

SUBMIT AS UNBOUND PACKAGE IN THE ORDER SHOWN

Notice: Pursuant to ch. 292, Wis. Stats., and chs. NR 726 and 746, Wis. Adm. Code, this form is required to be completed for case closure requests. The closure of a case means that the Department of Natural Resources (DNR) has determined that no further response is required at that time based on the information that has been submitted to the DNR. All sections of this form must be completed unless otherwise directed by the Department. DNR will consider your request administratively complete when the form and all sections are completed, all attachments are included, and the applicable fees required under ch. NR 749, Wis. Adm. Code, are included, and sent to the proper destinations. Personal information collected will be used for administrative purposes and may be provided to requesters to the extent required by Wisconsin's Open Records Law (ss. 19.31 - 19.39, Wis. Stats.). Incomplete forms will be considered "administratively incomplete" and processing of the request will stop until required information is provided.

Site Information			
BRRTS No.		VPLE No.	
02-52-579863			
Parcel ID No.			
104-04-23-20-103-110			
FID No.		WTM Coordinates	
252138700		X 699350	Y 259421
BRRTS Activity (Site) Name		WTM Coordinates Represent:	
Greentree Cleaners		<input checked="" type="checkbox"/> Source Area <input type="checkbox"/> Parcel Center	
Site Address		City	State ZIP Code
5131 DOUGLAS AVE		Racine	WI 53402
Acres Ready For Use			

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Responsible Party (RP) Name			
Schawanda Grissom			
Company Name			
Phillips Edison & Company			
Mailing Address		City	State ZIP Code
11501 Northlake Drive		Cincinnati	OH 45249
Phone Number		Email	
(513) 824-7141		sgrissom@phillipsedison.com	
<input checked="" type="checkbox"/> Check here if the RP is the owner of the source property.			
Environmental Consultant Name			
Steve Newlin			
Consulting Firm			
Apex Companies LLC			
Mailing Address		City	State ZIP Code
300 South Wacker Drive		Chicago	IL 60606
Phone Number		Email	
(847) 956-8589		snewlin@apexc.com	

Fees and Mailing of Closure Request

- Send a copy of page one of this form and the applicable ch. NR 749, Wis. Adm. Code, fee(s) to the DNR Regional EPA (Environmental Program Associate) at <http://dnr.wi.gov/topic/Brownfields/Contact.html#tabx3>. Check all fees that apply:

<input type="checkbox"/> \$1,050 Closure Fee	<input type="checkbox"/> \$300 Database Fee for Soil
<input type="checkbox"/> \$350 Database Fee for Groundwater or Monitoring Wells (Not Abandoned)	Total Amount of Payment \$ _____
<input checked="" type="checkbox"/> Resubmittal, Fees Previously Paid	
- Send one paper copy and one e-copy on compact disk of the entire closure package to the Regional Project Manager assigned to your site. Submit as *unbound, separate documents* in the order and with the titles prescribed by this form. For electronic document submittal requirements, see <http://dnr.wi.gov/files/PDF/pubs/rr/RR690.pdf>.

Site Summary

If any portion of the Site Summary Section is not relevant to the case closure request, you must fully explain the reasons why in the relevant section of the form. All information submitted shall be legible. Providing illegible information will result in a submittal being considered incomplete until corrected.

1. General Site Information and Site History

- A. **Site Location:** Describe the physical location of the site, both generally and specific to its immediate surroundings. The Greentree Dry Cleaners is a store front located in a 7 acre strip mall (Greentree Centre) at the northeast corner of Douglas Avenue and 4 Mile Road in Caledonia, Racine County, Wisconsin. The street address of the Site is 5131 Douglas Avenue, Racine, Wisconsin.
- B. **Prior and current site usage:** Specifically describe the current and historic occupancy and types of use. Apex Companies LLC (Apex) conducted a Phase I Environmental Site Assessment (ESA) for the Site in November 2016. Based on historical sources identified during the Phase I ESA, the Site was undeveloped or used for agricultural fields from 1891 until the mid-1980s. By 1986, the Site had been cleared of vegetation and graded for construction. The main anchor tenant building is depicted as developed in the early-1990s. By 2000, the vacant out parcel building (former Blockbuster's) and the McDonald's out parcel restaurant are depicted as developed. Surrounding properties have been developed as commercial or residential properties beginning in the 1950s.

The Site is currently developed with three buildings: a multi-tenant commercial-retail building anchored by a Pick-N-Save, a vacant single-tenant building (former Blockbuster), and a McDonald's restaurant building located on an out parcel. The McDonald's ground leases their parcel (ID: 104-04-23-20-103-130). The main building includes nine tenant spaces. There is also a 4,260 square foot space in the anchor tenant building that is vacant and unleaseable due to the lack of access for the space. According to information provided for the Site, the Site buildings combined have approximately 82,141 square feet of leasable space.

The buildings are generally surrounded by parking spaces and drive lanes. Drive lanes for product delivery vehicles generally are located along the eastern boundary of the Site. The remaining balance of the Site is covered by landscaping, associated vegetation, and impervious surfaces including concrete pedestrian walkways and curbs. The Site is accessible from three entrances along Douglas Avenue to the west, and two entrances along Chester Lane to the east. Secondary access is also provided by a drive lane connected to the adjacent assisted living complex to the north of the Site and a shared drive lane that provides access to a Walgreens from 4 Mile Road to the south of the Site.

The dry-cleaner and the store units immediately adjacent to the dry-cleaner have plumbing that enters through the back of the store units that serve the restrooms. The plumbing includes floor drains in the restroom floors and water connected to the restroom sinks and toilets. The plumbing was installed and the building concrete floor slabs were poured around the drains and piping, creating a seal from the potential soil or vapor beneath the building. The other utilities enter these store units from above the ground and through the building walls of the stores.

- C. **Current zoning** (e.g., industrial, commercial, residential) for the site and for neighboring properties, and how verified (Provide documentation in Attachment G).

The Site and immediately adjoining properties are zoned commercial. The zoning verification is provided in F.3.

- D. **Describe how and when site contamination was discovered.**

Apex conducted a Phase II investigation in July 2017 to assess the potential for subsurface impacts associated with the dry cleaning operations on the Site. During the Phase II ESA several soil borings were advanced on the exterior of the building and were converted to groundwater monitoring wells. Sub-slab vapor sampling was performed within the interior of the building. Soil, groundwater and vapor samples analyzed as part of the Phase II Environmental Site Assessments (ESA) detected concentrations of chlorinated solvents in excess of the Department of Natural Resource's (DNR) Screening Levels (SLs). The analytical results are incorporated in the analytical summary tables in Attachment A and sample locations on figures in Attachment B.

- E. **Describe the type(s) and source(s) or suspected source(s) of contamination.**

The dry cleaners formerly used tetrachloroethene (PCE) in their dry cleaning operations. The PCE was used in a dry cleaning machine and was stored on-site.

During the ESAs performed for the Site, no source(s) of polyfluoroalkyl substances (PFAS) were identified on Site. Therefore, PFAS was not part of the Site Investigations.

- F. **Other relevant site description information (or enter Not Applicable).**

Utilities enter the rear of the building (east side) and are shown on B.4.c. The sewer and water connect to the bathroom in the rear of the Greentree Cleaners unit. The bathroom contains the only sink, toilet and floor drain in the unit. The other utilities (i.e. gas, electric, telephone) exit the ground at the rear of the building and no sub-slab utilities were identified in the area of the chlorinated solvent source.

- G. List BRRTS activity/site name and number for BRRTS activities at this source property, including closed cases. The DNR granted the Greentree Cleaners unrestricted closure in June 2006 (BRRTS 02-52-544402, FID 252138700). However, use of PCE was continued after the closure and the closure standards at the time of closure have been revised.

Apex is not aware of any BRRTS activities at the Site other than the dry cleaning operations detailed herein.

- H. List BRRTS activity/site name(s) and number(s) for all properties immediately adjacent to (abutting) this source property. The following two properties were identified on the DNR's RR Sites Map immediately south of the Site:

CLOSED SITE

M & I BANK

BRRTS #: 0252283066

DNR Facility ID #: 252079520

Address: 2440 4 Mile Rd, Caledonia

Start Date: June 22, 2001

Closed Date: June 6, 2018

X Coordinate (WTM91): 699301

Y Coordinate (WTM91): 259271

WALGREENS / FORMER M & I BANK

BRRTS #: 0252274368

DNR Facility ID #: 252000540

Address: 5005 Douglas Ave, Caledonia

Start Date: June 22, 2001

Closed Date: March 7, 2002

X Coordinate (WTM91): 699245

Y Coordinate (WTM91): 259272

No other properties were identified immediately adjacent to the Site. A RR Sites Map is enclosed as B.1.c in Attachment B.

