



AN ALLETE COMPANY

May 21, 2021

Mr. John Sager
Wisconsin Department of Natural Resources
Superior Service Center
1701 N 4th Street
Superior, WI 54880

Dear Mr. Sager:

RE: WDNR Comments on 60% Remedial Action Design Report

The *60% Remedial Action Design Report - Upland Area (RAD)* was prepared by Foth Infrastructure & Environment LLC (Foth) and submitted to Wisconsin Department of Natural Resources (WDNR) on behalf of Superior Water, Light & Power, (SWL&P) on March 19, 2021. WDNR provided comments in a 60% *RAD* approval letter received via email on April 20, 2021 (dated April 16, 2021).

Based on several conference call meetings with WDNR and the subsequent January 2021 approval of the *Remedial Action Options Report – Upland Area (RAOR)*, SWL&P was surprised by the nature and extent of the Remedial Design comments received. SWL&P hopes the clarifications in our attached comment/response submittal can correct any misunderstanding.

Important areas for discussion and alignment include:

- Site poses a low risk to human health and the environment.
- Site groundwater does not pose a threat to human health and environment, the Site use is heavy industrial, the Site is underlain with the protective Miller Creek Clay Formation and the City of Superior receives drinking water from Lake Superior. There are no complete groundwater contaminant exposure pathways.
- Cleanup of site groundwater to state Preventative Action Limits (PAL) and Enforcement Standards (ES) is not technically and economically feasible, and as provided in NR700, the *RAOR* and subsequent design are focused on a cleanup to the extent practicable.
- Following the soils remediation as part of the remedial action (RA), operations maintenance, and monitoring data will seek to confirm the groundwater contamination plume is shrinking or stable and poses no unreasonable human health or environmental risk.



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- Since the PALs and ESs will be exceeded, despite significant soils remediation, the properties with those exceedances will be included in the WDNR database and require continuing obligations.
- Per NR 722 performance standards will be used at this Site instead of residual contaminant levels (RCLs) for the soil to groundwater pathway. Performance standards at this Site (per NR 700.03, “performance standards” meaning an RA or, in some cases existing Site conditions, that prevent exposure to contaminants or will result in a decrease in contaminant concentrations, or both) will include excavation, biosparge/soil vapor extraction (SVE), backfill with low permeability materials to minimize rainwater infiltration, oxygen release compounds (ORC), natural attenuation of soil and groundwater, and continuing use obligations (e.g., land use restrictions).
- Achievement of the Site’s Remedial Action Objectives (RAOs) leads to Site Closure.

Overall SWL&P is concerned that many of the WDNR comments question the ability of the WDNR-approved *RAOR* Remedial Option 3 to satisfy WDNR requirements and that the path to Site Closure is uncertain.

To continue with the remedial design and subsequent remedial action, SWL&P needs consistency and assurance from WDNR in support of the selected preferred alternative, agrees with the RAOs, and that the regulatory and technical path for achieving RAOs and Site Closure is clear and agreed upon by both parties.

SWL&P requests that WDNR consider this response, meet with us, preferably in-person to discuss and confirm the path to RAO achievement and Site Closure.

If you have any additional questions, please contact me at (218) 355-3191.

Sincerely,

A handwritten signature in blue ink that reads 'Greg Prom'. The signature is fluid and cursive, with a long horizontal line extending from the end.

Greg Prom
Senior Environmental Compliance Specialist

cc: Robert Sandstrom, SWL&P
Jamie Mehle, SWL&P
Joscelyn Skandel, SWL&P
Erin Hughes, Foth
Steve Laszewski, Foth
Brian Symons, Foth
Brian Hanks, Foth



May 21, 2021

This document provides Superior Water, Light & Power's (SWL&P) response to Wisconsin Department of Natural Resources' (WDNR) comments on the March 2021 *60% Remedial Action Design Report (RAD)*. Key concerns discussed in WDNR's comments are related in the SWL&P responses to the Site's approved Remedial Action Objectives (RAOs), as the design efforts are critically focused on the development of a remedial action (RA) to achieve the RAOs.

As background, the RAOs (presented below) and the selected remedial option (Remedial Option 3) were described in the Executive Summary of the *Remedial Action Options Report (RAOR)* (Foth, January 2021):

"Based on comments on the November 3, 2020 draft *RAOR* and subsequent conference calls with Wisconsin Department of Natural Resources (WDNR), concurrence and acceptance from WDNR on the following RAOs emerged:

RAO 1 – Shallow Soil (0 to 4 feet below ground surface [bgs]): Reduce risk to human health receptors from direct contact.

RAO 2 – Deeper Soil (>4 feet bgs): Reduce contaminant mass in subsurface soil and groundwater source materials.

RAO 3 – Groundwater: Restore groundwater to the extent practicable.

Based upon the comparative analysis of remedial options and the intent of achieving the RAOs mentioned above, **Remedial Option 3** was recommended as the preferred alternative for the upland portion of the former MGP Site and accepted by WDNR (WDNR *RAOR* approval letter, January 28, 2021).

Based on WDNR's approval of the *RAOR*, SWL&P was surprised by the nature and extent of some of the Remedial Design comments received. SWL&P hopes the clarifications below can correct any misunderstandings. SWL&P will address WDNR's other concerns as it proceeds with the Remedial Design. Regardless, SWL&P suggests a meeting occur as soon as possible so that the upland RA can proceed timely.

WDNR's comments from their comment letter, dated April 16, 2021 (provided to SWL&P on April 20, 2021), are copied below with SWL&P responses provided to each comment. These comments and responses have been reorganized from WDNR's original comment letter to reflect the following key messages important to achieving the Site's RAOs. Comments SWL&P intends to address during the remaining design are incorporated towards the end of the letter.

The focus of the key messages is to gain alignment on the regulatory and technical path for achieving RAOs and Site closure. In this context, the approach to achieve the three RAOs listed above is summarized briefly below and further illustrated in Table 1 – Performance Monitoring to Achieve RAOs in the *RAOR* (Foth, January 2021).

- ◆ RAO 1: Excavation of soil to achieve direct contact residual contaminant level (D-C RCL) in shallow soil <4 feet below ground surface (bgs) consistent with NR720.12.
- ◆ RAO 2: Targeted excavation of soil (*RAOR* Option 3) for a total of 13,000 cy removed and biosparge/SVE until an asymptotic condition is met. **As discussed multiple times with WDNR during *RAOR* development, and as presented in the approved *RAOR*, excavation results in a significant mass of contaminants removed in the areas of concern (i.e., approximately 95% in the former Hortonsphere and former gas holder areas and approximately 60% in the MGP discharge area).** In consultation with WDNR, SWL&P selected a combination of RAs for soils to achieve restoration of this Site to the extent technically and economically feasible. Agreement on the extent of the excavations was guided by the technical and economic feasibility of RA at this Site, given its low risk to human health and the environment. The RAs will leave limited residual contamination consistent with NR725 and NR 726. Moreover, as summarized below, the residual subsurface soils impacts will not present any unacceptable groundwater contaminant risk.
- ◆ RAO 3: Site performance standards (e.g., natural attenuation) will achieve a stable/receding extent of groundwater impact. **As discussed with WDNR, concurrence in attaining groundwater Preventative Action Limits (PALs)/Exceedance Standards (ES) is technically and economically infeasible and unnecessary at this Site.** Site groundwater does not pose a threat to human health and environment, the Site use is heavy industrial, the Site is underlain with the protective Miller Creek Clay Formation and the City of Superior receives drinking water from Lake Superior. There are no complete groundwater contaminant exposure pathways. Furthermore, extensive Site investigation data from the last few years demonstrates the groundwater concentrations, area, and mass, for benzene and select PAHs, are receding or stable. Following the soils remediation as part of the RA, OM&M data will confirm the groundwater contamination is shrinking and poses no unreasonable human health or environmental risk. WDNR concurred during development of the *RAOR* and also during the *RAOR* approval call/meeting on January 28, 2021, that groundwater ESs and PALs could not be achieved at this Site, and furthermore directed SWL&P to NR140 regulations that highlight an approach when it is technically and economically not feasible to attain ESs and PALs (NR140.24 and 140.26 Table 6 Response 8). Based on this approved *RAOR* we utilized this alternative groundwater approach in the Remedial Design.

