	Outdoor Temp (°F)
	w/o charcoal	With				
2/6/10	6.0	6.0	7.0	13:30	80	85
Field screen individual wells (with all 12 open)			Well Temp (°F)	Comments		
VW-1	<0	--	58			
VW-2	<0	--	60			
VW-3	<0	--	62			
VW-4	<0	--	60			
VW-5	<0	--	60			
VW-6	<0	--	68			
VW-7	32	32	62			
VW-8	54	54	62			
VW-9	<0	--	62			
VW-10	<0	--	63			
VW-11	<0	--	64			
VW-12	<0	--	69			

Field screen SVE exhaust prior to departure (and sampling, if initial FID ≤5 ppmv):

3 Vent Wells Closed	FID (ppmv)		Manifold Vacuum (inch wc)	Stop Time	Comments
	w/o charcoal	With			
2/6/10	6.4	6.4	7.0	14:00	Summa can sample collected at 13:35

By:

Date:

Melby Road Disposal Site SVE Data Sheet (GF #34286.009 NPI)

Start Time	3 Vent Wells Closed	Operating Blower		Manifold Vacuum (inch wc)	SP Pressure (inch wc)	Comment
		Number	Run Time (hr)			

Pull condensate from lines, if necessary, by running system with just 3 wells open at a time, turn off blower, open well drains, & exercise valves:

Vent Well	Manifold Vac. (inch wc)	Condensate? (Y/N)	Condensate sump pump total (gal)	Comments
VW-1				
VW-2				
VW-3				
VW-4				
VW-5				
VW-6				
VW-7				
VW-8				
VW-9				
VW-10				
VW-11				
VW-12				

Resume SVE operation after draining condensate, if necessary, and switching operating blower:

3 Vent Wells Closed	Operating Blower		Manifold Vacuum (inch wc)	Stop Time	Building Temp (°F)	Outdoor Temp (°F)
	Number	Run Time (hr)				

Example data follows (and SP=sample port to exhaust gas stack/discharge piping).

Start Time	3 Vent Wells Closed	Operating Blower		Manifold Vacuum (inch wc)	SP Pressure (inch wc)	Comment
		Number	Run Time (hr)			
7:20	1/5/9	1	30,897.4	2	0.05	Sampled exhaust

Pull condensate from lines by running system with just 3 wells open at a time, turn off blower, open drain for each well, and exercise valves:

Vent Well	Manifold Vac. (inch wc)	Condensate? (Y/N)	Condensate sump pump total (gal)	Comments
VW-1	15-30	Y	15,090	Sump nearly empty. ↑ SVE flow (Q) from 150 to 570 acfm
VW-2		N		
VW-3		Y		11,120 sump pump meter reading at end
VW-4	18	N		(-) 11,090 sump pump at start
VW-5		Y		30 gallons pumped
VW-6		N		+ 25 in sump
VW-7	30	Y		55 gallons condensate drained
VW-8		Y		
VW-9		N		
VW-10	55-60	Y	15,120	Sump cycled on and off; pumped 30 gal
VW-11		Y		
VW-12		Y	15,120	Sump nearly full (say 25 gal in sump). ↓Q back to 150 acfm

Resume SVE operation after draining condensate and switching operating blower:

3 Vent Wells Closed	Operating Blower		Manifold Vacuum (inch wc)	Stop Time	Building Temp (°F)	Outdoor Temp (°F)
	Number	Run Time (hr)				
2/6/10	2	30,658.6	2	8:30	60	22