2. General Site Conditions

A. Soil/Geology

- i. Describe soil type(s) and relevant physical properties, thickness of soil column across the site, vertical and lateral variations in soil types.

The soil borings advanced on-site encountered the following generalized lithologic sequence:

- Topsoil was encountered in the upper foot of the boring located in a landscaped area (TW-3). Asphalt approximately 3 inches thick was encountered at ground surface in the remaining borings. Topsoil and asphalt pavements were generally underlain by approximately 3 inches of crushed stone.

- Silty clay/clayey silt was encountered below the crushed stone/aggregate to a depth of 20 feet bgs, the maximum depth explored.

- Clayey sand/sandy clay lens were encountered in several of the borings.

- ii. Describe the composition, location and lateral extent, and depth of fill or waste deposits on the site. As mentioned above, an approximate 3-inch thick asphalt pavement overlaying approximately 3-inches of crushed stone was encountered at the ground surface. No other in ground fill or fill piles were encountered during the site investigations.
- iii. Describe the depth to bedrock, bedrock type, competency and whether or not it was encountered during the investigation. Based on water well logs for wells identified in the area of the Site, bedrock is 54 feet below ground surface (bgs) based on water supply well logs. The bedrock in the well logs is described as limestone. The maximum depth explored during Apex's investigation was 20 bgs and did not encounter bedrock.
- iv. Describe the nature and locations of current surface cover(s) across the site (e.g., natural vegetation, landscaped areas, gravel, hard surfaces, and buildings). The surface covers in the area of Greentree Cleaners consist of concrete building floor slab, concrete sidewalk and asphalt paved parking lot. No landscaping or natural vegetation exists in the immediate vicinity of the Cleaners.

B. Groundwater

- i. Discuss depth to groundwater and piezometric elevations. Describe and explain depth variations, including high and low water table elevation and whether free product affects measurement of water table elevation. Describe the stratigraphic unit(s) where water table was found or which were measured for piezometric levels.

To assess the groundwater conditions in the vicinity of the dry cleaner space, Apex installed eight groundwater monitoring wells (MW-1 through MW-8). Starting in June 2017, the eight water table monitoring wells have been gauged for groundwater elevations. Stabilized groundwater has been measured at depths ranging from 9.48 to 13.11 feet bgs (618.29 to 621.59 feet above mean sea level). It should be noted that water levels measured in MW-6 were somewhat anomalous and not used to create groundwater contours shown in Figure B.3.c.

The shallow groundwater on-site occurs in an unconfined (water table) aquifer. No free product has been identified that would effect the groundwater table measurements.

- ii. Discuss groundwater flow direction(s), shallow and deep. Describe and explain flow variations, including fracture flow if present.

Following installation of the eight monitoring wells, the water level data and the results of the well elevation survey were used to calculate the groundwater gradient and lateral flow direction at the Site. The attached Figure B.3.c shows the interpreted shallow groundwater flow across the Site. The interpreted groundwater flow based on the measured water levels is towards the east.

- iii. Discuss groundwater flow characteristics: hydraulic conductivity, flow rate and permeability, or state why this information was not obtained.

Groundwater at the Site occurs in an unconfined (water table) aquifer. Groundwater was generally encountered at depths ranging from 10 to 12 feet bgs at the time of drilling. The top of the monitoring wells casings were surveyed for lateral and vertical control by Spaceco, Inc., a licensed surveyor.

Stabilized groundwater was measured in September 2017 at depths ranging from 9.48 to 13.11 feet below the top of the well casing (618.29 to 621.59 feet above mean sea level). Water table elevations varied over a 2-foot range between August 2017 and November 2018. Based upon water level measurements, Apex calculates groundwater flows to the east at a gradient of 0.02 ft./ft. (horizontal to vertical). Groundwater contours measured on September 15, 2017 are shown in Figure B.3.c. It should be noted that water levels measured in MW-6 were somewhat anomalous and not used to create groundwater contours shown in Figure B.3.c. The top of the well casings, water level measurements and groundwater elevations are summarized in a table included in A.6.

Apex performed in-situ hydraulic testing in three wells (MW-1, MW-3 and MW-5) to measure the hydraulic conductivity of the shallow aquifer beneath the Site. A pressure transducer/data logger was lowered below the water table and the water level was allowed to stabilize. The transducer/data logger was then connected to a Rugged Reader (r) using a waterproof coaxial cable. A quantity of water ('slug') was quickly removed from the well and rising head recovery rates were measured over time, until the water level recovered over the duration of the test. Due to the slow recovery, the test was performed only once per well.

The Bouwer & Rice Method was used to calculate a hydraulic conductivity (K) which ranged from 2.98×10^{-6} centimeters/second (for MW-1) to 5.44×10^{-5} centimeters/second (for MW-3) which shows that water moves relatively slowly in the underlying aquifer (water bearing zone).

- iv. Identify and describe locations/distance of potable and/or municipal wells within 1200 feet of the site. Include general summary of well construction (geology, depth of casing, depth of screened or open interval).

Based on the Wisconsin Geological and Natural History Survey, there were three private water wells that had been installed within a 1,200 foot radius of the Greentree Cleaners. Based on the well log, the closest water well to the cleaners was drilled to 90 feet bgs. The log shows that the soil encountered from the ground surface to approximately 50 feet bgs was predominately clay. A thin layer of gravel was encountered beneath the clay and limestone bedrock exist from 54 to 90 feet bgs.

These wells were installed between 1948 and 1958 to supply water to farm houses which do not exist any longer. The current shopping center is located where the water wells previously existed. Therefore, the the water wells do not appear to exist any longer. The property is now connected to municipal water.

* One well, drilled to 90 feet bgs, encountered clay to 50 feet, gravel from 50 to 54 feet and limestone from 54 to 90 feet. The well had 6-inch casing grouted to 57 feet bgs.

* The second well was drilled to 125 feet bgs and encountered clay from the ground surface to 50 feet, sand and gravel from 50 to 88 feet and limestone from 88 to 125 feet bgs. This well was cased from the ground surface to 20 feet bgs with 6-inch steel casing.

*The third well was drilled to 62 feet bgs and encountered clay from the ground to 30 feet bgs. The clay was underlain by sand and gravel from approximately 20 to 32 feet bgs. Beneath the sand and gravel, limestone bedrock was encountered to the termination of the boring at 62 feet bgs. This well was double cased with 10-inch and 6-inch casing

to approximately 40 feet bgs. The casing was grouted in place with neat cement.

3. Site Investigation Summary

A. General

- i. Provide a brief summary of the site investigation history. Reference previous submittals by name and date. Describe site investigation activities undertaken since the last submittal for this project and attach the appropriate documentation in Attachment C, if not previously provided.

Greentree Station LLC (Client) acquired a retail strip mall located at 5055 & 5111-5141 Douglas Avenue in Racine, Racine County, Wisconsin (the Parent Tract) from IRC Greentree, L.L.C in May 2017. The general vicinity of the Parent Tract is shown in B.1.b. Prior to acquiring the Parent Tract, Client retained Apex Companies, LLC (Apex) to conduct a Phase I Environmental Site Assessment (ESA) at the Greentree Centre. The Phase I ESA identified one recognized environmental condition (REC), use of dry cleaning solvents in a tenant space currently occupied by Greentree Cleaners (Site). Several rounds of soil and groundwater sampling were conducted by others on-site in 2005. These results were submitted to the Wisconsin Department of Natural Resources (DNR). In its letter issued in 2006, the Wisconsin DNR stated, that based upon the results of environmental testing, it considered the case to be closed and no further investigation or remediation was required at that time.

However, Greentree Cleaners continued use of dry cleaning solvents in its operation after the issuance of the case closure. Additionally, regulatory limits at the time of the Wisconsin DNR closure (2006) have been updated with more stringent criteria. Given the continued dry cleaner operations post closure and the new regulatory limits, Apex believed this posed a REC to the Site/Parent Tract.

The findings of the Phase I ESA were presented in Apex's report dated November 15, 2016. Client subsequently retained Apex to conduct a Site Investigation at the dry cleaner tenant space at 5131 Douglas Avenue, Unit D (Site). The scope of work for the subsurface investigation was described in Apex's report dated October 24, 2017.

