

The habitat associated with the Purgatoire River and its surrounding areas will be protected by the Operator under the current plans.

Protection of Hydrological Balance

Probable Hydrologic Consequences

Probable hydrologic consequences of the mine are attributable to the following operations:

- Consumption of water to run the preparation plant
- Dust control during mining
- Subsidence
- Surface disturbances
- Operation of the RDA
- Mine dewatering
- Blue Seam mining in the PR-6 area (Exhibit 8(5)).

Surface disturbances at the facilities area and coal shipping operations will result in an increase in total suspended solids (TSS), which will be treated by sedimentation ponds prior to discharge to the Middle Fork of the Purgatoire River. Water quality impacts to the Purgatoire River and the alluvial aquifer from surface operations are expected to be similar to those currently observed from the mine (i.e., an average increase of about 40 mg/1 TDS in river water downstream from the mine, and 400 to 500 mg/1 TDS increase over background in alluvium down gradient of the RDA).

The area overlying the mine workings has the potential to subside. The maximum extent of subsidence fracturing with increased vertical transmissivity is projected to extend 195 feet above the top of the highest mined coal. A minimum thickness of 450 feet of overburden lies between the top of the Apache seam and the base of area drainages. The zone of increased vertical transmissivity is not expected to impact surface water. A zone of continuous deformation will be present from about 195 feet above the coal to 50 feet below ground surface. No hydrologic impacts or only temporary minor changes in water level are expected to occur in the continuous zone. No flow or water quality impacts are expected to occur to surface water including springs and seeps due to subsidence from mining in the Allen and Apache seams.

Well records from CDWR indicate that there are 62 permitted wells in the Raton Formation within a one mile radius of the permit boundary (Table 10). The wells vary in depth from 30 to 750 feet, and have completion water levels ranging from 5 to 598 feet bgs. A study by Watts (reference 2006b in exhibit 8(4)) evaluated the potential for groundwater pumping from coal seams in Las Animas County to impact water levels in wells that are used for water supply. He noted that because the permeability of stratified sedimentary rocks generally is greater parallel to bedding than across bedding, the drawdown of water levels in coal