United States Department of the Interior U-073071

GEOLOGICAL SURVEY

Office of the Area Mining Supervisor
Conservation Division
8426 Federal Building
125 South State Street
Salt Lake City, Utah 84138

March 3, 1977

Mr. William C. White, Area Supervisor
U.S. Department of the Interior
Fish and Wildlife Services
Area Office - Utah, Colorado
1426 Federal Building
125 South State Street
Salt Lake City, Utah 84138

Dear Mr. White:

I am requesting your assistance in obtaining clearance for a gilsonite mining plan proposal with respect to endangered species.

Briefly, four circumstances lead to this request: 1) a peregrine falcon was sighted in the area, 2) we have received a proposed mining plan in the vicinity, 3) we are required under the Endangered Species Act of 1973 to determine whether any endangered species or its habitat will be jeopardized by the proposed action, and 4) until a formal method of clearing endangered species is developed between Government agencies, we appeal to your office for action.

In December 1974, and June and August of 1975, three sightings of the peregrine falcon were made in the Ua and Ub tracts of the oil shale prototype project area located 5 miles south of Bonanza, Utah, (copy of documentation and map of area enclosed.)

American Gilsonite Company, a holder of Federal gilsonite leases in the Bonanza area, has submitted a proposed mining plan for the Wagonhound gilsonite vein located 3 miles north of the oil shale tracts and 2 miles south of Bonanza, Utah.

The Geological Survey is required to prepare an environmental analysis report on every Federal action. Included in the report is a determination of whether any endangered species or its habitat will be jeopardized by the proposed action.

Upon finding documentation of the sighting of a peregrine falcon in the First Year Environmental Baseline Report prepared for the oil shale project by VTN Colorado, Inc., I was prompted to call their

office in Denver. Mr. David Larsen of VTN refered me to the State Wildlife Division in Vernal where I talked to Mr. Al Hagen, Supervisor. Mr. Hagen informed me that they were aware of the falcon sightings and thought that it was probably an itinerant individual from a known nesting area at Steamboat rock near the Dinosaur National Monument. Mr. Hagen further stated that the State of Utah and the Federal Government does not have a cooperative agreement concerning endangered species and could not formally make a determination, but referred me to your office for assistance.

We would appreciate your help in handling this matter by supplying the necessary statements that will determine whether an endangered species will be jeopardized as a result of the proposed gilsonite mining action.

If you have any questions, please let me know.

