



708 Heartland Trail
Suite 3000
Madison, WI 53717

608.826.3600 PHONE
608.826.9341 FAX

www.TRCSolutions.com

REC'D JUN 05 2012

June 4, 2012

Ms. Lisa Gutknecht
Wisconsin Department of Natural Resources
5301 Rib Mountain Drive
Wausau, WI 54401

Subject: Vapor Intrusion Risk Screening Level Assessment
Wauleco, Inc., 125 Rosecrans Street
Wausau, Wisconsin

Dear Ms. Gutknecht:

On behalf of Wauleco, Inc. and as discussed with you at the recent annual meeting, this is to document the vapor intrusion risk screening level assessment TRC Environmental Corporation (TRC) performed at the above referenced Wauleco project site. This assessment was performed using the groundwater monitoring results presented in the 2011 Annual Groundwater Monitoring Report dated April 24, 2012, and historic soil sample results.

Background

TRC completed a vapor intrusion pathway screening for the Wauleco site in Wausau, Wisconsin, to assess whether or not the contaminants originating from the Wauleco site pose a potential vapor intrusion risk on-site or off the property. The vapor intrusion screening assessment was completed based on the Wisconsin Department on Natural Resources (WDNR) and the United States Environmental Protection Agency (USEPA) guidance documents (WDNR, 2010; USEPA, 2002, and USEPA, 2011a), and using the OSWER Vapor Intrusion Screening Level Calculator (USEPA, 2011b).

For purposes of the vapor intrusion screening, the contaminants present in the soil and/or groundwater on the Wauleco site were segregated into three categories, which include:

- Phenols (primarily pentachlorophenol);
- Chlorinated volatile organic compounds (CVOCs); and,
- Petroleum volatile organic compounds (PVOCs) related to mineral spirits.

The vapor intrusion screening assessment is summarized in Table 1, and the assessment for each contaminant category is described in further detail below.

Ms. Lisa Gutknecht
Wisconsin Department of Natural Resources
June 4, 2012
Page 2

Phenols – Groundwater and Soil

Pentachlorophenol (PCP) is the most significant contaminant at the Wauleco site with respect to its concentrations in the soil and groundwater. Other phenols are also present in soil and groundwater at the site, but are at lower concentrations than PCP.

Regardless, phenols are not sufficiently volatile to be a potential vapor intrusion risk (Table 1 – USEPA, 2002). Therefore, the vapor intrusion risk pathway for the phenols is incomplete and Wauleco is not required to complete additional evaluations or investigations with respect to the vapor intrusion risk pathway for phenols.

CVOCs - Groundwater

CVOCs are present in the groundwater at the site. The detected CVOCs are considered to pose a vapor intrusion risk when present at concentrations that exceed the risk screening levels at the groundwater table. The primary CVOC detected in the groundwater is trichloroethene (TCE), which has been detected in several monitoring wells at concentrations exceeding its NR 140 Enforcement Standard (ES). Other CVOCs, including tetrachloroethene (PCE), cis-1,2-dichloroethene (DCE), methylene chloride and chloroform are also present in the groundwater beneath the Wauleco property. As shown in Table 1, PCE and methylene chloride require no further action because the maximum concentration observed in groundwater are less than the vapor intrusion target groundwater concentration.

TCE and cis-1,2-DCE

Wauleco is not the source of the TCE and cis-1,2-DCE impacts to groundwater at the site. The 3M Wausau Downtown Parking Lot (BRRTS #02-37-000273) site is located upgradient and adjacent to Wauleco to the west, and historic releases and the contaminant distribution in the area as confirmed by prior investigations has established 3M as the source of these CVOCs, as described in the letter issued by 3M to Wauleco in October 2004 (Attachment A). Because Wauleco is not the source of these contaminants to groundwater, Wauleco is not responsible for either further investigation or clean-up related to the TCE and cis-1,2-DCE nor for further assessment of the vapor intrusion risk pathway with respect to these compounds.