The original Apex investigation included collection of soil samples from two borings (TW-1 and TW-3), collection of groundwater samples from two temporary monitoring wells (TW-1 and TW-3) and soil-gas samples from three locations (SV-1 through SV-3), in June 2017. Apex notes that groundwater was not encountered in one temporary well (TW-2). The locations of the soil borings, temporary monitoring well locations and soil-gas samples are shown in Attachments B.2.a, B.3.b and B.4.a, respectively.

-The soil analysis detected five VOCs at concentrations in excess of Non-Industrial and Industrial Residual Contaminant Levels for soil to groundwater, including PCE, TCE, benzene, methylene chloride and naphthalene.

-The groundwater analysis detected four VOCs at concentrations in excess of Enforcement Standards or Preventative Action Limits, including PCE, TCE, cis-1,2-dichloroethene (c-1,2-DCE), and vinyl chloride (VC).

-The soil-gas analysis detected PCE in one sample at a concentration in excess of commercial Vapor Action Levels (VALs)

The results of the groundwater analysis, soil analysis and soil-gas analysis are summarized in Tables A.1, A.2 and A.3, respectively.

To further characterize the extent of VOC impacts in soil, groundwater and sub-slab soil-gas, Apex conducted expanded assessment in and near the dry cleaner tenant space in August and September 2017. The specific scope of work included collection of soil samples from four borings (MW-1, MW-4, MW-5 and MW-6), installation and sampling of seven permanent groundwater monitoring wells (MW-1 through MW-7), and collection of five soil-gas samples (SV-4 through SV-8) between August 9 through 16, 2017. To further assess subsurface conditions, one additional temporary well (TW-3A) was installed and sampled, one additional monitoring well (MW-8) was installed and sampled, and three additional soil-gas samples (SV-9 through SV-11) were collected between September 12 through 15, 2017.

The results of the soil analysis detected benzene, methylene chloride and naphthalene at concentrations in excess of the soil (leaching) component to groundwater. However, Apex notes that these compounds are not associated with dry cleaning solvents, and were not detected in groundwater at concentrations in excess of Preventative Action Limit (PAL). Therefore, it is Apex's opinion that a soil remedy for the groundwater pathway for benzene, methylene chloride and naphthalene is not needed.

Previous detections of PCE and TCE in soil collected from below the floor slab could not be replicated due to subsurface obstructions. However, analysis of one soil sample collected from an area with previous RCL exceedances did not detect PCE or TCE at concentrations in excess of RCLs. Potential leaching of PCE and TCE through soil into groundwater can be reduced by the continued maintenance of the existing concrete floor slab as an engineered barrier. It is Apex's opinion that VOCs detected in soil at concentrations in excess of RCLs for the soil component to groundwater have been delineated and that additional soil investigation is not warranted.

It is Apex's opinion that VOCs detected in groundwater at concentrations in excess of Enforcement Standards or Preventative Action Limits have been delineated. Considering the relatively low concentrations of chlorinated VOCs detected in groundwater, the limited lateral extent of these compounds, and that these compounds do not appear to have migrated off-site, Apex does not believe that active remediation is warranted. However, to demonstrate plume stabilization and/or natural attenuation of these compounds, additional groundwater monitoring was performed on a quarterly basis for one year as directed by the WDNR. The groundwater results from the quarterly sampling show that the low level groundwater impacts have not migrated off-site.

It is Apex's opinion that the VOCs detected in soil-gas have been delineated, and that additional investigation is not warranted. However, to eliminate the soil-gas exposure pathway for building occupants, a soil vapor extraction (SVE) system was installed and follow-up monitoring was conducted to verify the system effectively remediated the potential vapor intrusion to indoor air exposure route.

- ii. Identify whether contamination extends beyond the source property boundary, and if so describe the media affected (e.g., soil, groundwater, vapors and/or sediment, etc.), and the vertical and horizontal extent of impacts. VOC concentrations in soil, groundwater and vapors associated with the dry cleaners appear to be limited to the site, based on Apex's investigations detailed above.
- iii. Identify any structural impediments to the completion of site investigation and/or remediation and whether these impediments are on the source property or off the source property. Identify the type and location of any structural impediment (e.g., structure) that also serves as the performance standard barrier for protection of the direct contact or the groundwater pathway.

No structural impediment exists at the Site.

B. Soil

- i. Describe degree and extent of soil contamination. Relate this to known or suspected sources and known or potential receptors/migration pathways.

Apex collected soil samples from six borings, TW-1 (5 feet bgs), TW-3 (7 feet bgs), MW-1 (4 and 10 feet bgs), MW-2 (4 feet bgs), MW-5 (3 feet bgs) and MW-6 (5 feet bgs). The soil samples were analyzed for VOCs by EPA Method 5035/8260. As mentioned in Section 1.2, Hygienetics analyzed four soil samples for VOCs in 2005 and ECS analyzed ten soil samples for VOCs in 2005 (report dated 2006). The results of the soil analysis are summarized in Table 1.

The results of the soil analysis for samples collected by Apex (in 2017), by Hygienetics (in 2005) and by ECS (in 2005) were compared to Non-Industrial and Industrial RCLs for Direct Contact and the soil (leaching) component to groundwater cited in the U.S. Environmental Protection Agency's (USEPA) Regional Screening Level Web-Calculator (June 2016) in accordance with Wisconsin Administrative Code NR 720 (WAC 720).

The soil analysis detected five VOCs at concentrations in excess of the Soil to Groundwater RCLs, including PCE, TCE, benzene, methylene chloride and naphthalene. The highest concentrations of these compounds and the borings/depths are summarized Table A.2. These soil samples were collected in 2005.

As summarized above, the soil analysis detected VOCs at concentrations in excess of RCLs for the soil (leaching) component to groundwater exposure pathway. The soil analysis did not detect any VOCs at concentrations in excess of RCLs for direct-contact (non-industrial and industrial), and no other VOCs at concentrations in excess of RCLs for the soil component to groundwater per WAC 720. The results of the soil analysis, RCLs and sample depths are summarized in A.2. The sample locations with VOC concentrations in excess of RCLs are summarized and shown in B.2.a.

On August 6, 2019, after the SVE System operation, Apex collected three soil samples from beneath the floor slab. Holes were drilled through the floor and a pig-tailed auger was then used to collect soil samples HA-2, HA-3 and HA-4 in the area of the former vapor exceedances. With the exception of chloromethane, which was detected in laboratory blanks, no VOCs were detected in the three soil samples above the laboratory's reportable limits. Based on the post SVE System operation sampling, Apex to not identify any dry cleaning related impacts.

- ii. Describe the concentration(s) and types of soil contaminants found in the upper four feet of the soil column. In the vicinity of the Greentree Cleaners, the ground surface is either covered with concrete or asphalt pavement. The pavements are underlain by a crushed limestone base course gravel fill. Beneath the gravel fill a native silty clay was encountered that extended beyond four feet bgs.

Of the samples described above in B.i, 12 soil samples were collected from the upper four feet of the soil column and submitted for analyses. Of the 12 soil samples submitted for analyses, seven samples had detected VOC concentrations in excess of the RCLs for leaching to groundwater. As noted previously these samples were collected in 2005 and have likely decreased in concentration due to degradation and volatilization over the last 15 years. Four of the VOC exceedances included chlorinated solvents. The other exceedances were petroleum constituents. PCE was detected in four shallow samples at concentrations ranging from 0.003 to 1.4 milligrams per kilograms (mg/kg). The RCLs for Soil Migration to Groundwater for PCE is 0.0023 mg/kg. One sample also had a detection 0.0021 mg/kg of trichloroethene (TCE). The RCLs for Soil Migration to Groundwater for TCE is 0.0018 mg/kg.

No soil concentrations were detected in exceedances of the direct contact RCLs.

Testing of the clay soil beneath the floor slab (HA-2 ,HA-3 and HA-4) post SVE System operation did not detect chlorinated solvent compounds above the laboratory's reportable limits

The groundwater ingestion exposure route is further evaluated below in Section C

- iii. Identify the ch. NR 720, Wis. Adm. Code, method used to establish the soil cleanup standards for this site. This includes a soil performance standard established in accordance with s. NR 720.08, a Residual Contaminant Level (RCL) established in accordance with s. NR 720.10 that is protective of groundwater quality, or an RCL established in accordance with s. NR 720.12 that is protective of human health from direct contact with contaminated soil. Identify the land use classification that was used to establish cleanup standards. Provide a copy of the supporting calculations/information in Attachment C.

Apex compared the soil data to current RCLs detailed in Wisconsin Administrative Code NR 720. The soil results were compared to the direct contact RCLs for both Industrial and Non-industrial properties and to the RCLs for soil to groundwater.

