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ATTACHMENTS

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D11 WETLANDS

D11.1 Introduction

The purpose of the wetland study is to evaluate the Permit Area for the presence of wetlands, and to describe cover and species compositions in any identified wetlands.

D11.2 Methods

Evaluation of potential wetland areas was initially conducted by reviewing aerial photographs of the Permit Area for topographic low areas and drainages. Other than the Crooked Well Reservoir, no potential wetland areas were identified from the aerial photographs. Three potential wetlands were identified using the GIS layers from the National Wetlands Inventory (NWI) database (National Wetlands Inventory, 2006) (**Figure D11-1**).

The potential wetland areas were visited in the field during the 2006 growing season and again in the spring of 2009. The sites were evaluated using the criteria listed in the US Army Corps of Engineers wetland delineation manual (Department of the Army, 1987). Two of the three locations were not wetlands as none of the criteria related to hydrology, soils, or vegetation were met. A more detailed evaluation of the vegetation at one potential location, the Crooked Well Reservoir, was done because of the potential for inundation of the area during some seasons.

Wetland vegetation delineation is based on the presence and abundance of obligate wetland plants, facultative wetland plants, facultative plants, facultative upland plants and obligate upland plants. The indicator status for wetland species has been developed by the US Fish and Wildlife Service, and a specific publication for Region 9 (which includes western Wyoming) is available (Reed, 1988). Specific categories include the following.

- **Obligate Wetland Species:** Under natural conditions, occur almost always (estimated probability greater than 99 percent) in wetlands.
- **Facultative Wetland Species:** Usually occur in wetlands (estimated probability 67 to 99 percent), but occasionally found in non-wetlands.
- **Facultative Species:** Equally likely to occur in wetlands or non-wetlands (estimated probability 34 to 66 percent).
- **Facultative Upland Species:** Usually occur in non-wetlands (estimated probability 67 to 99 percent), but occasionally found in wetlands (estimated probability 1 to 33 percent).

- Obligate Upland Species: Occur almost always (estimated probability greater than 99 percent) in non-wetlands under natural conditions in this region.

Had wetlands been identified during the April 2006 vegetation survey (Appendix D8) using indicator species, a point-intercept approach would have been used to sample species composition and cover. Areas that met the wetland determination criteria based on the field evaluations would have been delineated and mapped.

D11.3 Results and Discussion

All potential wetlands identified by aerial photo analysis and the National Wetlands Inventory were field-checked in April 2006 and again in April 2009. No wetlands were identified. The Permit Area consists almost entirely of upland environments dominated by big sagebrush (*Artemisia tridentata*). The Permit Area is dissected by several small ephemeral drainages, but none of these areas support wetlands. The channels are dominated by big sagebrush, which tends to have higher cover percentages and grow larger in the lowland areas. However, flow in the drainages is occasional, and none of the areas has the hydrology to support wetland vegetation. For nearly the entire growing season, the Permit Area has no standing surface water.

Of the three potential wetlands in the NWI, only one appeared to be a potential wetland based on initial field observations, specifically the Crooked Well Reservoir, located near the center of T25N, R92W, Section 16. This stock pond is an off-channel reservoir next to the Battle Spring Draw in the northeastern part of the Permit Area (**Figure D11-1**). However, based on more detailed field observations during the April 2006 vegetation survey (Appendix D8), surface water sampling (Appendix D6), and other site activities, this site is not a wetland under the 1987 ACOE criteria (hydrology, soils, and vegetation). Figures 11-2a, 2b, and 2c show the reservoir conditions in April of 2006, 2007, and 2009, respectively. Hydrology is the criteria most likely to be met in a given year; however, the variability and timing of precipitation do not result in inundation for at least five days during the growing season each year. There may be sufficient snowmelt for water to accumulate for five days in some years, but because of the variability in temperatures, snowmelt often occurs (and the reservoir dries) before the growing season starts in June (National Climatic Data Center, 2008). There may also be water present after an intense summer thunderstorm, but only at rare intervals from year to year. The bottom of the reservoir is composed of sand, silt, and clay, with no surficial evidence of extensive organic material or anaerobic conditions. The bottom of the reservoir is essentially bare, probably due in part to wind scour. Although there is no specific vegetation density requirement for wetlands, the density is a factor that should be taken into account (Department of the Army, 1987). Scattered small sagebrush and grasses are present

along the edges of the bare area, and these grade quickly to the more dense sagebrush community.

Of the other two potential wetlands identified in the NWI, one is off-channel and may have been an old turn-around off the east-west road in the northern portion of T25N, R93W, Section 24 (**Figure D11-3**). The other location is near a channel and just south of the Permit Area. It was apparently associated with the BLM Battle Spring Draw Well No. 4551 in the northern portion of T25N, R92W, Section 21. When the site was first visited in April 2006, and again in November 2007, the well was apparently not in use (**Figure D11-4**). However, when the site was visited in April 2009, the well had apparently been put back into service and a dirt ‘tank’ established (**Figure D11-4**).

In May 2010, LC ISR, LLC submitted a request to the Army Corps of Engineers for a jurisdictional determination of waters within the Permit Area. The Army Corps of Engineers’s jurisdictional determination is provided in a letter dated August 10, 2010 (**Attachment D11-1**). **Figure D11-1** was determined to provide an accurate depiction of potential wetlands and other waters within the Permit Area. In addition, “all waters within the permit area do not contain any areas that meet the definition of waters of the United States”. The water bodies are considered isolated since: they have no surface connection to a traditional navigable water; they occur within a closed hydrologic basin; they do not provide habitat suitable for migratory birds; and they do not support any form of interstate commerce.