Sincerely yours,

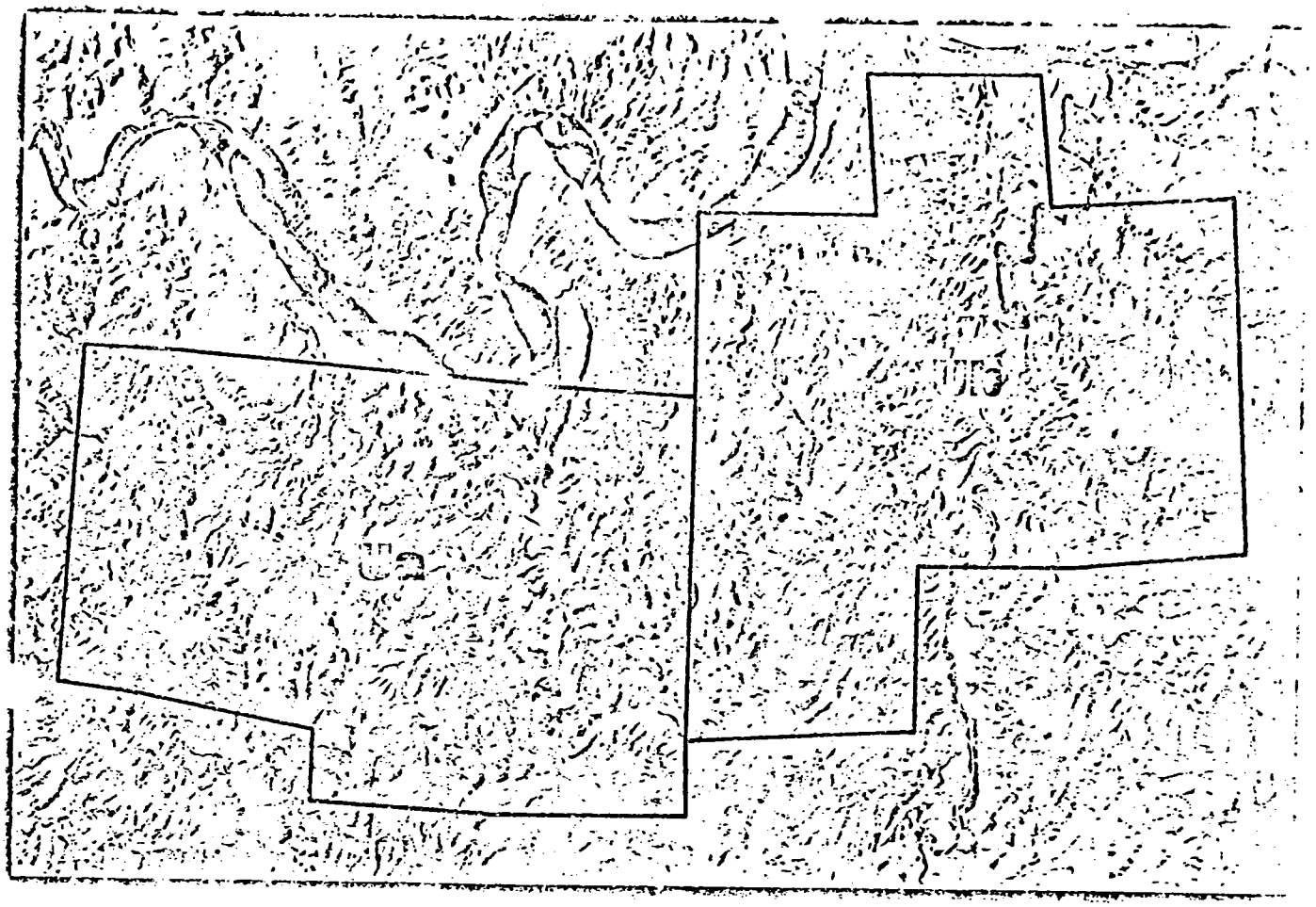
Allen L. Vance

Allen L. Vance
Mining Engineer

Enclosures

FIRST YEAR
ENVIRONMENTAL BASELINE REPORT

VOLUME 2



FEDERAL PROTOTYPE OIL SHALE
LEASING PROGRAM
TRACTS U-a and U-b
UTAH
WHITE RIVER SHALE PROJECT

Vol.

riparian vegetation type; on the off-tract riparian site, the number of birds per ha was estimated to be 0.02 in February, 10.47 in April, and 49.10 in June. Population densities decreased from June to August on most sampling sites but increased on a few sites, notably the off-tract greasewood site, where the estimated number of birds per ha rose from 11.10 in June to 49.47 in August.

The most abundant bird species on the sampling sites in December and February were pinyon jays in juniper (with estimated densities of up to 2.26 per ha) and dark-eyed juncos in riparian greasewood (2.00 per ha) (Table IV-27). In April these two species, as well as sage sparrows in shadscale (up to 4.27 per ha), were the most commonly seen. Twelve nesting pairs of Canada geese were recorded along the White River (off the tracts in the project area) during float trips in the spring (about 3.7 pairs per km of river traveled). In June, 14 species had estimated densities of two or more birds per ha on one or more sampling sites. The most abundantly represented species were pinyon jays in greasewood and juniper (up to 7.44 per ha), Brewer's sparrows in greasewood and shadscale (up to 4.40 per ha), yellow warblers in riparian (up to 4.23 per ha), and cliff swallows on the off-tract riparian site (23.00 per ha). In August, 12 species had estimated population densities of 2 or more birds per ha on 1 or more sampling sites. Particularly abundant were Brewer's sparrows in greasewood (up to 18.90 per ha), sage sparrows in greasewood (up to 6.53 per ha), pinyon jays in greasewood and juniper (up to 5.00 per ha), and mourning doves in greasewood and riparian (up to 12.43 per ha). Brewer's, sage, black-throated, and lark sparrows may have been more abundant than their population-density estimates indicated, since flocks of unidentified sparrows (Fringillidae) were commonly recorded on the August transect walks (Table IV-27). In October, seven species had estimated population densities of two or more birds per ha on one or more sampling sites. The most abundantly represented species were horned larks in greasewood, shadscale, and riparian (up to 12.20 per ha in shadscale) and dark-eyed juncos in riparian (up to 13.20 per ha).

A peregrine falcon, an endangered species, was sighted in the project area in December, April, and August. No peregrine falcon nests were found during a search by Utah Division of Wildlife Resources (DWR) or Bureau of Land Management (BLM) personnel.

One endangered species of raptor was recorded with the sighting of a peregrine falcon off tract at the mouth of Wagon Hound Canyon, April 23 and 28. This sighting was further validated by a previous sighting by a VTN ornithologist. Other raptors added to the species list during 1975 were the short-eared owl, great horned owl, and sharp-shinned hawk.

Discussion

Observations during the first year of data collection indicate that raptors prefer the cliff areas and large cottonwoods along the White River. The importance of these areas cannot be evaluated from the limited data; however, the large number of inactive golden-eagle eyries indicates that in the past this species has used the area much more than they do now, probably because of the low rabbit population on the tracts and in the region (Jerry Craig, Colorado Division of Wildlife, Pers. Com., June 1975).

The existing data is insufficient for any other conclusions as to raptor use and activities on the tracts. A more complete evaluation will be possible when more data are collected and analyzed.

e. Waterfowl

Objectives

The waterfowl study was initiated to determine what species inhabit the project area and the nesting success of each species.

Methodology

Monthly float trips down the White River were made from March 1975 through September 1975, from Stations S-1 (Hells Hole Canyon) to S-11 (west of Asphalt Wash). These trips were taken to document use and nesting success of waterfowl.

Summary of Results

In early spring through late summer 1975, the White River is

APPENDIX 4

Archeological and Historical Clearance

Mining the gilsonite on the leasehold will not significantly affect potential future mining of oil shale or the development and production of natural gas.

The horizontal Uinta formation of Eocene (teritary) age consists of fluvial and lake deposits of sandstones, shales, and mudstones and usually results in a smooth solid wall in the mined out portions of the deposits. In the mine the practice of installing wooden stulls as floor supports, horizontally every 30 feet in elevation, provide a support to the walls as well as a platform for access of miners and supplies. Spalling of wall rock has been infrequent and can usually be kept under control by the experienced miner knowing the characteristics of the wall.