Chloroform

In July 2011, the concentrations of chloroform detected in three wells (W22, W33, and W41) were above the vapor screening level of 7 ug/L (USEPA, 2011b). However, the chloroform detected in these three wells is a direct result of water recharge from a leak in

Ms. Lisa Gutknecht
Wisconsin Department of Natural Resources
June 4, 2012
Page 3

the City of Wausau's water lateral discovered at the corner of Thomas Street and Cleveland Avenue in 2011. Like the TCE and cis-1,2-DCE discussed above with respect to 3M, since Wauleco is not the source of the chloroform, Wauleco is not responsible for either further investigation or clean-up related to the chloroform nor for further assessment of the vapor intrusion risk pathway with respect to this compound.

This conclusion is based on the following:

- Chloroform is a chlorination by-product in municipal water supply systems. The Wausau water utility reports a chloroform concentration of 8.9 ug/L (City of Wausau, 2011). Additional chloroform could be created in the groundwater, when the residual chlorine content of the municipal water supply comes in contact with water containing methane, as the groundwater in this area probably does.
- Wells W22, W33, and W41 are located along Cleveland Avenue and Thomas Street near the known location of the water lateral leak.
- The concentration of chloroform at these three wells was higher in July 2011 following the water lateral leak, than historically observed. For example, the chloroform concentrations in July 2010 and 2011 for each well were: W22 (5.9 ug/L and 14 µg/L), W33 (<3.8 ug/L and 12 µg/L), and W41 (<0.15 ug/L and 11 µg/L).
- Other wells located near Cleveland Avenue and Thomas Street (W39 and W16) also had chloroform detects, but at slightly lower concentrations.
- Bromodichloromethane (another water chlorination byproduct associated with municipal water supplies) was detected at well W22 in July 2010 and July 2011 (0.47 ug/L and 0.46 ug/L), coincident with the detection of chloroform.

Because the source of the chloroform in groundwater is a result of the recent leak in the municipal water lateral, Wauleco is not responsible for potential vapor intrusion and its assessment associated with chloroform. We expect that the concentration of chloroform will decline following repair of the water lateral leak in June 2011.

Other CVOCS

The concentrations of other CVOCS detected in groundwater are each below their respective groundwater screening levels for vapor intrusion. Therefore, the vapor intrusion risk pathway for the other CVOCS is incomplete, and Wauleco is not required to complete additional evaluations or investigations with respect to the vapor intrusion risk pathway for CVOCS in groundwater.

Ms. Lisa Gutknecht
Wisconsin Department of Natural Resources
June 4, 2012
Page 4

CVOCs – Soil

CVOCs have not been detected in the soil at the site. Therefore, no further actions are required to evaluate the potential vapor intrusion risk pathway for CVOCs from soil.

PVOCs (Mineral Spirit) - Groundwater

PVOCs associated with mineral spirits are present in the groundwater at and downgradient of the site. The PVOCs detected recently in the groundwater include 1,2,4-trimethylbenzene (TMB), 1,3,5-TMB, butylbenzene, ethylbenzene, isopropyl benzene, isopropyltoluene, toluene, naphthalene, and xylene.

PVOCs behave differently in the environment than CVOCs. Although PVOCs can pose a vapor intrusion risk, they degrade rapidly to non-toxic end products in aerobic conditions. Therefore, the vapor intrusion risk pathway for PVOCs is considered incomplete when:

- At least five feet of clean, unsaturated and aerated soil are present between the PVOCs and the surface or building, and
- PVOC free product is not present, or is present at a distance greater than 30 feet from a building foundation (WDNR, 2011; EPA, 2011a).

