



March 3, 2021

Mr. Mike Bollinger
Beazer East, Inc.
c/o Three Rivers Management, Inc.
600 River Avenue, Suite 200
Pittsburgh, PA 15212

Subject: Review of Interim Action Work Plan
ACTION REQUIRED BY MAY 3, 2021 AND JUNE 1, 2021

Former Koppers Tar Plant and Wabash Alloys Site
9100 South 5th Avenue, Oak Creek, WI 53154
FID #: 241379050; BRRTS #: 02-41-553761
VPLE BRRTS #: 06-41-561509

City of Oak Creek Utility Corridor Lot 1
9170 South 5th Avenue, Oak Creek, WI 53154
FID #: 341074470; BRRTS #: 02-41-561425
VPLE BRRTS #: 06-41-561426

Dear Mr. Bollinger:

The Wisconsin Department of Natural Resources (DNR) has reviewed the *Interim Action Work Plan, Former Koppers Tar Plant and Wabash Alloys Site, Oak Creek, WI* (Work Plan), dated December 21, 2020, prepared by Tetra Tech, Inc. (Tetra Tech) on behalf of Beazer East, Inc. (Beazer). The Work Plan was prepared to address the DNR's concerns regarding DNAPL tar source material migration and expansion of the groundwater plume raised in DNR's May 5 and November 19, 2020 letters. Specifically, the DNR expressed concerns over DNAPL tar source material migration at water table monitoring wells MW-130 and MW-134, where DNAPL had not been observed previously and increases in groundwater contaminant concentrations in piezometers P-110 and P-120.

The scope of work proposed in the Work Plan includes:

- Annual groundwater monitoring;
- Quarterly DNAPL thickness measurements and removal;
- Abandonment and replacement of well P-110;
- Pre-design investigation activities;
- Remedial design of DNAPL collection trench and utility plugs;
- Construction of the DNAPL collection trench and utility plugs;
- Preparation of a construction documentation report

Review of the Work Plan

The DNR reviewed the Work Plan for compliance with Wis. Admin. Code chs. NR 708 and 722. As indicated in our November 20 letter¹, the clarifying email on December 16², and in our February 2 teleconference, the DNR expected the Interim Action Work Plan to fully address the known concerns at the site. The DNR referenced immediate actions in the November 19, 2020 letter (and in prior communications) because the present conditions at the property warrant immediate action. The DNR's expectation was for Beazer to provide a work plan for an interim action source control measure to halt the migration of the contamination, not merely prevent off-site migration. Given the passive trench is not adequate as a standalone action, active removal is necessary.

Therefore, the DNR is directing you to revise your interim action Work Plan to include free product removal which may be achieved through excavation at areas where there is no dispute to impacted soil and groundwater. The DNR directs you to explain in the interim action Work Plan how the proposed actions fit in to an overall remedial strategy to address the known concerns at the site. The DNR has authority to require interim actions and immediate actions. To remove all doubt regarding the DNR's intent with the direction provided herein and to prevent misinterpretation, please review the following overview of applicable regulations at this site.

Interim, Immediate, and Specific Actions at a Remedial Action Site

The DNR has authority to require responsible parties to perform immediate actions to halt a discharge. The general rule concerning immediate actions is Wis. Admin. Code § NR 708.05(3) which states:

Responsible parties shall take all necessary, non-emergency immediate actions to halt the discharge of a hazardous substance and to contain, treat or remove discharged hazardous substances, environmental media or both, in order to minimize the harmful effects of the discharge to the air, lands and waters of the state and to restore the environment to the extent practicable.

The DNR has authority under Wis. Admin. Code § NR 708.05(4)(h) to require responsible parties to perform specific actions to remove contaminated soil, debris or the hazardous substance that was discharged (in compliance with Wis. Admin. Code § NR 708.11(3)(e)).

The DNR has authority to require responsible parties to perform interim actions. The general rule concerning interim actions is Wis. Admin. Code § NR 708.11(1)(a) which states (emphasis added):

¹ “Therefore, **submit an interim action work plan to prevent the further migration of contamination** in compliance with all regulatory code requirements, including Wis. Admin. Code § NR 708.11 [these requirements include NR 708.11(2)(b) Conducting source removal, such as excavation and treatment of highly contaminated soils, to prevent or limit further movement of the contamination” and 708.11(2)(c) Extracting free product, leachate or groundwater to restrict migration of a contaminant plume], **by December 21, 2020 and commence work by January 28, 2021.**”

² “An interim action shall be taken where it is necessary to contain or stabilize a discharge of a hazardous substance or environmental pollution, in order to minimize any threat to public health, safety, or welfare or the environment. Wis. Admin. Code s. NR 708.11(1)(a). When an interim action is warranted, responsible parties shall implement an interim action as soon as . . . possible to do so. Wis. Admin. Code s. NR 708.11(1)(b).”