Key Message 1: The proposed RA and subsequent Site closure processes will meet applicable WDNR regulations including Wis. Stats. ch. 292 and Wis. Admin. Code chs. NR 700 – NR754 and other applicable chapters of Wis. Stats. and Wis. Admin. Code, and WDNR Guidance for Soil Performance Standards Including NR 718.12(1)c

WDNR Comment RAD Section 1.3:

Applicable or Relevant and Appropriate Requirements (ARARs) is terminology used by the United States Environmental Protection Agency (USEPA) during investigation and cleanup of Superfund sites. The Site is not a Superfund site. Therefore, specific ARARs have not been established as they would be under Superfund. The term ARAR should not be used. The remedial action conducted at the Site will be evaluated against the requirements contained in Wis. Stats. ch. 292 and Wis. Admin. Code chs. NR700 – NR754 and other applicable chapters of Wis. Stats. and Wis. Admin. Code.

- ◆ SWL&P Response: The ARAR term will not be used and has been removed from the current RAD and associated deliverables. The current documents cite the Wis. Admin. Code including Wis. Stats. ch. 292 and Wis. Admin. Code chs. NR700 – NR754 and other applicable chapters of Wis. Stats. and Wis. Admin. Code.

Section 1.3 explains that soils cleanup to the PALs and ESs is not technically and economically feasible at this Site. Since the PALs and ESs will be exceeded, despite significant soils remediation, the properties with those exceedances will be included in the WDNR database and require continuing obligations. These two key elements of the WDNR-accepted remedy (residual contamination post-RA and continuing obligations) are consistent with the intent and context of the WDNR regulatory guidance (WDNR NR 700 and Guidance for Soil Performance Standards, PUB-RR-528, January 2014).

WDNR Comment RAD Section 1.3.1:

The soil excavation limits selected for the Hortonsphere, gas holder, and PAH discharge areas are not based on remediating soil contamination to a concentration the DNR considers protective of groundwater quality. Supplemental remedial action, biosparge and soil vapor extraction (SVE), will be performed in the MGP discharge area which should reduce concentrations of some of the more volatile contaminants in this area of the Site but may leave in place high concentrations of PAHs. The Hortonsphere and the gas holder areas currently have no active supplemental RA planned and as a result will leave very high concentrations of contaminants left in place following the excavation activities.

- ◆ SWL&P Response: Per NR722.09, at this Site SWL&P selected a combination of RAs for soils to achieve restoration of this Site to the extent technically and economically feasible. As discussed during the RAOR development and as presented and approved in the RAOR by WDNR, residual contamination will remain at the Site.

NR 720 allows for residual contamination to remain at the Site. WDNR Guidance on the Case Closure Process and Continuing Obligations and Wis. Admin. Code chs. NR725 to 727 (February 2021) further provide responsible parties guidance on case closure when residual contamination is present at a site, such as this Site.

Per NR 722 performance standards will be used at this Site instead of residual contaminant levels (RCLs) for the soil to groundwater pathway. Performance standards at this Site (per NR 700.03, “performance standards” meaning a RA or, in some cases existing Site conditions, that prevent exposure to contaminants or will result in a decrease in contaminant concentrations, or both) will include excavation, biosparge/SVE, backfill with low permeability materials to minimize rain water infiltration, oxygen release compounds (ORC), natural attenuation of soil and groundwater, and continuing use obligations (e.g., land use restrictions).

Closure of a site with residual contamination is allowed by the state following these requirements:

b. Sites with Groundwater Contamination Equal or Greater Than Enforcement Standards: Sites with exceedances of ch. NR 140, Wis. Adm. Code, enforcement standards (ESs) in groundwater may be closed if: (1) the plume is stable or receding, (2) there is no threat to human health or the environment, (3) it has been demonstrated that natural attenuation (NA) is effective in reducing contaminant mass and concentration in groundwater, (4) ch. NR 140 groundwater standards will be met within a reasonable period of time, (5) the site will be listed on the GIS Registry as required by ch. NR 726, and (6) adequate source control has been taken. Criteria to demonstrate NA is effective can be found in DNR guidances listed at the front of this document. To determine if compliance will be achieved within a reasonable period of time, the RP must assess the criteria in ch. NR 722, Wis. Adm. Code.

This Site is anticipated to meet those requirements and follow this path to case closure consistent with the Wis. Admin. Code, as follows:

1. Groundwater monitoring data collected at the Site over the past 20 years (summarized in the *Site Investigation Report [SRI]* [Foth, March 2019] and reported for each groundwater monitoring event) qualitatively demonstrate a stable to decreasing extent of groundwater contamination at the Site. The RA implementation for soils (excavation, biosparge/SVE, and natural attenuation) will remove a significant additional mass of contamination from the subsurface, which will further reduce the risk of soils leaching to groundwater. A minimum of 8 quarters of sampling is what is required to perform the Groundwater Statistical Evaluation. That evaluation will be sufficient to verify the historic results, which have already been collected.
2. No unacceptable threat to human health or the environment is demonstrated following the soils RAs because there are no routes of exposure that exceed WDNR standards for direct contact to shallow soil, consumption of groundwater, or surface water quality. Surface water quality adjacent to the Site at the boat slip are not a concern for human and ecological receptors as a result of dilution in Superior Bay (*SIR*, Foth 2019). On-Site surface soil will be below industrial D-C RCLs; groundwater use will be restricted using Continuing Obligations and Institutional Controls. Sub-slab vapor samples did not indicate any VOC concentrations above WDNR industrial vapor screening levels in three Site buildings (*SIR*, Section 3.7, p. 21); any future construction will address potential VI pursuant to the institutional controls.
3. The microbial testing completed during the PDI demonstrated that microbial populations are present at the Site that are already naturally attenuating contamination in subsurface soil and groundwater. The rates of natural attenuation were presented in the *RAOR*, Appendix A. The RA does not rely on the application of ORC to achieve natural attenuation. However, the addition of ORC material to backfilled soil will enhance the existing natural attenuation rates in focused areas as a secondary and qualitative benefit.
4. Table 1 illustrates the progression of the RA in achieving RAOs and Site Closure. RAO 3 does not require that the soil to groundwater RCL for the COCs be achieved, only that the size and mass of the groundwater contamination at the

Site be stable to decreasing. After the minimum of 8 quarters of monitoring provide the data needed to verify the existing stable to decreasing groundwater plume conditions, natural attenuation will continue to reduce soil and groundwater concentrations. This data will objectively be used to evaluate natural attenuation, if that occurs at the minimum of 8 quarters, the requirement will be met. Contingent RA(s) are described in Table 1. If additional data are needed, the objective evaluation will guide the collection of more groundwater data and implementation of other contingent actions such as Hot Spot remediation.

The time frame to achieve the groundwater ES throughout the Site is irrelevant so long as the approved RAOs have been met. At this time, SWL&P has not set an expectation on the years it will take to meet groundwater standards. These are not the criteria upon which closure of this Site and other complex sites would be measured (e.g., MGP sites, landfills, DNAPL-impacted sites, large LNAPL plumes at refineries/chemical plants.)

