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DEPT. OF NATURAL RESOURCES

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

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March 25, 2009

Mr. John Desmond
Desmond & Desmond, LLC
620 Cass St.
La Crosse, WI 54601

SUBJECT: **Review of Remedial Action Options Report** - Former Desmond's Formal Wear Facility Located at 2338 Commerce Street, La Crosse, Wisconsin; DNR ID# 02-32-000203

Dear Mr. Desmond:

I have completed my review of the "Remedial Action Options Report" (RAOR) submitted on your behalf by Shaw Environmental and for which no review fee was received by the Department. The Department typically limits its review and approvals on non-fee sites to a simple "Notice to Proceed" letter, but due to the severity of the soil and groundwater contamination related to your site, and the severity of the impacts to properties adjacent to your site, the Department feels it imperative to respond to your RAOR in greater detail.

The Notice of Non-Compliance (NON) sent to you by the Department dated November 2, 2007, required that you provide me with confirmation that you had authorized your consultant to complete the tasks formerly approved in my letter to you dated August 21, 2006 and further delineated in Shaw Environmental's "Expanded Site Investigation Work Plan" dated November 3, 2006. In the March 21, 2006 letter, the Department requested that you initiate quarterly groundwater monitoring of existing and future monitoring wells to collect trend data necessary for all parties involved to make reasonable future decisions related to remediation of the site. Shaw indicated in their "Task 2" section of their submittal dated January 14, 2008, that routine quarterly groundwater sampling would begin when they constructed the temporary wells west of the railroad tracks, which occurred on February 11, 2008. In addition to the sampling completed on February 11, 2008, groundwater samples were also collected on May 27, 2008 and January 28, 2009. No quarterly samples were collected in August or November of 2008.

The second requirement of the NON was that a Site Investigation Work Plan (SIWP) for the groundwater investigation, to be implemented on the west side of the railroad tracks, be submitted to the Department by December 2, 2007. The final SIWP was received and approved by the Department on January 14, 2008. The results of the SI were received by the Department on March 5, 2008.

The third requirement of the NON was that, based on the results of the proposed SVE pilot test, a "Remedial Actions Options Report" (RAOR), as requested in the DNR's letter to you dated March 21, 2006, would be prepared and submitted by March 2, 2008. To my knowledge, no SVE pilot test has been completed at the site. The RAOR was received without the SVE evaluation by the Department on April 2, 2008.

The fourth item specified in the NON was that the Department would expect that a "Remedial Action Plan" (RAP) designed to address the environmental impacts to soil and groundwater would be initiated at the site during the summer months of 2008. To date no remediation had been initiated at the site and this is likely due to the fact

that you were waiting for the Department's formal review and approval of the RAOR, and for which a review fee should have been submitted with the RAOR.

Based on my review of the status of the site and the RAOR, I will address the four components of the RAOR in the order they were presented in the RAOR:

1. Supplemental Groundwater Site Investigation Results for the Area West of the Railroad Tracks:

The report indicates that on February 11, 2008, three temporary monitoring wells were constructed on the west side of the railroad tracks approximately 1,200 feet to the west by southwest of the former Desmond facility's perchloroethylene (PCE) source area. Groundwater samples were collected at twenty feet (20') and fifty feet (50') below ground surface (bgs) in these temporary wells. The analytical results from the temporary well 1,200 feet directly west of the source area (TP-1) documented a PCE concentration of 29 ug/L at 20' bgs and 59 ug/L at 50' bgs. The analytical results from the temporary well 1,250 feet to the west by southwest of the source area (TP-2) documented a PCE concentration of 1.3 ug/L at 20' bgs and 7.2 ug/L at 50' bgs. TP-2 also documented trichloroethylene (TCE), a degradation by-product of PCE, at concentrations of 12 ug/L at 20' bgs and 84 ug/L at 50' bgs. The northernmost temporary well (TP-3) documented no detectable concentration of PCE or TCE at 20' bgs and very low levels of PCE and TCE, just above the preventive action limits, at 50' bgs.

2. Residual Contaminant Levels and Hazardous Waste Determination:

The report indicates that Wisconsin default values for residual contaminant levels (RCLs) for PCE do not currently exist and the Department concurs. In their Site Investigation Report, dated May 25, 2005, Shaw proposed site-specific residual contaminant levels (SSRCLs) to be applied at this site. The SSRCLs presented in the Site Investigation Report were calculated using the Wisconsin input parameters to the EPA SSRCL calculator, as specified in ch. NR 720, Wis. Adm. Code. The direct contact SSRCL for PCE (a carcinogen) at a non-industrial site, wherein PCE was the only contaminant of concern, allows a TCR of 1x10-6 instead of 1x10-7 (THQ of 1 instead of 0.2 for non-carcinogens) resulting in a site-specific direct contact concentration for the ingestion pathway for PCE of 12.3 mg/kg and the Department approves this SSRCL. The soil to groundwater pathway SSRCL was calculated for a target groundwater concentration equal to the NR 140 enforcement standard of 5.0 ug/L for PCE and using a dilution factor of 20 resulting in a site-specific concentration for the groundwater pathway for PCE of 41 ug/kg. However, the Wisconsin input parameters to the EPA SSRCL calculator, as specified in s. NR 720.19(4), Wis. Adm. Code, require the use of target groundwater concentration equal to the NR 140 preventive action limit of 0.5 ug/L for PCE, resulting in a dilution factor of 2 for carcinogens, and the site-specific concentration for the groundwater pathway for PCE would therefore be 4.1 ug/kg.

