



**NORTH TEMPLE OFFICE**

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WATER RIGHTS  
CEDAR CITY

July 28, 1997

Mr. Robert L. Morgan, P. E.  
State Engineer  
Utah Division of Water Rights  
1594 West North Temple  
Salt Lake City, Utah 84144-6300

CC: ROD LEAVITT  
AND RETURN TO  
ME -  
KEL

Re: Santa Clara Power Canal

Dear Mr. Morgan:

This letter responds to your letters dated June 11 and June 13, 1997 pertaining to canal maintenance, flume calibration and dam maintenance on the Santa Clara Power Canal. On June 30, 1997 a field inspection was made involving PacifiCorp employees and Kerry Carpenter and Rod Leavitt from your staff. Current meter measurements were made at four locations to document flows at the parshall flumes in question. The information obtained at each location is addressed as follows:

Flume on Baker Ditch upstream from the Veyo Plant

- This flume is located just above the Veyo Hydro Plant.
- The flume is functioning properly but a fence and a large cottonwood tree which has fallen prevents the river commissioner from taking gauge readings.
- Some gravel and debris was observed in the ditch just upstream of the flume.
- The observed flow based on the staff gauge reading of 0.54 feet was 4.57 cfs.
- No current meter measurement was taken.

Flume downstream from the Veyo Plant

- A small gravel bar was observed just above the entrance to this flume.
- Branches from a small tree above the flume was causing turbulent flow conditions into the flume.
- The staff gauge reading was 0.87 feet which is equal to 9.68 cfs (3 ft. flume).
- A current meter measurement of 9.58 cfs verified the staff gauge reading.
- This flume is functioning properly.

### Flume at the Highway Crossing below the Town of Veyo

- This flume was totally submerged.
- Debris, vegetation and gravel upstream of the flume was causing high turbulent conditions at the flume entrance.
- A gravel bar 25 feet downstream of the flume was causing the flow to back-up, resulting in the submergence problem.
- The staff gauge was 0.70 which is equal to 6.86 cfs
- The current meter measurement indicated a flow of 3.08 cfs.
- Since 3.08 cfs corresponds to a staff gauge reading of 0.42, the calculated correction or shift is .70 - .42 or -.28.
- The staff gauge increased to .80 approximately 2 hours after the measurement was made.

### Flume above Sand Cove Reservoir

- Vegetation is evident along the wing walls at the upstream entrance to the flume.
- The observed gauge height was 0.47 feet which is equal to 3.68 cfs.
- The measured flow was 3.47 cfs.
- Based on the current meter measurement, the flume is functioning properly

### Flume below Gunlock Plant

- The staff gauge reading was 0.43 which is equal to 3.20 cfs.
- The measured flow was 3.00 cfs.
- The flume is functioning properly.

## PROPOSED ACTION PLAN

Based on the observed conditions, the following action has been accomplished or are scheduled as noted.

### I. FLUME MAINTENANCE

#### A. Above Veyo Plant

1. A gate will be installed by August 1.
2. The fallen tree in this area of the flume has been removed.
3. The debris and vegetation has been removed along the converging walls of the flume.

#### B. Below Veyo Plant

1. The gravel bar and small tree has been removed upstream of the flume.

#### C. At Highway Crossing

1. Debris and vegetation has been removed above the flume. Attempts will be made to remove the gravel bar below the flume. Large equipment may be required due to the presence of a hard-pan layer on the bottom of the canal. If the material can't be removed, the flume may need to be moved or raised. This work is scheduled to be completed by November 30.

#### D. Above Sand Cove Reservoir

1. Vegetation and debris above the flume has been removed. This flume is functioning properly and no additional work will be done.

### II. CANAL MAINTENANCE

A. Vegetation will be removed along the canal in the vicinity of the volcano and any leaks will be eliminated as much as possible.

B. About two miles of the canal in the vicinity of Bridal Veil (between Baker Reservoir and the Veyo Plant) has been repaired and all vegetation has been removed. This action has improved flow conditions and substantially reduced leakage from the canal.

### III. DAM MAINTENANCE

#### A. Upper Sand Cove

1. The dam crest will be filled and graded and rip rap materials will be placed in areas requiring attention by November 15, 1997. Work efforts will continue to address woody vegetation and rodent concerns.
2. Monitoring efforts will continue on the condition of the northern spillway weir and cattail growth in the reservoir basin.

#### B. Lower Sand Cove

1. The dam crest will be filled and graded and rip rap materials will be placed in areas requiring attention by November 15, 1997. Work efforts will continue to address woody vegetation and rodent concerns.
2. Monitoring efforts will continue related to seepage at the toe at the south end of the dam. The drain outlet will be relocated, cleared and marked by November 15, 1997. Cattail growth in the reservoir basin will also continue to be monitored.

### CONCLUSIONS

It was apparent during the inspection that flows along the entire power canal were changing on an hourly basis. Changes in the flow appear to be due to weather conditions, flow fluctuations in the Santa Clara River above the point of diversion of the power canal, changing releases from Baker Reservoir and changes in irrigation diversions. Given the dynamics of the system, it appears difficult to be able to calculate precise losses along the canal. We will, however, continue to use our best efforts to work with the River Commissioner to resolve water related issues during the current drought. These hydro plants are only marginally cost effective and any canal work will be done with employees assigned to the area on a regular routine maintenance basis. No major canal rehabilitation is planned now or in the immediate future.

We are hopeful this proposed plan will be satisfactory. Please let us know if there are additional problems or concerns.

Very truly yours,



Carly Burton

Hydrological Supervisor