



June 27, 2019

RANDY COIL
BP PRODUCTS NORTH AMERICA INC
201 HELIOS WAY – HELIOS PLAZA 6.370A
HOUSTON TX 77079

RE: Technical Assistance Request – Remedial Action Options Report
Amoco Oil Co. Superior Terminal
2904 Winter Street, Superior, Wisconsin
BRRTS #02-16-000331

Dear Mr. Coil,

On March 14, 2019 Mr. Johnathan Zimdars of the Antea Group (Antea), on behalf of BP Products of North America Inc. (BP), submitted a Remedial Action Options Report (RAOR) to the Wisconsin Department of Natural Resources (DNR) Remediation and Redevelopment Program. The RAOR is associated with the Amoco Oil Co. Superior Terminal BRRTS #02-16-000331 (Site) referenced above.

A request for technical assistance, including appropriate fees, was made by Antea on April 8, 2019. The request was for a technical review of the RAOR. This correspondence is in response to the technical assistance request.

Brief Site History and Background:

The Site is the location of a large petroleum storage and distribution facility that operated for approximately 100 years. The Site infrastructure consisted of above ground storage tanks with up to 50 million-gallon capacity as well as above ground and underground piping and truck and rail car loading facilities.

The Site has been investigated since 1989. Soil contamination, groundwater contamination, light non-aqueous phase liquid (LNAPL) and explosive soil gas vapors have been identified through the investigative efforts. Numerous Site Investigation Reports (SIR) have been submitted to the DNR, however to date a SIR in full compliance with Wis. Admin Code ch. NR 716 has not been submitted to the DNR.

Infrastructure at the Site including ASTs, fuel loading areas and piping was removed in the late 1990's and 2000's. Multiple iterations of removal and/or treatment of contaminated soil,

contaminated groundwater, explosive vapors and LNAPL has occurred at the Site throughout the years. The DNR is considering these actions to be interim actions taken under Wis. Admin. Code § 700.03(29). The interim actions at the Site to date appear to have reduced the mass of petroleum contamination remaining in the source area of the site, however Antea reports up to 16,000 gallons of LNAPL remain in the ground and a plume of up to 25 acres of contaminated groundwater remains beneath the Site.

Remedial Action Options Report Review:

The review of the RAOR is to determine compliance with Wis. Admin. Code ch. NR 722, *Standards for Selecting Remedial Actions*. The purpose of which, as stated in Wis. Admin. Code § NR 722.01, is to establish minimum standards for identifying and evaluating remedial action options and selecting a remedial action.

The March 14, 2019 RAOR considered separate remedial actions for different media contaminated by the release of petroleum products at the Site. The RAOR also proposes implementation of specific remedial actions. The following is a summary of the options considered and proposed for implementation:

- Soil – The RAOR indicates all contaminated soil with a direct contact threat potential has been removed from the Site except an area underlying, and north of, Winter Street. The only remedial option considered is natural attenuation for all contaminated soil except the soil with direct contact threat. The options for soil with direct contact threat reviewed are soil removal through excavation and paving (capping). The RAOR proposes capping as the long-term remedial action.
- Vapor – The RAOR details past interim actions which includes 2 soil vapor extraction (SVE) systems. Antea has determined and indicates in the RAOR that SVE systems operation and Site geology (clay/silt surface soil) have demonstrated that there is no human health threat from vapor intrusion from the remaining contamination. A Real Estate Contract prohibiting basements (already in-place) is the proposed institutional control, keeping the clay/silt surface soil from being compromised and thereby eliminating potential threat of vapor intrusion into buildings.
- LNAPL – The RAOR details LNAPL characterization and past interim actions to reduce LNAPL at the Site. Interim actions include SVE, vapor extraction-total fluids recovery treatment (VE-TFRT) and an LNAPL skimming system. The RAOR also reviews installation of horizontal collection wells but indicates the water table fluctuation is too great to be effective. The RAOR proposes natural attenuation as the long-term remedial action to LNAPL at the Site.
- Dissolved Phase – The RAOR evaluates only natural attenuation as a remedial action for the shallow and deep dissolved phase plumes.

