



DIVISION OF WILDLIFE RESOURCES
DOUGLAS F. DAY
Director
EQUAL OPPORTUNITY EMPLOYER
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December 12, 1983

Reply To SOUTHEASTERN REGIONAL OFFICE
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Trevor Whiteside
Valley Camp of Utah
P. O. Box 507
Clear Creek, Utah 84517

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Dear Trev:

DIVISION OF
OIL, GAS & MINING

As you know, Eccles Canyon and particularly the environs associated with proposed overland conveyor corridors represent a high-priority valued summer range area for mule deer, elk and moose. The riparian habitat along Eccles Creek may also represent a critical valued wintering area for moose. However, industrial activity (Skyline Mine and Belina Mining Complex) and development of a state highway within the canyon may now preclude substantial winter use by moose of the riparian habitat.

A study conducted by biological personnel from Brigham Young University (H. Duane Smith, Ph.D.; Clyde L. Pritchett, Ph.D.; Mark Oveson and Ed Roby, Wildlife Graduate Students) for Coastal States Energy Company in 1980 and 1981 documented the areas along the proposed conveyor route that are most intensively utilized as crossing during daily movement by big game. Although deer and elk migrate into (spring) and out of (fall) the Eccles Canyon areas, this use is not intense enough to be separated from the animals' daily movements. A majority of the use was by deer. During the two years of study they averaged 24 and 15 deer crossings per day, respectively. As you know, elk inhabit and cross the canyon, but this activity between the mine and the Clear Creek Road was substantially less than deer. No moose were observed to make use of the canyon area along the proposed conveyor route during the study period, although moose are known to use the canyon.

The Division's recommendation for placement and intended use of crossing opportunity for big game along the proposed conveyor routes is identified in Figure 1. This recommendation results from Division knowledge of big game movement patterns in the Eccles Canyon area, as well as an evaluation of the BYU baseline data report concerning the "Presence and Utilization of Eccles Canyon by Elk, Mule Deer and Moose". A review of the mining and reclamation plans as currently submitted for the Skyline Mine and Belina Mining Complex shows that conveyor designs for each company are consistent with Division recommendations concerning big game passage.

Trevor Whitesides, Valley Camp

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As you may recall, in order to allow under-passage of mule deer, a conveyor must provide a minimum of 1 meter clearance beneath the structure. If elk or moose are to make under-passage, a minimum of 3 meters' clearance must be provided. Overpasses could also facilitate big game movement. They should be designed as circular shaped earthen ramps bisected by the conveyor. The round shape should prevent repelling animals that are foraging or moving along the conveyor, and would encourage animals approaching from any direction to move up and over the structure. Each half of the ramp should provide a travel path with side slopes no greater than 60 percent from horizontal. The two halves should be connected by a 10 meter wide platform spanning the conveyor. Possibly, burying the conveyor for a distance of at least 15 meters would be a better alternative to overpasses. ("Mule Deer Passage Beneath an Overland Coal Conveyor", December 1, 1983, C. L. Greenwood and L. B. Dalton, submitted for publication to the Great Basin Naturalist.)

Trevor, I suspect that OSM and/or DOGM may require you to outline a study to monitor big game passage in relation to your proposed conveyor, and the Division would support such a position. As you know, they have imposed such a stipulation on the Skyline Mine. If needed, the following should assist your company in development of an appropriate study. It is recommended that data be collected through the use of remote sensing super 8 mm cameras with day or nighttime capabilities, as well as time and date documentation. These cameras must be subject activated and could monitor crossing points along the conveyor. The state of technology for these cameras is well developed, and the Division has considerable experience in using such. It is recommended that two cameras be acquired by Valley Camp of Utah for use in a study. You may, when the time is appropriate, want to coordinate with the Skyline Mine, since part of the conveyor corridor could be in common use by both companies. Based upon existing knowledge and the likelihood that the portion of your conveyor in Eccles Canyon will be similar to the proposed adjacent and parallel Skyline Mine conveyor, deer can cross any place that they encounter the structures. Elk and moose are expected to cross only where the two parallel conveyors provide a minimum of 3 meters' clearance beneath the structure (Figure 1). In Whiskey Canyon, as well as along the conveyor length from the Utah No. 2 mine site, the conveyor due to big game movement patterns must be elevated a minimum of 3 meters to provide passage for deer, elk and moose. Therefore, the study should have a "pilot" year in which the cameras can be tested so that a detailed study can be designed specific to the use of crossing structures by big game.

Placement and maintenance of the cameras during a pilot study would not be labor intensive. Existing environmental personnel at the mine could shoulder that responsibility. Division biologists would make periodic contacts to review film and make recommendations as appropriate for placement of the cameras.

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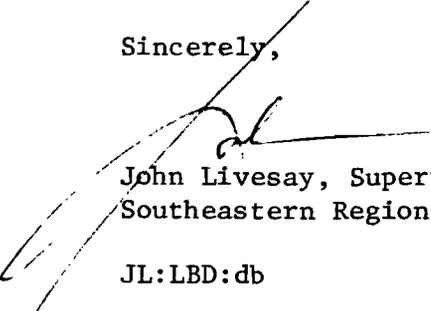
It is unlikely that a definitive answer concerning what percentage of the big game population that rejected crossing opportunities along the conveyor could be derived, since a state highway now parallels the corridor in Eccles Canyon. As you know, a narrow dirt road rather than a paved highway existed when the baseline data was collected. Additionally, the deer and elk populations have made significant changes (both have increased) since the baseline data was collected. And it appears from field observations at other conveyors, that deer that are repelled by the barrier change their route several hundred feet away from it. It is probable that other big game do likewise. Current technology would not allow monitoring for such an activity along a 2.5 mile long corridor. Thus, a study should be directed at the behavioral response of animals willing to attempt to cross so that wildlife managers and industrial developers can learn what circumstances at crossing opportunities best accommodate animal movement. Evaluation of the films from the pilot year could best be accomplished by a qualified animal behavior researcher.

Part of the data (film), as I view it, would be rather simple in nature. It would indicate which species and numbers of big game animals made an attempt to cross and whether or not a crossing was successful. It would allow comparison of daytime to nighttime attempts for crossing by big game. Also, and more importantly, the movie film would allow evaluation of behavioral responses of the animals to the various crossing situations. If it is discovered that numerous crossings are unsuccessful, then we might consider experimentally modifying the passage areas in order to better accommodate the animals. Evaluation of this portion of the data would require the services of an animal behaviorist.

Trev, the most recent cost estimate for a subject activated, daytime-nighttime remote sensing camera (super 8 mm) is \$895 (Wildlife Photographic, P. O. Box 171, Magna, Utah 84044). It is probable and very likely that answers needed to manage big game relative to Valley Camp of Utah's conveyor corridor can be learned in one or two summers of study. The pilot study will shed light on the length of time needed for study; it may in fact represent all the study needed.

At which time that you have a draft study plan prepared, the Division would be more than glad to review it and provide additional comment. Possibly, the Division would consider a cooperative effort with Coastal States Energy Company and Valley Camp of Utah to conduct the needed study. Obviously, the data would be useful to both companies, as well as the Division.

Sincerely,



John Livesay, Supervisor
Southeastern Region

JL:LBD:db

cc: Darrell Nish
Lynn Kunzler, DOGM
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