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ACT 7/021
CC: R. HARDEN



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July 10, 1989

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DIVISION OF
OIL, GAS & MINING

Mr. Mike DeWeese
Utah Division of Oil, Gas & Mining
355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180

Subject: Modifications to Culvert "C" at the
Blazon Mine

Dear Mr. DeWeese:

In reference to our telephone conversation on July 6, 1989, enclosed please find the proposed modification to Culvert C at the Blazon Mine.

As previously discussed, 5 sets of energy dissipation roughness rings will be installed near the downstream end of Culvert C to provide additional roughness to the culvert and slow the flow velocity exiting the culvert. Please refer to the attached information for details and design calculations of the roughness rings.

In addition to the roughness rings, two sets of fish baffles will be installed between the upstream end of the culvert and the upstream-most roughness ring to aid the fish through the culvert during seasonal high flows. Refer to the enclosed specification for a typical sketch of the fish baffles.

The flow velocity through the upstream section of Culvert C, prior to the installation of the fish baffles, during a 2-year, 24-hour storm event was calculated to be approximately 6.4 feet per second. It is anticipated that the fish baffles, after installation, will add sufficient roughness to the culvert to cause the flow velocities to drop below 6.0 feet per second.

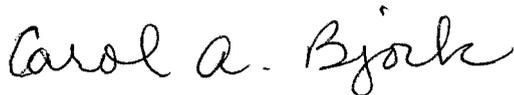
According to information provided by Mr. Larry Dalton of the Division of Wildlife Resources, a fish can swim for approximately 30 feet without a rest in flow velocities of 6.0 feet per second. Thus, the proposed fish baffles will be spaced to accommodate this criteria. Refer to the enclosed specification for the size and spacing of the proposed baffles.

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Construction for the installation of the roughness rings and fish baffles is scheduled for July 18, 1989. We request that you review the enclosed plan for Culvert C modifications and provide us written assurance, prior to the date of construction, that the design will be adequate to meet the requirements for partial bond release.

If you have any questions, or need additional information, please contact us.

Sincerely,



Carol A. Bjork, P.E.
Civil Engineer

Enclosures

cc: Bill Prince (Holme Roberts & Owen, w/o enclosures)
Alan Smith (NAE, w/o enclosures)