5. The Site will be listed in the WDNR GIS Registry (i.e., Continuing Obligations Database).
6. The active production of manufactured gas at this Former MGP only occurred between 1889 and 1904. Following that period, gas was stored and metered at the Site until 1959 when operations ceased. All former gas holders and other former surficial sources associated with the Former MGP Site have been removed and thus no on-going contaminant generating activities are present. This RA focuses on removal and treatment of legacy impacts in the subsurface. The RA performance discussion in the *RAOR* and the 60% Design (provided in the *RAOR*, Appendix A and RD, Appendices B.1 and B.2) have substantiated that a significant mass of COCs will be removed. Removal of total BTEX and total PAH from excavations in the three excavation areas will be significant. Furthermore, the performance of the biosparge and SVE will be effective in removing significant amounts of the remaining total BTEX and total PAH after the excavation further lowering residual contamination and bettering the groundwater condition at the Site.

WDNR Comment FSP Section 8:

If, following the RA, the closure requirements contained in Wis. Admin. Code NR726 cannot be met, additional Site investigation, RA, groundwater monitoring may be necessary.

- ♦ SWL&P Response: NR 726.05(6) describes criteria for closure at sites with groundwater contamination. The *RAOR* and the *RAD* fulfill the criteria of NR 726, specifically 726.05(6)(a) Adequate source control; 726.05(6)(b) natural attenuation demonstration; 726.05(6)(c) stable or receding plume margin demonstration; 726.05(6)(d) no threat to human health and the environment; and 726.05(6)(e) applicable environmental laws have been complied with. The *Field Sampling Plan (FSP)*, Contingency Plan, and the OM&M Contingency Plan further articulate NR726 (6) procedures for compliance and also allow for additional actions if the RAOs including performance standards are not met. See also Table 1 summarizing

the anticipated path to attaining Site closure under Wis. Admin. Code including contingent actions.

Key Message 2: Excavation of soils to the limits of excavation will result in significant net mass removal of total BTEX and total PAH to achieve RAO 2.

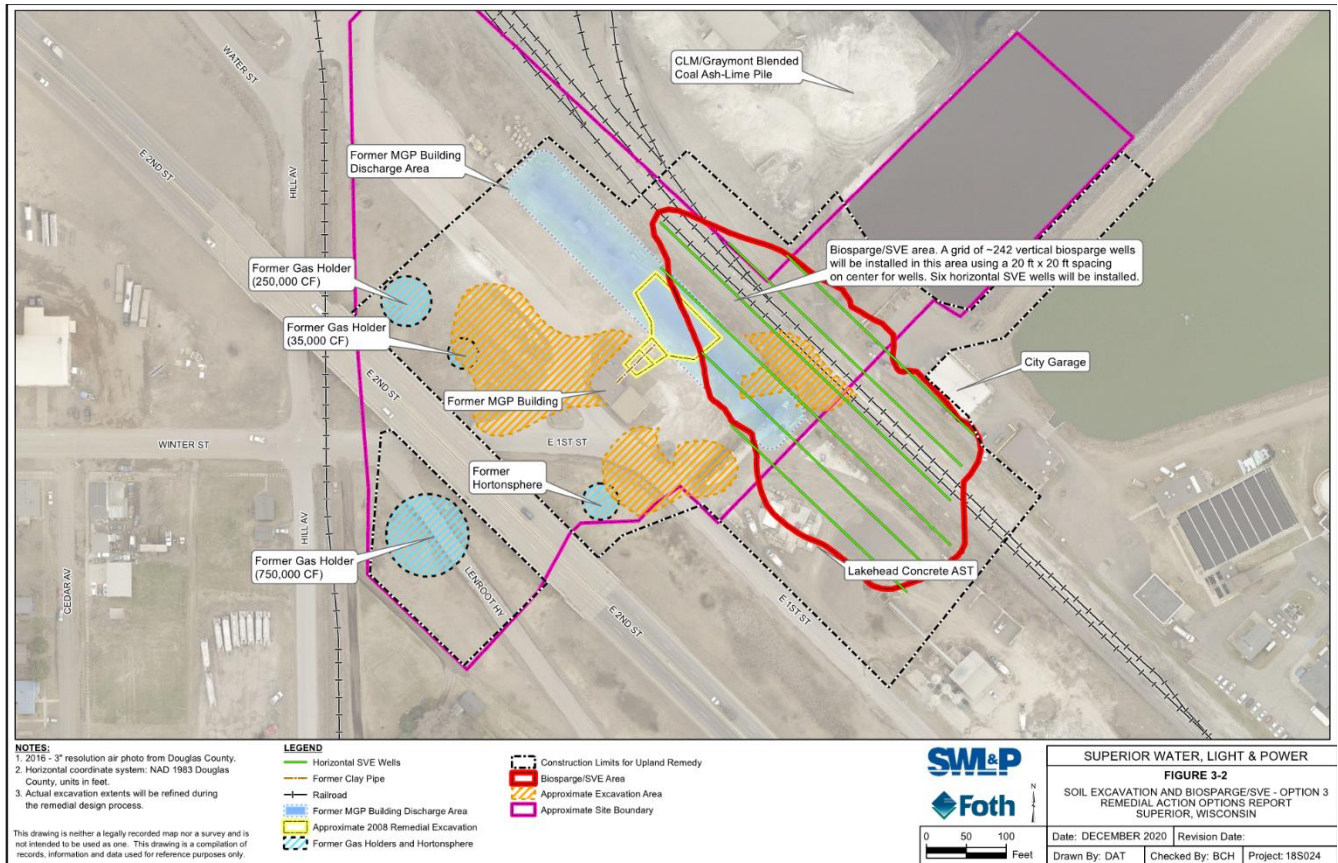
WDNR Comment RAD Section 1.3.1:

The soil excavation limits selected for the Hortonsphere, gas holder, and PAH discharge areas are not based on remediating soil contamination to a concentration the DNR considers protective of groundwater quality. Supplemental RA, biosparge and soil vapor extraction (SVE), will be performed in the MGP discharge area which should reduce concentrations of some of the more volatile contaminants in this area of the Site but may leave in place high concentrations of PAHs. The Hortonsphere and the gas holder areas currently have no active supplemental RA planned and as a result will leave very high concentrations of contaminants left in place following the excavation activities. SWL&P is relying on natural attenuation as the final RA for the remaining contamination. The DNR believes a final natural attenuation RA may not be adequate for the high concentrations of contamination expected to remain following the active RA of excavation, air sparging and SVE operation. When the active RA is completed, SWL&P will need to complete an evaluation of Site conditions and make a determination if natural attenuation is appropriate as a performance standard for the remaining contamination. If, following RA activities, the closure requirements contained in Wis. Admin. Code ch. NR726 cannot be met, the DNR may conclude under Wis. Admin. Code §726.13 (2) (b) that additional response actions are necessary.

- ◆ SWL&P Response: WDNR comment on Section 1.3.1 focuses on attainment of RAO 2: Reduce contaminant mass in the subsurface soil (>4 feet bgs). The RAs for the selected remedy for the Site are shown on Figure 3-2 of the *RAOR*. The *RAOR* evaluated the projected net soil contaminant mass removal from excavation, the concentrations of residual contamination in soil remaining after excavation and after biosparging treatment, and the potential for natural attenuation to achieve further mass removal (see Appendix A of the *RAOR*). Excavation removal of total BTEX and total PAH mass in the former gas holder (35,000 CF) and former Hortonsphere areas is estimated to be at 95%, which is substantial and will not leave any significant residual contamination. Removal of total BTEX and total naphthalene mass in the former MGP building discharge area through focused excavation is approximately 60% of total PAH, which is also significant. Additional total BTEX and total PAH degradation will occur with the biosparge/SVE system, operated and monitored to asymptotic conditions, which is anticipated to result in even further reduction in total BTEX and total PAH. The extent of removal by excavation and biosparge/SVE is limited by utilities, railroad tracks, site structures, and gravel piles.
- ◆ The Pre-Design Investigation demonstrated that Site chemistry and microbiology favor continued and consistent reductions in total BTEX and total PAH as a result of monitored natural attenuation, enhanced by ORC, which is supported by other relevant literature citations provided in Appendix A of the *RAOR*.

