Xcel Energy

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Denver, Colorado 80202

October 28, 2022

Ms. Linda Jacobson
U.S. Environmental Protection Agency
1595 Wynkoop St, 8ENF-RO-R
Denver, Colorado 80202-1129
jacobson.linda@epa.gov

Re: Comanche Station Notification of Updated Groundwater Background Values, Statistically Significant Increases and Concentration Exceedances
Comanche Station Consent Agreement and Final Order RCRA-08-2022-0008

Dear Ms. Jacobson,

This letter is to follow up on our October 7, 2022, email notifying EPA of concentration exceedances in the August 2022 samples from the Comanche Station CCR impoundment and to provide notification under Par. 95(d) and 95(e) of the Consent Agreement of identification of new statistically significant increases (SSIs) and statistically significant levels (SSLs) resulting from updated background threshold values (BTVs) and identified concentration exceedances.

To date, comparison of compliance well results has been made to the BTVs developed from upgradient well W-2A. Although we are in assessment monitoring at the impoundment, we installed new background well W-2C and two new downgradient/compliance wells (W-3B and W-6B) in November 2021 as agreed upon with EPA and documented in the July 5, 2022, updated Groundwater Monitoring System Certification. The system certification also updated the background well locations for the landfill to MW-3, MW-4B, and MW-6.

In December 2021, we began sampling new background well W-2C on a 5-week frequency for Appendix III and IV constituents to collect the eight samples necessary to develop updated BTVs. We also sampled the new downgradient compliance wells on this 5-week expedited schedule for Appendix III and IV constituents to establish initial background water quality in these wells (257.93(e) and 257.94(b)) and to evaluate for statistically significant increases.

HDR has completed the statistical evaluation to develop new BTVs and groundwater protection standards (GPS). In some cases, comparison of existing compliance well results (from the last semi-annual sampling event (May 2022) or the expedited 5-week sampling on new wells) to the updated BTVs has resulted in identification of new statistically significant increases (SSIs) or statistically significant levels (SSLs). These updated BTVs and statistical comparison results are discussed below for the landfill and the impoundment.

Landfill – SSIs Based on Updated BTVs

The landfill is in detection monitoring and upper prediction limits (UPLs) were recently updated for Appendix III constituents using background data pooled from wells MW-3, MW-4B, and MW-6. Semi-annual detection monitoring is conducted in May and November of each year. Therefore, the May 2022 Detection Monitoring event data (results previously submitted) were compared to the updated background levels and SSIs were identified. Although SSIs are based on May compliance sampling data, the triggering event for the SSI determination was the update to background statistics completed in October.

The Appendix III results were compared to the UPLs and the following SSIs were identified:

Comanche Station CCR Landfill
Wells with Appendix III SSIs
Based on BTVs/UPLs Updated in October 2022 *

	Appendix III Constituent	Updated BTV/UPL
	Chloride (mg/L)	390
Monitoring Well	MW-1B	400
	MW-2B	560
	MW-5	1200

* SSIs identified when May 2022 Detection Monitoring results were compared to Background Threshold Values/Upper Prediction Limits updated in October 2022

Landfill – Alternative Source Demonstration

We intend to conduct an Alternative Source Demonstration (ASD) pursuant to 40 C.F.R. § 257.93(e)(2). The ASD will evaluate potential alternative sources of elevated chloride 1) at MW-5 from the north that could be contributing to concentrations at MW-1B and 2) at MW-2B from the northeast.

As shown on the attached potentiometric surface maps, the groundwater flow direction beneath the landfill is generally southeast and if the source of elevated chloride concentrations in groundwater was the landfill, the highest concentrations would be expected at downgradient waste boundary wells MW-1B and MW-7. However, the chloride concentration in MW-5 is consistently higher than the downgradient wells and the groundwater contours do not clearly

demonstrate that the groundwater flow direction is from the landfill towards MW-5. It is more likely that the majority of the flow at MW-5 is from the north moving towards the south. The proximity of MW-5 to the topographic low point to the north that accumulates stormwater runoff is a possible source of the chloride concentrations at MW-5, unrelated to the landfill. Evaporative salts may be present in shallow deposits in this area resulting from long-term evaporation of shallow perched water and intermittent stormwater. Subsequent stormwater infiltration may dissolve and transport these surface salts and naturally occurring salts in the colluvium deposits. Since the majority of the groundwater beneath the landfill flows towards MW-1B, an alternative upgradient source could account for the concentrations observed at MW-1B which are lower than MW-5 but also higher than the background wells.

