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April 10, 2001

Mr. M.M. Underwood, Jr.
Director of Physical Resources
U.S. Forest Service - Rocky Mountain Region
P.O. Box 25127
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Dear Mr. Underwood:

This is in response to your February 2, 2001 request for information on locatable mineral resources in a land exchange proposal in which Alan and Patricia J. Lisenby and Charles Nearburg have offered certain non-Federal lands within the Rio Grande and White River National Forests in exchange for Federal lands within the Rio Grande National Forest.

In accordance with the working agreement under Public Law 86-509, we are providing you with a report on the locatable mineral resources on the lands described in “Exhibits A and B”, included with your request. These lands comprise 1716.5 acres, more or less, in Hinsdale, Pitkin, Rio Grande, and Mineral Counties, Colorado.

Sincerely yours,

Anna B. Wilson, Geologist
Mineral Resources Program, Central Region

Copies: W.D. Day
E.A. duBray

LOCATABLE MINERAL REPORT FOR THE RIO OXBOW (Lisenby/Nearburg) LAND EXCHANGE OFFER, RIO GRANDE and WHITE RIVER NATIONAL FORESTS, HINSDALE, PITKIN, RIO GRANDE, and MINERAL COUNTIES, COLORADO

By
Anna B. Wilson
U.S. Geological Survey

April 10, 2001

The following report is based on information contained in USGS mineral resource and commodity files, mineral information databases (MRDS and MAS), and on reports and maps available in the USGS library. These data are occasionally augmented with unpublished documents, personal communications, and professional experiences. No field studies or on-site visits were performed in preparing this report. Emphasis is primarily on locatable mineral resources. Leasable and salable resources are covered only if they appear in the above documents. Mineral resource assessments are subjective: the opinions expressed herein are entirely those of the author.

For the legal location description of lands considered for exchange, refer to Exhibits A and B in Attachment A. Approximate locations of parcels (except Mid-Continent Coal Prep Plant) are shown on Attachment B.

NON-FEDERAL

Carson Mining District Patented Claims
Lake San Cristobal 1:24,000; Finger Mesa 1:24,000; Pole Creek Mountain 1:24,000; Silverton 1:100,000; and Durango 1:250,000 quadrangles

Carson is near the center of the Carson Camp mineralized area (Wilson and others, 2000). Most of the major deposits in the district, St. Jacobs, George III, Maid of Carson, Mayflower, and Bonanza King are polymetallic vein deposits. Bog Iron deposits are located in Wager Gulch.

The Carson volcanic center is a 29 Ma monzonite to quartz monzonite plug (Bove and others, 1999) intruding intermediate lavas and breccias (Ten) and andesites and rhyolites of the Henson and Burns Formations (Theb) (Day and others, 1999). Locally there is Quaternary glacial drift, especially in Wager Gulch, and landslide material.

Mineralization extends south across the divide at the head of Wager Creek into the head of Lost Trail Creek (Vanderwilt, 1947, p. 114). The general geology and nature of the veins may be comparable to other mining districts in Hinsdale County (Vanderwilt, 1947, p. 114).

Discontinuous and irregular “gashes and fractures” in the Carson volcanic center contain ore minerals in altered porphyry. Ore containing silver and lead with copper and some gold in barite gangue varies in these zones from a few inches to 18 inches wide. Ore minerals were primarily enargite, chalcopyrite, and galena (Larsen, 1911, p. 36-37). The ore was valued at as much as “$50 to $500 per ton” and early production claims about $200,000 (at the time of mining) (Vanderwilt, 1947, p. 115).

Carson was discovered in 1881 and closed in the “silver crash” of 1893. A short lived revival occurred around the turn of the century (Larsen, 1911, p. 30). The St. Jacobs group of mines, was worked after 1889 and produced ore worth about $150,000. The ore contained enargite, pyrite, chalcopyrite, galena, sphalerite, and marcasite (Larsen, 1911, p. 36). George III produced about $50,000 in ore similar to the St. Jacob group. The ore zones are described as soft and full of gouge material (Larsen, 1911, p. 36). Irving and Bancroft (1911, p. 17) attribute only $5,439 to this mine and an additional $3,590 from the Mayflower, $3,290 from the Bonanza King, and $27,397 from the Maid of Carson.

By virtue of this property being patented claims in the heart of a known mining district, the mineral resource potential for base and precious metals in polymetallic veins is high. On the other hand, the fact that these deposits have been ignored for more than a century suggests that they are not economic in today’s society. Bog iron deposits in the vicinity may have limited local uses.