- ◆ SWL&P presented the detailed remedial approach described above and in the Remedial Design in several conference calls with WDNR; in fact, SWL&P added the additional focused excavation in the former MGP discharge areas at the request of WDNR (RAOR Figure 3-2 below). WDNR concurred that the approach was acceptable in latter conference calls on this matter; SWL&P therefore presented this soils remediation plan in the RAOR, and the RAOR was approved by WDNR. We believe WDNR agreed on this remedial approach for impacted soils in these areas, and that there is no basis to revisit that soils objective in the Remedial Design.

RAOR Figure 3-2



WDNR Comment FSP Sections 8.2 and 8.3:

The remedial action objectives for contaminated soil developed by Foth for this Site are not based on Wis. Admin. Code ch. NR720 RCLs for the protection of groundwater. If confirmation samples indicate an exceedance of a Wis. Admin. Code NR720 direct contact RCL at the limits of the excavation within the top four feet of soil, further RA may be necessary. Also, if the remaining soil contamination and groundwater contamination following RA do not allow for the closure of the Site under Wis. Admin. Code ch. NR726 additional investigation, RA, or monitoring will be necessary.

- ◆ SWL&P Response: As a component to achieving RAO 1, excavation confirmation samples will be collected as noted in Section 8.2 of the FSP. The design is based on the reasonable expectation that sidewall samples will be less than the Industrial

Shallow Soil D-L RCL. If, however, excavation extent sidewall samples are above the Industrial Shallow Soil D-L RCL, *additional lateral excavation of shallow soil <4 ft bgs may occur until the Industrial Shallow Soil D-L RCL in shallow soil is met.*

Key Message 3: Excavation will remove an estimated 13,300 cy of soil high in total BTEX and total PAH. Excavating a larger volume of soil would not be technically feasible or necessary for groundwater protection.

WDNR Comment RAD Section 2.6.1:

Excavating soil in the MGP gas holder and Hortonsphere area only to the industrial RCLs will leave a large mass of contamination in place that poses a threat to groundwater quality. The DNR was under the impression from the language in Section 3.3.2 of the January 2021 RAOR – Upland Area that a greater volume of soil was to be excavated from these areas.

In addition to comparison of confirmation soil samples to standards in the *FSP*, comparison of the results to the Wis. Admin. Code ch. NR720 RCLs for the protection of groundwater is also necessary. The Wis. Admin. Code NR720 RCLs for the protection of groundwater are not referenced in the *FSP*. Clarification is needed on the expected contamination that will remain following excavation in the area of the MGP gas holder and the Hortonsphere.

- ♦ SWL&P Response: Selected Option 3, as stated includes focused excavation of 8,500 cy of soil from the former gas holder (35,000 CF) and former Hortonsphere areas followed by in-situ remediation by biosparging and SVE, respectively, in the former MGP building discharge area, and excavation of 4,500 cy at the former MGP discharge area. RAOs 1, 2 and 3 will be achieved, as described in the WDNR-approved *RAOR* and further presented and described in the *RAD*. As previously stated, excavation removal of total BTEX and total PAH mass in the former gas holder (35,000 CF) and former Hortonsphere areas is **estimated to be 95%, which is significant**. Removal of total BTEX and total naphthalene mass in the former MGP building discharge area through focused **excavation is approximately 60% of total PAH, which is also significant**. Additional total BTEX and total PAH degradation would occur following excavation with the biosparge/SVE system, with system operated and monitored to asymptotic conditions, which is anticipated to result in even further reduction in total BTEX and total PAH.

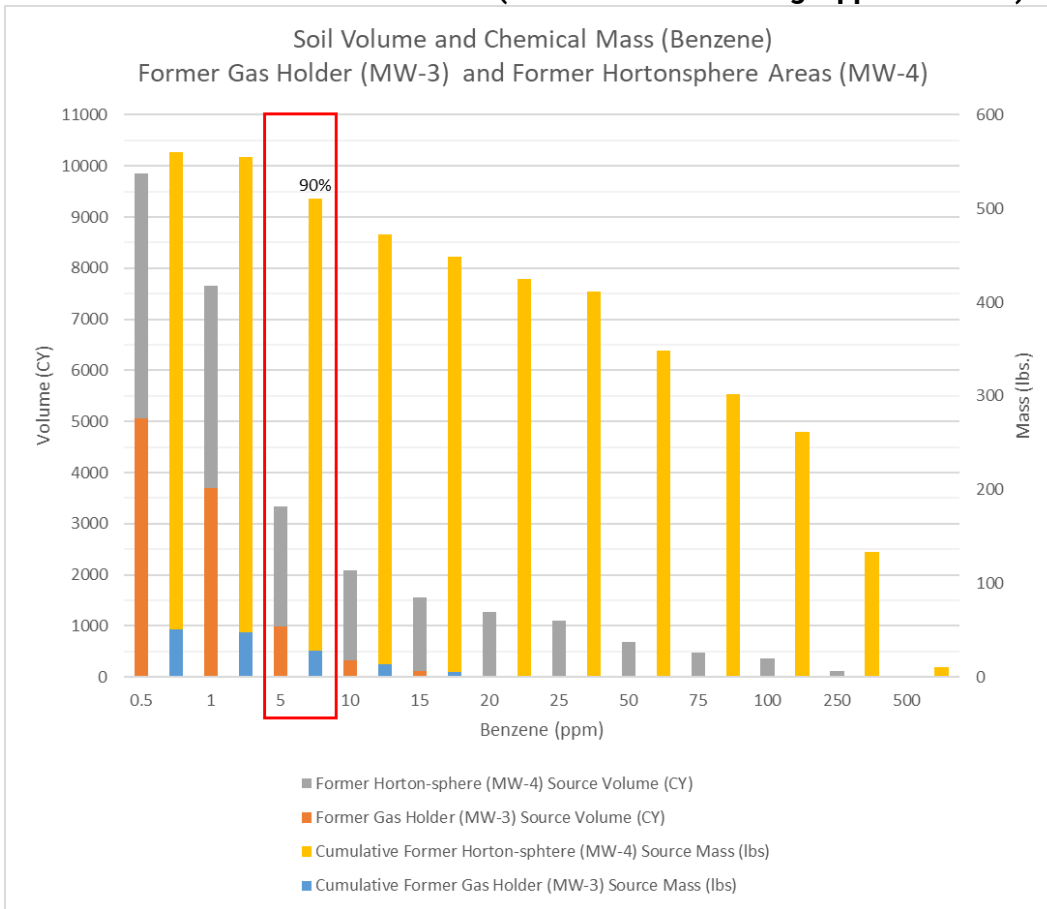
Active in-situ remediation in the former gas holder (35,000 CF) and former Hortonsphere was determined to be technically and economically infeasible in the Miller Creek Formation clay. To achieve RAO 2, Option 3 of the *RAD* includes excavating deep soil in these two excavation areas to 5 mg/kg, as a source control action, with the additional performance standard of a low permeability backfill as shown on Figure 1. The contaminant mass removal and low permeability backfill amended with ORC material will further mitigate potential leaching of residual contamination to groundwater.