MW-2B has concentrations of chloride that are very similar to background well MW-3, and on several dates the choride concentrations in MW-2B are the same as or lower than in MW-3. In addition, the location of MW-2B appears to receive groundwater flow from the northeast and the coal pile, and that influence has not yet been evaluated.

CCR impoundment – SSIs and SSLs Based on Updated BTVs/GPS

At the CCR impoundment, W-2C was installed at EPA's request in November 2021 with the intention of replacing existing well W-2A. As discussed in the August monthly report, a piezometer installed between the impoundment and well W-2C confirmed it is hydraulically upgradient of the CCR impoundment. Therefore, as described in the Groundwater Monitoring System Certification, W-2C will become the new background well for the impoundment and well W-2A will no longer be sampled for this purpose. The August sample from well W-2C was the eighth background sample for the impoundment. Two new downgradient/compliance wells (W-3B and W-6B) were also installed in November 2021 and have been sampled on a 5-week frequency to develop the initial water quality data set. The eighth sample was collected from W-3B in August 2022; well W-6B was replaced with W-6B1 in August and the eighth sample was collected in September (results pending).

HDR has updated the background values for Appendix III constituents (UPLs) and Appendix IV constituents (UTLs); in some cases, the updated UTLs resulted in updates to the previous GPS values. The monitoring data from downgradient wells collected between December 2021 and August 2022 were compared to the updated background values and SSIs and SSLs were identified. Although these increases are based on earlier compliance sampling data, the trigger event for the determinations was the update to background statistics completed in October.

The Appendix III results were compared to the UPLs and the following SSIs were identified:

Comanche Station CCR Impoundment Wells with Appendix III SSIs Based on BTVs/UPLs Updated in October 2022 *	
W-3B	boron, chloride, fluoride, sulfate
W-5B	pH
W-6B/W-6B1	boron, chloride, fluoride, sulfate
* Appendix III COIs with at least one value over background for sample events between December 2021-August 2022	

The Appendix IV results were compared to the GPS and the following SSLs were identified:

Comanche Station CCR Impoundment Wells with Appendix IV SSLs Based on BTVs/UPLs Updated in October 2022				
Monitoring Well	**Appendix IV Constituent**	Cadmium	Cobalt	Radium 226/228
	Unit	mg/l	mg/l	pCi/l
	GPS	0.0063	0.0092	8.15
W-3B	95% LCL	0.017	0.071	9.94
W-7	95% LCL	--	0.016	--
W-12	95% LCL	--	0.022	--

Statistical evaluation of Appendix IV constituents was done by comparing the lower concentration limits (LCLs) developed from compliance well concentrations to background values (UTLs) . The LCLs for Appendix IV constituents were calculated through the August 2022 background sample event and were compared to the updated GPS values, and SSLs were identified. However, since the impoundment is already in assessment monitoring and assessment of corrective measures, these updated results do not change the status of the ongoing groundwater monitoring program, and we do not intend to conduct an alternative source demonstration.

New compliance well W-6B1 and characterization wells W-14 and W-16 do not yet have the eight samples needed for calculation of the LCLs. However, we have previously reported concentration exceedances for these wells. The eighth sample from W-6B1 was collected in September and the eight samples from W-14 and W-16 will be collected in December. Upon receipt of validated results from the eighth sample for the respective wells, the data will be evaluated to determine if there are any SSLs.

CCR impoundment –Appendix IV Constituent Concentrations Over GPS

The radium SSL identified in the table above in W-3B was determined for the first time since collection of the eighth sample in August 2022.During this review, we identified previous concentration exceedances that are summarized in the table below. These concentration exceedances are based upon well the UTL/GPS developed from W-2A which was the background well at that time; however, the reported exceedances would be the same using updated background well W-2C.