“**The department expects the Interim Action Work Plan to fully address the known concerns at the site.** Regarding the commencement of the work, the department amends the January 28, 2021 commencement date to a date as soon as practicable, given seasonal limitations at the property, following department approval or conditional approval of the work plan under Wis. Admin. Code s. NR 716.09(3)(b).”

Responsible parties shall evaluate the need for interim action prior to initiating a site investigation and during a site investigation. **Interim action shall be taken where it is necessary to contain or stabilize a discharge of a hazardous substance or environmental pollution, in order to minimize any threat to public health, safety, or welfare or the environment. When an interim action is warranted, responsible parties shall implement an interim action as soon as facility or site- related information makes it possible to do so,** in compliance with the requirements of this chapter.

For sites where a site investigation is underway, the DNR has authority to require an immediate, interim or remedial action under Wis. Admin. Code § NR 716.17(3) which states:

When a site investigation conducted under this chapter indicates that an immediate, interim or remedial action is necessary, the responsible parties shall identify, evaluate and select an immediate or interim action in accordance with ch. NR 708 or a remedial action in accordance with ch. NR 722.

Observed environmental contamination, especially tar, at this property is known to the DNR and to Beazer. As both a responsible party under Wis. Stat. § 292.11 and voluntary party under Wis. Stat. § 292.15, Beazer shall not delay implementation of an interim remedial action at this site for known conditions. This interim remedial action should be a significant component of an overall remedial action plan for the site. Consult the “Direction and Schedule” section regarding the specific actions the DNR is directing you to complete under Wis. Admin. Code chs. NR 708 and 716.

December 2020 Work Plan Comments

Based on the review of all site information submitted to-date, the DNR has determined that the proposed actions are not an approvable interim action to address the migration of contaminants off site. The Work Plan does not include actions that will provide an immediate response to remove the DNAPL free product nor does it provide an interim remedial strategy to address the known concerns at the site. Although Beazer can proceed with the actions proposed, the proposed trench and utility plug actions are not adequate without action that results in immediate DNAPL free product removal. The material cannot stay in place without treatment. The findings and interpretations by the DNR regarding the proposed initial interim action are summarized below. The passive interim action proposed is not adequate without also conducting an active removal or treatment action. If you continue to propose installation of this passive trench system as an interim action in addition to active treatment or removal, you must address the following:

- Annual groundwater monitoring

The DNR typically requires quarterly groundwater monitoring until adequate information has been acquired to evaluate site conditions, including seasonal variations. The conditions at this site are not stable, as noted in the wells where contaminant concentrations are increasing and DNAPL has recently been reported. The changing conditions at this site do not warrant changes in the monitoring frequency at this time. The DNR recommends using the proposed network of wells for ongoing monitoring to continue to provide information to document changes in groundwater conditions.

- Quarterly DNAPL thickness measurements and removal

The DNR concurs with the scope proposed for this task.

- Abandonment and replacement of well P-110

The DNR does not approve the abandonment of piezometer (P-110). Beazer did not provide an adequate explanation for removal of P-110. Typical events which support abandonment of a piezometer include a specific on-site action that caused damage to the well or well casing. Adequate information was not provided to explain the need for abandonment, thus the DNR directs this monitoring well should remain as a sampling point within the former lagoon source area where there is known contamination. The DNR requires ongoing maintenance and inclusion of the existing P-110 in the monitoring program for assessment of DNAPL.

Although the DNR does not approve the abandonment of P-110, the DNR would support the installation of an additional well or well nest constructed east of P-110, either within the lagoon source area or to the east of the former lagoon. If a new well is installed to the east of P-110 to supplement the information provided by the existing P-110, two soil samples must be collected from the boring, one from the interval with the highest PID reading and one from the base of the boring. Analysis must include VOCs and PAHs. Naphthalene must be evaluated as a principle contaminant of concern. The DNR will require detailed boring logs and well construction forms in accordance with Wis. Admin. Code § NR 716.15.