C. Groundwater

- i. Describe degree and extent of groundwater contamination. Relate this to known or suspected sources and known or potential receptors/migration pathways. Specifically address any potential or existing impacts to water supply wells or interception with building foundation drain systems.

Apex collected three groundwater samples from temporary monitoring wells, TW-1, TW-3 and TW-3A and eight groundwater samples from dedicated monitoring wells (MW-1 through MW-8). Starting in June 2017, the eight groundwater monitoring wells have been sampled for chemical analysis. The results of the groundwater analysis have been compared to Enforcement Standards and Preventative Action Limits cited in WAC NR 140.10 Table 1 (WAC 140).

The groundwater analysis detected VOCs at concentrations in excess of Enforcement Standards and Preventative Action Limits. The groundwater analysis detected four VOCs at concentrations in excess of Enforcement Standards and Preventative Action Limits, including PCE, TCE, c-1,2-dichloroethene (c-1,2-DCE), and vinyl chloride (VC).

Based on the initial groundwater analyses, Apex conducted groundwater monitoring of the eight monitoring wells on a quarterly basis for one year starting in June 2017 through December 2018. Considering the relatively low concentrations of chlorinated VOCs detected in groundwater and the limited lateral extent of these compounds, the groundwater plume has not migrated off-site. Based on these results, Apex does not believe that additional groundwater investigation or remediation is warranted.

The results of the groundwater analysis, Enforcement Standards and Preventative Action Limits are summarized in Table A.1 and the sample locations are shown in Figure B.3.b. The sample locations with VOC concentrations in excess of Enforcement Standards and Preventative Action Limits are summarized and shown in Figure B.3.b. Copies of the laboratory reports and the chain-of-custody form are included in Attachment A.7.

- ii. Describe the presence of free product at the site, including the thickness, depth, and locations. Identify the depth and location of the smear zone.

No free product has been identified during the investigations detailed herein. The highest PCE concentrations in soil (1.4 mg/kg) and in groundwater (945 ug/L) were substantially less than what would be expected if there was a PCE NAPL in the soil in this low groundwater flux environment; providing addition support to the conclusion that a DNAPL is not present. PCE and its degradation products are not LNAPLs that accumulate at the water table surface. No smear zones are expected to be present.

D. Vapor

- i. Describe how the vapor migration pathway was assessed, including locations where vapor, soil gas, or indoor air samples were collected. If the vapor pathway was not assessed, explain reasons why.

Apex collected 11 soil-gas samples immediately below the concrete floor slab in and adjacent to the dry cleaner tenant space in 2017 at the locations shown in Figure B.4.a. One soil-gas sample was collected adjacent to chemical storage (SV-1), one adjacent to the dry cleaning plant (SV-2), one near the center of the tenant space (SV-3) and eight samples (SV-4 through SV-11) were used to assess the lateral extent of VOCs in sub-slab soil-gas. The soil-gas samples were analyzed for VOCs by EPA Method TO-15.

The results of the soil-gas analysis were compared to sub-slab Vapor Action Levels (VALs) for a commercial property use based on the USEPA VISLC (Version 3.5.1, May 2016) with an excess lifetime cancer risk of 1×10^{-5} in accordance with WAC 716.

The soil-gas analysis detected PCE in two samples (SV-3 and SV-4), and TCE and chloroform in one sample (SV-4) at concentrations in excess of small commercial VALs per WAC 716 as summarized in Table A.4.

Based on the soil-gas investigation the extent of the sub-slab exceedances has been delineated. To address the exceedances, a SVE system was installed as detailed in Section 4 below. Post SVE operation, three soil gas sampling points (SV-2, SV-3, SV-4 and SV-12) were sampled. The soil-gas analysis did not detect any additional VOCs at concentrations in excess of small commercial VALs per WAC 716. Copies of the laboratory reports and the chain-of-custody form are included in Attachment A.7.

- ii. Identify the applicable DNR action levels and the land use classification used to establish them. Describe where the DNR action levels were reached or exceeded (e.g., sub slab, indoor air or both).

Sub-slab Vapor Action Levels (VALs) for a small commercial property were use based on the USEPA VISLC (Version 3.5.1, May 2016) with an excess lifetime cancer risk of 1×10^{-5} in accordance with WAC 716.

E. Surface Water and Sediment

- i. Identify whether surface water and/or sediment was assessed and describe the impacts found. If this pathway was not assessed, explain why.

No surface body waters exist within the immediate vicinity of the Site. The groundwater impacts have been delineated and appear to be limited to the Site. Therefore, no assessment of surface water or sediments has been completed.

- ii. Identify any surface water and/or sediment action levels used to assess the impacts for this pathway and how these were derived. Describe where the DNR action levels were reached or exceeded.

N/A

4. Remedial Actions Implemented and Residual Levels at Closure

- A. General: Provide a brief summary of the remedial action history. List previous remedial action report submittals by name and date. Identify remedial actions undertaken since the last submittal for this project and provide the appropriate documentation in Attachment C.

Prior to Apex's installation of a SVE system, which is detailed below, we are not aware of any remedial actions taken in response to the dry cleaner release.

- B. Describe any immediate or interim actions taken at the site under ch NR 708, Wis. Adm. Code.

N/A

- C. Describe the *active* remedial actions taken at the source property, including: type of remedial system(s) used for each media affected; the size and location of any excavation or in-situ treatment; the effectiveness of the systems to address the contaminated media and substances; operational history of the systems; and summarize the performance of the active remedial actions. Provide any system performance documentation in Attachment A.7.

Apex designed a SVE System intended to vent the soil-vapor below the floor slab and to reduce VOC mass within the source area's unsaturated pore spaces, and by desorption, from the shallow soil.. The SVE System installation, and the results of post-installation communication test are described below. Photographs showing the SVE System installation are included in Attachment C.4. A system installation report dated November 5, 2018, summarizing the installation of the remedial system was previously submitted to the DNR.

Apex retained RadoVent Illinois, LLC to install the SVE system on September 18, 2018. The SVE system consists of the following:

1. A total of three 4" suction points were installed at the locations shown in Figure C.4. 5" holes were cored through the slab on grade to reach the sub grade materials under the building, and about 4 gallons of material were removed from each core location.

2. A PVC pipe extends from each suction point to the intake side of the AMG Maverick in-line fan installed on the outside of the eastern wall of the dry cleaner tenant space. The fan extracts vapors from the three suction pits. The fan is capable of achieving a static vacuum of at least 0.25 inches water column (wc) at the suction point. Specifications for the AMG Maverick fans are included in Attachment C.4. Photographs showing the vent pipes and in-line fan are included in Attachment C.6.

Vacuum measurements showed a differential pressure reading of at least -0.003 inches wc below the slab at the farthest edges of the area served by the suction pit. Further, visible downward flow of air at test holes was observed at a 15-foot radius from the suction pit using the flame of a butane lighter.

3. A manometer was installed on the outer surface of each vent pipe to allow maintenance staff to routinely monitor on-going system operation via a visual check on the gauge. A photograph of a manometer is also included in Appendix A. Manometer measurements and the volume of vented airflow recorded on October 4, 2018 are summarized in C.4.

4. The pipes exhausts outside the building at approximately 10-12' feet above grade level. The vent stack continues up the back of the building to stick up 2'-3' feet above the roof.

Following the SVE system installation, sub-slab communication tests were performed to confirm that the extraction system was performing as intended. A micro manometer was used to measure pressure gradients and to determine how easily air can move from one point to another beneath the floor slab. During the test, small holes were cored in strategic locations through the slab. Post installation, pressure differentials during the communication test were used to determine the most efficient configuration for the active venting system. As mentioned above, visible downward flow of air at test holes was observed at a 15-foot radius from the suction pits using the flame of a butane lighter. Based upon the results of the butane flame test, the radius of the vacuum near each extraction point exceeds 15 feet. The radius of the vacuum for each extraction point is shown in C.4.

The SVE System was put into operation on September 18, 2018 and allowed to run for approximately three months before the system was shut off on December 20, 2018. Approximately two weeks later, on January 4, 2019, Apex returned to the Site to collect three confirmatory sub-slab vapor samples to assess the effectiveness of the SVE System. The vapor samples were collected from vapor points re-installed in the floor at locations where exceedances were identified during the original sample event in 2017. The vapor points were installed by drilling a small diameter hole (5/8-inch) through the concrete slab into the underlying gravel-aggregate layer, approximately nine inches below the top of the concrete floor. A 1-inch diameter hole was drilled in the same location to approximately 1/2-inch below the top of the concrete floor for leak testing. The hole was then cleared of any debris prior to installing the soil gas probe. The soil gas probes consisted of a brass MIP adapter/compression coupling, covered with a silicone tube, which was inserted and seated firmly into the 5/8-inch diameter hole drilled through the concrete slab.

