Comanche Station No Aquifer Determination 2018 Annual Memorandum

Date:	Wednesday, January 30, 2019
To:	Jennifer McCarter, Public Service Company of Colorado
From:	Matt Rohr, HDR, Inc.
Subject:	Comanche Station No Aquifer Determination
Reference:	1) Comanche Station 2018 No Aquifer Determination Memorandum, January 2018

1 Introduction

The U.S. Environmental Protection Agency's (EPA's) final Coal Combustion Residuals (CCR) Rule establishes comprehensive a set of requirements for the management and disposal of CCR (or coal ash) in landfills and surface impoundments by electric utilities. Comanche Station, located in Pueblo, Colorado (Figure 1) is owned and operated by Public Service Company of Colorado (PSCo), an Xcel Energy Company. Comanche Station has two active CCR units, an impoundment (Bottom Ash Pond) and an Ash Disposal Facility (landfill) (Figure 2) that are subject to the CCR Rule.

Per the CCR Rule, groundwater monitoring is required to monitor potential impacts to the uppermost aquifer. The definition of an aquifer, from the CCR Rule (40 CFR 257.53), is a geologic formation, group of formations, or portion of a formation capable of transmitting water fast enough to yield usable quantities of groundwater to wells or springs. PSCo implemented groundwater monitoring pursuant to the Comanche Groundwater Monitoroing System Certification between 2015 and 2017 (HDR, 2016). PSCo characterized hydrogeologic conditions at the site in multiple previous investigations and through CCR monitoring. The properties of the shallow perched water beneath the Comanche Station are not consistent with the definition of an "aquifer" as described in the January 2018 *Comanche Station 2018 No Aquifer Determination Memornadum.* The perched groundwater in the colluvium at Comanche does not qualify as an aquifer because its yield is too low, TDS concentrations are too high, perched groundwater is not laterally continuous, and it is not a current water supply source. Therefore, the site does not appear to qualify as a site that requires groundwater monitoring under the CCR Rule. Despite the lack of an aquifer, in 2015 through 2017 PSCo implemented groundwater monitoring as defined in the CCR Rule to establish baseline characteristics of the shallow perched water where present. Additionally in 2019 PSCo continued to monitor the wells in the CCR program through water level monitoring on a semi-annual basis.