- Pre-design investigation activities

The DNR does not concur with the proposed scope of work for this task. If Beazer opts to move forward with the proposed trench and utility plug actions, additional data collection is required. Beazer must collect soil samples for chemical analysis from the five soil borings proposed along the trench line to delineate vertical contamination in this area. Two soil samples must be collected from each boring, one from the interval with the highest PID reading and one from the 23-25 foot interval (proposed base of the boring). If field screening evidence of contamination is present (based on PID readings and/or visual or olfactory evidence) at 25 feet, Beazer must extend the borings to a depth where field evidence no longer indicates the presence of contaminants. Should the boring require extension beyond 40 feet bgs, a third sample must be collected from the ultimate base of the boring. Analysis must include VOCs and PAHs. Beazer must evaluate Naphthalene as a principle contaminant of concern. The DNR will require detailed boring logs. Beazer must evaluate the results of the field screening evidence and analytical data from the borings to determine the base of the proposed trench to intercept the migrating DNAPL tar source material. The completed depth of the collection trench must extend below the base of the DNAPL tar source material based on the information provided from field screening and analytical evidence.

Upon completion of the predesign investigation, Beazer must prepare a remedial action design report in accordance with Wis. Admin. Code § NR 724.09.

- Remedial design and construction of DNAPL collection trench and utility plugs

The DNR expects Beazer to address the feasibility of the effectiveness of this remedy in the design report. In particular, the DNR requires the following:

Product Recovery: In the January 2014 Site Investigation Report, Beazer reported that in 2013 they performed mobility/recoverability testing in monitoring wells with observations of DNAPL. The amount of product that was able to be removed was minimal. Provide justification for the use of a collection trench if recovery wells did not work to recover the DNAPL tar source material. Beazer was unable to provide an explanation of the estimated effectiveness of this interim action in the February teleconference.

Migration: In previous reports, Beazer has stated that the DNAPL tar source material is not migrating. In the Work Plan, Beazer's proposed remedy requires the DNAPL to migrate toward voids, which does not address the direction to perform an immediate action to address the known observed contamination at the site. The design report must discuss DNAPL migration and the time required for the void space to become saturated before DNAPL can migrate to the trench.

Immediate Action: Discuss how the proposed remedy will address "immediate action," as defined in Wis. Admin. Code § NR 700.03 (28). As stated above, the migration of DNAPL into the void spaces created by the proposed remedy will take time. Beazer notes that it has taken 4-5 years for DNAPL to migrate into monitoring wells. On the February teleconference, Beazer did not explain how this would actively remove known contamination from the site nor provide an approximation of the percentage of contamination this system would remove.

Collection Trench:

1. The construction of the collection trench proposed does not comply with Wis. Admin. Code NR 700 requirements without additional remedial action. If Beazer opts to construct this trench, Beazer must evaluate the proposed length of the collection trench in the design. Shallow Groundwater BTEXM concentrations exceed Enforcement Standards at least as far west as B-126 and further east of B-127. The contaminated groundwater plume in the utility trench and in the lagoon area must be addressed.
2. Describe how the collection trench will work to address the contamination, including the plan to collect DNAPL material from the trench. If DNAPL material is collected, how will the material be handled and how will the DNAPL material be disposed?

Utility Plugs:

1. Monitoring wells must be installed on the upstream and downstream sides of the utility plugs (at a distance so as not to be located within the area affected by the utility plug grout) to monitor head levels, confirm flow dynamics, and document conditions within the trench.
2. Wells installed adjacent to the utility plugs must be included in the groundwater sampling plan. Include collection of groundwater chemistry data from wells installed on both sides of the utility plugs.
3. In the design, provide justification to support the proposed locations of the utility plugs and confirm whether additional plugs along the utility line would be beneficial.
4. Provide an assessment of how the utility plugs will prevent the migration of contaminated groundwater along the utility backfill.

Summary of DNR Comments on Work Plan

Please resubmit the work plan with the additional information requested for DNR review. The DNR's assessment of the proposed action concludes these actions will not move the RP closer to addressing the DNAPL tar source material on the site in a manner that halts the continued migration of contamination and addresses the known site concerns. The DNR directs Beazer to consider a remedy that addresses the DNAPL tar source material on the site, rather than engineering structures to merely alter off site migration. The DNR directs Beazer to conduct an interim

source control action that permanently addresses the contamination and is a significant component of an overall remedial action plan for the site.

Site Investigation Completeness

As stated above, the DNR recommends that the interim action include activities to complete the site investigation and continue monitoring groundwater conditions. The pre-design sampling should incorporate activities to determine the vertical extent of tar. Collection of additional data during the initial interim action will likely provide the information necessary to complete the site investigation in the area of the former lagoons adjacent to the utility trench.

