



Oregon

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September 28, 2023

Bob Wyatt
NW Natural
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via electronic delivery (email)

**Re: DEQ Comments on the 2022 Hydraulic Control and Containment System Annual Report
Former Gasco Manufactured Gas Plant Operable Unit (Gasco OU)
Portland, Oregon
ECSI# 84
ECSI# 183**

Dear Mr. Wyatt:

The Oregon Department of Environmental Quality (DEQ) reviewed the *2022 Hydraulic Control and Containment System Annual Report*¹ (2022 Annual Report) for the Former Gasco Manufactured Gas Plant Operable Unit (Gasco OU) dated July 28, 2022. Anchor QEA, LLC prepared the 2022 Annual Report on behalf of NW Natural under the Voluntary Agreement for Remedial Investigation/Feasibility Study (DEQ No. WMCVC-NWR-94-13)², as amended^{3,4}, collectively referred to as the upland cleanup agreement.

The 2022 Annual Report summarizes operation, maintenance, and performance of the hydraulic control and containment (HC&C) system. The HC&C system operates as a groundwater source control measure for the contaminant migration pathway via the Alluvium Water Bearing Zones (WBZs) to the Willamette River. DEQ has the following comments on the 2022 Annual Report. Please revise and resubmit the 2022 Annual Report according to these comments.

General Comments

- 1) On February 7, 2023⁵, DEQ agreed to allow NW Natural to resolve our comments⁶ on the *2021 Hydraulic Control and Containment System Annual Report*⁷ (2021 Annual Report) in the 2022 Annual Report consistent with DEQ's Replies⁸ to NW Natural's responses to our comments⁹ as an

¹ Anchor QEA, LLC. 2023. 2022 Hydraulic Control and Containment System Annual Report. Prepared for NW Natural. July 28.

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

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

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

⁵ DEQ. 2023. Email to Bob Wyatt (NW Natural). Re: Gasco OU: 2021 Hydraulic Control and Containment System Annual Report. February 27.

⁶ DEQ. 2022. Letter to Bob Wyatt (NW Natural). Re: Draft 2021 Hydraulic Control and Containment System Annual Report. October 10.

⁷ Anchor QEA, LLC. 2022. 2021 Hydraulic Control and Containment System Annual Report. Prepared for NW Natural. August 19.

⁸ DEQ. 2023. 2021 Hydraulic Control and Containment System Annual Report, DEQ Comment and Response Matrix – DEQ Replies. February 27.

⁹ Anchor QEA, LLC. 2023. 2021 Hydraulic Control and Containment System Annual Report, DEQ Comment and Response Matrix. February 6.

alternative to revising and resubmitting the 2021 Annual Report. However, it does not appear that our comments on the 2021 Annual Report have been resolved in the 2022 Annual Report. Unresolved comments include, but are not limited to:

- a) General Comment #1. The 2022 Annual Report continues to state that the portion of Segment 1 downgradient of the Former Tar Pond Area is the highest priority for source control. However, DEQ's 2008 comment letter¹⁰ regarding the Groundwater/DNAPL Focused Feasibility Study states that "the shoreline of the Gasco Site and the northern portion of the Siltronic Property are high priorities for source control. The portion of the shoreline identified as the highest priority for source control (Segment 1) extends from downstream of the "Tar Body Removal Area" (TBRA) on the NW Natural Property, to upstream of the ["effluent pond overflow area"] EPOA on the Siltronic Property" as this area generally coincides with the greatest MGP-related impacts identified near the river. Please revise the 2022 Annual Report to accurately reflect DEQ's source control priorities, consistent with NW Natural's response to General Comment #1 on the 2021 Annual Report.
- b) General Comment #2a-d. The 2022 Annual Report continues to imply that the requirement to maintain upward vertical hydraulic gradients is limited to the portion of Segment 1 downgradient of the Former Tar Pond Area. However, as stated in DEQ's approval¹¹ of the revised *2020 Hydraulic Control and Containment System Annual Report*¹² (Revised 2020 Annual Report), "DEQ considers the requirement to maintain upward vertical gradients between the Upper and Lower WBZs to apply to the portion of the Siltronic GSA shoreline where DNAPL is present." DEQ's comments on the 2021 Annual Report stated that "the HC&C system should, at minimum, be operated to maintain upward vertical gradients for the portion of Segment 1 downgradient from the Tar Ponds GSA, and the portion of the Siltronic GSA between the Gasco property boundary to the southeast of PW-2L." Please revise the 2022 Annual Report consistent with NW Natural's response to General Comment #2a-d on the 2021 Annual Report.
- c) Specific Comment 4a-c. DEQ previously requested that NW Natural identify monitoring wells that are included in the Annual Reports but are not representative of HC&C System performance (e.g., MW-16-45, MW-5-32, WS-8-59). We acknowledge that DEQ has approved NW Natural's request to reduce the figure set used to evaluate HC&C System performance in future reports. However, since the figure set was not reduced for the 2022 Annual Report, please revise the 2022 Annual Report to more clearly identify monitoring wells that are not considered representative of HC&C System Performance.

Specific Comments

- 1) **Section 2.1 Maintenance Activities**. Some of the maintenance activities described in Table 2-1 included certain wells being temporarily brought offline (e.g., during replacement of pump and motor equipment). Please describe whether any corresponding impacts to system performance were observed or might be expected from pumping downtime.