Nicomodes /Bonafacio
Dog Mountain 1:24,000; Del Norte 1:100,000; and Durango 1:250,000 quadrangles

All four parcels are mapped as pre-ash-flow andesitic lavas, breccias, tuffs, and conglomerates (unit Tpl) at 1:500,000 scale (Tweto and others, 1979, Green, 1992). At 1:250,000 scale the unit is classified as volcaniclastic facies (mostly reworked, bedded conglomerates, sandstones, and mudflow breccias of dark andesite and rhyodacite clasts) of the Oligocene and older intermediate lavas and breccias including the Conejos Formation, Lake Fork Formation, Beidell Quartz Latite and Tracy Creek Quartz Latite, San Juan Formation, and Picayune Formation. (Steven and others, 1974, unit Tev; Day and others, 1999).

No mines, prospects, or mineral occurrences are known in the vicinity (McFaul and others, 2000). Mineral resource potential of these tracts is low.

Mid-Continent Coal Prep Plant
Placita 1:24,000; Carbondale 1:100,000; and Leadville 1:250,000 quadrangles

This tract was evaluated in a previous locatable mineral report (see Wilson, 1999, p. 97, locmin43). The following is extracted verbatim from that report.

"Mapped entirely within Upper Cretaceous Mancos Shale (Donnell, 1962) and locally covered with Holocene and Pleistocene landslide deposits (Tweto and others, 1978). Near the core of the Coal Basin Anticline (Toth and others, 1993)."

"Toth and others (1993) assigned no resource potential to this area. About two miles to the south and west of the parcel, in overlying Mesaverde Group rocks, there is high potential for coal and coalbed methane (P3 and Q3 of Toth and others, 1993)."

FEDERAL

Lisenby Parcel

Workman Creek 1:24,000; Silverton 1:100,000; and Durango 1:250,000 quadrangles

Tracts on the north side of the Rio Grande River straddle Quaternary alluvium overlying Oligocene ash-flow units (Steven and others, 1974; Day and others, 1999). South of the river, most of the tracts are in Oligocene Mammoth Mountain Tuff overlain by some Quaternary alluvium. The southernmost wedge of land is almost entirely mapped as Quaternary glacial drift, perhaps overlying a local flow of intermediate to silicic lava.

No mines or prospects are known in the vicinity (McFaul and others, 2000). Mineral resource potential is low. All the parcels containing Quaternary alluvium or drift should be examined for potential for sand and gravel.

Nearburg Trout Creek Parcel

Workman Creek 1:24,000; Silverton 1:100,000; and Durango 1:250,000 quadrangles

Four non-contiguous tracts comprise this parcel. Both the east and southmost tracts appear to be within Quaternary alluvium (Steven and Ratte, 1973; Steven and others, 1974; Day and others, 1999). Almost the entire northwestern tract and perhaps part of the eastern tract are mapped as Quaternary glacial drift. The “L” shaped parcel is mapped as Oligocene Mammoth Mountain Tuff, a compositionally zoned ash-flow sheet.

No mines, prospects, or mineral occurrences are known in the immediate vicinity, nor in similar host rocks in the region. Mineral resource potential is low. All but the “L” shaped parcel may have potential for sand and gravel.

Nearburg Broadacres Ranch Parcel

Creede 1:24,000; Del Norte 1:100,000; and Durango 1:250,000 quadrangles

Both parcels are in Tertiary stream, lake, and pyroclastic deposits of the Creede Formation (Tc, Steven and Ratte, 1965, 1973) exposed in the outer wall of the Creede caldera.

These parcels are only a little more than a mile southwest of known silver, lead, zinc, and gold deposits in the Creede mining district (McFaul and others, 2000). Most of the known mineral deposits occur in a graben that extends northward from the caldera (Steven and Ratte, 1965, 1973). Because these parcels are adjacent but not in a known productive district, mineral potential is moderate. Where overlain by Quaternary alluvium, both parcels should be examined for sand and gravel potential.

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LIST OF ATTACHMENTS:

A. Exhibits A and B (provided by U.S. Forest Service)

B. Approximate locations of parcels (excepting Mid-Continent Coal Prep Plant), and mines and prospects (MRDS in red, MAS/MILS in green.) Data from Day and others, 1999; Wilson and others, 2000; and Wilson and Heran, unpub. data, 2001.

C. Simplified geology in the vicinity of the Lisenby and Nearberg Trout Creek parcels (modified after Day and others, 1999).