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## 2.8 Alluvial Valley Floors

In accordance with:

- Section 38-14.1-14(1)(o), North Dakota Century Code (NDCC); and
- Section 69-05.2-08-13, North Dakota Administrative Code (NDAC).

### 2.8.1 Alluvial Valley Floor Definition

Alluvial Valley Floors are defined by two criteria: geologic and water resources. The geologic criteria are understood to be a topographic valley holding a stream underlain by unconsolidated stream-laid deposits. The water resources criteria state that the area must also supply sufficient water to support agricultural activities as shown by: 1) the existence of flood irrigation or its historical use, 2) the capability to be flood irrigated, or 3) subirrigation.

### 2.8.2 Alluvial Valley Floor Determination

According to previous studies performed by the Office of Surface Mining Reclamation and Enforcement and recent field studies carried out by Golder Associates (Golder) within the Study Area, the valleys of the Heart River, South Branch Heart River, and South Tributary appear to be underlain by unconsolidated stream-laid deposits and therefore meet the geologic criteria of an Alluvial Valley Floor. The primary land use in the region and in the Permit Area is and has been dryland farming and stock grazing on native grasslands. Limited water rights diversions for irrigation exist within the region; however, no diversions for agricultural use exist in the Study Area. Furthermore, agricultural operators in the Study Area do not irrigate the land and have not considered irrigation development due to poor water quality and lack of quantity. Flood irrigation is not used currently or historically for agricultural activities. The Heart River, South Branch Heart River, and South Tributary have little potential for routine annual flood irrigation based on lack of water availability, poor water quality, and narrow, incised channels with small terraces. The soils along the river valleys may be suitable for irrigation; however, interactions with the poor water quality may make them unsuitable for crop production. Finally, agricultural practices and lack of diurnal fluctuations in water table levels suggest that subirrigation is not present along either valley. Golder concludes that the valleys of the Heart River, South Branch Heart River, and South Tributary within and adjacent to the Permit Boundary do not meet the criteria of an Alluvial Valley Floor.

Golder prepared a report entitled “*Alluvial Valley Floor Study, South Heart Project, Stark County, North Dakota, Revision 4*” to assist the Public Service Commission (PSC) with evaluating the presence of Alluvial Valley Floors in and adjacent to the SHLM. The Study Area for this report includes the area southwest of the City of South Heart and the area within the Permit Boundary. The report was completed as part of this permit application in compliance with NDAC 69-05.2-08-13. Based on an examination of submitted data including geologic, geomorphic and vegetative characteristics, soils, and the water quality and quantity of streams and ground water systems occurring within and adjacent to the Permit Area as required in NDAC 69-05.2-08-13, the PSC Reclamation Division has determined that no Alluvial Valley Floors occur within the Permit Area. The Alluvial Valley Floor determination letter is presented in [Appendix 2.8-1](#).

**APPENDIX 2.8-1**

**ALLUVIAL VALLEY FLOOR DETERMINATION LETTER**