A minimum of a 35-foot barrier pillar of gilsonite will be left at the surface over any mined out panel area to protect the surface. However, because the vein is relatively thin at the surface the surface barrier pillar will more likely be 200-300 feet from the surface to the first mine panel. A barrier pillar from 15 to 25 feet high will also be left in the mine between each panel at approximately every 200-foot level. In the event that these pillars are later mined out, provisions for safety and reclamation will be adequately taken.

There are no known paleontological values in the gilsonite deposits. The surface barrier pillar could be a geological hazard if in time it were to erode away exposing the mined out panels below. However, in a vein 3 feet wide, or less, a 35-foot barrier provides over a 10 to 1 ratio of protection. The gilsonite does not spall and crumble readily. Even the pencillated (pencil-like stress structured) gilsonite, which quite often exists near the surface, provides a firm resistant bridge and holds up with little indication of weakening over long periods of time, therefore,

failure of the barrier pillar is not expected to occur.

To date, naturally occurring seismic activities in the area of the proposed mine have had little effect on gilsonite mining. However, a future occurrence of significant magnitude could cause damage to a mine, even to the extent beyond which repairs could be made to allow continued operations. Because of the remote possibility of seismic activities becoming a problem, they will be handled as incidents occur. (See appendix 7 (i).)

b. Soil

Soils of the Bonanza area, including the proposed mine sites, consists of the association groups--Typic Terriorthents (shallow)--Lithic Calciorthids--Lithic Natrargids. This association is extensive in the Uintah Basin. Slopes are undulating to rolling.

The soils grade from mildly (pH 7.5) to strongly (ph 8.5) alkaline. The soils layers are shallow pale brownish gray to yellowish brown sandy-silty, clay loams. The underlying sandstone and interbedded shale occurs at depths within 20 inches.

Soils of the association are well drained, permeability is moderate to slow. Runoff is rapid and sediment production is high. The hydrologic group is mainly D. These soils are used mainly for range and wildlife habitat. (Wilson, 1975, pp. 50, 51, & 66.)

Approximately 8 acres of soil surface will be disturbed as a result of the mining proposal. After each mining operation terminates, the disturbed areas will be cleared, recontoured, and the topsoil replaced to allow the surface to return to a compatible habitat with the surrounding undisturbed areas.

C. Air

The average temperature in the semi-arid Bonanza area is 47 degrees Fahrenheit. Maximum temperature averages 101 degrees and minimum temperature averages minus 17 degrees.

The average growing season consists of 117 frost free days varying from 94 to 156 depending on the year. The frost free period ranges from early May to late September or early October.

Precipitation averages 7.42 inches ranging from 4.76 to 10.07 depending on the year. Precipitation is most consistantly high in the fall varying over the other seasons with peaks of high moisture, relative to the area. (U.S. Dept. of Commerce, 1971-1975.)

The evaporation rate for the area averages 36 inches. (See enclosed map, appendix 7 (c).)

Winds are irregular and light, except when associated with local thunderstorms. Although there is little wind erosion, winds affect the vegetation of the area by evaporating moisture from the soils before it becomes available for plant use. The winds predominantly are from the west.

The air quality in this desert region is relatively uneffected by industrial sources. The principal source of potential air pollution from mining gilsonite would be dust, vehicular emission, and fugitive dust resulting from mining and handling the gilsonite.

Dust and vehicular emissions would be controlled to acceptable standards. Fugitive dust from mining would amount to less than acceptable standards for the area and would be confined to a small area around each shaft while the mines were in operation pursuant to the Clear Air Act, as amended (40 U.S.C. SS 1857-1857-1).

d. Water

According to the U.S. Weather Bureau, maps showing isohyetal and evaporation lines, this area of the state receives between 8 and 10 inches of moisture and has 36 inches of evaporation (see appendix 7 (c)). Climatological data charts show precipitation intermittent and rarely exceeding 3.0 inches per storm. Because of the nature of the soils, the sudden thundershowers that often occur, and the snow-melt, there is a heavy surface runoff, probably as much as ¼ of the moisture received. There is one main intermittent drainage passing from the south to north through the subject lease area crossing the vein. This drainage later empties into Coyote Wash about 2 miles north of the leasehold.

Roads and mine sites will be improved where necessary with provisions to handle surface drainage. Dip type crossings are proposed at the tributary drainage sites. A maximum of 700 acres of low rolling hill country are the potential resource of runoff water to pass through the lease area. A thundershower could cause flash flooding along the drainages. The area will be graded to control the flow of surface water and divert it away from the disturbed areas. There is no data collected on nor use made from the intermittent surface water associated with the lands in the proposed action.

The water table in the area varies. Some of the gilsonite mines of the past have encountered ground water while others have been dry. It is anticipated that ground water will be encountered in the mining of this lease. This water will be pumped to the surface and discharged into natural drainages in accordance with EPA regulations. Ponding may be required prior to discharge. To help eliminate water from the mining areas, it may be necessary to drill boreholes to the bottom of the vein ahead of mining for the installation of pumps. A joint inspection of

plans for disposal of groundwater will be conducted by this office, BLM, State, and EPA prior to discharge into natural drainages.

Because the soils are alkaline, it can be expected that surface water would also be alkaline. No recorded datum is available on surface or groundwater in the area. Monitoring of water is not required of the 43 CFR 231 regulations, but if water problems are encountered a system may be required by the District Mining Supervisor. As the access roads and mine sites are prepared, the newly disturbed surface will have a greater potential for siltation of runoff water than the surrounding undisturbed surface. This siltation will be minimized by controlling the amount of surface drainage that passes over the disturbed area.