PVOC free product is no longer present at the Wauleco site except at very limited locations (W04A and W35) which are greater than 30 feet from any building foundations. Therefore, the PVOC risk screening criteria described above have been met, and the vapor intrusion risk pathway for PVOCs from the groundwater is currently incomplete. No further risk screening assessment is required for PVOCs in groundwater at the site; however, should construction be proposed at the Wauleco site, further vapor risk assessment should be conducted to evaluate the potential for vapor intrusion from free product.

PVOCs – Soil

PVOCs have been detected at moderate to low levels at the site from the five to ten foot horizon of soil beneath the site. Additionally, the data trends and the current concentrations of PVOCs in groundwater suggests that a significant on-going source of PVOCs is not present in the shallow soil and historical releases to the soil have likely degraded aerobically through time. No further actions would be required off-site to evaluate the potential vapor intrusion risk pathway from soil; however, should construction be proposed at the Wauleco site, further vapor risk assessment should be conducted to evaluate the potential for vapor intrusion in soils from former source areas.

Ms. Lisa Gutknecht
Wisconsin Department of Natural Resources
June 4, 2012
Page 5

Conclusions

The vapor intrusion screening assessment has demonstrated that:

- There are no current, potentially complete vapor intrusion pathways associated with the Wauleco site.
- The TCE and chloroform in groundwater, that slightly exceed the vapor intrusion screening criterion, are not associated with the Wauleco site.
- In the event that there is construction proposed at the Wauleco site if free product is still present and/or in proximity of former source areas, the following should be evaluated:
 - The potential for vapor intrusion from PVOOC concentrations in soil in the former source areas on the Wauleco property.
 - The potential for vapor intrusion from the presence of free product at depths of slightly less than 30 feet near the former source areas.

Closing Remarks

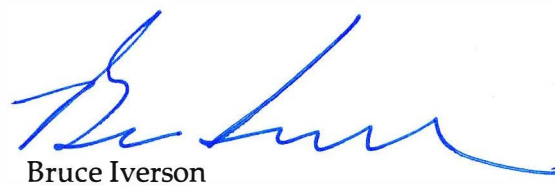
If you have any questions or comments regarding this information, please call us at 608.826.3653 (Ken) or 608.826.3644 (Bruce).

Sincerely,

TRC Environmental Corporation



Ken Quinn
Senior Hydrogeologist



Bruce Iverson
Project Manager

Attachments: Table 1 – Vapor Intrusion Risk Screening Assessment
Attachment A – Source Notification Letter from 3M to Wauleco

cc: Robert Brandt – Wauleco, Inc. (3 copies)
Tom Dushek – TRC, Wauleco (1 copy)
David Crass – Michael, Best & Friedrich, L.L.P. (1 copy)

Ms. Lisa Gutknecht
Wisconsin Department of Natural Resources
June 4, 2012
Page 6

References

City of Wausau. 2011. Wausau Water Works. Volume 14, No. 3. Summer 2011.

USEPA. 2002. OSWER Draft Guidance for Evaluating Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils. EPA530-D-02-004. November 2002.

USEPA. 2011a. Petroleum Hydrocarbons and Chlorinated Hydrocarbons Differ in Their Potential for Vapor Intrusion. September 2011.

USEPA. 2011b. OSWER Vapor Intrusion Screening Level Calculator Version 1.0. November 2011. <http://www.epa.gov/oswer/vaporintrusion/>

WDNR. 2010. Addressing Vapor Intrusion at Remediation and Redevelopment Sites in Wisconsin. PUB-RR-800. December 2010.