As stated above, Option 3, the preferred, selected and approved alternative, in the *RAOR* included added focused excavation of 4,500 cy in the biosparge area to

increase the mass of total PAH removed. This additional excavation was requested by WDNR during the RAOR process, discussed and presented to WDNR during the RAOR finalization to remove more contaminant mass from the Site. The total excavation volume of the WDNR approved selected Remedial Option 3, as shown in Appendix B.1 of the 60% Design Report, is 13,000 cy, with 8,500 cy from the former gas holder (35,000 CF) and former Hortonsphere (4,500 cy plus 8,500 cy for a total of 13,000 cy).

The RAOR demonstrated that the amount of mass removed during Option 3 excavation for the former MGP gas holder and the former Hortonsphere will be significant as illustrated on Figure 1 for benzene. The significantly lower mass of residual contamination in soil beneath the excavation would significantly reduce the mass flux from soil to groundwater, which is already negligible and will be further reduced by low permeability backfill and ORC-enhanced continuing natural attenuation of COCs in groundwater. The FSP describes procedures for sampling soil, but the documentation and comparison of concentrations of residual contamination in soil is described in the Upland RAD and the OM&M Plan and summarized in Table 1.

Figure 1. Mass Benzene vs. Volume of Soil (Rationale for selecting 5 ppm benzene)



The concentrations of COCs remaining after soils RAs are defined by 1) achieving concentrations less than the Industrial Shallow Soil D-C RCL (as noted above); 2) excavating to a benzene concentration of 5 mg/kg in the former MGP gas holder and former

Hortonsphere deep soil areas, excavating a significant mass of total PAHs, and biosparging and excavating a significant mass of total BTEX in the former MGP discharge area.

Using the discussion provided for other responses, total BTEX and total PAH excavation removal in the former MGP gas holder and former Hortonsphere areas would achieve 95% mass removal. In the former discharge area, approximately 60% of the contaminant mass would be removed by focused excavation, the less than 40% of the initial total PAH mass that would remain after focused excavating in the former MGP discharge area would be subject to additional RA via the biosparge/SVE system. As noted in the RAOR and RD deliverables, existing Site infrastructure limit excavation extent, as such in situ RA technologies were chosen. Completing the process of natural attenuation to achieve groundwater ES and soil to groundwater ES is not the basis for the final concentration of COCs once the RA is completed and the Site is Closed. Site closure is based on meeting the agreed upon Site RAOs in the RAOR:

RAO 1 – Shallow Soil (0 to 4 feet below ground surface [bgs]): Reduce risk to human health receptors from direct contact.

RAO 2 – Deeper Soil (>4 feet bgs): Reduce contaminant mass in subsurface soil and groundwater source materials.

RAO 3 – Groundwater: Restore groundwater to the extent practicable.

WDNR Comment RAD Section 4.1.2.2:

This section references a performance criteria of 100 mg/kg benzene for use in developing the excavation prisms for the Hortonsphere and gas holder area. Section 1.3.1 references excavations below 4 feet have a target benzene concentration of 5 mg/kg. It is not clear in the RAD what concentration of contaminants are being targeted for removal in the Hortonsphere or the MGP gas holder area. Neither of the above referenced concentrations represents a RCL developed under Wis. Admin. Code ch. NR720 for the protection from direct contact or for the protection of groundwater. Either performance criteria concentration will leave very high concentrations of contamination in place that may make a natural attenuation remedy for the remaining contamination unfeasible without additional RA. Response action goals for closure of a Site under Wis. Admin Code ch. NR726 are contained in Wis. Admin. Code §NR726.05(4). Criteria for closure of Sites with groundwater contamination must meet the requirements of Wis. Admin. Code §NR 726.05(6).

- ♦ SWL&P Response: See response to comment on RAD Section 2.6.1.

Key Message 4: Residual contamination will essentially be immobilized in the clay soil beneath the former gas holder (35,000 CF) and former Hortonsphere excavation limits, together with low permeability backfill above the residual soils impacts will effectively mitigate leaching to groundwater.

WDNR Comment RAD Section 2.1.5:

The RA goals for the soil removal including the 5 mg/kg for soil excavated greater than four feet below grade for benzene and 100 mg/kg for total PAHs is not based on Wis.

Admin Code ch. NR720 residual contaminant levels (RCLs) for protection of groundwater. Therefore, it is expected contamination will remain on Site following the RA with concentrations of contaminants far greater than the Wis. Admin. Code ch. NR720 RCLs for the protection of groundwater. Placing additional monitoring wells downgradient of the Hortonsphere, gas holder, the MGP discharge area excavations, an additional well downgradient of the biosparge/ SVE area near the city garage, and piezometers nested with replacement monitoring wells MW-3R and MW-4R to monitor groundwater contaminant characteristics 5-10 feet below the final excavation depth will allow better monitoring of groundwater contaminant plume characteristics during and following RA activities. The DNR may reconsider the installation of the piezometers if confirmation soil samples from the Hortonsphere and gas holder excavations do not indicate contamination remains greater than the Wis. Admin. Code NR720 RCLs for the protection of groundwater.

- ♦ SWL&P Response: Performance standards (i.e., RAs and land use restrictions were selected for this Site) as is allowed under NR 722, in lieu of NR 720 RCL for the soil to groundwater pathway, given groundwater usage at the Site does not and will not occur and the shallow contaminated groundwater does not pose a threat to human health and the environment. Furthermore, attainment of the soil to groundwater pathway RCL was not deemed to be technically and economically feasible at this Site.

WDNR has concluded and communicated that the decrease in concentrations of COCs remaining in the Miller Creek Formation clay will be slow. This is a key reason why the Upland RA selected in the *RAOR* includes excavation that will remove a significant amount of contaminants of concern (COC) mass (particularly total BTEX in the Miller Creek Formation clay soil beneath the former gas holder (35,000 CF) and former Hortonsphere, and why the dissolved concentrations of total BTEX in groundwater will be reduced significantly in the downgradient groundwater and will not penetrate further into the clay. The residual contamination stabilization and minimization of leaching will be further enhanced by the excavation backfill performance standard which is **placement of compacted backfill over the excavated areas and amending the backfill with oxygen release compound (ORC)**, essentially forming a clay cap to more fully retard rain water seepage into soil beneath the excavation limits while also enhancing continued natural attenuation of the residual contamination in the saturated soil beneath the excavation limits. The placement of the WDNR-requested additional three wells downgradient of the excavated areas provides a more accurate method of monitoring dissolved contaminant stabilization and decrease in groundwater COC concentrations and mass flux compared to using deep wells in the clay.

WDNR Comment RAD Section 4.1.1:

The performance standards [ESs and PALs] proposed by Foth and listed in Table 2-1 of the FSP do not include the Wis. Admin. Code ch. NR720 RCLs for protection of groundwater. The DNR will evaluate soil contaminant concentrations remaining following the RA using both the Wis. Admin. Code ch. NR720 RCLs for direct contact as well as for groundwater protection.

Wis. Admin. Code ch. NR724 does not contain specific performance standards [ESs and PALs] for soil as stated in the first of three criteria listed in this section. A more specific reference will be needed to indicate what section of Wis. Admin. Code ch. NR724 this refers to.

The second of the three criteria in this section mentions the Miller Creek Formation. The DNR understands the excavation in the MGP discharge area will extend to the top of the Miller Creek Formation. However, the DNR was under the impression the excavations associated with the Hortonsphere and the MGP gas holder area would extend into the Miller Creek Formation to remove additional contaminant mass.