The potential for water pollution is minimal. No toxic materials are planned to be used in the mining operation. Fuels, engine oils, and grease are the most likely source of pollution. These products must be kept contained so that the potential for pollution is confined to accidents which in most cases can be avoided.

Human waste and sewage will be confined to the proposed facilities except where specifically provided for otherwise in plans required by the Industrial Commission of Utah.

e. Land Use

The only use of the land in the past has been for range stock grazing, and wildlife habitat. After mining concludes and the surface is rehabilitated, the surface will once again be available for its other potential uses.

Few if any visitors would be expected in this area because of the remoteness of the project development in the area. Grazing, gilsonite mining, oil and gas exploration and development, and surface management are

the top interests using the general area. Oil shale development has begun to get underway but probably won't impact the location of the mine proposal for many years. Game hunters may pass this way, but tourists and recreationalist would more likely choose more attractive surroundings and more well traveled roads.

The small mining company towns of Bonanza and Little Bonanza are the nearest communities to the proposed mine site. Bonanza is owned by the American Gilsonite Company and Little Bonanza is owned by Ziegler Chemical and Mineral Corporation. Vernal is the nearest city of notable size, being the center of Uintah Basin activities.

The lessee provided an archaeological survey in May 1977 which states that no archaeological sites were identified along a corridor 50 meters wide on either side of the vein. Additional coverage will be required to clear the total area in the plan.

Dinosaur National Monument is located northeast of Vernal and is the nearest (approximately 30 miles north of the proposal) scenic and aesthetic site in the general area.

Subsidence is not expected to occur due to the nature of the mining operation in a vertical vein. This has more fully been elaborated upon in Section 2.

f. Fauna and Flora

In this semi-arid desert habitat, the principal native vegetation is shadscale, mat salt brush, nuttall saltbrush, greasewood, and associated grasses, forbs and shrubs. (Wilson, 1975).

A list of plants taken from the draft EIS on Oil Shale is here included naming species common to the proposal area.

	Common Name	Scientific Name
Salt Desert Shrub	Grasses:	
	Galeta (Curly grass)	Hilaria jamesii
	Indian rice grass	Oryzopsis hymenoides
	Squirreltail	Sitanion hystrix
	Cheatgrass	Bromus tectorum
	Six week fescue	Festuca octiflora
	Forbs:	
	Indian wheat	Plantago spp.
	Russian thistle	Salsola Kali
	Stickseed	Lappula spp.
	Halogeton	Halogeton glomeratus
	Cactus	Opuntia spp.
	Desert mallow	Sphaeralcea spp.
	Buckwheat	Eriogonum spp.
	Shrubs:	
	Nuttall saltbrush	Artiplex nuttallii
	Shadscale	Artiplex confertifolia
	Mat saltbrush	Artiplex corrugata
	Black sage	Artemisia nova
	Shortspine horsebrush	Tetradymia spinosa
	White sage (Winterfat)	Eurotia lanata
	Mormon tea	Ephedra spp.
	Big sage	Artemisia tridentata

(U.S. Department of the Interior, 1973, Vol I, pp II-241 & 242)

The wildlife population of the area around Bonanza is relatively small. In the First Year Environmental Baseline Report, Vol II, prepared by VNT Colorado, Inc. for the oil shale tracts Ua and Ub, wildlife studies were conducted and compared in four vegetation type categories, namely: riparian, juniper, greasewood, and shadscale. The oil shale tracts, containing about 8 sections each, lie about 6 miles southeast and across the White River from the proposal area. The oil shale study area also covered a 1-mile perimeter around the tract areas. The vegetation type in the vicinity of the proposed mine sites in shadscale. The observed wildlife types were mammals, birds, and reptiles. The native diurnal mammals

estimated from data collected showed shadscale sites lowest in population densities ranging from 0.00 to 0.08 mammals per hectare during December, February, and April; and up to 1.60 per hectare during summer and fall months. The only native diurnal mammal seen regularly in winter and summer was the desert cottontail.

Rodent population densities determined by live-trapping grids that could be meaningfully estimated was 42.3 rodents per hectare. The deer mouse and whitetail antelope squirrel were most common.

No rare or endangered species were recorded on or near the oil shale test tracts during the first year of the sampling program (1975).

Species that use a wide range of habitats or that cover relatively large distances easily, were found in all four major vegetation types (e.g. mule deer). Antelope and coyotes are also common to the area.

From December 1974 through November 1975, 106 species of birds were observed on or near tracts Ua and Ub. There were 38 species observed in the shadscale vegetation type area. The most common seen types in the shadscale during April were sage sparrows (up to 4.27 per hectare). In June, Brewer's sparrow (up to 4.40 per hectare) was the most common species observed. In August, Flocks of unidentified sparrows were commonly recorded. In October, seven species had estimated population densities of two or more birds per hectare on one or more sampling sites. The most abundantly represented species were horned larks, (up to 12.20 per hectare).

A peregrine falcon, an endangered species, was sighted in the Ua and Ub project area in December, April, and August of 1975. No peregrine falcon nests were found during a search by Utah Division of Wildlife Resources (DWR) or bureau of Land Management (BLM) personnel.

Certain uncommon resident species (e.g., several raptors), although not observed in all sampling periods, probably were present on tracts (Ua and Ub) and the subject gilsonite mine proposal area throughout the year. Shadscale ranked fourth in bird species populations observed.