The Department concurs that soil concentrations presented in documentation that you have submitted to date do not exceed the contained-out concentration for PCE, a "U210" listed hazardous waste, of 33 mg/kg. In addition, the concentration of PCE in soil would have to be equal or greater than 14 mg/kg for the soil to potentially fail TCLP at a concentration of 0.7 mg/L and render the soil a characteristic hazardous waste. That being said, nothing in the soil data provided to the Department to date would classify the contaminated soil as a hazardous waste should it be excavated and disposed of off-site at an approved solid waste landfill.

3. Evaluation of Remedial Action Options:

The RAOR evaluated four remedial options for technical and economic feasibility. The four options included: 1) Natural Attenuation only, 2) Soil Excavation, 3) Soil Excavation and Enhanced

Biodegradation, and 4) SVE, Air Sparging and Groundwater Monitoring. The RAOR is acceptable to the Department as submitted.

4. Site Remedial Strategy:

The following remedial strategy has been proposed for the site:

a. The majority of the contaminant mass resultant from the historic release of PCE from a source on the former Desmond property is located within soils on the adjacent 2326 Commerce Street property owned by ALM Family Limited Partnership. The site remedial strategy focused on the ALM property. The site remedial strategy proposes that any soils that may be excavated, if and when the ALM property is redeveloped, would be disposed of off-site at a licensed solid waste facility. The site remedial strategy implies that no soil remediation would take place unless the ALM property is redeveloped.

b. The site remedial strategy indicates that, contingent on the Department's NR 140 variance and a WPDES permit, an electronic donor may be introduced into the impacted soils to promote reductive dechlorination of PCE and its degradation byproducts in both soil and groundwater, if and when the ALM property is redeveloped and only if a soil excavation within the PCE impacted area is a part of the redevelopment activities. The site remedial strategy implies that no enhanced biodegradation would be initiated unless the ALM property is redeveloped.

c. The site remedial strategy indicates that, given the potential for VOC vapors to be problematic in the redevelopment of the ALM property, that institutional controls (i.e., a cap, a vapor barrier, a cap maintenance plan, etc.) would be required on the ALM property. It further indicates that a soil and/or groundwater GIS Registry would likely be necessary for several properties adjacent to the former Desmond property.

d. The site remedial strategy indicates that natural attenuation would be used to address residual soil and groundwater PCE contamination on and off-site. The site remedial strategy implies that natural attenuation alone would be used to address soil and groundwater contamination unless the ALM property is redeveloped.

After review of the expanded site investigation results and the recommendations included in the RAOR, the Department has the following comments related to the status of the site investigation and the proposed site remedial strategy:

The majority of soil contamination related to the historic PCE release on the former Desmond property is located on the adjacent property owned by ALM. Based on my conversations with ALM representatives, the PCE contamination on their property is impeding their ability to sell or redevelop that property. PCE contamination has also migrated to soils and/or groundwater on the Kwik Trip, Inc. property to the south of the ALM property, the Laidlaw Transit property to the west, and the City of La Crosse right-of-way below Commerce Street. PCE contaminated groundwater has migrated onto the Burlington Northern – Santa Fe Railroad (BNSF RR) property to the west, as well as an unknown number of private residences lying west of the BNSF RR tracks.

PCE concentrations within the upper four feet of the soil profile within the existing site investigation area have not been documented in exceedance of 12.3 mg/kg, the SSRCL for the direct contact soil ingestion pathway for a non-industrial site. The groundwater pathway generic RCL for PCE of 4.1 ug/kg is exceeded extensively throughout the site investigation area. Even if the SSRCL of 41 ug/kg, as proposed by Shaw, were to have been acceptable to the Department, it too would have been exceeded extensively throughout the site investigation area.

The highest levels of PCE soil contamination within the source area are frequently found in the mid-depth soil samples midway between the watertable and ground surface. None of the soil samples collected to date suggest that any of the PCE contaminated soils, if excavated, would be classified as a hazardous waste. As indicated in the RAOR, the horizontal extent of soil contamination remains undefined to the west and south. In addition, soil contamination levels have not been investigated below the former Desmond building, immediately north of the source area. Potential vapor intrusion has not been evaluated within the former Desmond building, and remains a significant concern for the redevelopment of the ALM property.