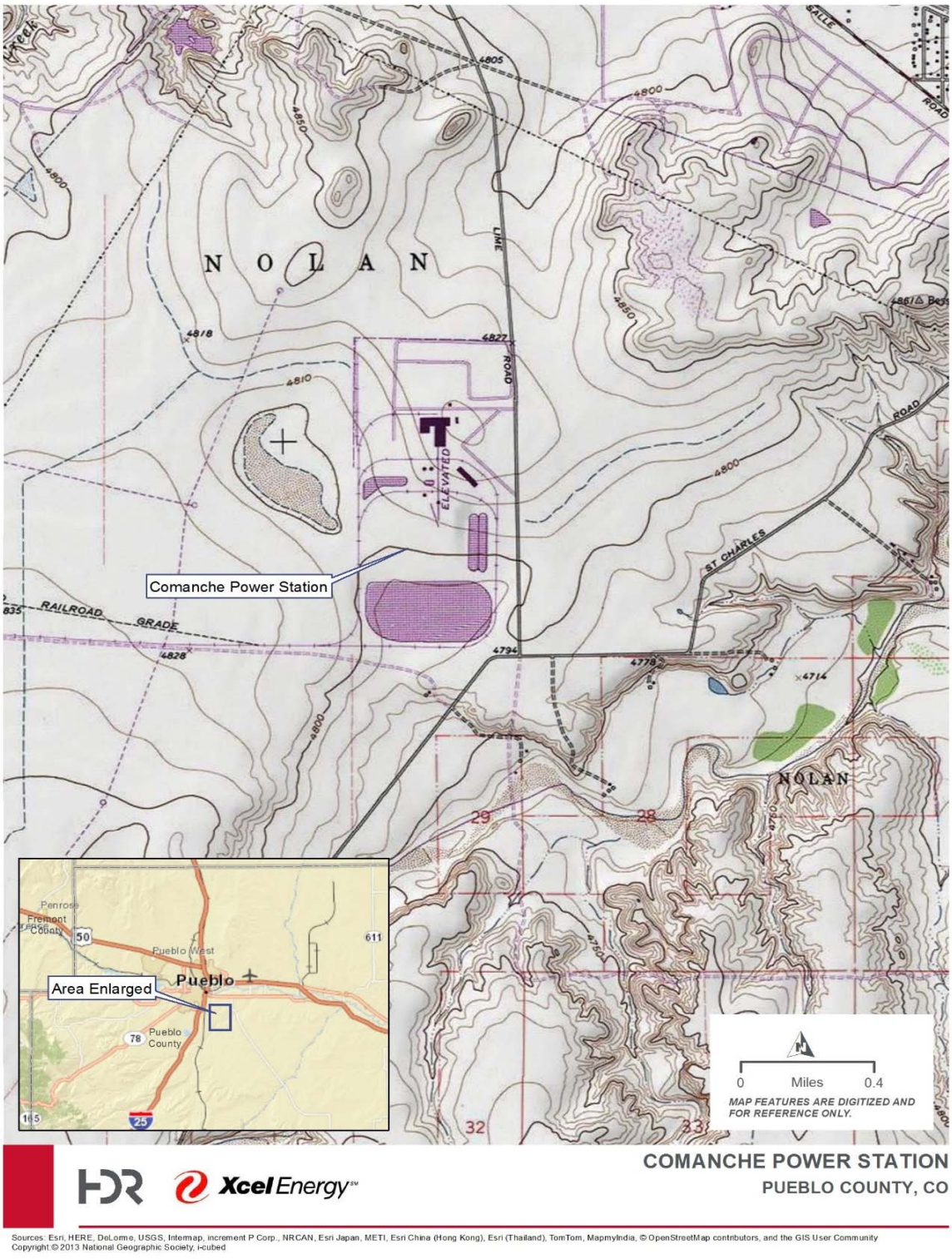

Figure 1. Vicinity map for Comanche Station.