Between December 1974 and October 1975, 14 species of reptiles and amphibians were observed on or near the Ua and Ub oil shale tracts. There were eight species observed on the shadscale vegetation type. Four lizard species were recorded, the eastern fence lizard, the sagebrush lizard, the side-blotched lizard, and the western whiptail lizard, in all vegetation types. The short-horned lizard was seen in the shadscale. The results from pilot study for a lizard capture-recapture program, suggested that lizards may be the most abundant in the shadscale vegetation type. The most abundant type was the sagebrush lizard. During June and August, the combined estimated numbers, per hectare, of sagebrush lizard and side-blotched lizard were as high as 28.00 in shadscale.

Snakes were observed on the tracts (Ua and Ub) from June through October 1975. Two snakes species, the striped whipsnake and the gopher snake, were noted in all four major vegetation types.

All reptile and amphibia species hibernated during the winter. No amphibians were seen outside the reparian vegetation type area. Ninety-six percent of the amphibian and reptiles recorded on transect walks in June and August 1975 were lizards (VTN Colorado, Inc., 1976).

The potential for vegetative cover to be established in the disturbed areas after mining operations culminate will be most successful from natural sources. To establish vegetative cover to approach the undisturbed natural surroundings is desirable and has been demonstrated with some measure of success on the mined areas southeast of the proposal area.

Where topsoil can be scalped and stockpiled during mining operations and replaced afterward, is highly desirable and should result in the highest potential for maximum revegetative cover.

g. Socio-Economic

American Gilsonite Company employs approximately 93 hourly and 15 salaried personnel. On part of the present complex mining operation, an independent contractor (Arthur M. Boren) is also used. The contractor employs approximately 25 people. American Gilsonite Company utilizes its manpower resources by shifting them around to the operating areas as needed. At the present time, there is no increase in manpower planned for the Bonanza No. 44 through 56 mining operation.

As the mines on the leasehold get into production, there will be one hoist operator, two miners, and one chute tapper needed for each shaft. At times, one or two slusher operators may be required. Where walls are in need of additional timbering, one helper will be needed. This manpower will be drawn from available sources and may fluctuate depending upon monthly production requirements.

Some employees live at Bonanza and the majority travel from the Vernal area. A bus is available to convey the employees to and from work.

No appreciable effect is anticipated on local population centers or cultural resources as a result of this proposal.

The American Gilsonite Company operates a small store and gas pump providing local assistance to its employees.

The gilsonite industry is well established in the Bonanza area. No public opinion for or against the proposed project has been registered since posting the mine plans on December 4, 1981, in this office and in the office of the County Clerk, Uintah County.

The Little Bonanza vein is presently being mined on the private claims held by American Gilsonite Company immediately to the southeast of the leasehold. It is not deemed necessary to seek further public opinion in this proposal due to the ongoing nature of the operation, therefore, no formal public meeting or notices other than those mentioned above are anticipated.

3. Alternatives to the Proposed Action

There are two or three other methods or procedures that could be considered at alternatives to the proposed action. Gilsonite is also mined by hydraulic methods, using water to cut and wash the ore to the bottom of the shaft where it is pumped out in a slurry. The private claims owned immediately southeast of WH-11 on Federal lease U-073071 on the Wagonhound vein which parallels the Little Emma vein approximately 1 mile northeast was mined with this method. Mining commenced at the surface and resulted in an open slot the width of the vein. The Clifford Livingston method of closure was used to drill and blast the wall rock to close the upper 20 feet of the slot. After closure, the broken wall rock seal is then worked with a bulldozer to rehabilitate the surface.

As a measure of conservation of natural resources, the barrier pillars could be mined out as discussed earlier and the Clifford Livingston method used to close the mined out slot.

In situ recovery is a method of melting the ore in place and collecting it in a producing well. This process of mining has not been considered for gilsonite in any literature sources available to the author, but may have some merit in narrow veins, if the process is workable and if gilsonite in that form is desirable.

4. Unavoidable Adverse Environmental Effects of the Proposed Action

Removal of the gilsonite as proposed in the mining plan, will create a void where the vein previously occupied the space. The 35-foot deep minimum barrier pillar of gilsonite left at the surface is to provide a secure, undisturbed area over this mined out void. The plan is to leave an adequate pillar to secure the surface indefinitely. However, should the pillar fail in the future, this would adversely affect the environment. Most likely a major seismic activity would be required to cause failure in the barrier pillar. Should this occur, a fresh evaluation of the situation at the time would be needed to mitigate the effects.

Approximately 8 acres of land surface will be disturbed to provide roads and mine sites. This area will be unavailable as formerly enjoyed during the operating period of the mines and until rehabilitation is completed.

Some fugitive dust and vehicular emissions will be caused during the operating period of the mines.

Some siltation from precipitation runoff over the disturbed area will result.

Some pollution could result from accidental spillage of petroleum products in the proposed area.

The unavoidable disturbance of the wildlife habitat will be minimal during the operating period of the mines and will be confined to the immediate area of operations.

5. Controversial Issues and Conservation Division Responses

There have been no controversial issues or substantive opposing or conflicting views raised by any Federal, State, or local agencies or the public during review of the proposed action.

6. Finding of No Significant Impact

The proposed action will not have a significant impact on the human environment. This conclusion is made from the findings in the EA process where a relatively small operation of a gilsonite mine advancing along the vein from development on fee owned land into Federal lands is of minor impact on the human environment. The unavoidable environmental effects of the proposed action will be of minor consequence where the major adverse effect will be the removal of the gilsonite. The resultant consequences of the proposed action during operation and upon completion will have few lasting effects. The final effects will be to restore the surface quality to normal or near normal conditions.