- ◆ SWL&P Response: Consistent with the approved RAOR, the soils RAs are protective of human health and the environment, and satisfy relevant WDNR criteria. The ESs and PALs are the environmental standards discussed in the RAD. The specific references to the ESs and PALs are provided in the FSP, Table 2-1; NR 140 and NR 720.12. The term used in this section as “performance standards” will be changed to treatment standards to include other action-specific standards associated with excavation (Landfill Acceptance Criteria; <10 mg/kg benzene), biosparge/SVE, air treatment, groundwater treatment, and wastewater treatment (City of Superior WWTP Discharge Limits in the FSP, Table 2-2).

The excavation cross-sections (Drawings B-5, B-6, and B-7) show the limits of excavation which extend to capture and remove Miller Creek Formation clays that are impacted with concentrations greater than the industrial shallow soil D-C RCL in the former gas holder (35,000 CF) and former Hortonsphere areas (Drawings B-5 and B-6). The excavations in the former MGP building discharge area do not extend into the Miller Creek Formation clays because no impacts in the clays have been observed beneath the top of the Miller Creek Formation clays in the former MGP building discharge area.

Key Message 5: Groundwater data show exceedances of benzene and lesser exceedances of total PAHs; therefore Site RA (performance standards) are projected to significantly reduce total BTEX and total PAHs resulting in a receding extent of groundwater impacts for these contaminants

WDNR Comment RAD Section 4.3.2:

Limiting the air sparging and SVE system to areas of the Site with concentrations of benzene greater than 10 mg/kg will leave very high concentrations of contamination in place that are not covered by the active RA. Completing a partial active RA may make it difficult for the Site to meet the response action goals for closure of a Site contained in Wis. Admin. Code §NR726.05(4). Criteria for closure of Sites with groundwater contamination must meet the requirements of Wis. Admin. Code §NR 726.05(6).

- ◆ SWL&P Response: The objective is to meet the Site’s RAOs pursuant to the approved RAOR. Each RA at this Site is expressly directed to meeting the RAOs. Furthermore, residual contamination will remain at this Site, but with no complete exposure pathways and only as permissible under state regulations, especially given that the

Site RAOs can be attained as outlined in the *RAOR*, *RAD* and this comment response letter.

The soils remedy focus of the excavation and biosparge/SVE RAs is to remove COC mass and reduce residual concentrations of COCs potentially leaching to groundwater such that natural attenuation will continue to further reduce soil mass and will overall reduce the already stable groundwater contamination mass and area as described in RAO 1, RAO 2, and RAO 3. Thus, focusing the air biosparging and SVE system to areas of the Site with benzene concentrations greater than 5 mg/kg will create a positive net improvement in groundwater quality throughout the area where COCs currently exceed groundwater enforcement levels as shown in the *FSP*, Table 2-1. Notably, concentrations of COCs in soil will be reduced by two to four orders of magnitude which will theoretically result in reductions of COCs in groundwater of two to four orders of magnitude as well based upon soil-water partitioning.

Analytical results from soil samples collected in the areas to be remediated are illustrated on the *RAOR*, Figures 2-16 through 2-24 and further evaluated in the mass balance evaluations in the *RAOR*, Appendix A and the *RAD*, Appendix B.1. These estimates, summarized on Figure 1, show a net mass removal of total BTEX and total PAH of approximately 95% from excavation, biosparge, and natural attenuation combined over a projected period of 2 to 4 years. Site monitoring data will of course be used to verify the effectiveness of the RA.

WDNR Comment RAD Section 1.3.3:

Monitoring groundwater to demonstrate natural attenuation is necessary until a stable or receding groundwater contaminant plume can be demonstrated. It also needs to be demonstrated that natural attenuation will remediate the remaining contamination in a reasonable period of time as required in Wis. Admin. Code § NR726.05 (6) (b). Given the nature of this Site and slow groundwater movement through the Miller Creek Formation clay and the high concentrations of contamination proposed to be left in place and not actively remediated, 8 quarters of quarterly groundwater monitoring may not be adequate to demonstrate the performance criteria of a stable or receding contaminant trends and support a natural attenuation final RA.

- ◆ SWL&P Response: We agree, but the extent of groundwater contamination is already stable. Note that 8 quarters is a minimum time period of groundwater sampling, and more time could be needed. The contingency plans address this potential for additional groundwater monitoring. However, the expected time frame needed to achieve the necessary groundwater restoration is reasonable taking into account the following qualitative criteria:
 - Based upon RAO 3, achieving a stable to decreasing groundwater plume mass and size is the RAO for deep soil and groundwater at the Site during the upland RA. The collection of groundwater data to verify the asymptotic, but declining, reductions in groundwater concentrations and groundwater contamination size and mass will begin at the completion of *RAD* construction (estimated to be 2 to 4 years) and will extend for 2 years (8 quarters) of groundwater monitoring. Data from the beginning of the RA operational period through the end of the 2-year

post-RA will be available to support the statistical evaluation of the remedy, in the context of the many years of prior groundwater investigation. The use of 8 quarters of data, following the active remedial activities, is the minimum data set required to support the statistical groundwater analysis, which is a USEPA and WDNR accepted methodology.

- As noted in the *SIR* and *RAOR*, geologic and hydrogeologic conditions have been evaluated extensively. With the exception of the areas targeted for excavation around the former gas holders and Hortonsphere, soil and groundwater impacts are observed in the soil and fill material overlying the Miller Creek Formation clay. That clay acts as an aquitard, a relatively impermeable boundary, through which vertical (and intra-unit lateral) migration is constrained. The remedy therefore focuses on targeted excavation, biosparge/SVE, and continued natural attenuation of the impacted soil above the Miller Creek Formation clay which will also address potentially mobile groundwater above the Miller Creek Formation clay in contact with those source materials.
- Private and public water supplies and surface water bodies are not affected and are not realistically expected to be affected by residual concentrations of COCs.
- Considering current and planned Site use and proposed continuing obligations, no receptors to residual contamination above regulatory standards (NR 724 and NR 140) in deep soil and groundwater exist or will exist.
- The *SIR* and *RAOR* provided evidence that natural attenuation is already occurring and will effectively occur at the Site. In particular, the microbial testing performed during the PDI identified both anaerobic benzene degrading and aerobic PAH-degrading bacteria at the Site and demonstrated that biodegradation is occurring under existing conditions. The RA is designed to further enhance biodegradation and removal rates through the addition of air in the vadose zone and OCR amendments within the excavation areas. Further testing and evaluations proposed during the RA will further document and support this conclusion.
- Following active remediation via the biosparge system, residual total BTEX and total PAH in soil and groundwater will continue to degrade, as was evaluated and quantified in Appendix A of the *RAOR*, and as will be demonstrated by the post-remediation groundwater monitoring.

WDNR Comment RAD Section 2.14:

The DNR interprets the plan for groundwater monitoring following active RA to mean that following the establishment of a stable or receding groundwater contaminant trends, that a minimum of 8 quarterly rounds of sampling will be conducted to confirm the groundwater contaminant plume remains stable or receding. The DNR does not foresee granting case closure under Wis. Admin. Code ch. NR726 with only 8 rounds of monitoring following shut down of the biosparge and SVE systems at this Site due to the high concentrations of contamination planned to remain in place at the Site.

- ◆ SWL&P Response: See response to comment on *RAD*, Section 1.3.3.

WDNR Comment FSP Section 7:

The DNR will evaluate soil analytical results against the Wis. Admin. Code ch. NR720 RCLs for protection of direct contact and groundwater protection as well as the Wis. Admin. Code ch. NR140 groundwater standards for groundwater analytical results. The Wis. Admin. Code ch. NR720 RCLs as well as the Wis. Admin. Code ch. NR140 groundwater standards should be referenced in any depiction sampling results in tables and figures.