Following review of the RAOR the DNR has determined that the RAOR does not adequately compare viable remedial options as required by Wis. Admin. Code ch. NR 722. The RAOR cannot be approved at this time as the DNR does not believe the selected remedial actions will

adequately protect human health, safety and the environment as required by Wis. Admin. Code § NR 722.15(2)(d). Additionally, the RAOR does not evaluate appropriate remedial actions that will restore the environment within a reasonable period of time as required by Wis. Admin. Code § NR 722.07(3)(a). Other specific Wis. Admin. Code compliance issues associated with the RAOR are as follows:

- Wis. Admin. Code §§ NR 722.05(4) and 722.05(4)(a) indicates, a remedial action can be selected when a site investigation report (SIR) completed in accordance with Wis. Admin. Code ch. 716 has been submitted. To date the DNR has not received or approved a SIR that has been completed in accordance to Wis. Admin. Code ch. NR 716.
- Wis. Admin. Code § NR 722.13(2), RAOR content, specifically:
 - Wis. Admin. Code § NR 722.13(2)(d)(2) – RAOR does not state the degree to which the proposed option(s) will achieve restoration of all media as per NR 722.09(2).
 - Wis. Admin. Code § NR 722.13(2)(d)(5) – A detailed evaluation/comparison of options regarding performance and technical/economic feasibility, as per Wis. Admin. Code § NR722.07(4), is not included in the RAOR.
 - Wis. Admin. Code §§ NR 722.13(2)(e)(4) & NR 722.07(3) – The RAOR does not establish a time frame to restore the environment. Wis. Admin. Code § NR 726.05(6)(b) also requires a timeframe for Site closure.
- Wis. Admin. Code § NR 722.07(4)(b) – Requires a RAOR to include economic feasibility or cost comparisons of each option reviewed, this was not included in the RAOR as submitted.
- Wis. Admin. Code § NR 708.13(1) – The RAOR does not address LNAPL removal to minimize spread of contamination the deep plume of groundwater contamination is expanding at downgradient margin and several monitoring wells display unstable or increasing benzene concentrations and the LNAPL plumes are the probable source of groundwater contamination.

The DNR recognizes the great amount of investigative work and interim actions conducted at the Site. However, the DNR also recognizes the extreme nature of the degree and extent of contamination to soil and groundwater at the Site. Additionally, the DNR considers the Site a potential health and safety hazard, as witness by an August 18, 2003 City of Superior Fire Department emergency response to extinguish a fire of contaminated soil where the former petroleum piping crossed Winter Street.

Due to the degree and nature of the LNAPL and contamination remaining at the Site, the DNR encourages BP, following completion of the SI, to revise the RAOR to include a detailed technical and economic feasibility review of appropriate remedial action options that will restore the environment and comply with requirements Wis. Admin. Code chs. NR 700 – 754. The Site has been under DNR jurisdiction for nearly 35 years and a complete SIR has not been submitted to date nor has a comprehensive remedial action plan been developed and implemented.

The DNR reminds BP that they are the “responsible party” under Wis. Admin. Code § NR 700.03(51) must follow applicable law to address the discharge of a hazardous substance to the

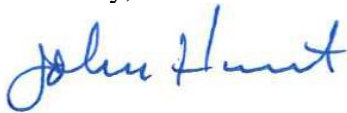
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environment or other environmental pollution. Wisconsin Statutes (“Wis. Stats.”) ch. 292 and Wis. Admin. Code chs. NR 700 through NR 754 provide specific requirements for undertaking appropriate response actions to address contamination, including requirements for emergency and interim actions, public information, site investigations, remedy selection, design and operation of remedial action systems, and case closure.

If you have any questions or comments regarding this project, please feel free to contact me at 715-623-4190 ext. 3115 or at john.t.hunt@wisconsin.gov.

Sincerely,



John T. Hunt
Hydrogeologist
Remediation & Redevelopment Program

cc: Jonathan Zimdars, Antea (email)