

**CONSULTANTS GROUP**

GEOLOGY

ENGINEERING

ENVIRONMENT

HYDROLOGY

April 26, 1994

Ben Grimes - Senior Environmental Engineer  
Cyprus Plateau Mining Corporation  
P.O. Box PMC  
Price, Utah 84501

Dear Ben:

We have completed our examination of the aerial photographs you delivered to us. According to Carter Reed and Bob Thompson with the Manti-LaSal National Forest, our objective was to note and quantify any major vegetation changes, or any small changes near springs, which could be associated with ground subsidence or groundwater alterations within an area which you defined on a map you included with the photos, and which could be associated with the Cyprus Plateau Mining Company's underground mining operation (Figure 1).

**METHODS**

To accomplish this task, we first compared aerial photos of the study area taken in 1993 with those taken in 1980. Any changes noted on the 1993 photos were then compared with 1986 photos in an effort to determine when such changes may have occurred. Following this, changes were then digitized using Autocadd. Changes were then quantified by area and the resultant map was plotted for use in any subsequent groundtruthing (Figure 2).

**RESULTS**

Possible changes in vegetation were noted at 11 locations. Possible changes to springs were also noted at 2 locations. None of these changes should be considered significant, as none encompassed more than 4.0 acres. Sites #5 through #11 are in close proximity, but cumulatively encompass only 7.2 acres. Table 1 below lists these changes by vegetation type, and approximate acreage.

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**Table 1 Possible Vegetation Changes**

<b>SITE NUMBER</b>	<b>VEGETATION TYPE</b>	<b>APPROXIMATE ACREAGE</b>
1	Mountain Grassland	0.5
2	Douglas Fir/Aspen	3.0
3	Douglas Fir/Aspen	1.0
4	Spring	0.3
5	Aspen	0.4
6	Aspen	3.0
7	Aspen	0.8
8	Aspen	0.4
9	Aspen	0.4
10	Aspen	1.8
11	Aspen	0.4
12	Spring	0.3
13	Aspen	4.0

**DISCUSSION**

Only site #13 is truly a dead stand of trees - in this case Aspen. However, this apparent "die-off" predates 1980 and is not in the area identified by you as the area of concern. All other apparent changes are questionable. We do not feel that any of the changes listed above should be considered significant as in no instance do these changes exceed four acres per site.

There may be several possible explanations for the changes we observed including; insect damage, disease, possible ground subsidence, groundwater alterations, weather conditions, etc. However, we feel that the changes we observed are most likely season related, manifested by the defoliation of deciduous trees in late September of 1993.

Ben Grimes  
Cyprus Plateau Mining Corp.

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The differences in the flight dates of the 1980 and 1993 photos may explain the apparent differences observed. The 1980 photos taken in early September (September 3, 1980) and the 1993 photos taken later in the month (September 27, 1993). Photos, of areas not in the immediate area of concern, showed similar changes, and snow cover is apparent in the 1993 photos, whereas it is not in the 1980 photos. Upon comparison with photos taken on October 15, 1986, there were similar differences which were even more pronounced. In addition, these 1986 photos showed an even greater snow cover than the 1993 photos.

If the Forest Service desires further information regarding these possible changes, we would be happy to conduct a follow-up field check to determine their actual status.

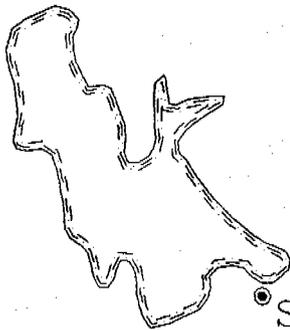
If you have any questions regarding this study please call me.

Sincerely,



Paul W. West  
Environmental Analyst/  
Wetland Regulatory Specialist

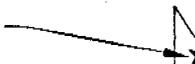
U T A H



SALT LAKE CITY

• Provo

*SITE  
LOCATION*



• Price

EMERY COUNTY

**PLATEAU MINING COMPANY**

FIGURE 1  
LOCATION MAP

**jbr**

environmental consultants, inc.