Comanche Station CCR Impoundment Concentrations Over GPS Radium 226/228 (pci/l)			
Sample Dates	**W-3B**	**W-6B**	**W-6B1**
3/30-31/2022	12.7	10.4	n/a
5/5/2022	10.7	n/a	n/a
7/14/2022	11.5	n/a	n/a
8/23/2022	13.4	n/a	12.2

We are preparing an update to the Background Water Quality Statistical Method Certification to document these updated background values, which will be placed in the Operating Record, posted to the CCR website and EPA notified. An update to the Groundwater Monitoring System Certification is not needed, because the July 2022 revision outlined the transition to the new background wells at both the landfill and the impoundment.

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Quinn V. Kilty

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Date: 2022.10.28 12:57:22 -06'00'

Quinn Kilty
Manager, Environmental Services

cc: Jennifer McCarter

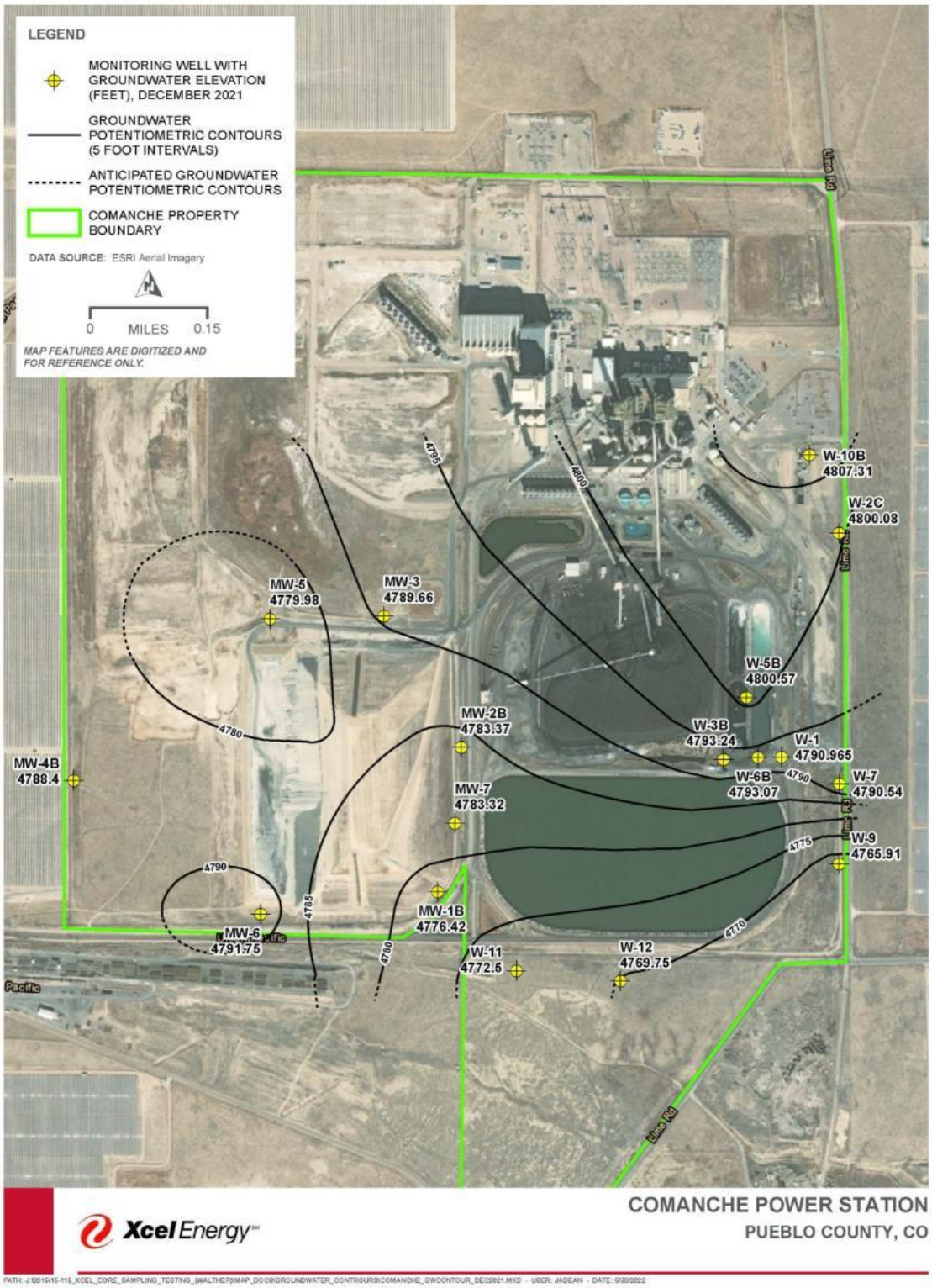

Figure 5. Groundwater contour map for December 2021.