The related environmental documents have been enumerated on the title page with the exception of the environmental documents prepared for the nearby Oil Shale Project (U-a and U-b). However, these documents have been generously drawn from for data in the EA.

7. Determination

I determine that the proposed action does not constitute a major Federal action significantly affecting the quality of the human environment in the sense of NEPA, Section 102 (2) (C), and the environmental impacts of the proposed action are not likely to be highly controversial.

Prepared by _____ _____
Allen L. Vance, Mining Engineer — Date

I Concur: _____ _____
Jackson W. Moffitt, District Mining Supervisor — Date

_____ _____
Lloyd H. Ferguson, District Manager, Bureau of Land Management — Date

_____ _____
John Trippe, Regional Conservation Manager — Date

Environmental Analysis
American Gilsonite Company, Lessee
Bonanza 44--56 Mines
Federal Gilsonite Lease--U-0126940

8. References

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Wilson, LeMoyne, et al., 1975, Soils of Utah, Agricultural Experiment Station - Bulletin 492, Utah State University, Logan, Utah.

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VTN Colorado, Inc., May 1976, First Year Environmental Baseline Report Volume II, Federal Proto-type Oil Shale Leasing Program Tracts Ua and Ub, Utah, White River Shale Project.

U.S. Department of the Interior, 1973, Final Environmental Statement for the Prototype Oil Shale Leasing Program, Volume I of VI, Regional Impacts of Oil Shale Development.

9. Appendices

Appendix 1 - Geologic Report, Mineral Evaluation, Conservation Division, USGS.

Appendix 2 - Surface Management Agency Concurrence and Related Correspondence.

Appendix 3 - Endangered and Threatened Species Clearance and Related Correspondence

Appendix 4 - Cultural Resource Clearance.

Appendix 5 - Relevant correspondence and other comments.

a. State of Utah, Department of Natural Resources, Division of Oil, Gas, and Mining Statements.

Appendix 6 - Proposed Stipulations.

Appendix 7 - Maps and Photographs.

a. Long Section of B-44 through B-56 (2 parts).

b. Topographic plan map (2 parts) of mine layout.

c. Average precipitation and evaporation maps.

d. Eight Photos of proposed mine sites and vicinity.

e. Copy of the proposed plan.

f. Index map of Utah.

g. Area map of mine site proposal

h. Seismic risk map of Western United States.

f'. Physiographic map of the Uintah Basin.

APPENDIX 2

BLM Comments
Vernal District Ranger
Vernal, Utah

ENVIRONMENTAL ANALYSIS

AMERICAN GILSONITE COMPANY, LESSEE

BONANZA B-44 THROUGH B-56 MINES

1. Description of the Proposed Action

American Gilsonite Company, with offices in Salt Lake City, Utah, has submitted a proposed mining and reclamation plan on its Federal lease U-0126940. The plan was received in this office in August 1979 and a request for a lease boundary survey delayed action until the updated plan was received on October 2, 1981.

The leasehold is located in the N½NW¼ and the NE¼ of sec. 17, T. 9 S., R. 24 E., SLM. The lease boundary survey disclosed a small section of the gilsonite vein running off of the lease onto unleased land and back onto the lease. The portion of the vein off the lease lies within the SW¼NW¼ of sec. 17, T. 9 S., R. 24 E., SLM. American Gilsonite will make application for the unleased area.

The location of the new mines is in the Little Bonanza gilsonite vein, locally called the Bonanza vein by the lessee, is approximately 1 mile west of Little Bonanza, Uintah County, Utah. The surface of the leasehold is owned by the Federal Government and managed by the BLM.

American Gilsonite Company is proposing to sink seven new shafts at varying intervals from 790 to 830 feet apart extending northwesterly along the Little Bonanza vein from its existing mining operation immediately southeast of the leasehold on a patented mining claim. Each shaft will be sunk to a depth of approximately 850 feet. Set up time for a new shaft is generally 3 months, and development time is figured on a scale of 30 feet per month advancement in rock and 85 feet per month in minable ore. The shaft dimensions will be essentially 20 feet long and the width of the vein at depth, which varies from 8 inches wide at the surface to possibly 3 feet at a depth of 500 feet but the vein narrows rapidly at approximately

850 feet. An approved drilling program was carried out early in 1981 to determine quality and thickness of the vein near the location of B-46 shaft location.

A concrete collar will be poured, from the surface down to solid bedrock, at each shaft location to stabilize the wall of the shaft. In this area, solid bedrock is usually encountered between 1 and 20 feet deep. Mining will begin at a level where the gilsonite vein is thick enough to work. A surface barrier pillar of at least a minimum of 35 feet will be left and great where the vein is too thin to mine.

The general surface facilities needed for the operation of this mine consists of the following: a haul road to each shaft with a turn-around loop; a powerline located parallel to the vein; and a relatively flat yard site at each shaft location. A hoist house, derrick, timberyard, and compressor would be set up at each shaft location (for details, see enclosed surface plans, Appendix 7 (b)).

