17.24.304 Baseline Information: Environmental Resources

(1) Each application must contain:

(e) Hydrologic and Geologic Data Required to Evaluate Baseline Conditions, to Evaluate the Probable Hydrologic Consequences and Cumulative Hydrologic Impacts

Detailed hydrologic studies of Pits 1, 2 and 3 (including portions south of SFSC), were performed by VTN, Colorado. A complete discussion of these studies plus a narrative and graphic description of surface and groundwater systems at the site are included in Volume 2 of the EBS.

The South Fork Spring Creek Alluvial Valley Floor Identification Report by Woodward-Clyde and Spring Creek Alluvial Valley Floor Identification Report by Woodward-Clyde is located in Appendix I, Premine Hydrology. Western Water Consultants, Inc. (WWC) conducted hydrologic investigations on surface water and groundwater resources within the SCM permit boundary. These baseline studies are also described in Appendix I. Based on the results of these studies, Appendix L, the Probable Hydrologic Consequences of the mine area, was updated to reflect the anticipated cumulative impacts of the mine operation. A detailed reference index is included in Section 17.24.304(F)

(f) Hydrologic and Geologic Descriptions

(i) Groundwater Hydrology.

(A) Aquifer Characterization

References:

Spring Creek Coal LLC. 1976 thru current. Annual Hydrology Reports; supplemental hydrology data.

Spring Creek Coal Company. 1979. Hydrology Baseline Studies, EBS - Volume 2, Section I, pp. 1 thru 11.

Spring Creek Coal Company. 1979. Spring Creek Alluvial Valley Floor Identification Report, Woodward-Clyde Consultants, Appendix I.

Spring Creek Coal Company. 1979. Spring Creek Mine Water Inflow Study, WATEC Consultants, Appendix I.

Spring Creek Coal Company. 1979. South Fork Spring Creek Alluvial Valley Floor Identification Report, Woodward-Clyde Consultants, Appendix I.

Spring Creek Coal Company. 1998. Hydrology Baseline Studies,-CAA, SCCC, Western Water Consultants, Inc-Appendix L-1.

Spring Creek Coal Company. 2001. South Fork Hydrologic Restoration Plan. Appendix I.

(B) Quarterly Monitoring Results

Data from one year of quarterly monitoring of groundwater, generated in accordance with standards contained in Section 17.24.645(2), (3), and (6), were collected and submitted to MDSL (now MDEQ) during the original mine permit approval process. Monitoring data is currently collected and submitted to MDEQ on a semi-annual schedule.

(C) Well and Spring Inventory

See Appendix I for documented water rights and uses.

References:

Spring Creek Coal LLC. 1976 to current Hydrology Annual Reports; supplemental Hydrology data.

Spring Creek Coal Company. 1979. Hydrologic Baseline Studies, EBS - Volume 2, Section I, part 3.1.2.

A supplemental water rights records search was conducted by the Montana Department of Natural Resources and Conservation (MDNRC) in July of 1995. The documented water rights provided by the MDNRC are provided in Appendix I.

(ii) Surface water Hydrology.

(A) Surface Water Resource Identification

See Appendix I for documented water rights and uses

References:

Spring Creek Coal LLC. 1976 to current. Hydrology Annual Reports; supplemental hydrology data.

Spring Creek Coal Company. 1979. Hydrologic Baseline Studies, EBS - Volume 2, Section II, pp. 14 thru 21.

Spring Creek Coal Company. 1979. Spring Creek Alluvial Valley Floor Identification Report, Appendix I.

Spring Creek Coal Company. 1998. Hydrologic Baseline Studies, CAA, Appendix L1.

Spring Creek Coal Company. South Fork Hydrologic Restoration Plan, Appendix I.

(B) (I) & (II) Surface Water Resource Characterization

References:

Spring Creek Coal LLC. 1976 – to current. Annual Hydrology Reports; supplemental hydrology data.

Spring Creek Coal Company. 1979. Hydrologic Baseline Studies, EBS - Volume 2, Section II, pp. 14 thru 21.

Spring Creek Coal Company. 1998. Hydrologic Baseline Studies, CAA, Appendix L1.

Spring Creek Coal Company. 1979. Spring Creek Alluvial Valley Floor Identification Report, Appendix I.

Spring Creek Coal Company. 1979. South Fork Spring Creek Alluvial Valley Floor Identification Report, Appendix I.

Spring Creek Coal Company. 2001 South Fork Hydrologic Restoration Plan, Appendix I.

(iii) Alternative Water Supplies.

Although no adjudicated surface or groundwater rights are projected to be impacted by mining, SCM has identified suitable potential replacement water sources as discussed below.

Groundwater

Anderson-Dietz (A/D) aquifer - Drawdown in the A/D coal aquifer will be temporary. It is expected that following mining, the potentiometric surface will reestablish at near pre-mine levels outside of the permit area. If significant disruption of water quality or quantity to any adjudicated groundwater right should occur and is attributable to mining related impacts of SCM, replacement will be from the Canyon Coal Seam. Water quality data in EBS, Volume 2, Section I shows the Canyon Coal Seam water to be of similar quality to A/D water in the Pits 1, 2 and 3 portions of the mine permit area. More recent data from the Pit 4 baseline studies indicates similar water quality in both coal beds. Water quantities are expected to be similar based upon saturated thickness, confined conditions, and similar hydraulic characteristics of coal materials.

South Fork Alluvium - No groundwater rights are present downstream of mining activity. Disruption of water to down-gradient alluvium is temporary. SCM controls the surface and subsurface of all saturated alluvium down-gradient of mining within the permit area. Outside the permit area, scoria (porcelanite) replaces alluvium and is not a viable water source. SCM, therefore, does not anticipate the need for a replacement water source in this instance.

Surface Water

The three major surface drainages within the SCM permit area are Spring Creek, South Fork of Spring Creek, and Pearson Creek. All are ephemeral streams flowing only in direct response to snowmelt or rainfall runoff. Spring Creek and North Fork Spring

Creek are temporarily truncated by mining within Pit 4. During the life of Pit 4, flows in Spring Creek and North Fork Spring Creek are impounded within the Carbone Flood Control Reservoir located approximately 500 feet upstream of the mine disturbance boundary. Spring Creek is already impounded downstream (above the North Extension of the Decker Mine) for the same purpose. Water rights on Spring Creek are listed in EBS, Volume 2, Hydrology Appendix A, pg. 71. If it is demonstrated that mining has impacted an adjudicated water right on Spring Creek, SCM will replace that right with water purchased and delivered from the Tongue River Reservoir.

South Fork of Spring Creek is also temporarily truncated by mining and will be further affected as mining progresses. The channel will be replaced post-mining as described in Appendix J, "Postmine Hydrology". There are no adjudicated water rights on the South Fork of Spring Creek. No permanent curtailment of discharges of the South Fork of Spring Creek are planned.

Pearson Creek will also be temporarily truncated by mining. The channel will be reclaimed post-mining as described in Appendix J, "Postmine Hydrology". No permanent curtailment of discharges of Pearson Creek are planned.

(iv) Additional Information.

None