Prior to sample collection, leak tests were performed on all the sample probes by mechanical means using the larger diameter hole as a water dam. The annulus of the 1-inch hole was filled with distilled water and monitored for fluctuations prior to and during sampling to verify that a leak had not occurred.

The laboratory-supplied regulator assembly was attached to the Summa canister and a 3-foot section of 0.25-inch Teflon-lined polyethylene tubing was attached to the regulator with Swagelock(r) fittings. A shut-in test was performed on the sample train by connecting the tubing to a syringe and plunger. With the Summa (r) canister valve closed, a vacuum of approximately 20 inches of mercury was applied to the sample train and maintained for 30 seconds. The pressure was observed to remain stable for the duration of the test.

Additionally, the three sub-slab gas probes were purged a minimum of three probe volumes of air from the sampling media to ensure representative samples of sub-slab soil gas and field screened for volatile organic emissions using a PID equipped with a 10.6 eV PID lamp. Upon successful leak test completion and probe purging/screening, sub-slab soil gas samples were collected using batch-certified 6-liter Summa canisters (evacuated stainless steel canisters) with (30-minute) flow control valves with a flow rate of 200 milliliters per minute (mL/min). At each of the soil vapor probe location, the Summa canister was connected to the sample probe and the regulator valve was opened.

The vapor samples were analyzed for VOCs by EPA Method TO-15. The initial round of post SVE System operation showed significant decreases in the VOC vapor concentrations beneath the floor slab. No VOCs were detected in the vapor samples in exceedance of the Sub-Slab VALs for a commercial property use based on the U.S. EPA Vapor Intrusion Screening Level Calculator (Version 3.5.1, May 2016) with an excess lifetime cancer risk of 1×10^{-5} in accordance with Wisconsin Administrative Code NR 716.

Apex had originally anticipated that the SVE System would need to operate for approximately two years to fully remediate the Site to the desired sub-slab vapor levels. However, based on the early results of the confirmation sampling after three months, it was apparent that the system was working much more efficient than originally expected. At the direction of the WDNR, Apex left the system shut down to assess whether a rebound would occur due to seasonal fluctuation. The WDNR indicated that if two consecutive rounds of sub-slab vapor testing conducted over two different seasons (winter versus summer) were below the Sub-Slab VALs, that the sub-slab vapors would be considered remediated.

The system remained shut down for another five months and Apex returned on June 27, 2019 to collect another round of sub-slab vapor samples. This second round of post SVE System operation was intended to evaluate the potential for seasonal fluctuations of the sub-slab vapor concentrations. The samples collected on June 27, 2019 showed that the sub-slab vapor concentrations had remained well below the Sub-Slab VALs. Based on the two rounds of confirmatory sampling post remedial operation, the SVE System appears to have remediated the potential vapor intrusion issue beneath the building floor slab.

In addition to the post vapor sampling, Apex collected soil samples from beneath the building floor slab where previous soil impacts were detected. The three soil samples (HA-2, HA-3 and HA-4) were submitted to a subcontract laboratory for analysis of VOCs. No VOCs were detected in the three soil samples above the RCLs.

- D. Describe the alternatives considered during the Green and Sustainable Remediation evaluation in accordance with NR 722.09 and any practices implemented as a result of the evaluation.

The objectives for the proposed remediation at the Site was the mitigation of potential indoor vapor intrusion and the removal of VOC mass in the source area. Remedial options considered for the Site included the following:

1. No Action
2. In-situ Injections (biodegradation or chemical degradation)
3. Installation of a Soil Vapor Extraction System to mitigate vapor intrusion to indoor air and to reduce chlorinated solvent mass from beneath the building.

Given that the first two options do not address the short-term risk to human health of the occupants of the building, Apex selected Option No. 3. Natural attenuation associated with Option No. 1 and the degradation associated with Option No. 2 require time to take effect and leave current tenants of the building exposed to potential inhalation risk until the attenuation/degradation occurs. These two options would likely require years to achieve regulatory compliance.

The SVE approach provided by Option No. 3 prevented potential vapors from entering the building once the system is installed and operational. This option reduced the potential health risk to building occupants immediately upon installation. Option No. 3 mitigated potential indoor vapor intrusion both in the short and long-term. The SVE System reduced the chlorinated compound mass from beneath the building to the extent that after the system was shut down for approximately seven months, the vapor concentrations remained well below VALs.

Other remedial options, such as intrusive remediation were available; however, with the existence of the on-site building, these options were not feasible for this Site.

- E. Describe the nature, degree and extent of residual contamination that will remain at the source property or on other affected properties after case closure.

The most recent groundwater sampling found exceedances of Enforcement Standards (ES) at:

* MW-1 contained tetrachloroethene (PCE, 19.5 ug/L) and vinyl chloride (VC 20.4 ug/L). Concentrations of PCE at MW-1 have decreased by 98 percent from August 2017 to August 2018 prior to the installation of the SVE system in September 2018. VC concentrations increased over the same period. This well was not sampled following the source area SVE installation in September 2018.

* MW-2 contained VC (7.3 ug/L). The concentrations may have increased slightly from August 2017 to November 2018.

* MW-4 contained PCE (7.1 ug/L) and VC (2.7 ug/L). The concentrations may have increased slightly from August 2017 to November 2018.

MW-5, approximately 90, 60 and 30 feet horizontally downgradient of the source area, MW-1 and MW-4, respectively, did not report concentrations above reporting limits (≤ 0.33 ug/L) from August 2017 to November 2018.

Given the observed groundwater flow directions it is not clear that MW-2 is downgradient of the potential dry-cleaning facility source area. Regardless, MW-3, located about 30 feet downgradient of MW-2, yielded PCE, trichloroethene (TCE) and cDCE at estimated concentrations ≤ 0.93 ug/L in November 2018. The concentrations are below ES but above Preventative Action Limits (PALs). Samples from August 2017 through August 2018 did not contain CVOCs above laboratory reporting limits. MW-6, located about 25 feet downgradient of MW-3, reported no CVOCs above laboratory reporting limits from August 2017 through November 2018.

Residual soil contamination was present in the source area under the building in 2005 for PCE (borings B-1, -2 and -3 at 2 to 4 feet bgs with ≤ 0.0082 mg/kg). Borings HA-2, HA-3 and HA-4 samples soil in the source area at depths of 2 feet in August 2019 following the SVE system operation found only chloromethane, unrelated to dry cleaning, was reported at estimated concentrations ranging from 6.8 to 8.8 ug/kg. However, reporting limits for VOCs were significantly greater than those of the 2005 analyses and the soil RCLs.

- F. Describe the residual soil contamination within four feet of ground surface (direct contact zone) that attains or exceeds RCLs established under s. NR 720.12, Wis. Adm. Code, for protection of human health from direct contact.

Residual soil contamination did not exceed the direct contact RCLs in the source area under the building in 2005 (borings B-1, -2 and -3, at 2 to 4 feet bgs). Borings HA-2, HA-3 and HA-4 samples soil in the source area at depths of 2 feet collected in August 2019 found only chloromethane, unrelated to dry cleaning, at estimated concentrations that were less than the direct contact RCLs. The compound was also present in laboratory blanks suggesting these results are laboratory artifacts. However, the elevated reporting limits for the 2019 soil samples do not allow quantitative assessment.

Residual soil contamination outside of the building exceeded soil to groundwater RCLs in 2005 (Attachment A.3). Only boring B-4 at 2 to 4 feet bgs, located next to MW-1, had dry-cleaning constituents (PCE) or degradation products (TCE) but neither exceeded the direct contact RCLs. Borings EB-1 and -4 (2 feet bgs) had detections of non-dry-cleaning constituents in 2005 but they did not exceed the direct contact RCLs.

- G. Describe the residual soil contamination that is above the observed low water table that attains or exceeds the soil standard(s) for the groundwater pathway.

As noted in 4.E., several exceedances of soil to groundwater RCLs were observed above the water table in 2005. There has been no additional soil testing at these locations in the last 15 years and concentrations have likely decreased since then. The exceedances were all beneath pavement which will be maintained as a cover to minimize potential leaching from the soil.

- H. Describe how the residual contamination will be addressed, including but not limited to details concerning: covers, engineering controls or other barrier features; use of natural attenuation of groundwater; and vapor mitigation systems or measures.

It is Apex's opinion that the low concentrations identified in soil and groundwater at the Site will continue to naturally attenuate. A concrete floor slab or asphalt pavement will be maintained over both the residual soil and groundwater remaining at the site.