¹⁰ DEQ. 2008. Letter to Bob Wyatt, NW Natural. Regarding Groundwater/DNAPL Focused Feasibility Study. March 21.

¹¹ DEQ. 2022. Letter to Bob Wyatt, NW Natural. Regarding Revised 2020 Hydraulic Control and Containment System Annual Report, Former Gasco Manufactured Gas Plant Operable Unit, Portland, Oregon, ECSI# 84. April 25.

¹² Anchor QEA, LLC. 2022. 2020 Hydraulic Control and Containment System Annual Report. Prepared for NW Natural. March 14.

- 2) **Section 2.1 Maintenance Activities and Table 2-1.** This section describes bringing new extraction wells PW-1Uc and PW-11Ub online during 2022. According to Appendix B1 Figure 8.1, PW-1U was correspondingly taken offline when PW-1Uc was brought online. Similarly, Appendix B1 Figure 8.12 indicates that PW-11U was taken offline when PW-11Ub was brought online. Please include a discussion of the pumping wells that were taken offline and brought online during 2022 in this section and in Table 2-1. It would also be helpful to add a footnote to Figures 2-2 and 2-3 for the wells that have been replaced and are no longer operating.
- 3) **Section 2.3 Contaminant Mass Removed and Table 2-3.** The Piping and Instrumentation Diagram for the NW Natural Pretreatment Additions (included in the *Fill Water-Bearing Zone Trench Design*¹³) doesn't show the location of an upgradient influent sample port for the NW Natural Pretreatment Plant so it is not clear if the calculations for the mass removed also includes the additional contribution (total groundwater volume + average influent concentrations) fed into the NW Natural Pretreatment Plant from the Fill WBZ trenches. Please clarify whether the pretreatment plant influence contaminant mass estimates include contributions from the Fill WBZ trenches.
- 4) **Section 3.1.1 Hydraulic Head Difference Between Upland Alluvium WBZs and River.** The first paragraph of this section states that “the groundwater elevations at the wells and piezometers screened in the Upper and Lower Alluvium WBZs were maintained at levels that were lower than the river elevation, indicating that the hydraulic gradients between these upland Alluvium WBZs and the river were reversed due to HC&C system operation.” DEQ has the following comments:
 - a) Appendices B1 and B2 figures show outward hydraulic gradients for several piezometers. DEQ requests that the sentence be revised to delete “piezometers.” DEQ acknowledges that the requirement to maintain inward hydraulic gradients does not necessarily apply to piezometers.
 - b) Appendix B figures show weaker hydraulic control for monitoring well MW-36U, with 3-day average head differences with the river periodically within or greater than the transducer margin of error, which indicates a potential loss of hydraulic control. Please explain the significance of this observation relative to achievement of source control objectives, and identify corrective actions to ensure that 3-day average head differences at this well remains demonstrably below the river elevations. DEQ notes that we previously commented about maintaining inward hydraulic gradients at MW-36U in the 2021 Annual Report (refer to Specific Comment #5).
- 5) **Section 3.1.2 Vertical Hydraulic Gradients.** The third to last sentence in the first paragraph delineates the subset of Appendices B1 and B2 Figures that correspond to Segment 1. This delineation of the figure set by segment was useful for review and we request that future deliverables include additional such delineations when referencing figures in the text and/or by noting the segment on the figures themselves.
- 6) **Section 3.1.2 Vertical Hydraulic Gradients.** The second sentence of the 2nd paragraph in this section states that “Maintaining upward vertical gradients in the Siltronic GSA is not necessary because DNAPL is present only in the Lower Alluvium WBZ at this section of the shoreline.” This statement is inconsistent with previous direction from DEQ (see General Comment #1b).
- 7) **Section 6. Summary.** The second paragraph of this section appears to list incorrect extraction rates and contaminant masses removed. For example, this section indicates 151 MG of groundwater were

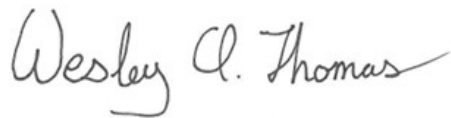
¹³ Anchor QEA, LLC. 2020. Fill Water-Bearing Zone Trench Design. September 28.

extracted in 2022; however, Table 2-2 shows 101 MG of groundwater. In addition, this section states that 269 pounds of benzene were removed in 2022; however, Table 2-5 indicates a total of 186 pounds of benzene were removed. Please update this section to reflect the correct values calculated for 2022.

- 8) **Table 2-1.** This table describes that well PW-8L had a pump fault on startup and was scheduled for maintenance in July 2022 (which took place at the end of July or beginning of August). Please clarify whether PW-8L is also identified as PW-08-68. If not, please describe whether the necessary maintenance was performed or when it is scheduled, include a description of the well in Section 2.1 if applicable, and add figures where applicable to Appendices B1 and B2.
- 9) **Table 2-5.** The total SVOCs mass listed in this table (1,270 lbs.) doesn't match the mass calculated in Table 2-4 (1,670 lbs.). Please resolve this error throughout the document (may affect Figure 2-9).

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

Sincerely,



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