The haul roads planned for access to the mine sites would be about 24 feet wide and the turn-around loop would be about 12 feet wide. Dip type crossings would be used through all drainages as rain is seasonal and runoff fairly fast. All roads would have grades of less than 8 percent. Access roads to each shaft site would be provided by extending the existint access road from the south and east along the vein as shown on the enclosed surface map. Some cut and fill work will be required. Barrow ditches will be provided along the sides of the road as needed. The top-soil would be scalped and stockpiled where necessary along the roadways and at the shafts sites, to be utilized in the rehabilitation of disturbed areas. A total of approximately 10 acres will be disturbed in all operations on the lease.

Main access roads shall have a maximum width of 30 feet including drainage ditches.

Road drainage crossings should be designed so they will not cause siltation or accumulation of debris in the drainage crossing nor shall the drainages be blocked by the road bed (see enclosure 1 BLM comments).

Mine surface facilities would consist of a derrick, with a 20 x 20-foot base and a height of 77 feet; a hoist house with a 20 x 15-foot base, located approximately 100 feet from the derrick; a timberyard occupying not over 900 square feet, and a compressor occupying not over 300 square feet. A storage bin ranging from 60 to 150 tons capacity would be located to one side of the derrick. All cement pads or blocks required for derrick supports will be removed and disposed of after mining operations are completed.

The necessary conduit and piping system will run along or under the ground between the hoist house, compressor, and derrick.

Power would be supplied to each shaft location by extending the existing powerline from existing mine development of the vein on private claims southeast of the lease. There would be a powerline connection to each hoist house as mining progressed. The power rating of the line is 13,200 volts, 3 phase, and the powerline will be erected in accordance with REA Bulletin 61-10 (see BLM comments, Appendix 2).

Federal mine regulations will be followed concerning the location of inflammables and construction materials, keeping weeds from around the mine shaft, and not allowing matches, smoking, or other ignition sources in the mine, to prevent or control fires.

Hazards to public health and safety will be prevented by fencing off open mine areas and covering openings with reinforced concrete upon completion of mining.

When blasting methods are used to close open slots, large boulders shall not be exposed at the surface level. All trenches shall be filled and smoothed to conform to the surrounding terrain.

Waste piles of gilsonite shall be removed from the surface after mining operations are completed, preferably pushed into the mined out area.

The BLM District Manager or representative will be contacted at least 48 hours prior to any construction.

Toxic materials, spent lubricants, potentially harmful material, and all solid and liquid wastes will be removed from the area, and disposed of in an approved sanitary landfill. Burning of garbage or trash on the lease will not be authorized.

Natural colors consistant with local environment such as pastels or muted shades of brown, green, reds, or greys, shall be used in painting of facilities installed on the lease. Bright or unnatural colors shall be avoided except for use in warning signs and signals.

A mine will be developed about 400 feet on each side of the center line of each shaft. Mining would begin at B-44 and shortly thereafter (depending upon equipment availability) would also begin at B-46. It is expected to take 3 months to set up a new mine. Development time is figured on a scale of 30 feet per month advancement in rock and 85 feet per month in minable ore.

Mining will be done using a method of open stopes with timbered floors spaced 30 feet apart (top floor 6 feet below the horizontal pillar). The gilsonite will be mined out in panels approximately 400 feet wide by 200 feet high. There will be 6 panels in each mine, three on each side of the shaft, with about 25-foot pillars of ore between panels. Surface

pillars will have a minimum thickness of 35 feet. (See enclosed cross section, Appendix 7 (a).) If surface pillars are removed by mining, they will be recovered after the panels have been mined out. A method of blasting would then be used to close the open slot. However, in this vein location the surface outcrop is only about 8 inches wide and the vein does not become wide enough to mine usually shallower than 200 feet from the surface.

American Gilsonite Company has successfully used a blasting method, developed by Clifton W. Livingston, Grand Junction, Colorado, to close the Wagonhound vein extending southeasterly on fee owned gilsonite lands southeast of WH-11 on Federal lease U-073071. In the case of mining the surface pillar, a similar method would be used to close the opening. When blasting methods are used to close open slots, large boulders shall not be left exposed at the surface level. The surface will be restored to blend in with the surrounding undisturbed lands. In the mining operations the equipment used consists of hand operated pneumatic rock picks to break the ore on the face. The ore is then gravity fed down a 45 degree slope to the shaft. It is picked up at the bottom of the shaft with an air lift which transports the broken ore to the storage bin on the derrick. In some cases, a slusher is used to bring the broken ore to the shaft, where it is hoisted to the surface storage bin in a skip.

At the present time, there are no plans to use the method of hydraulic mining, therefore, there should not be a need to discharge any water from the mine unless a groundwater source is encountered in mining. If this should prove the case, the groundwater will be piped out of the mine into natural drainage in accordance with State, EPA, and BLM regulations. A joint inspection of plans for disposal of groundwater will be conducted with representatives of the concerned agencies prior to discharge into natural drainage.

Reclamation procedures for this lease will consist of removal of all surface facilities, including cleanup of all scrap material, within 2 months after the end of the life of the mine. If the surface pillars are removed by mining, the open slot will be closed with proper blasting methods and fencing will be removed. If the surface pillars are left unmined, the shafts will be capped with a reinforced concrete slab. The concrete slab will be at least 12 inches thick with ½-inch diameter steel reinforcing rod on 12-inch centers in a cross pattern installed one-third of the distance up from the bottom of the slab. This slab will extend at least 12 inches out beyond the shaft opening in all directions.

Waste piles of gilsonite shall be cleaned up and removed from the surface after mining operations are completed. If the waste piles of gilsonite cannot be salvaged, preferably they will be pushed into the mined out areas.