The vapor contamination has been addressed by the operation of the SVE System. The confirmatory vapor samples collected after the operation of the SVE System demonstrate that the system effectively lowered the VOCs beneath the floor slab to concentrations below current standards.

- I. If using natural attenuation as a groundwater remedy, describe how the data collected supports the conclusion that natural attenuation is effective in reducing contaminant mass and concentration (e.g., stable or receding groundwater plume). Concentrations of PCE at MW-1 have decreased by 98 percent from August 2017 (945 ug/L) to August 2018 (19.5 ug/L) prior to the installation of the SVE system in September 2018. TCE (4.1 ± 0.97 ug/L, mean \pm standard deviation) over that time period while cis-1,2-dichloroethene (cDCE) has increased from 1.3 to 6.1 ug/L and VC concentrations increased from 9.1 to 20.4 ug/L. The concentration trends suggest that reductive dechlorination may be destroying the more chlorinated ethene near the source area. VOC mass removal by the SVE system from September 2018 through December 2018 will likely further reduce the VOC concentrations at MW-1. Moving about 30 feet downgradient of MW-1 to MW-4 shows relatively constant PCE (7.1 ± 3.2 ug/L), TCE (2.0 ± 0.47 ug/L) and cDCE (2.8 ± 0.50 ug/L). VC concentration increased from 0.21 to 2.7 ug/L. All concentrations at MW-4 are on the order of 50 to 60 percent are less than those at MW-1. Another 30 feet downgradient MW-4 is MW-5 where no chlorinated VOCs (CVOCs) have been detected.

- J. Identify how all exposure pathways (soil, groundwater, vapor) were removed and/or adequately addressed by immediate, interim and/or remedial action(s).

The SVE system reduced the subsurface VOC concentrations below Vapor Action Levels.

The VOCs in shallow soil samples collected in 2005 may have been removed to a limited extent by the SVE system and by other attenuative processes such as volatilization and degradation. However, the elevated reporting limits for the 2019 soil samples do not allow quantitative assessment in the source area below the facility.

As previously mentioned, the residual soil and groundwater remaining at the site will be covered to act as a partial infiltration barrier to minimize future soil-to-groundwater contamination migration.

- K. Identify any system hardware anticipated to be left in place after site closure, and explain the reasons why it will remain. The SVE System is anticipated to remain in place. However, due to the cost to operate the system, there are no plans to continue to operate the system at this time.

- L. Identify the need for a ch. NR 140, Wis. Adm. Code, groundwater Preventive Action Limit (PAL) or Enforcement Standard (ES) exemption, and identify the affected monitoring points and applicable substances.

Based on the last groundwater sampling event, PCE and VC at MW-1, VC at MW-2 and PCE and VC at MW-4 exceed ESs and PCE and TCE at MW-3 exceed PALs. For this reason, an exemption for groundwater will be required as part of the closure for the Site.

Post remediation soil samples collected beneath the building demonstrate that the soil impacts have been remediated to below the laboratory reporting limits for the 2019 analyses. These reporting limits were significantly above the leaching to groundwater RCLs but well below direct contact RCLs. Given the elevated reporting limits, Apex believes that additional exemptions for soil are required.

- M. If a DNR action level for vapor intrusion was exceeded (for indoor air, sub slab, or both) describe where it was exceeded and how the pathway was addressed.

Initial sub-slab sampling identified two locations in exceedance of DNR action levels (SV-3 and SV-4). The vapor inhalation exposure route was addressed by installing/operating a SVE System that lowered the sub-slab vapor concentrations to levels below the current standards. Two rounds of sampling of these two sample locations post SVE system operation did not detect VOCs at concentrations above the Residential, Small Commercial or Large Commercial Sub-Slab Vapor Action Levels.

- N. Describe the surface water and/or sediment contaminant concentrations and areas after remediation. If a DNR action level was exceeded, describe where it was exceeded and how the pathway was addressed.

N/A

5. Continuing Obligations: Includes all affected properties and rights-of-way (ROWs). In certain situations, maintenance plans are also required, and must be included in Attachment D.

Directions: For each of the 3 property types below, check all situations that apply to this closure request.

(NOTE: Monitoring wells to be transferred to another site are addressed in Attachment E.)

This situation applies to the following property or Right of Way (ROW):			Case Closure Situation - Continuing Obligation (database fees will apply, ii. - xiv.)	Maintenance Plan Required	
Property Type:					
Source Property	Affected Property (Off-Source)	ROW			
i.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	None of the following situations apply to this case closure request.	NA
ii.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Residual groundwater contamination exceeds ch. NR 140 ESs.	NA
iii.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Residual soil contamination exceeds ch. NR 720 RCLs.	NA
iv.				Monitoring Wells Remain:	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	• Not Abandoned (filled and sealed)	NA
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	• Continued Monitoring (requested or required)	Yes
v.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Cover/Barrier/Engineered Cover or Control for (soil) direct contact pathways (includes vapor barriers)	Yes
vi.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Cover/Barrier/Engineered Cover or Control for (soil) groundwater infiltration pathway	Yes
vii.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Structural Impediment: impedes completion of investigation or remedial action (not as a performance standard cover)	NA
viii.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Residual soil contamination meets NR 720 industrial soil RCLs, land use is classified as industrial	NA
ix.	<input type="checkbox"/>	<input type="checkbox"/>	NA	Vapor Mitigation System (VMS) required due to exceedances of vapor risk screening levels or other health based concern	Yes
x.	<input type="checkbox"/>	<input type="checkbox"/>	NA	Vapor: Dewatering System needed for VMS to work effectively	Yes
xi.	<input type="checkbox"/>	<input type="checkbox"/>	NA	Vapor: Compounds of Concern in use: full vapor assessment could not be completed	NA
xii.	<input type="checkbox"/>	<input type="checkbox"/>	NA	Vapor: Commercial/industrial exposure assumptions used.	NA
xiii.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Vapor: Residual volatile contamination poses future risk of vapor intrusion	NA
xiv.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Site-specific situation: (e. g., fencing, methane monitoring, other) (<i>discuss with project manager before submitting the closure request</i>)	Site specific

6. Underground Storage Tanks

A. Were any tanks, piping or other associated tank system components removed as part of the investigation or remedial action? ☐ Yes ☒ No

B. Do any upgraded tanks meeting the requirements of ch. ATCP 93, Wis. Adm. Code, exist on the property? ☐ Yes ☒ No

C. If the answer to question 6.B. is yes, is the leak detection system currently being monitored? ☐ Yes ☐ No

General Instructions

All information shall be legible. Providing illegible information will result in a submittal being considered incomplete until corrected. For each attachment (A-G), provide a Table of Contents page, listing all 'applicable' and 'not applicable' items by Closure Form titles (e.g., A.1. Groundwater Analytical Table, A.2. Soil Analytical Results Table, etc.). If any item is 'not applicable' to the case closure request, you must fully explain the reasons why.

Data Tables (Attachment A)**Directions for Data Tables:**

- Use **bold** and *italics* font for information of importance on tables and figures. Use **bold** font for ch. NR 140, Wis. Adm. Code ES attainments or exceedances, and *italicized font* for ch. NR 140, Wis. Adm. Code, PAL attainments or exceedances.
- Use **bold** font to identify individual ch. NR 720 Wis. Adm. Code RCL exceedances. Tables should also include the corresponding groundwater pathway and direct contact pathway RCLs for comparison purposes. Cumulative hazard index and cumulative cancer risk exceedances should also be tabulated and identified on Tables A.2 and A.3.
- Do not use shading or highlighting on the analytical tables.
- Include on Data Tables the level of detection for results which are below the detection level (i.e., do not just list as no detect (ND)).
- Include the units on data tables.
- Summaries of all data must include information collected by previous consultants.
- Do not submit lab data sheets unless these have not been submitted in a previous report. Tabulate all data required in s. NR 716.15 (3)(c), Wis. Adm. Code, in the format required in s. NR 716.15(4)(e), Wis. Adm. Code.
- Include in Attachment A all of the following tables, in the order prescribed below, with the specific Closure Form titles noted on the separate attachments (e.g., Title: A.1. Groundwater Analytical Table; A.2. Soil Analytical Results Table, etc.).
- For required documents, each table (e.g., A.1., A.2., etc.) should be a separate Portable Document Format (PDF).

