

0039



State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

Michael O. Leavitt
Governor
Ted Stewart
Executive Director
Lowell P. Braxton
Division Director

1594 West North Temple, Suite 1210
PO Box 145801
Salt Lake City, Utah 84114-5801
801-538-5340
801-359-3940 (Fax)
801-538-7223 (TDD)

April 20, 1998

TO: File
THRU: Daron Haddock, Permit Supervisor
FROM: Paul Baker, Reclamation Biologist

DRZ
PB

Re: Annual Report Review, Cyprus Plateau Mining Corporation, Willow Creek Mine, ACT/007/038, Folder #2, Carbon County, Utah

The Division received a copy of the 1997 annual report for the Willow Creek Mine on March 31, 1998. Included are reports from three consultants about the relocation of a portion of Willow Creek. One study documents the stability of the relocated sections, another is a report on the status of fish and macroinvertebrates, and the other is a study of the vegetation. This memorandum discusses the vegetation and fish and macroinvertebrate reports. Some information in the vegetation report is deceiving at best, and some contradicts numerous studies about the persistent nature of downy brome.

Fish and Macroinvertebrate Study

Surveys of fish and macroinvertebrates in Willow Creek were done in 1994, 1995, and 1997. Stream relocation was done in 1996, and in the late summer of 1996, streamflows in the lower relocated section down to the Price River were reduced to little or nothing. This continued until the spring of 1997 when there was enough water carrying enough sediment to better seal the channel.

The main conclusions of the study are:

1. Fish populations in the lower relocated section of the stream down to the Price River appear to be lower than they were before relocation occurred.
2. Macroinvertebrate biomass in the relocated sections was less than in other areas, but diversity and the number of taxa present were similar.
3. Diversity and biomass of macroinvertebrates were relatively low everywhere in the creek compared to many mountain streams.
4. There are no apparent water quality problems in the relocated sections.

The Division of Wildlife Resources has recommended that Cyprus monitor the stream again

this year. Based on the apparent effects of the mine and that it does not appear fish and macroinvertebrate populations have recovered, this recommendation is justified. Cyprus has scheduled the monitoring for June.

Vegetation

The stated objectives of the vegetation monitoring report are to determine if efforts to plant cottonwoods, willows, roses, and currants along the stream have been completed and to determine the seedling density of seeded grasses. The report does not document the number of transplants and cuttings still alive. Rather, it attempts to quantify the number planted and to justify the number found with the Division and Army Corps of Engineers permits.

Based on the information in the report, it appears fewer cottonwoods, roses, and currants were planted than were supposed to have been planted. Before taking enforcement action, the Division would need to verify this information. However, this may be impossible because the number of plants evident almost two years after planting could have been reduced by insects, big game, or water in the creek. These same factors may have reduced the number found by the consultant.

The more important issue is how many of these are surviving and whether remedial action needs to be taken. In a site visit in 1997, it appeared few of the willows and perhaps half of the cottonwoods had survived. However, there is a literature report that cottonwood pole plantings may remain dormant until the second year after planting. Therefore, the permittee needs to wait a little longer before replacing the pole plantings.

While many of the willow cuttings had not survived, there was evidence of some natural reestablishment. The permittee's representative has indicated he intends to replace many of the willow cuttings in 1998, but this will need to wait until spring runoff subsides. This will allow another evaluation of the situation.

The vegetation report says there is a grass seedling density of 28.92 per square foot. It references a guideline for evaluating initial success of seeded areas, and the guideline gives a stand rating of excellent if there are at least 0.75 seeded grass plants per square foot. Obviously, 28.92 seedlings per square foot is substantially more than 0.75, and the report concludes that the area falls into the excellent category.

The report does not say what proportion of the 28.92 seedlings is seeded species as stated in the guideline. It appears from the discussion that most of these seedlings are cheatgrass or downy brome (*Bromus tectorum*), a species that was not seeded. Therefore, while the report claims seedling establishment is excellent, it appears this conclusion is based on an incorrect interpretation of the cited guideline.

The report indicates there is extensive documentation on the disappearance of this plant over time from reclaimed areas, and it says the presence of cheatgrass on the site does not pose a serious problem. This contradicts most available information about the ecology of this species in the Intermountain West. *A Utah Flora* says, ". . . in drought situations the presence of *B. tectorum* causes

Page 3
ACT/007/038
April 20, 1998

rapid depletion of soil moisture that may retard or prevent the establishment of perennial grasses.” It has a very strong tendency to persist and exclude other species. It does not, as the report says, disappear over time, and it does pose a serious problem. Downy brome does not meet the performance standards for establishing vegetation native to the area.

The Division will need to further evaluate vegetation in the stream relocation areas and work with the permittee on remediation. The Army Corps of Engineers is also very interested in this site and has followed developments closely.

cc: Pete Hess
Johnny Pappas
O:\007038.WIL\FINAL\WCAR.PBB