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# State of Utah

DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

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## DIVISION OF OIL GAS & MINING FIELD VISIT FORM TECHNICAL

**Date :** August 2, 1996

**Time:** 9:30 AM

**Mine:** Willow Creek Mine

**File Number:** ACT/007/038, Folder #2

**DOG M Staff:** Steven M. Johnson and Peter Hess

**Other Attendees:** Ben Morris (DWR), John Borla (Cyprus) and Harley Toones (Nelson)

### **Purpose:**

Investigation of problem which caused Willow Creek to go dry from the lower stream realignment to the Price River confluence.

### **Observations:**

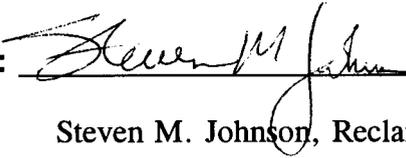
Willow Creek was flowing at about 1 cfs out of Cyprus' newly installed culvert. Flow from the culvert entered a pool and exited the pool under the grouted rock dam. Flow continued into the newly constructed channel on the surface for about 200 feet. For the next 200 to 250 feet of the channel flow could be detected on the surface or audibly beneath the channel riprap. The amount of flow that could be seen in this zone became less and less the further downstream that observations we made. A few feet after the new channels bends to the right all detection of flow disappeared. This was near the location of the soil replacement made when diesel contaminated soil was found. There was no reemergence of flow in Willow Creek before its confluence with the Price River. The riparian vegetation looked green and healthy but the stream channel was completely dry.

It seems that the soil replacement has cause an area in the channel which allows infiltration of water at a faster rate than the channel flow. The channel will need to be artificially sealed to greatly decrease the infiltration. One method of decreasing this rate is to add a bentonite/silt mixture to the upper stream flow.

### **Recommendations/Conclusions:**

The sediment mixture (bentonite/silt) should be added to the stream flow. This method of sealing the channel bed has been approved by phone conversation with Michele Waltz of the Army Corp of Engineers, on Monday, August 5, 1996. The rate of sediment introduction

should be slow at first and Cyprus must monitor the amount and of surface flow that develops as a result. A head wall that has been left at the end of the modified channel may remain as sediment control, but if surface flow successfully reaches that point only to find a percolation path into the alluvium there the head wall must be cut to create a continuous flow grade. No violations should be pursued.

**Signature:**  \_\_\_\_\_ on August  
5, 1996  
Steven M. Johnson, Reclamation Hydrologist

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cc: Joe Helfrich  
Peter Hess