A. Data Tables

- Groundwater Analytical Table(s):** Table(s) showing the analytical results and collection dates for all groundwater sampling points (e.g., monitoring wells, temporary wells, sumps, extraction wells, potable wells) for which samples have been collected.
- Soil Analytical Results Table(s):** Table(s) showing all soil analytical results and collection dates. Indicate if sample was collected above or below the observed low water table (unsaturated versus saturated).
- Residual Soil Contamination Table(s):** Table(s) showing the analytical results of only the residual soil contamination at the time of closure. This table shall be a subset of table A.2 and should include only the soil sample locations that exceed an RCL. Indicate if sample was collected above or below the observed low water table (unsaturated versus saturated). Table A.3 is optional only if a total of fewer than 15 soil samples have been collected at the site.
- Vapor Analytical Table(s):** Table(s) showing type(s) of samples, sample collection methods, analytical method, sample results, date of sample collection, time period for sample collection, method and results of leak detection, and date, method and results of communication testing.
- Other Media of Concern (e.g., sediment or surface water):** Table(s) showing type(s) of sample, sample collection method, analytical method, sample results, date of sample collection, and time period for sample collection.
- Water Level Elevations:** Table(s) showing all water level elevation measurements and dates from all monitoring wells. If present, free product should be noted on the table.
- Other:** This attachment should include: 1) any available tabulated natural attenuation data; 2) data tables pertaining to engineered remedial systems that document operational history, demonstrate system performance and effectiveness, and display emissions data; and (3) any other data tables relevant to case closure not otherwise noted above. If this section is not applicable, please explain the reasons why.

Maps, Figures and Photos (Attachment B)**Directions for Maps, Figures and Photos:**

- Provide on paper no larger than 11 x 17 inches, unless otherwise directed by the Department. Maps and figures may be submitted in a larger electronic size than 11 x 17 inches, in a PDF readable by the Adobe Acrobat Reader. However, those larger-size documents must be legible when printed.
- Prepare visual aids, including maps, plans, drawings, fence diagrams, tables and photographs according to the applicable portions of ss. NR 716.15(4), 726.09(2) and 726.11(3), (5) and (6), Wis. Adm. Code.
- Include all sample locations.
- Contour lines should be clearly labeled and defined.
- Include in Attachment B all of the following maps and figures, in the order prescribed below, with the specific Closure Form titles noted on the separate attachments (e.g., Title: B.1. Location Map; B.2. Detailed Site Map, etc.).
- For the electronic copies that are required, each map (e.g., B.1.a., B.2.a, etc.) should be a separate PDF.
- Maps, figures and photos should be dated to reflect the most recent revision.

B.1. Location Maps

- Location Map:** A map outlining all properties within the contaminated site boundaries on a United States Geological Survey (U.S.G.S.) topographic map or plat map in sufficient detail to permit easy location of all affected and/or adjacent parcels. If groundwater standards are exceeded, include the location of all potable wells, including municipal wells, within 1200 feet of the area of contamination.
- Detailed Site Map:** A map that shows all relevant features (buildings, roads, current ground surface cover, individual property boundaries for all affected properties, contaminant sources, utility lines, monitoring wells and potable wells) within the contaminated area. This map is to show the location of all contaminated public streets, and highway and railroad rights-of-way in relation to the source property and in relation to the boundaries of groundwater contamination attaining or exceeding a ch. NR 140 ES, and/or in relation to the boundaries of soil contamination attaining or exceeding a RCL. Provide parcel identification numbers for all affected properties.
- RR Sites Map:** From RR Sites Map ([http://dnrmaps.wi.gov/si/?Viewer=RR Sites](http://dnrmaps.wi.gov/si/?Viewer=RR%20Sites)) attach a map depicting the source property, and all open and closed BRRTS sites within a half-mile radius or less of the property.

B.2. Soil Figures

- B.2.a. **Soil Contamination:** Figure(s) showing the location of **all** identified unsaturated soil contamination. Use a single contour to show the horizontal extent of each area of contiguous soil contamination that exceeds a soil to groundwater pathway RCL as determined under ch. NR 720.Wis. Adm. Code. A separate contour line should be used to indicate the horizontal extent of each area of contiguous soil contamination that exceeds a direct contact RCL exceedances (0-4 foot depth).
- B.2.b. **Residual Soil Contamination:** Figure(s) showing only the locations of soil samples where unsaturated soil contamination remains at the time of closure (locations represented in Table A.3). Use a single contour to show the horizontal extent of each area of contiguous soil contamination that exceeds a soil to groundwater pathway RCL as determined under ch. NR 720 Wis. Adm. Code. A separate contour line should be used to indicate the horizontal extent of each area of contiguous soil contamination that exceeds a direct contact RCL exceedance (0-4 foot depth).

B.3. Groundwater Figures

- B.3.a. **Geologic Cross-Section Figure(s):** One or more cross-section diagrams showing soil types and correlations across the site, water table and piezometric elevations, and locations and elevations of geologic rock units, if encountered. Display on one or more figures all of the following:
- Source location(s) and vertical extent of residual soil contamination exceeding an RCL. Distinguish between direct contact and the groundwater pathway RCLs.
 - Source location(s) and lateral and vertical extent if groundwater contamination exceeds ch. NR 140 ES.
 - Surface features, including buildings and basements, and show surface elevation changes.
 - Any areas of active remediation within the cross section path, such as excavations or treatment zones.
 - Include a map displaying the cross-section location(s), if they are not displayed on the Detailed Site Map (Map B.1.b.)
- B.3.b. **Groundwater Isoconcentration:** Figure(s) showing the horizontal extent of the post-remedial groundwater contamination exceeding a ch. NR 140, Wis. Adm. Code, PAL and/or an ES. Indicate the date and direction of groundwater flow based on the most recent sampling data.
- B.3.c. **Groundwater Flow Direction:** Figure(s) representing groundwater movement at the site. If the flow direction varies by more than 20° over the history of the site, submit two groundwater flow maps showing the maximum variation in flow direction.
- B.3.d. **Monitoring Wells:** Figure(s) showing all monitoring wells, with well identification number. Clearly designate any wells that: (1) are proposed to be abandoned; (2) cannot be located; (3) are being transferred; (4) will be retained for further sampling, or (5) have been abandoned.

B.4. Vapor Maps and Other Media

- B.4.a. **Vapor Intrusion Map:** Map(s) showing all locations and results for samples taken to investigate the vapor intrusion pathway in relation to residual soil and groundwater contamination, including sub-slab, indoor air, soil vapor, soil gas, ambient air, and communication testing. Show locations and footprints of affected structures and utility corridors, and/or where residual contamination poses a future risk of vapor intrusion.
- B.4.b. **Other media of concern (e.g., sediment or surface water):** Map(s) showing all sampling locations and results for other media investigation. Include the date of sample collection and identify where any standards are exceeded.
- B.4.c. **Other:** Include any other relevant maps and figures not otherwise noted above. (This section may remain blank).

- B.5. Structural Impediment Photos:** One or more photographs documenting the structural impediment feature(s) which precluded a complete site investigation or remediation at the time of the closure request. The photographs should document the area that could not be investigated or remediated due to a structural impediment. The structural impediment should be indicated on Figures B.2.a and B.2.b.

Documentation of Remedial Action (Attachment C)**Directions for Documentation of Remedial Action:**

- Include in Attachment C all of the following documentation, in the order prescribed below, with the specific Closure Form titles noted on the separate attachments (e.g., Title: C.1. Site Investigation Documentation; C.2. Investigative Waste, etc.).
- If the documentation requested below has already been submitted to the DNR, please note the title and date of the report for that particular document requested.
 - C.1. **Site investigation documentation**, that has not otherwise been submitted with the Site Investigation Report.
 - C.2. **Investigative waste** disposal documentation.
 - C.3. Provide a **description of the methodology** used along with all supporting documentation if the RCLs are different than those contained in the Department's RCL Spreadsheet available at: <http://dnr.wi.gov/topic/Brownfields/Professionals.html>.
 - C.4. **Construction documentation** or as-built report for any constructed remedial action or portion of, or interim action specified in s. NR 724.02(1), Wis. Adm. Code.
 - C.5. **Decommissioning of Remedial Systems.** Include plans to properly abandon any systems or equipment.
 - C.6. **Other.** Include any other relevant documentation not otherwise noted above (This section may remain blank).

Maintenance Plan(s) and Photographs (Attachment D)**Directions for Maintenance Plans and Photographs:**

Attach a maintenance plan for each affected property (source property, each off-source affected property) with continuing obligations requiring future maintenance (e.g., direct contact, groundwater protection, vapor intrusion). See Site Summary section 5 for all affected property(s) requiring a maintenance plan. Maintenance plan guidance and/or templates for: 1) Cover/barrier systems; 2) Vapor intrusion; and 3) Monitoring wells, can be found at: <http://dnr.wi.gov/topic/Brownfields/Professionals.html#tabx3>

- D.1. Descriptions of maintenance action(s) required for maximizing effectiveness of the engineered control, vapor mitigation system, feature or other action for which maintenance is required:**
- Provide brief descriptions of the type, depth and location of residual contamination.

