

**SECTION 19**

**ALLUVIAL VALLEY FLOORS**

**TABLE OF CONTENTS**

<b>SECTION</b>	<b>SECTION TITLE</b>	<b>PAGE NUMBER</b>
SECTION 19	ALLUVIAL VALLEY FLOORS .....	1
19.1	Alluvial Valley Floor Determination .....	1
19.2	Alluvial Valley Floor Statutory Exclusion Determination .....	2
19.3	Essential Hydrologic Functions of Alluvial Valley Floors .....	2
19.4	Alluvial Valley Floor Information Collection and Analysis.....	2
	Personnel .....	3
	References .....	3

**SECTION 19**

**ALLUVIAL VALLEY FLOORS**

**LIST OF APPENDICES**

**APPENDIX**

**NUMBER      APPENDIX TITLE**

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<a href="#"><u>19.A</u></a>	Identification of Alluvial Valley Floors in Strippable Coal Areas of New Mexico, Love et al., October 1981
<a href="#"><u>19.B</u></a>	OSM Pinabete and Cottonwood Arroyo Alluvial Valley Floor Determination Letter Dated June 1992
<a href="#"><u>19.C</u></a>	OSM Brimhall and No Name Arroyo Alluvial Valley Floor Determination Letter Dated July 2008

**SECTION 19**

**ALLUVIAL VALLEY FLOORS**

**LIST OF REVISIONS DURING PERMIT TERM**

<b>REV.</b>		<b>DATE</b>
<b>NUMBER</b>	<b>REVISION DESCRIPTION</b>	<b>APPROVED</b>

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## SECTION 19 ALLUVIAL VALLEY FLOORS

### 19.1 Alluvial Valley Floor Determination

The major stream channels within and adjacent to the ~~BHP Navajo Coal~~Navajo Transitional Energy Company's (BNCCNTEC) mining lease were examined as part of a study by the New Mexico Bureau of Mines and Mineral Resources entitled "Identification of Alluvial Valley Floors in Strippable Coal Areas of New Mexico" (Love et al. 1981) (Appendix 19.A). The goal of this study was to distinguish "possible alluvial valley floors" from "lands clearly not alluvial valley floors" using guidelines released by the Office of Surface Mining Reclamation and Enforcement (OSM) prior to the study. The river systems within and adjacent to the BNCCNTEC mining lease considered in the 1981 study include San Juan and Chaco river systems. The Pinabete Mine Plan permit area (permit area) is located within the Navajo Coal Field Area of the Chaco River system, as described in Appendix 19.A. Specifically, the Navajo Coal Field Area includes the following U.S. Geologic Survey (USGS) 1:24,000 series quadrangles: The Hogback South, Kirtland Southwest, Newcomb Northeast, and The Pillar Northwest, corresponding to the permit area as described in Section 2 (Operation and Permit Description). The drainages analyzed within the BNCCNTEC mining lease area by the 1981 study include: Chaco River, Pinabete Arroyo, Cottonwood Wash, Brimhall Wash, Chinde Wash, and No Name Arroyo. The report concludes that although valley areas along the main stem of Chaco River meet the geologic criteria for an alluvial valley floor (AVF), there was inadequate water at that time to support agricultural activities. The report further concluded that watersheds within the Chaco River system, including those within the permit area were ephemeral and not able to provide adequate water for agricultural activities during the growing season. In addition, there was no evidence of successful current or historical flood irrigation practices in the area. Therefore, based on Love et al. (1981), the only "potential alluvial valley floors" on or adjacent to the permit area occurs along the San Juan River. The permit area is approximately 15.7 miles south of the San Juan River. The shortest watercourse from the permit area to the San Juan River, along the Pinabete Arroyo and Chaco River to its confluence with the San Juan River, is approximately 41.3 miles.

The potential for an AVF along the Chaco Wash tributaries, Cottonwood Wash, and Pinabete Arroyo, was examined by BNCCNTEC. They reviewed the available geologic, hydrologic, land use, soils, and vegetation data and analyses. BNCCNTEC determined that these watersheds do not contain alluvial valley floors and sought a negative alluvial valley floor determination from OSM in April 1992. The negative determination for Pinabete Arroyo and Cottonwood Arroyo was approved by OSM in June 1992. OSM's negative determination approval letter is included as Appendix 19.B.

In addition to the Cottonwood Arroyo and Pinabete Arroyo, BNCCNTEC has sought to determine if there are other streams within or adjacent to its mining lease with the potential for AVF. In April 2008 in conjunction with a previously proposed project, BNCCNTEC reviewed geologic, hydrologic, land use, soils, and vegetation resources of Area 4 South and Area 5 and submitted a request for an alluvial valley

floor determination to OSM for the No Name Arroyo and Brimhall Wash. **BNCNTEC** also sought a reconfirmation of OSM's 1992 determination for the Pinabete Arroyo. OSM provided its determination that the Pinabete Arroyo, No Name Arroyo, and Brimhall Wash are not alluvial valley floors in its July 2008 determination ([Appendix 19.C](#)).

Results of the Love et.al. (1981) study, together with previous AVF determinations within the **BNCNTEC** mining lease area by OSM, and the multidisciplinary investigations associated with the Pinabete SMCRA permit application package were utilized to determine the presence or absence of AVFs within and adjacent to the permit area. Both geomorphic/geologic and water availability criteria form the basis for an AVF determination. Terrace and floodplain landforms on unconsolidated stream-laid deposits can be found along portions of the Chaco River, Pinabete Arroyo, and Cottonwood Arroyo. Alluvial well drilling along Pinabete Arroyo and Cottonwood Arroyo confirmed the occurrence of unconsolidated stream-laid deposits in association with these landform features adjacent to the permit area. However, the capability to flood irrigate within the Chaco River, Pinabete Arroyo, or Cottonwood Arroyo valley areas is precluded by the nature of stream flows, which occur infrequently and as flash-flow events. In addition, there is no evidence of successful current flood irrigation from these ephemeral streams within the permit area. Finally, there was a negative finding for Prime Farmland within the permit area (Section 14, Soils, Appendix 14.C).

Therefore, **BNCNTEC** concludes there are no AVFs within the permit area. OSM has agreed with this negative determination, as stated in [Appendix 19.B](#) and [Appendix 19.C](#).

### **19.2 Alluvial Valley Floor Statutory Exclusion Determination**

There are no AVFs present within or adjacent to the permit area. Therefore, this section is not applicable to the permit area. The 1992 and 2008 negative AVF determinations are discussed above in Section 19.1 and are provided in [Appendix 19.B](#) and [Appendix 19.C](#), respectively.

### **19.3 Essential Hydrologic Functions of Alluvial Valley Floors**

A determination has been made that there are no AVFs or waters supplying an AVF within the permit area. Therefore, this section is not applicable to the permit area. The 1992 and 2008 negative AVF determinations are discussed above in Section 19.1 and are provided in [Appendix 19.B](#) and [Appendix 19.C](#), respectively.

### **19.4 Alluvial Valley Floor Information Collection and Analysis**

Information used to complete this section came from current and historical baseline studies conducted within and adjacent to the permit area. Surface water, groundwater, and soils information, as well as Prime Farmland determinations were provided to OSM for their review and consideration as part of the request for negative determination.

*Personnel*

Persons or organizations responsible for data collection, analysis, and preparation of this permit application section:

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*References*

Love, D.W., J.W. Hawley, and T.C. Hobbs. 1981. Identification of Alluvial Valley Floors in Strippable Coal Areas of New Mexico. Prepared for Mining and Minerals Division, Energy and Minerals Department, Santa Fe, New Mexico.