Table 1
Vapor Intrusion Risk Screening Assessment

Table 1
Vapor Intrusion Risk Screening Assessment
Wauleco Site - Wausau, WI
April 2012

CONTAMINANT	SOURCE?	SUFFICIENTLY VOLATILE AND TOXIC?	GROUNDWATER				SOIL		
			TARGET GW CONC. (ug/L) ²	MAX GW CONC. ³ (ug/L)	IS GW MAX > TARGET?	PVOC PRESENT BELOW 5 FT OF AERATED SOIL? ⁵	CONCLUSION	PRESENT IN SHALLOW SOIL (0-10 FT) ?	CONCLUSION
Phenols									
PCP	Wauleco	NO	--	--	--	--	No further action	--	No further action
Tetrachlorophenol	Wauleco	NO	--	--	--	--	No further action	--	No further action
CVOCs									
TCE	3M	YES	5.2	22	YES	--	No further action ⁴	Limited Data	No further action
cis-1,2-DCE	3M	No ¹	--	0.44	--	--	No further action		No further action
PCE	?	YES	5.7	4.8	NO	--	No further action		No further action
Chloroform	City	YES	7	14	YES	--	No further action		No further action
Methylene Chloride	?	YES	390	31	NO	--	No further action		No further action
Other VOCs (MINERAL SPIRITS - PVOCs)									
n-Butylbenzene	Wauleco	No ¹	--	73	--	--	No further action	Limited Data (ethylbenzene, toluene, and xylene detected in few locations near W-01.)	Off-Site: No further action On-site: Further evaluate shallow soil concentrations in source area(s) ⁶ (PVOCs likely have degraded aerobically through time in shallow soil)
Ethylbenzene	Wauleco	YES	31	36	YES	YES	No further action		
Naphthalene	Wauleco	YES	NVT	230	NO	--	No further action		
1,2,4-TMB	Wauleco	YES	29	1,700	YES	YES	No further action		
1,3,5-TMB	Wauleco	No ¹	--	610	--	--	No further action		
Toluene	Wauleco	YES	NVT	14	NO	--	No further action		
Xylenes	Wauleco	YES	NVT	620	NO	--	No further action		
Free product (95 % mineral spirits) is present at 27-28 feet bgs in source area (W04A and W35).							Evaluate ^{5, 6}	--	--

Footnotes:

- ¹ Toxicity Inhalation Unit Risk (IUR) or RfC not available for this compound.
- ² OSWER Vapor Intrusion Screening Level Calculator Version 1.0 November 2001 RSLs (USEPA, 2011b). TCR= 1E-5 AND THC =1, with avg gw temp of 25C.
- ³ Collected July 2011.
- ⁴ Although no further action required by Wauleco, potential vapor intrusion risk is present and may require further investigation by 3M.
- ⁵ Addressing Vapor Intrusion at Remediation and Redevelopment Sites in Wisconsin. PUB-RR-800. December 2010. (WDNR, 2010).
- ⁶ If a building is proposed for the former source area and free product remains, then further assessment may be required.

Notes:

NVT = not sufficiently toxic or volatile for exposure scenario.
 -- not applicable.

1,1,2,2-TCA was detected in 2011 in one well, but had not been previously detected and is therefore considered to be an anomaly and not included in the evaluation.

Attachment A

Source Notification Letter from 3M to Wauleco



October 22, 2004

Certified Mail

Mr. Robert Brandt
Wauleco Inc.
1800 North Point Avenue
Stevens Point, WI 54481

September 14, 2004

Subject:

Notification of Residual Trichloroethylene to the East of the 3M Downtown Facility
Parking Lot located at 144 Rosecrans Street, Wausau, Wisconsin.

BRRTS No. 03-37-000170

WDNR FID No. 73709460

Dear Mr. Brandt:

Groundwater contamination that appears to have originated on the 3M Downtown Facility Parking Lot property located at 144 Rosecrans Street, Wausau, Wisconsin may have migrated onto the property located at 910 Cleveland Avenue, Wausau, Wisconsin. Trichloroethylene (TCE) contamination in the groundwater monitoring well (W-25) located on the western edge of your property (immediately adjacent to the 3M Parking Lot property) is above the state groundwater enforcement standards found in Chapter NR 140, Wisconsin Administrative Code. However, the environmental consultants who have investigated this contamination have informed me that this groundwater contaminant plume is stable or receding and will naturally degrade over time. I believe that allowing natural attenuation to complete the cleanup at this site will meet the requirements for case closure that are found in Chapter NR 726, Wisconsin Administrative Code, and 3M Company will be requesting that the Wisconsin Department of Natural Resources (WDNR) accept natural attenuation as the final remedy for this site and grant case closure. Closure means that the WDNR will not be requiring any further investigation or cleanup action to be taken, other than the reliance on natural attenuation.