Alternate Remedial Actions for Consideration

During a meeting in May 2018, the DNR provided Beazer with a matrix that identified possible remedial actions appropriate for this site. Most recently, the DNR's November 19, 2020 letter stated that due to the thick, viscous nature and shallow depth of the DNAPL tar source material, excavation would be a practicable interim remedial action that would be considered an immediate response. In the area of the former tar lagoons adjacent to the utility trench, where the DNAPL is migrating off-site, excavation combined with in-situ stabilization (ISS) or an equally effective permanent remedy must be implemented to prevent further migration. As a reminder, this combination of excavation with ISS was previously identified in the DNR-prepared matrix of remedial options shared with Beazer during a meeting on May 15, 2018. The remedial options presented in the matrix are still appropriate based on current site information. In the area of the former tar lagoons adjacent to the utility trench (previously defined as Area E2), the matrix also identified other remedial options, including soil excavation with on-site treatment to pre-approved clean-up levels and in-situ chemical treatment of impacted soil to pre-approved clean-up levels.

All of the options listed in the matrix are superior to or could supplement the option currently proposed as they will work to remove and/or stabilize the source material and move the site toward Wis. Admin. Code ch. NR 726 closure and receipt of a VPLE certificate of completion.

DNR will continue to direct Beazer to select appropriate remedies until such time as Beazer implements said remedies and meets the requirements for Wis. Admin. Code ch. NR 726 case closure.

VPLE Program Progress

As stated in the November 2020 letter, the DNR is continuing to evaluate Beazer for failure to make reasonable progress toward completion of an environmental investigation and environmental restoration of the property and whether to invoke the withdrawal process under Wis. Stat. § 292.15(2)(av). The proposed action in the December 2020 work plan alone is not reasonable progress to remain in the VPLE Program. In order to remain in the VPLE program, the DNR directs Beazer to complete the actions outlined in the schedule below.

Direction and Schedule

- In compliance with Wis. Adm. Code NR 708.05, the DNR directs Beazer to select remedial activities from the array of options previously provided in the remedial option matrix or an alternate remedy that is as effective as the remedial options included in the matrix. Per Wis. Admin. Code §§ NR 708.13 and 716.17(3), submit a Revised Interim Action Work Plan that results in immediate action by conducting free product removal to abate free product migration. This includes an active removal action on site. The

proposed passive collection system, alone, is not adequate to address free product migration. The DNR directs you to submit a Revised Interim Action Work Plan within 60 days, by May 3, 2021.

- With the Revised Interim Action Work Plan above, submit a Revised RAOR, complying with Wis. Admin. Code ch. NR 722, that presents an overall remedial strategy to address the known contamination at the site. The evaluation must include the remedial actions proposed by the DNR in the matrix of remedial options for each area of the property. Additional remedial actions may be evaluated that result in a similar restoration of the environment. The RAOR must include a selected remedial action for each area of the property. The DNR directs this Revised RAOR be submitted within 90 days, by June 1, 2021.
- Per Wis. Admin. Code § NR 724.09, submit a Remedial Action Design Report (RADR) for 1) the immediate action to conduct free product removal and abate free product migration in the area of the former tar lagoons adjacent to the utility trench and 2) the remedial action for each area of the property. The RADR must include a detailed plan to include pre-design sampling and/or confirmation sampling to complete the site investigation. The DNR directs a Remedial Action Design Report (RADR) be submitted within 90 days after the Revised RAOR is submitted.

Future Meetings with Beazer and DNR

The DNR recommends scheduling a meeting at the end of June to discuss the Revised Interim Action Work Plan and Revised RAOR.

The DNR also understands there is a desire to discuss site investigation concepts which were not addressed on our February teleconference. Upon receipt of the RADR by September 1, the DNR would like to schedule a meeting to discuss the following concepts identified by Beazer in the February teleconference agenda: 1) accurate identification of tar, 2) delineation of degree and extent of contamination, 3) justification for separation of high concentration areas, and 4) Conceptual Site Model. The DNR requests Beazer provide examples of figures in writing to share before such a meeting. The DNR will also prepare by sharing examples of figures where there is disagreement. The DNR looks forward to meeting and resolving these issues after receipt of the above work products.

If you have any questions regarding this letter, please contact Eric Amadi, the DNR Project Manager, by calling (414) 405-0752 or by email at eric.amadi@wisconsin.gov.

Sincerely,



Christine Haag, Director
Remediation & Redevelopment Program

cc: Mike Slenska - Beazer (electronic)
Mike Noel - Tetra Tech (electronic)
SER Case File #: FID #: 241379050; BRRTS #: 02-41-553761 / 06-41-561509
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