

7.0 PROPOSED PERIMETER OF OPERATIONAL POLLUTION (POP)

The POP zones for the Dewey and Burdock land application areas are proposed to provide protection of groundwater resources in the respective areas in accordance with ARSD 74:54:02:17. Each of the proposed POP zones is within one-quarter mile of the respective land application areas and within the property boundaries of the permitted facility (NRC license boundary). The proposed POP zones in the Dewey and Burdock areas are shown on Figures 6.1-1 and 6.1-2, respectively. No residences or drinking water wells are located within either zone.

ARSD 74:54:02:06(8) requires the applicant to provide, “If applicable, the description of the POP, including the dimensions and hydrologic and geologic data to determine the dimensions, the proposed compliance monitoring point, and justification of necessary economic or social development for the POP.” Each of these requirements is addressed below.

Dimensions and Hydrologic and Geologic Data to Determine the Dimensions

The areal extents and configuration of the proposed Dewey area POP zone are shown on Figure 6.1-1. The western, northern and northeastern edges of the proposed POP zone are topographically upgradient of the land application areas. These edges also are hydrologically upgradient of the land application areas based on the results of the 2011 alluvial drilling program described in Sections 3.6.2.2 and 8.1.1. The POP zone is proposed just outside of the catchment areas in these areas, since there is no potential for surface water or groundwater flow to the west, north or northeast based on hydrologic and topographic data and therefore no need to extend the POP zone further in these directions. The proposed POP zone was further constrained to the north and west by the NRC license boundary/LSM permit boundary. To the south of the land application areas, the proposed POP zone is up to ¼ mile from the land application areas in the downgradient (topographic and hydrologic) directions, which are southwest, south, and southeast. In the vicinity of compliance well DC-2, the proposed POP zone is less than ¼ mile from the nearest land application area due to an oxbow in Beaver Creek, which would make it impractical to perform compliance monitoring further south. In the vicinity of DC-1, the proposed POP zone is less than ¼ mile from the nearest land application area in order to avoid placing a compliance monitoring well across Beaver Creek from the land application areas and to avoid a residence and domestic wells in the NWSW Sec. 30, T6S, R1E (refer to Figures 6.1-1 and 3.7-9 for the locations of the residence and domestic wells). As shown on Figure 3.6-3, the Dewey land application areas overlay the Graneros Group and Beaver Creek alluvium. As discussed in Section 3.7.2.2, the Graneros Group has a very low permeability; therefore, lateral movement of water is expected to be negligible within the Graneros Group. The proposed POP

zone extends to the south in the alluvium, since the alluvium is the first and only hydrogeologic unit potentially impacted by land application.

In the Burdock area, the topographic and hydrologic downgradient directions from the land application areas are south and west. Since there is no potential for groundwater flow to the north or east, the northern and eastern edges of the proposed POP zone are near the catchment areas. The southern and southwestern edges of the proposed POP zone are up to ¼ mile from the land application areas. In the vicinity of BC-1, the POP zone is less than ¼ mile from the nearest land application area due to an oxbow in Pass Creek, which makes it impractical to perform compliance monitoring further west. To the north of BC-1, the proposed POP zone is less than ¼ mile from the nearest land application area to avoid including a residence and domestic well in the NWNW Sec. 3, T7S, R1E (refer to Figures 6.1-2 and 3.7-10 for the locations of the residence and domestic well). As shown on Figure 3.6-3, the Burdock land application areas overlay the Graneros Group and the Pass Creek alluvium. As with the Dewey area, the proposed POP zone was extended in the downgradient direction in the alluvium, since the alluvium is the first and only hydrogeologic unit potentially impacted by land application.

Proposed Compliance Monitoring Points

Refer to Section 6.1.1.1, which describes the locations of the proposed compliance wells.

Justification of Necessary Economic or Social Development

Support for the Dewey-Burdock Project as benefitting the State of South Dakota is found in SDCL 45-6B-2, which states, “Every effort should be used to promote and encourage the development of mining as an industry, but to prevent the waste and spoilage of the land and the improper disposal of tailings which would deny its future use and productivity.” Powertech (USA)’s commitment to adhering to best professional practices, NRC license conditions and EPA and DENR permit conditions will ensure that facility construction, operation, decommissioning and reclamation will protect DENR-approved postmining land use(s). As required by the NRC license, LSM permit and EPA Class III Underground Injection Control permit, Powertech (USA) will be required to post financial assurance for all aspects of the Dewey-Burdock Project. This will ensure that resources will be available for decommissioning and reclamation such that the site will be released for unrestricted (i.e., DENR-approved postmining) use.

Support for ISR uranium recovery to be considered a mining beneficial use is found in SDCL 45-6B-3(11), which includes *in situ* mining in the definition of “mining operation.”

The Dewey-Burdock Project NRC license application (Powertech, 2009) describes how the project benefits include its potential to create approximate 250 new jobs during construction and approximately 150 new jobs during operation, which will contribute direct and indirect benefits to the local economy. In addition, Powertech (USA) estimates that the project will generate some \$35 million in state and local tax revenue and approximately \$187 million in value added benefits over the life of the project.