Since the source of the TCE within your Monitoring Well W-25 does not appear to originate from your property, neither you nor any subsequent owner of your property will be held responsible for investigation or cleanup of groundwater impacted by TCE contamination related to the 3M Parking Lot, as long as you and any subsequent owners comply with the requirements of Section 292.13, Wisconsin Statutes, including allowing access to your property for environmental investigation or cleanup if access is required. For further information on the requirements of Section 292.13,

Wisconsin Statutes, you may call 1-800-367-6076 for calls originating in Wisconsin, or 608-264-6020 if you are calling from out of state or within the Madison area, to obtain a copy of the WDNR's publication #RR-589, Fact Sheet 10: Guidance for Dealing with Properties Affected by Off-Site Contamination.

The WDNR will not review the closure request for at least 30 days after the date of this letter. As an affected property owner, you have a right to contact the WDNR to provide any technical information that you may have that indicates that closure should not be granted for this site. If you would like to submit any information to the WDNR that is relevant to this closure request, you should mail that information to Ms. Lisa Gutknecht, WDNR, 5301 Rib Mountain Drive, Wausau, WI 54401.

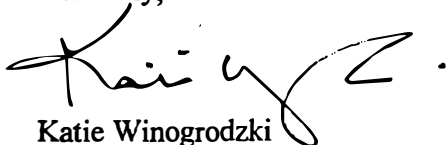
If this case is closed, all properties within the site boundaries where groundwater contamination exceeds Chapter NR 140 groundwater enforcement standards will be listed on the WDNR geographic information system (GIS) Registry of Closed Remediation Sites. The information on the GIS Registry includes maps showing the location of properties in Wisconsin where groundwater contamination above Chapter NR 140 enforcement standards was found at the time that the case was closed. This GIS Registry will be available to the general public on the WDNR internet web site. It is understood that your facility is currently an Environmental Repair Project with the WDNR and will be included on the GIS Registry as part of your own case closure.

Should you or any subsequent property owner wish to construct or reconstruct a well on your property, special well construction standards may be necessary to protect the well from potential residual TCE groundwater contamination from the 3M Parking Lot property. Any well driller who proposes to construct a well on your property in the future will first need to call the Diggers Hotline (1-800-242-8511) if your property is located outside of the service area of a municipally owned water system, or contact the Drinking Water program within the WDNR if your property is located within the designated service area of a municipally owned water system, to determine if there is a need for special well construction standards. However, as your property has groundwater contamination associated with releases on the property, it is understood that these provisions will be implemented as part of your own case closure.

Once the WDNR makes a decision on the closure request, it will be documented in a letter. If the WDNR grants closure, you may obtain a copy of this letter by requesting a copy from ARCADIS, by writing to the agency address given above, or by accessing the WDNR GIS Registry of Closed Remediation Sites on the internet at www.dnr.state.wi.us/org/at/et/geo/gwur. A copy of the closure letter will be included as part of the site file on the GIS Registry of Closed Remediation Sites.

If you need more information, you may contact me at 651-778-5393 or you may contact Jennine Cota of ARCADIS at 414-276-7742.

Sincerely,

A handwritten signature in black ink, appearing to read "Katie Winogrodzki". The signature is fluid and cursive, with a prominent initial "K" and a long, sweeping underline.

Katie Winogrodzki
Environmental Engineer

Copies:

Jennine Cota - ARCADIS

Lisa Gutknecht - WDNR