Section 17.24.325

COAL MINING OPERATIONS ON AREAS OR ADJACENT TO AREAS INCLUDING ALLUVIAL VALLEY FLOORS: SPECIAL APPLICATION REQUIREMENTS

Two possible alluvial valley floors, Spring Creek and the South Fork of Spring Creek, were investigated in 1980 to arrive at a determination of their status. Woodward-Clyde, 1980, generated two reports from these studies, which were subsequently submitted to the MDEQ for review and determination of their status. Spring Creek was found not to be an AVF and the South Fork of Spring Creek was found to be an Alluvial Valley Floor insignificant to agriculture. Detailed information regarding these streams is contained in the Woodward-Clyde studies previously submitted to DSL and in Volume 2 of the EBS. These studies comply with the requirements of 17.24.325 parts (1) through (3). Further information with respect to the premine hydrology is contained in Appendix I, "Premine Hydrology". A re-evaluation of the original Woodward-Clyde studies together with an evaluation of data gathered subsequent to these original studies were assembled into a follow-up report included in Appendix I, “The South Fork Spring Creek Alluvial Valley Floor Re-evaluation”. Portions of this re-evaluation have been retained in the current Appendix I.

The studies referenced predated the Carbone Amendment, and did not include all of Spring Creek and North Fork Spring Creek. Hydrologic investigations of valley fill deposits of Spring Creek since 1979 and on North Fork Spring Creek since 1993 within the Carbone Amendment area have been conducted by SCM to assess the potential that these ephemeral tributaries meet the definitions of AVF’s as outlined in Section 17.24.325.

Detailed information outlining interpretations made of the hydrologic functions of the Spring Creek and the North Fork Spring Creek valleys serve based on these studies is summarized in Appendix I. In addition, Appendix B-2a presents the agricultural use of the potential AVF areas. Based on the results of these investigations Spring Creek and North Fork Spring Creek were found not to be AVF’s. Past attempts at irrigation have failed due to lack of reliable flows, and groundwater in the alluvium is non-existent or too deep to provide subirrigation. Wells completed in the unconsolidated deposits that comprise the valley fill were found not to contain groundwater through four quarters of monitoring. Examination by soil specialists of soils profiles of materials present within the valley floor indicated no mottling or other evidence of fluctuating water levels. Thus, these valleys do not have water sufficient for subirrigation or flood irrigation agricultural activities and do not meet the regulatory definition of AVF’s. The streams’ primary function is to convey occasional surface runoff, and plans for reclamation of these streams will consist of re-establishing guide channels and floodplains that will safely pass the 100-year precipitation event runoff at non-erosive velocities (see Appendix J).

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Information provided to support the Carbone Amendment area AVF determination includes the following:

1. Mapping of stream laid deposits. Plates I-7 and I-8 in Appendix I show, respectively, the extent and thickness of stream laid deposits in the Carbone Amendment area. There are about 93 acres mapped as terrace landforms along Spring Creek and North Fork within the Carbone Amendment area. Much of the valley is overlain with colluvium.

2. Based on four calendar quarters of monitoring, the Spring Creek and North Fork alluvium in the Carbone Amendment area is dry (see Appendix I, Attachment I-18, Well Hydrographs). Thus there is no subirrigation in the Spring Creek and North Fork valleys in the Carbone Amendment area.

3. A past attempt at flood irrigation was limited to 6.6 acres and occurred prior to 1925 using a now-obscured ditch (see Section 17.24.304 and 325, Appendix I). The attempt failed, most likely due to lack of dependable flows in the stream.

4. Vegetation studies in the Carbone Amendment area (see Appendix B-2a) show no farming being practiced, either dryland or irrigated. The vegetation map (Plate B-2A-1 in Appendix B-2a) shows the entire Carbone Amendment area is rangeland except for three special-use pastures and one go-back area. None of these areas is associated with the terrace land forms along Spring Creek or North Fork, as can be seen by comparing Plate B-2A-1 (Vegetation Map) with Plate L1-6 (Geomorphic Map). As described in Appendix B-2a (Section 4.1.11), the special use pastures are areas which were planted with introduced species (crested and intermediate wheatgrass) prior to SCM's acquisition of the property (the pastures are 15 to 40 years old). As described in Appendix B-2a, these "rangeland seedings" were attempts to increase livestock carrying capacity, either by providing seasonal grazing forage or a source of hay for winter feeding. There is no evidence that these upland areas were ever irrigated, nor does their production indicate that they receive supplemental water from any source.

5. Surface water data summarized in Appendix I indicates that streamflows in the Carbone Amendment area are sporadic and of relatively small magnitude, which is why few attempts have been made at irrigation

and the one documented attempt was unsuccessful. The water quality data summarized in Appendix I indicates that the surface water would be generally adequate for irrigation on most soils if a sufficient quantity of water were available.

6. Very little area is naturally flood irrigated. Based on four surveyed cross sections and a HEC-RAS analysis (see Appendix I), the runoff from the 2-yr, 24-hr precipitation event would inundate about 20 acres immediately adjacent to the Spring Creek channel. The 2-yr, 24-hr peak discharge on North Fork is contained within the incised channel.

Pearson Creek was investigated in 2007 to determine whether or not it is a possible AVF. WWC generated a report from this study, which was submitted to the MDEQ for review and determination of Pearson Creek AVF status. Detailed information regarding this stream is contained in the document, “AVF Studies Within the Pearson Creek Amendment Area, Spring Creek Mine (Permit No. SMP 79012).” Further information with respect to premine hydrology is contained in Appendix I, "Premine Hydrology".