



# Oregon

Tina Kotek, Governor

Department of Environmental Quality

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July 27, 2023

Bob Wyatt  
NW Natural  
220 NW 2<sup>nd</sup> Avenue  
Portland, OR 97209

*via electronic delivery (email)*

**Re: DEQ Comments on the LNG Basin and Former Koppers Basin Groundwater Evaluation/Fill WBZ Interceptor Trench Performance – Second Through Fourth Quarter 2022  
Former Gasco Manufactured Gas Plant Operable Unit (Gasco OU)  
Portland, Oregon  
ECSI# 84**

Dear Mr. Wyatt:

The Oregon Department of Environmental Quality (DEQ) reviewed the June 21, 2023 *LNG Basin and Former Koppers Basin Groundwater Evaluation/Fill WBZ Interceptor Trench Performance – Second Through Fourth Quarter 2022*<sup>1</sup> (Report) submitted by Anchor QEA, LLC on behalf of NW Natural. The Report was prepared under the Voluntary Agreement for Remedial Investigation/Feasibility Study (DEQ No. WMCVC-NWR-94-13)<sup>2</sup>, as amended<sup>3,4</sup>, collectively referred to as the upland cleanup agreement.

The LNG Removal Action was initiated to address changes in groundwater quality downgradient of the LNG Basin resulting from two construction projects completed in 2018. Our April 20, 2020 letter<sup>5</sup> documents the basis for the LNG Basin Removal Action, consisting of two Fill Water-Bearing Zone (WBZ) trenches located near the LNG Basin and between the LNG Basin and the river, and a network of groundwater installations to monitor the performance and effectiveness of the interceptor trench system. The Report describes monitoring activities associated with the LNG Removal Action and evaluates the performance of Fill WBZ trenches during the second through fourth quarter 2022.

DEQ has the following comments on the Report. Please revise and resubmit the Report according to these comments.

### General Comments

- 1) T-50 Trench Void and Operational Changes. The Trench Design and Operation Section mentions the discovery and repair of a void in the southwest end of the T-50 trench. Please provide additional

<sup>1</sup> Anchor QEA, LLC. 2023. LNG Basin and Former Koppers Basin Groundwater Evaluation/Fill WBZ Interceptor Trench Performance – Second Through Fourth Quarter 2022, Former Gasco Manufactured Gas Plant Operable Unit. Prepared on behalf of NW Natural. June 21.

<sup>2</sup> DEQ. 1994. Voluntary Agreement for Remedial Investigation/Feasibility Study. DEQ No. WMCVC-NWR-94-13. August 8.

<sup>3</sup> DEQ. 2006. First Addendum to Voluntary Agreement for Remedial Investigation/Feasibility Study. DEQ No. WMCVC-NWR-94-13. July 19.

<sup>4</sup> DEQ. 2016. Second Addendum to Voluntary Agreement for Remedial Investigation/Feasibility Study. DEQ No. WMCVC-NWR-94-13. October 11.

<sup>5</sup> DEQ. Letter to Bob Wyatt, NW Natural. Regarding: Liquid Natural Gas Tank Basin, Fill Water-Bearing Zone Removal Action. April 20.

information related to the void, its repair, and its potential impact on long-term trench operation. The additional information should include:

