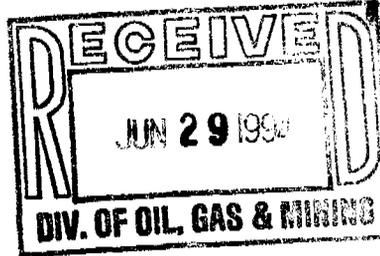


0045

June 28, 1994

Mr. Lonnie Mills
Senior Environmental Engineer
Cyprus Plateau Mining Corporation
Post Office Box P.M.C.
Price, Utah 84501



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SUBJECT: Synthetic Filter Fabric Recommendations
Sowbelly Reclamation Plan
Castle Gate Coal Mine, Carbon County, Utah

Dear Lonnie:

*ACT/007/004 #2
Copy to Steve Johnson*

Per your request, I have evaluated the potential use of a synthetic fabric for a filter between the native soils and the riprap in reclamation diversion SBRD-1A, 1B, and 1C in Sowbelly Canyon. Apparently, Environmental Industrial Services (EIS), the reclamation contractor, has had difficulty locating a granular soil to use as a filter. Per EIS's request, I have reviewed the product line carried by W.R. White Company, Salt Lake City, Utah, since they are the geotextile supplier for the project.

A medium weight, nonwoven, polypropylene geotextile (No. 701) manufactured by Synthetic Industries may be used as a filtering material between the native soils and the riprap for the primary channel in Sowbelly. The following guidelines should be followed by the installation contractor to insure satisfactory performance of the geotextile:

- In general, the geotextile should be installed in accordance with the manufacturer's installation instructions.
- The subgrade shall be prepared to insure the fabric is in direct contact with the soil when it is placed.
- The joints in the fabric may be sewn in the field or overlapped. Minimum overlap for seams that are not sewn should be 2 feet.
- An anchor trench should be used to secure the termination of the geotextile at the upstream end of the transition zone between SBRD-1D and SBRD-1C. The anchor trench should be 1 foot wide and 2 feet deep. The transition zone should extend no less than 15 feet upstream of the change in grade of the channel.
- The fabric should be stapled to hold it in place at the spacing specified by the manufacturer.
- The geotextile should be covered with a bedding layer of 4 to 6 inches of 3/4 inch minus pea gravel (drain rock) prior to placement of the riprap. The bedding layer will help protect the geotextile from ultraviolet degradation and cushion the impact from the riprap during placement.
- Riprap shall be placed such that the drop height does not exceed 24 inches.

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Quality control during placement of the geotextile is critical to its effectiveness and longevity. Direct constant supervision by EIS's superintendent is recommended to insure the geotextile is placed properly. In addition, a visit to the site by myself or a qualified engineer may be prudent to document that installation has proceeded in accordance with these recommendations and the manufacturer's recommendations.

As we discussed, the permit documents contain a description of the procedures to be followed when designing the filter layers for the reclamation channels. Section 3.2-5(2) specifically states that a synthetic fabric will not be used as a filter. An Application for Permit Change has been initiated to modify the description in the text.

Please call if you have any questions concerning these recommendations.

Sincerely,



William S. Hendrickson, P.E.
Civil Engineer

cc: Mel Coonrod (EIS)
Steve Johnson (DOGM)