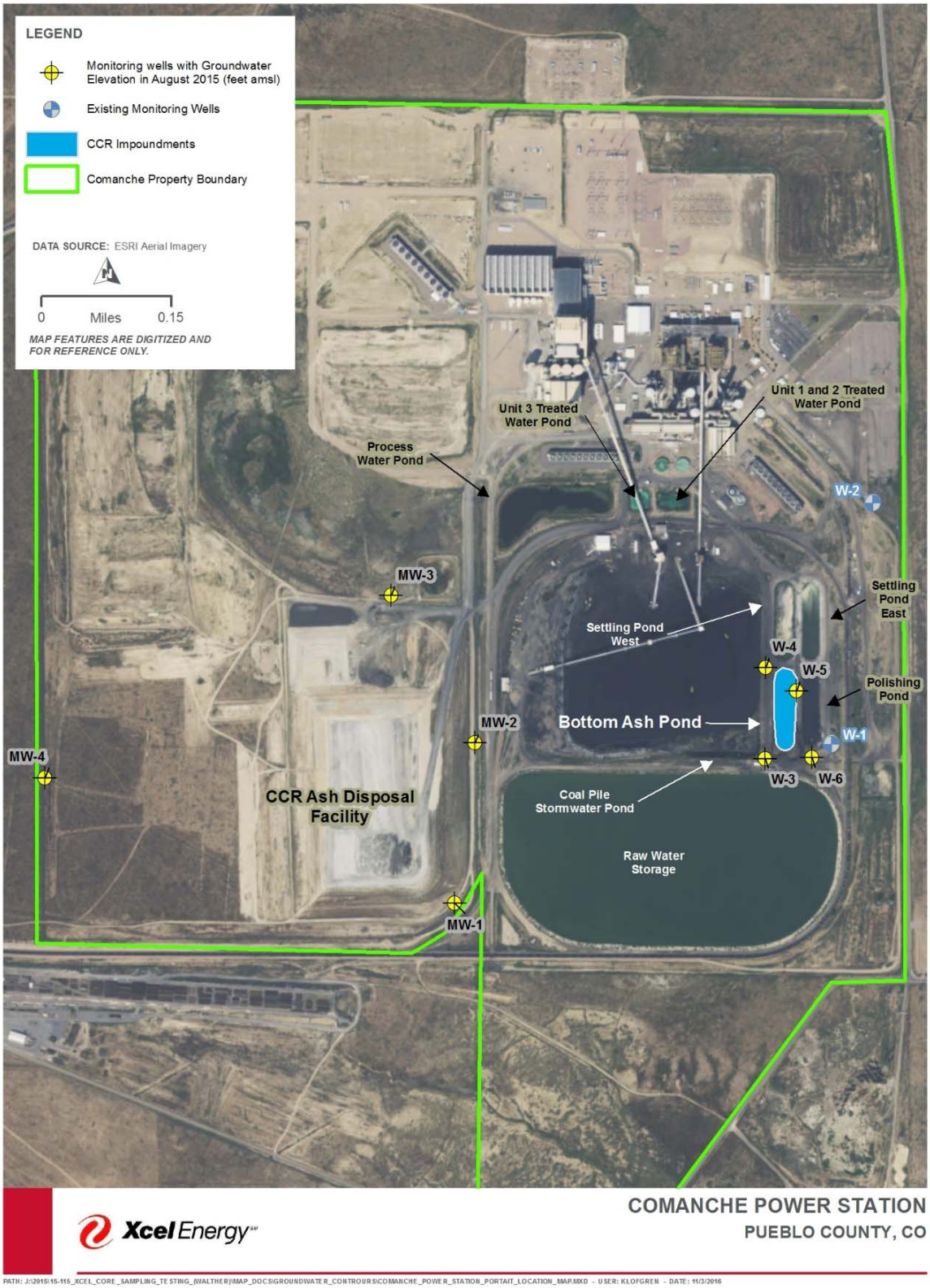

Figure 2. Comanche Station – CCR unit and monitoring well location map.

2 Water Level Monitoring

HDR attempted to measure water levels in eight monitoring wells July 16, 2018 for both the landfill and impoundment CCR facilities. Monitoring wells MW-1 through MW-4 surround the landfill. Wells MW-1, MW-2, and MW-4 were observed to be dry each quarter, consistent with previous studies. The water level in MW-3 was consistent through the year and consistent with prior years, varying a maximum 1.25 feet, and remained at and very near the colluvium/bedrock contact.

Monitoring wells W-3 through W-6 surround the bottom ash impoundment. The water level in well W-4 was below the screened interval within the sump of the well during monitoring events, consistent with prior years. Wells on the east side of the impoundment had five feet higher water elevation than W-3 on the west side of the impoundment (W-4 only captures water in the sump). The water levels in wells surrounding the impoundment are consistent with prior years.

In 2019, PSCo will continue semi-annual water level monitoring.

3 Conclusions

The CCR Rule requires that the groundwater monitoring be conducted on the uppermost aquifer at each site with a regulated CCR facility. The definition of an aquifer, from the CCR Rule (40 CFR 257.53), is a geologic formation, group of formations, or portion of a formation capable of transmitting water fast enough to yield usable quantities of groundwater to wells or springs. The perched groundwater in the colluvium at Comanche does not qualify as an aquifer because its yield is too low, TDS concentrations are too high, perched groundwater is not laterally continuous, and it is not a current water supply source (**Reference 1**). Therefore, the site does not appear to qualify as a site that requires groundwater monitoring under the CCR Rule. However, PSCo will continue to monitor the wells in the program through water level monitoring on a semi-annual basis. Water levels were monitored July 16, 2018 and are scheduled to be monitored again January 2019. Groundwater levels were consistent in 2018 with prior findings.

Certification

Comanche Station No Aquifer Determination for Review of Compliance with the Coal Combustion Residuals Rule

I hereby certify to the best of my knowledge that the information provided herein is accurate and the determination of a no aquifer system is based upon the data collected for CCR Rule compliance.

I am duly licensed Professional Engineer under the laws of the State of Colorado.

Matthew Rohr, PE
Colorado PE License 0053467
License renewal date October 31, 2019