- a) A description of the nature and size of the void, likely causes of the void, the work associated with the repair, and any relevant photographs or documentation related to the repair.
  - b) A discussion about how the repair will be monitored and maintained.
  - c) A discussion about any operational changes to the T-50 trench as a result of the void or its repair, including specific observations and rationale for these changes and the potential impact of these changes on trench operation or performance.
- 2) T-50 Trench Operational Changes due to DNAPL Entry. The Trench Design and Operation section states that “the pump inlet at T-50 was raised and the set-point elevation was raised from 5.0 to 7.5 feet COP to allow DNAPL to settle into the sump rather than flow with the groundwater into the treatment system.” Please discuss the impact that raising the T-50 set-point elevation may have on long-term trench pumping rates and the groundwater capture zone. DEQ notes that groundwater elevations near the T-50 trench appear to be higher after raising the pump set-point compared to earlier in the year. In addition, it appears that the change in the set-point may have resulted in a decrease in the total groundwater volume pumped from this trench and a reduced the groundwater capture zone.
- 3) DNAPL Observations and Recovery. Please provide additional information regarding DNAPL observations in the T-50 trench. The additional information should include:
- a) Clarification of when DNAPL was first observed in the T-50 trench and any relevant related details. For example, the Trench Design and Operation Section indicates that the T-50 pump was raised in July 2022 to allow DNAPL to settle into the sump, implying that DNAPL had been observed; however, the LNG Basin and Former Koppers Basin Monitoring Wells Section indicates that DNAPL entry into T-50 was not observed until August.
  - b) A description of DNAPL recovery activities, including how recovered DNAPL is being managed, how much DNAPL has been recovered from the T-50 trench within the reporting period (future reports should include a cumulative total), and how DNAPL recovery will be tracked and reported in the future.
- 4) Overall Trench System Performance. Please provide additional discussion comparing actual pumping rates or the capture zone achieved by the trenches during the reporting period compared to previous reporting periods and the modeling evaluations presented in the *Fill Water-Bearing Zone Trench Design*<sup>6</sup> (Design). The additional discussion should include the following topics:
- a) The average combined system pumping rates for September, October, November and December 2022 were approximately 9 gpm, 5 gpm, 14 gpm, and 20 gpm, respectively. The Report should discuss how these actual pumping rates compared to estimated pumping rates presented in the

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<sup>6</sup> Anchor QEA, LLC. 2020. Fill Water-Bearing Zone Trench Design, Former Gasco Manufactured Gas Plant Operable Unit. Prepared on behalf of NW Natural. September 28.

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Design for the average annual, wet, and dry season pumping rates (20 gpm, 35 gpm, and 5.7 gpm, respectively).

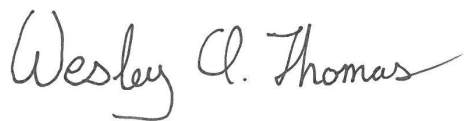
- b) The Report should discuss whether groundwater at MW-48F and MW-50F was within the capture zone achieved by the trenches during the reporting period. DEQ notes that the inferred groundwater flow paths shown in potentiometric surface maps for MW-48F (Figures D-1, D-4, D-5, D-6, D-7, D-8, and D-9) and MW-50F (Figure D-7) appear to be towards the river and outside of the trench system's radius of influence. Shading or hatching illustrating the actual capture zone overlaid onto the potentiometric maps may help to clarify the actual capture zone achieved during the reporting period and provide an easy basis for comparison with modeling presented in the Design.

5) Monitoring Data. DEQ has the following comments:

- a) The results for several wells that are included in the sampling program appear to be missing (e.g., OW-10F and MW-40F).
- b) Please include a section discussing deviations to the LNG Removal Action groundwater monitoring program<sup>7</sup>, including wells that were not sampled during the reporting period (e.g., MW-21-12, MW-50F), the reason for the deviation (e.g., well was dry, DNAPL encountered in well), and how the deviation impacted the overall analysis of the system performance. DEQ notes that the groundwater monitoring program was modified after the reporting period discussed in the Report.
- c) Some field sampling data sheets in Attachment B include observations of DNAPL. In the future, please record and report depth to DNAPL and DNAPL thickness in each well encountered.

Please do not hesitate to contact me at (971) 263-8822 or [Wesley.Thomas@deq.oregon.gov](mailto:Wesley.Thomas@deq.oregon.gov) if you have any questions regarding this letter.

Sincerely,



Wesley A. Thomas  
Project Manager  
NWR Cleanup Section

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<sup>7</sup> Anchor QEA, 2018a. Letter to: Dana Bayuk, Oregon Department of Environmental Quality. Regarding: Groundwater Monitoring Program to Assess Effects of Upcoming Activities at the NW Natural LNG Tank Basin and Koppers Facility. March 23, 2018

DEQ Comments on LNG Basin and Former Koppers Basin Groundwater Evaluation/Fill WBZ  
Interceptor Trench Performance – Second Through Fourth Quarter 2022

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