- ◆ SWL&P Response: See response to comment on *RAD*, Section 1.3.3. These groundwater protection standards have been added to Table 2-1 of the *FSP* for reference. By including the groundwater protection standard in Table 2-1, SWL&P does not imply these standards can or will be met but acknowledges they are applicable regulatory criteria that WDNR will use as a comparison to residual contamination in soil. As summarized above, the soils remedy will be protective of groundwater by removing mass and restricting leaching, and the groundwater quality will be monitored for ongoing natural attenuation.

WDNR Comment FSP Table 2-1:

Table 2-1 does not list the Wis. Admin. Code ch. NR720 RCLs for the soil to groundwater pathway which remaining soil contamination at the Site will be evaluated against by the DNR. Wis. Admin. Code ch. NR720 RCLs for the soil to groundwater pathway should be included in Table 2-1.

- ◆ SWL&P Response: See responses to comment on *RAD*, Section 1.3.3 and *FSP*, Section 7.

Other Comments and Responses

WDNR Comment RAD Section 2:

The fourth paragraph in this section references Activity and Use Limitations (AULs). AUL is not a term used in Wis. Admin. Code chs. NR700 - NR754. Continuing obligations can be imposed by the DNR at the time of closure or at the time of RA plan approval under Wis. Admin. Code § NR722.15 and ch. NR726. As a condition of *RAOR* approval, the DNR imposed continuing obligations and requested SWL&P to develop and submit a database package for posting on the BRRTS database as part of the RA design including notification to affected property owners. Continuing obligations do not expire at the time of monitoring well abandonment as stated by Foth but are imposed until it can be shown that they are no longer needed through additional investigation or RA.

- ◆ SWL&P Response: "Activity and Use Limitations (AULs)" will be changed to "continuing obligations". Application to WDNR for RA completion (including completion of well abandonment and Site restoration) and Site closure would be made once the RAOs have been achieved, but continuing obligations would continue until all applicable ESs and PALs have been met consistent with the regulatory citations provided in the response to comment on *RAD*, Section 1.3. Agreements with the adjacent property owners to confirm their continuing obligations will be pursued following resolution of these Remedial Design concerns.

WDNR Comment RAD Section 2.1.2:

The DNR does not issue a notice to proceed for remediation projects. This is the responsibility of SWL&P.

- ♦ SWL&P Response: Comment noted and language removed from current *RAD* deliverables. Although the WDNR does not issue a notice to proceed for remedial project, WDNR does issue an approval of the RD as a condition for implementing the RA.

WDNR Comment RAD Sections 2.2.1, 2.2.1.1, and 2.2.1.2:

Wis. Admin. Code § NR718.03(5) defines the term “contaminated soil”. Soil with any detections of contaminants is considered by the DNR to be contaminated. Contaminated soil managed during the RA activities must be done following the requirements of Wis. Admin. Code ch. NR718. The DNR suggests modifying Section 2.2.1, 2.2.1.1, and 2.2.1.2 to specifically address the requirements of Wis. Admin. Code ch. NR718. Wis. Admin. Code §NR718.12 (1) (c) 7 states responsible parties may not replace excavated contaminated soil where this would pose a threat to human health or the environment. Contaminated soil with concentrations of contaminants below the industrial direct contact RCLs are typically above the RCLs for the protection of groundwater and are therefore considered by the DNR to be a threat to the environment. The DNR may consider the reuse of soil on Site if contaminant concentrations in the soil are below the Wis. Admin. Code NR720 soil to groundwater RCLs.

- ♦ SWL&P Response: Excavated soil (overburden) containing COCs **less than industrial shallow soil D-C RCL would only be used as backfill in on-Site excavations at depths between 0 and 4 feet below ground surface and at least 3 feet above the high groundwater level as measured by nearby monitoring wells.** It is the shallow soil zone where the industrial shallow soil D-C RCL applies, and not necessarily the protection of groundwater RCL since 1) the soil is not in contact with groundwater (and must be placed at a depth greater than 3 ft above the high groundwater level per NR 718.12(1)c.5) and 2) the remaining shallow soil across the Site are <industrial shallow soil D-C RCL and are also essentially of the same quality and do not require excavation (e.g., they pose no threat to human health or the environment based on current and future land use). The proposed soil placement meets the requirements of NR 718.12(1)c.

WDNR Comment RAD Section 2.6.2:

See comment for Sections 2.2.1, 2.2.1.1, and 2.2.1.2.

Visual observation alone is not adequate to determine if excavated soil is contaminated or uncontaminated. Excavated soil should be managed as if it were contaminated until it can be proven through analysis that it is not. Soil sampling requirements for management of contaminated soil is contained in Wis. Admin. Code NR718.12 (1)(e). These sampling requirements should be followed for all excavated soil.

- ♦ SWL&P Response: SWL&P is not using visual observations alone to determine if excavated soil is contaminated or uncontaminated. These determinations will be supported by 1) initial field screening of soil using a field gas chromatograph (GC) calibrated to measure benzene and 2) sampling of soil in the stockpiles of field GC-

tested material. The actual disposition of material in any stockpile will be based on laboratory results of the samples from stockpiles. This approach is described in the *FSP*, Sections 4.4.1 and 5.1 and Table 4-1.

WDNR Comment RAD Section 2.8.2:

See comment for Sections 2.2.1, 2.2.1.1, and 2.2.1.2.

- ♦ SWL&P Response: See response to referenced comments.

WDNR Comment RAD Section 2.10:

The DNR believes backfilling should be completed with similar material that was excavated and properly compacted for the various areas of the Site so as to not create areas of artificial hydraulic head in the area of the Hortonsphere and MGP gas holder or areas of substantially different porosity and permeability in the MGP discharge area excavations that could affect performance of the biosparge and soil vapor extraction (SVE) systems.

- ♦ SWL&P Response: Both existing and backfilled soils are low-permeability clay so they are similar materials. Revisions to Upland *RAD* will be made to clarify that low-permeability backfill will be used and also the Specifications will describe the quality of backfill material as well.

WDNR Comment RAD Section 2.10.1:

See comments for Section 2.10.

There is not a definition or explanation of the term “excavation criteria”. Provide reference or specify where in the *RAD* the “excavation criteria” are listed.

- ♦ SWL&P Response: Excavation criteria are presented in Section 1.3.1.

WDNR Comment RAD Section 2.13

See comment for *RAD* Section 2.10.

- ♦ SWL&P Response: See response to comment to *RAD* Section 2.10.

WDNR Comment RAD Section 2.14

See Comment for *RAD* Section 2.1.5.

- ♦ SWL&P Response: See response to *RAD* Section 2.1.5.

WDNR Comment RAD Section 3.1.1:

See comments for Sections 2.2.1, 2.2.1.1, and 2.2.1.2

- ♦ SWL&P Response: See response to referenced comment.

WDNR Comment RAD Section 3.2:

Permit equivalency and ARARs are USEPA Superfund terminology and process. Since the Site is not a federal Superfund Site the use of these terms should be avoided. See comment for *RAD* Section 1.3. SWL&P will need to obtain and comply with any permit necessary for implementation and completion of the RA.

- ◆ SWL&P Response: Comment noted. The permit equivalency and ARAR language has been removed from current *RAD* documents. SWL&P intends to obtain and comply with necessary permits.

WDNR Comment RAD Table 3-1:

See comment for Section 3.2. Do not use the term "Permit Equivalency". The term "Permit Equivalency" is a USEPA Superfund term and is not applicable at this Site. This appears to be a table of required permits and approvals.

- ◆ SWL&P Response: Comment noted. The permit equivalency term has been removed and the Table 3-1 title updated to Permits and Approvals Identified for the Site.

WDNR Comment RAD Section 4.1.3:

Section 4.1.3 does not mention soil sampling following active RA. Soil sampling following active RA is necessary for demonstration of RA effectiveness. See also the comments for Sections 1.3.3 and 2.1.5 above.