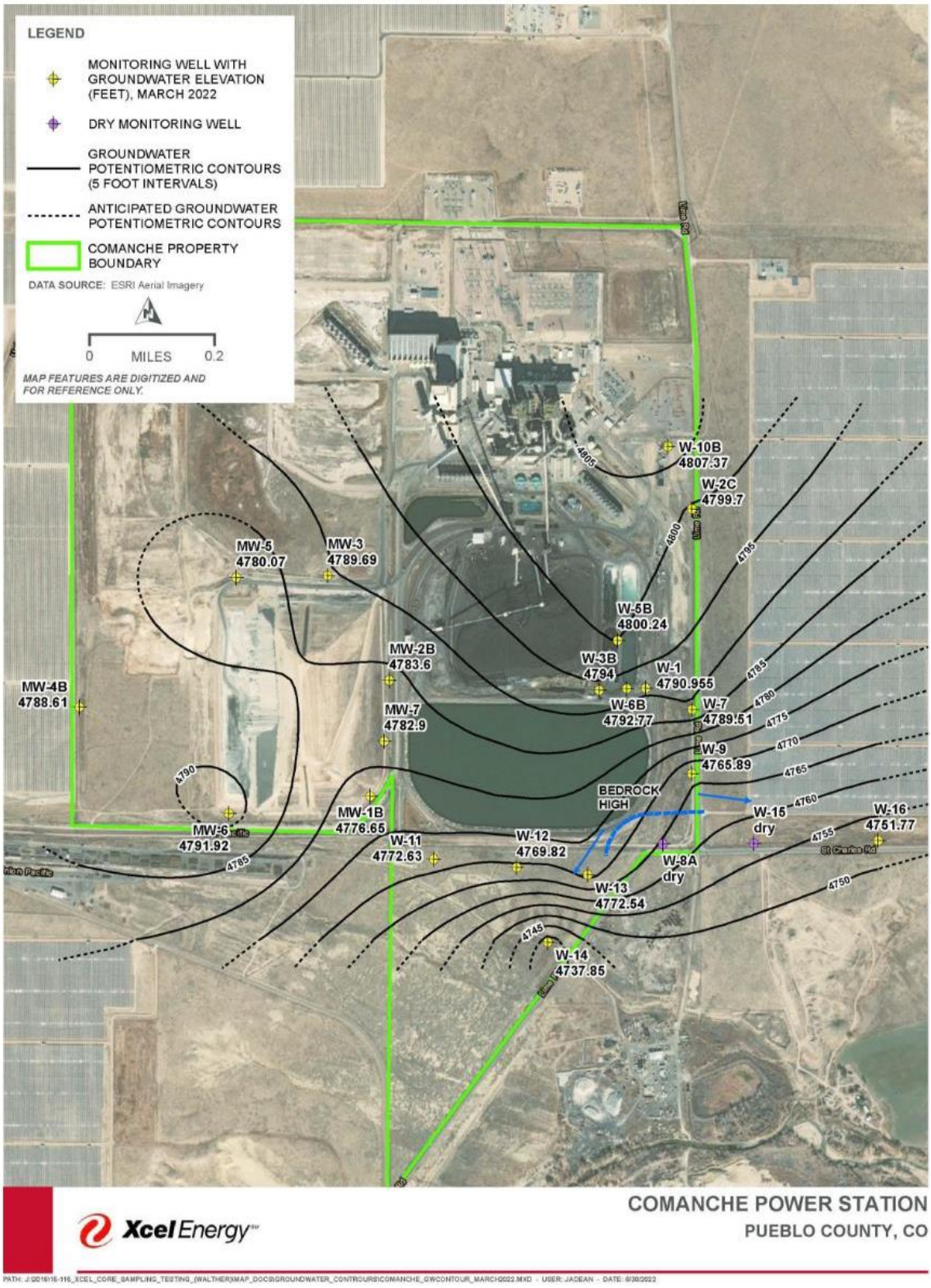

Figure 6. Groundwater contour map for March 2022.