Salt Lake City, Utah Cedar City, Utah Reno, Nevada Elko, Nevada

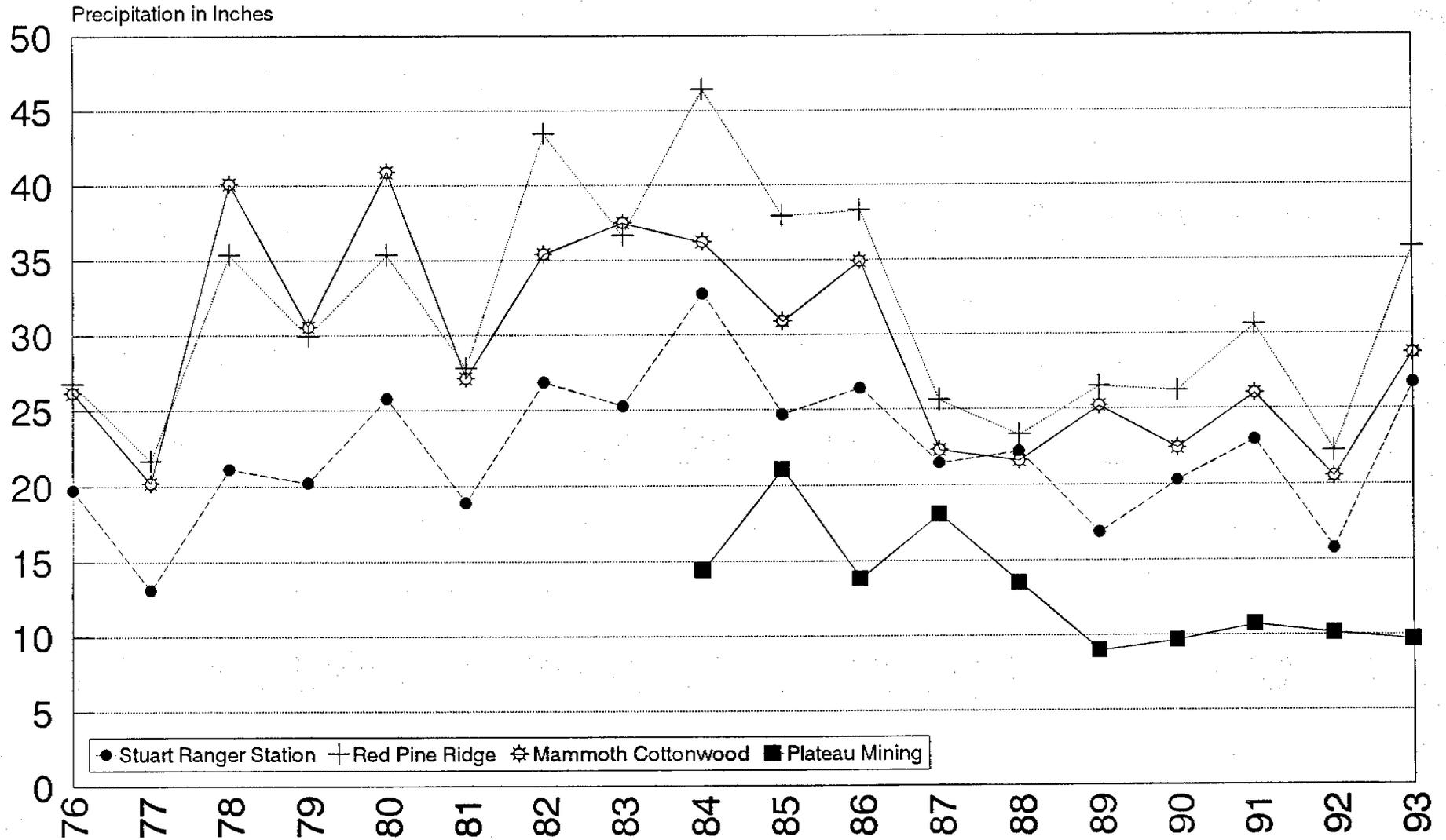
DESIGN BY PW DRAWN BY CP CH'D BY SCALE NO SCALE

DATE DRAWN 4/25/93

REVISION:

C:\P\11-1

# Precipitation Yearly



Data from SCS and CPMC