- Provide a description of the system/cover/barrier/monitoring well(s) to be maintained.
 - Provide a description of the maintenance actions required for maximizing effectiveness of the engineered control, vapor mitigation system, feature or other action for which maintenance is required.
 - Provide contact information, including the name, address and phone number of the individual or facility who will be conducting the maintenance.
- D.2. **Location map(s) which show(s):** (1) the feature that requires maintenance; (2) the location of the feature(s) that require(s) maintenance - on and off the source property; (3) the extent of the structure or feature(s) to be maintained, in relation to other structures or features on the site; (4) the extent and type of residual contamination; and (5) all property boundaries.
- D.3. **Photographs** for site or facilities with a cover or other performance standard, a structural impediment or a vapor mitigation system, include one or more photographs documenting the condition and extent of the feature at the time of the closure request. Pertinent features shall be visible and discernible. Photographs shall be submitted with a title related to the site name and location, and the date on which it was taken.
- D.4. **Inspection log**, to be maintained on site, or at a location specified in the maintenance plan or approval letter. The inspection and maintenance log is found at: <http://dnr.wi.gov/files/PDF/forms/4400/4400-305.pdf>.

Monitoring Well Information (Attachment E)

Directions for Monitoring Well Information:

For all wells that will remain in use, be transferred to another party, or that could not be located; attach monitoring well construction and development forms (DNR Form 4400-113 A and B: http://dnr.wi.gov/topic/groundwater/documents/forms/4400_113_1_2.pdf)

Select One:

- ☐ No monitoring wells were installed as part of this response action.
- ☒ All monitoring wells have been located and will be properly abandoned upon the DNR granting conditional closure to the site
- ☐ **Select One or More:**
- ☐ Not all monitoring wells can be located, despite good faith efforts. Attachment E must include a description of efforts made to locate the wells.
- ☐ One or more wells will remain in use at the site after this closure. Attachment E must include documentation as to the reason(s) the well(s) will remain in use. When one or more monitoring wells will remain in use this is considered a continuing obligation and a maintenance plan will be required and must be included in Attachment D.
- ☐ One or more monitoring wells will be transferred to another owner upon case closure being granted. Attachment E should include documentation identifying the name, address and email for the new owner(s). Provide documentation from the party accepting future responsibility for monitoring well(s).

Source Legal Documents (Attachment F)

Directions for Source Legal Documents:

Label documents with the specific closure form titles (e.g., F.1. Deed, F.2. Certified Survey Map, etc.). Include all of the following documents, in the order listed:

- F.1. **Deed:** The most recent deed with legal description clearly listed.
- Note: If a property has been purchased with a land contract and the purchaser has not yet received a deed, a copy of the land contract which includes the legal description shall be submitted instead of the most recent deed. If the property has been inherited, written documentation of the property transfer should be submitted along with the most recent deed.*
- F.2. **Certified Survey Map:** A copy of the certified survey map or the relevant section of the recorded plat map for those properties where the legal description in the most recent deed refers to a certified survey map or a recorded plat map. In cases where the certified survey map or recorded plat map are not legible or are unavailable, a copy of a parcel map from a county land information office may be substituted. A copy of a parcel map from a county land information office shall be legible, and the parcels identified in the legal description shall be clearly identified and labeled with the applicable parcel identification number.
- F.3. **Verification of Zoning:** Documentation (e.g., official zoning map or letter from municipality) of the property's or properties' current zoning status.
- F.4. **Signed Statement:** A statement signed by the Responsible Party (RP), which states that he or she believes that the attached legal description(s) accurately describe(s) the correct contaminated property or properties. This section applies to the source property only. Signed statements for Other Affected Properties should be included in Attachment G.

Notifications to Owners of Affected Properties (Attachment G)**Directions for Notifications to Owners of Affected Properties:**

Complete the table on the following page for sites which require notification to owners of affected properties pursuant to ch. 292, Wis. Stats. and ch. NR 725 and 726, Wis. Adm. Code. Personal information collected will be used for administrative purposes and may be provided to requesters to the extent required by Wisconsin's Open Records law [ss. 19.31- 19.39, Wis. Stats.]. The DNR's "Guidance on Case Closure and the Requirements for Managing Continuing Obligations" (PUB-RR-606) lists specific notification requirements <http://dnr.wi.gov/files/PDF/pubs/rr/RR606.pdf>.

State law requires that the responsible party provide a 30-day, written advance notification to certain persons prior to applying for case closure. This requirement applies if: (1) the person conducting the response action does not own the source property; (2) the contamination has migrated onto another property; and/or (3) one or more monitoring wells will not be abandoned. Use form 4400-286, Notification of Continuing Obligations and Residual Contamination, at <http://dnr.wi.gov/files/PDF/forms/4400/4400-286.pdf>

Include a copy of each notification sent and accompanying proof of delivery, i.e., return receipt or signature confirmation.

Include the following documents for each property, keeping each property's documents grouped together and labeled with the letter G and the corresponding ID number from the table on the following page. (Source Property documents should only be included in Attachment F):

- **Deed:** The most recent deed with legal descriptions clearly listed for all affected properties.
Note: If a property has been purchased with a land contract and the purchaser has not yet received a deed, a copy of the land contract which includes the legal description shall be submitted instead of the most recent deed. If the property has been inherited, written documentation of the property transfer should be submitted along with the most recent deed.
- **Certified Survey Map:** A copy of the certified survey map or the relevant section of the recorded plat map for those properties where the legal description in the most recent deed refers to a certified survey map or a recorded plat map. In cases where the certified survey map or recorded plat map are not legible or are unavailable, a copy of a parcel map from a county land information office may be substituted. A copy of a parcel map from a county land information office shall be legible, and the parcels identified in the legal description shall be clearly identified and labeled with the applicable parcel identification number.
- **Verification of Zoning:** Documentation (e.g., official zoning map or letter from municipality) of the property's or properties' current zoning status.
- **Signed Statement:** A statement signed by the Responsible Party (RP), which states that he or she believes the attached legal description(s) accurately describe(s) the correct contaminated property or properties.

ID	Address of Affected Property	Parcel ID No.	Date of Receipt of Letter	Type of Property Owner	WTMX	WTMY	Reasons Notification Letter Sent:
A	None						Residual Groundwater Contamination = or > ES Residual Soil Contamination Exceeds RCLs Monitoring Wells: Not Abandoned Monitoring Wells: Continued Monitoring Cover/Barrier/Engineered Control Structural Impediment Industrial RCLs Met/Applied Vapor Mitigation System(VMS) Dewatering System Needed for VMS Compounds of Concern in Use Commercial/Industrial Vapor Exposure Assumptions Applied Residual Volatile Contamination Poses Future Risk of Vapor Intrusion Site Specification Situation
B							
C							
D							

Signatures and Findings for Closure Determination

This page has been updated as of February 2019 to comply with the requirements of Wis. Admin. Code ch. NR 712.

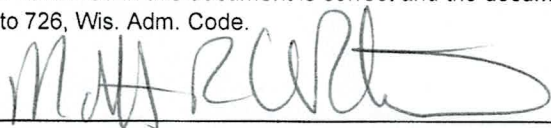
Check the correct box for this case closure request and complete the corresponding certification statement(s) listed below to demonstrate that the requirements of Wis. Admin. Code ch. NR 712 have been met. The responsibility for signing the certification may not be delegated per Wis. Admin. Code § NR 712.09 (1). Per Wis. Admin. Code § 712.05 (1), the work must be conducted or supervised by the person certifying.

- ☒ The investigation and/or response action(s) for this site evaluated and/or addressed groundwater (including natural attenuation remedies). Both a professional engineer and a hydrogeologist must sign this document per Wis. Admin. Code ch. NR 712.
- ☐ The investigation and the response action(s) for this site did not evaluate or address groundwater. A professional engineer must sign this document per Wis. Admin. Code ch. NR 712.

Engineering Certification

I, Matthew R. Van Patten, PE, 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.

Signature



P. E. #

42532

Title Senior Engineer

P.E. Stamp

**Hydrogeologist Certification**

I, Bernd W. Rehm, 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 of the 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.

Signature

Title Solutions Manager, ReSolution Partners LLC

Date

8 May 2020