- ◆ SWL&P Response: Soil sampling following active RA in the biosparge area is described in Section 4.6 of the *FSP*.

WDNR Comment RAD Section 4.3.3:

It is the DNR's understanding that the biosparge/SVE system will not be installed beneath the gravel pile in the Area D quadrant. It is also the DNR's understanding that soil samples will be collected from every biosparge well installed. Upon receipt of sample results for the biosparge wells that can be installed surrounding the gravel pile, SWL&P should assess the results and review historical Site investigation results and determine the need for active RA beneath the gravel pile. If active RA is deemed necessary the biosparge system could potentially be expanded with the use of horizontal biosparge and SVE wells or some other remediation technology utilized. If this is not feasible then the gravel pile will need to be listed as a structural impediment to investigation and RA and listed on the DNRs database and notification given to the property owner.

- ◆ SWL&P Response: Comment noted. Additional text will be added to Section 4.3.3 to further describe proposed RA approach beneath the gravel pile in the Area D quadrant.

WDNR Comment RAD Section 4.4.1:

See Comment for Section 1.3.

- ◆ SWL&P Response: See response to comment for Section 1.3.

WDNR Comment RAD Figure A-8:

Add the locations for the additional monitoring wells and piezometers discussed in this letter.

- ◆ SWL&P Response: SWL&P added well locations will be shown on Drawing A-8 with the exception of groundwater wells within the Miller Creek Formation clay. SWL&P has concluded that adding monitoring wells installed in Miller Creek Formation clay will not effectively represent the significant amount of COCs removed during the RA

nor will it effectively represent the continued reductions in overall plume size and mass. The low-permeability clay will limit migration of COCs in to downgradient groundwater and mitigate further migration of residual COCs deeper into the clay.

WDNR Comment RAD Figures B-4, B-5, B-6, and B-7:

It would be helpful on these figures to show the replacement monitoring well proposed construction including screen, filter pack, fine sand, and bentonite seal intervals.

- ◆ SWL&P Response: A typical new or replacement groundwater monitoring well detail is provided on Drawing E-8, Detail 2. Additional well construction details for specific groundwater monitoring wells are provided in Table 4-2 in the *FSP*.

WDNR Comment RAD Figure C-2 Detail 2/C2:

This detail contains a notation “area flushed by water flow” that requires additional explanation.

- ◆ SWL&P Response: This condition was discussed in Section 2.1.7 of the *RAOR*. The following notes will be added to Figure C-2 Detail 2: Invert elevations for storm and sanitary sewers are typically below the water table at the Site, these utilities may provide preferential pathways for groundwater flow, either through permeable bedding materials or within the pipes themselves depending upon the condition of pipe walls, joints, and manhole connection points. Stormwater and/or groundwater flowing preferentially through the bedding gravel or sand surrounding the sewer piping creates the area flushed by water flow.

WDNR Comment RAD Figure E-7 Detail 1/E7:

It appears the soil venting pipe is mislabeled in this detail.

- ◆ SWL&P Response: The reference to Soil Venting Pipe will be revised to show Biosparge Pipe.

Field Sampling Plan

WDNR Comment FSP Section 2.4:

The DNR cannot provide waivers on requirements of NR700 – NR754. If, following the RA, the closure requirements contained in Wis. Admin. Code NR726 cannot be met, additional Site investigation, RA, or monitoring may be necessary.

- ◆ SWL&P Response: A waiver was not requested and the RAOR and RD are following the NR 700-754 according to responses provided. See previous response to comment on *RAD* Section 1.3.1.

WDNR Comment FSP Section 4.4:

See comment from Sections 2.2.1, 2.2.1.1, and 2.2.1.2 of the *RAD* above.

- ◆ SWL&P Response: See response to comments on the sections of the *RAD* referenced.

WDNR Comment FSP Section 4.4.1:

Visual observation alone is not adequate to determine if excavated soil is contaminated or uncontaminated. Excavated soil should be managed as if it were contaminated until it can be proven through analysis that is not. Soil sampling requirements for management of contaminated soil is contained in Wis. Admin. Code NR718.12 (1)(e). These sampling requirements should be followed for all excavated soil. See the comments associated with Sections 2.2.1, 2.2.1.1, and 2.2.1.2 of the *RAD* above.

- ◆ SWL&P Response: See response to comments on the sections of the *RAD* referenced.

WDNR Comment FSP Sections 4.5.1 and 4.5.2:

If the soil being treated in the vented soil stockpile is being reused at the Site, then sampling requirements contained in Wis. Admin. Code § NR718.12 (1) (e) apply. If soil from the vented soil stockpile is being disposed of in a landfill than the sampling and analysis required by the landfill apply.

- ◆ SWL&P Response: Soil being treated in the vented pile will not be reused at the Site, but will be disposed in an off-Site landfill as described in Section 4.5.2.

WDNR Comment FSP Section 4.8.1:

See comments to Section 2.1.5 of the *RAD*.

- ◆ SWL&P Response: See response to comments for Section 2.1.5 of the *RAD*.

WDNR Comment FSP Section 6.2.1:

See comments for QAPP Section 4.4.2.

- ◆ SWL&P Response: See response to comment for QAPP Section 4.4.2.

WDNR Comment FSP Section 6.5:

Laboratories used must be accredited for the analysis conducted under Wis. Admin. Code ch. NR 149.

- ◆ SWL&P Response: The requirement for accreditation will be added to Section 6.5.

Air Management Plan

WDNR Comment: The DNR currently has no comments on the Air Management Plan submitted by Foth. However, the DNR intends to share the document with the Wisconsin Department of Health Services (DHS) for comment. The DNR and DHS may have comments on this document following review by DHS.

- ◆ SWL&P Response: Comment noted.

Remedial Action Quality Assurance Project Plan

WDNR Comment QAPP Section 1.2.2:

See comment for FSP Section 6.5.

- ◆ SWL&P Response: See response to comment for *FSP* Section 6.5.

WDNR Comment QAPP Section 2.5:

The number of groundwater samples in the QAPP should be modified based on the new total number of wells to be sampled.

- ◆ SWL&P Response: Response: The *QAPP* will be updated accordingly.

WDNR Comment QAPP Section 4.4.2:

This section references field duplicates are to be conducted at a rate of 1 to 20 normal samples. Section 2.5 of the QAPP references duplicates being collected at a rate of 1 to 10 samples. The DNR typically requests one duplicate sample per 10 samples collected. Wis. Admin. Code § NR716.13 (6) (c) 1 requires one duplicate sample for every 10 or less water samples collected.

- ◆ SWL&P Response: The proposed rate of 1 duplicate for every 10 samples is shown in *FSP* Table 4-1. References to the number of field duplicates will be revised to be consistent with one duplicate sample per 10 samples collected.

WDNR Comment QAPP SOPs:

The DNR has not conducted a detailed review of the Foth SOPs contained in the QAPP.

- ◆ SWL&P Response: The Foth SOPs should meet applicable WDNR requirements based on their use at other Sites in Wisconsin.

Erosion Control and Stormwater Management Plan

WDNR Comment: The DNR Remediation and Redevelopment Program has not conducted a detailed review of the ECSMP. As stated in the ECSMP, SWL&P will need to obtain a Construction Site Water Permit from the DNR Wastewater Section and a Stormwater Management Permit obtained from the City of Superior. SWL&P should work with the DNR Wastewater Section and the City of Superior for review and approval of this Plan.

- ◆ SWL&P Response: SWL&P has contacted the City of Superior in two pre-application meetings to evaluate City requirements for stormwater management and wastewater discharge. SWL&P will also apply for the WDNR Wastewater Section relative to the Construction Site Stormwater Permit.