Groundwater PCE concentrations documented to date range from below detection limits (or "no detect") to 1,500 ug/kg. The last round of groundwater samples documented PCE concentrations ranging from 1.8 ug/kg in the sidegradient well to 624 ug/kg in the furthest downgradient well, MW-7. Groundwater has been documented with PCE concentrations up to 53 ug/L in TP-1, and TCE concentrations up to 84 ug/L in TP-2, both approximately 1,200 feet from the source area and fifty feet below ground surface. The downgradient extent of the PCE/TCE plume remains undefined, as does the vertical extent of the groundwater contamination. The furthest downgradient permanent monitoring wells currently used at the site, MW-7 and MW-7A, are impacted by PCE concentrations very similar to concentrations found in the source area well, MW-1. MW-7 and MW-7A are located approximately 600 feet west of the PCE source area.

The only remedial action definitely proposed for use in soils and groundwater at the site is natural attenuation. Off-site disposal of PCE contaminated soil is proposed only if excavated by another party during potential redevelopment of the ALM property. Enhanced biodegradation is proposed only if soil is excavated from the ALM property and the excavation is left open and accessible to your consultant. The site remedial strategy indicates that, subject to certain redevelopment scenarios, the development of the ALM property should include a vapor barrier to impede VOC vapor migration into a future building over the PCE impacted area, but does not specify whether that would be active or passive, or who's responsibility that would be.

As Shaw discussed in the RAOR, the use of natural attenuation (RNA) as a performance standard to address soil and groundwater contamination relies on the premise that natural attenuation must first demonstrate that natural attenuation mechanisms can effectively contain and remediate soil and groundwater, and that the following conditions are satisfied:

1. RNA must document that naturally occurring processes are containing and reducing the mass and concentration of affected groundwater, and reducing the concentration of affected soil.

2. Groundwater concentrations will be reduced below NR 140 enforcement standards within a reasonable period of time.

3. Human health and the environment are protected.

In addition, you as the RP have certain obligations, and those include proposing a remedial action that can be considered by the Department to be "reasonable and necessary" to adequately respond to a discharge, while minimizing the conditions to be imposed at an off-site property.

Given the degree and extent of the off-site PCE groundwater plume and the severity of the soil contamination on the ALM property, the Department does not believe the use of RNA as the sole remedial action at the site is acceptable or approvable.

Based on comments provided above, the Department hereby approves the Evaluation of Remedial Action Options section of the RAOR, but denies approval of the Site Remedial Strategy proposed in the RAOR. The Department requests that you proceed by completing the following steps designed to complete the site investigation and provide a reasonable Remedial Action Plan that will restore groundwater to below NR 140 enforcement standards

within a reasonable period of time, reduce PCE concentrations in soil to levels that are protective of the groundwater pathway, and minimize the threat of vapor intrusion that acts as an impediment to redevelopment of the ALM property.

1. The Department concurs with the RAOR's recommendation that two additional well nests should be constructed in the general area of TP-1 and TP-2. Within forty five (45) days of the effective date of this letter, you should complete the construction of the two well nests to the west of the railroad tracks. In each nest, one well should be constructed as a watertable observation well and one well should be constructed as a piezometer with the screen set a minimum of fifty feet below ground surface. The Department would consider other well locations and well depths should your consultant feel a change to the well designs, as indicated above, is warranted.

2. The Department concurs that the soil investigation is complete to the east and substantially complete to the south and west of the PCE source area. The soil investigation remains undefined to the north, under the former Desmond building. The Department therefore requests that additional borings be advanced below the existing slab of the former Desmond building to define the northern degree and extent of soil contamination. Dependent on PCE concentrations found below the slab, it may be appropriate to evaluate indoor air quality within the building itself. Within forty five (45) days of the effective date of this letter, you should complete the soil investigation, as indicated above. The results of the expanded site investigation should be submitted to the Department in tabular format with a revised site diagram within fourteen (14) days of your consultant's receipt of that data.

3. Continue the long-term monitoring of all of the site's groundwater monitoring wells on a quarterly basis, as proposed in the RAOR. Since the last sample was collected in January, 2009, the next quarterly sampling round should be completed in April, 2009. The Department will consider a request for sampling to be reduced to a semi-annual or annual basis, dependent on concentrations and trends of the individual well, after one complete year of quarterly sampling. All wells should be analyzed for full VOCs using EPA Method 8260. Groundwater data should be submitted to the Department in tabular format within fourteen (14) days of your consultant's receipt of that data.

4. The Department requests that within forty five (45) days of the effective date of this letter, you submit a revised Remedial Action Plan designed to restore groundwater to below NR 140 enforcement standards within a reasonable period of time, reduce PCE concentrations in soil to levels that are protective of the groundwater pathway, and minimize the threat of vapor intrusion that acts as an impediment to redevelopment of the ALM property.

While I am confident that we can resolve these outstanding issues, should you fail to comply with the actions requested in this letter, the DNR will need to pursue additional enforcement actions. I appreciate your concern and cooperation in these matters. If you have any questions about this letter, please feel free to call me at (715) 839-1602.

Sincerely,

Douglas Joseph
Hydrogeologist
Remediation and Redevelopment Program

c: Ginger Hooper, WCR - Enforcement Specialist
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