All access haul roads shall be reclaimed upon completion of the mining operations. All berms and barrow ditches shall be recontoured to conform to the surrounding terrain. Soils shall be replaced where possible and slopes shall be restored to the original condition as much as possible to conform with the surrounding terrain. Water barring and barricading may be necessary to prevent erosion and to keep traffic out.

The necessity of reseeding shall be determined at the time of abandonment. The degree of surface disturbance and existing climatic conditions will be used as criteria for making such a determination.

An onsite inspection was conducted on November 3, 1981. Representatives of BLM and USGS met in the BLM office in Vernal. The proposed mine plan was reviewed after which an onsite inspection was made of the

surface area of the proposed mine plan with Richard Carlbert, Mining Engineer for American Gilsonite Company.

Representatives of the Utah State Division of Oil, Gas, and Mining (DOGM) were not in attendance at the inspection, but may later make an inspection of their own. DOGM plans to publish a notice that they formally approve the procedures of the reclamation plan, in an order to show cause. (See attached copy, Appendix 5a.)

As early as 1865 specimens of "an unusual variety of asphaltum" from "central Colorado" found their way into mineral collections in the Eastern colleges (Remington, 1959), but the first recorded discovery of gilsonite from the Uintah Basin came in 1869. A blacksmith at the Whiterocks Indian Agency near Ft. Duchesne tried to burn some gilsonite from a nearby vein in his forge, mistaking it for coal. When the gilsonite was thrown into the forge, it burned hot, giving off a heavy black smoke and a strong petroleum odor, and ran flaming from the forge, nearly burning down the blacksmith shop (Remington, p. 32).

In 1885 the substance was classified and named "Uintaite" by Prof. Wm. P. Blake. However, in 1886, Samuel H. Gilson began to prospect the area and was successful in promoting a market for the new mineral, and a new name, "Gilsonite", was adopted in his honor by the people who later came to mine and market the mineral. At first gilsonite was merely a local name, later a trade name for the marketed substance, and finally it became the accepted technical name for this unusual mineral.

The first gilsonite veins to be discovered were the Raven and Carbon veins, near Ft. Duchesne in 1869-1888. The Pariette, Baxter, and Castle Peak veins in Duchesne County were discovered soon after. Then in 1887, the Cowboy-Bonanza vein system was discovered by cowboys on the Uncompahgre

Indian Reservation, near the Utah-Colorado State line. Not until about 1896 did the existence of the great Rainbow system of veins become known, although the Black Dragon vein was known earlier. At an even later date the Willow Creek and lower White River gilsonite fields were discovered, and these last veins are still relatively unexplored today.

As the many earlier discoveries of gilsonite became known, it was recognized that practically every vein of gilsonite in the basin occurred within one of two Indian reservations, and hence the deposits were not open to acquisition and mining under the Federal Mining Laws. Nevertheless, excited prospectors poured onto the Indian reservations in wholesale trespass, locating "claims" as though no prohibition existed. From 1886 until 1903, a running war was waged between trespassing prospectors and the patroling Indian agents. Claim monuments were destroyed and discovery pits filled, only to be secretly restored at a later time by the resourceful miners. Indeed, some of the more active prospectors did double duty, serving at times as patrolmen for the Indian tribes, keeping out their competitors (Remington, 1959). In 1903 Congress passed an act (Act of March 3, 1903; 3 stat. 998, c. 994) which gave legal recognition to all trespassing "claims" located prior to 1891, and provided for a sealed bid sale of the mineral bearing tracts on the even-numbered sections of the reservations not covered by pre-1891 claims. Fortunately, Congress provided a 90-day period during which the miners could re-record their claims in the local mining records. As a result, a large number of claims on the Rainbow vein system and elsewhere, probably discovered considerably after 1891, achieved legality and were subsequently patented.

By chance or design, most of the pre-1891 mining claims had been purchased cheaply prior to the Act of 1903 by the Gilson Asphaltum Company.

The company also narrowly out-bid their competition in the sealed bids for the mineral tracts on the even-numbered section (Remington, 1959). As a result of their acquisition of the pre-1891 claims and their successful bidding at the auctions, the Gilson Aslphaltum Company emerged as the giant in the gilsonite mining industry. This position was strengthened in 1906 when President Theodore Roosevelt issued a proclamation stating that all lands not disposed of by 1910 would be henceforth withdrawn from acquisition and reserved. Until September 2, 1960, all gilsonite not in private ownership by 1910 was closed to exploitation and the Gilson Asphaltum Company, which by a series of mergers and purchases emerged as the American Gilsonite Company, became virtually the sole source of raw gilsonite mining on the public domain, in effect for 50 years, have accounted in large part for the lack of information on certain undeveloped gilsonite areas encountered in collecting data on the deposits and chronicling the development of the industry. (Pruitt, 1961, pp. 28-29.)

American Gilsonite Company at this time has approved mining plans on the Wagonhound and Little Emma veins. It has been mining for many years on numerous patented mining claims and intermittently on other leaseholdings.

2. Environmental Considerations of the Proposed Action

a. Geology

The geology of the Bonanza area around the leasehold is relatively simple with respect to mining gilsonite. "Gilsonite occurs in long, thin, nearly vertical veins, most of which trend N. 35-65° W. in essentially horizontal beds of teritary age . . . and apparently originated from the underlying oil shale beds of the Green River formation." (Pruitt, 1961, p. 23.)

The Little Bonanza vein locally called the Bonanza vein by American Gilsonite Company, is located just south of the settlements of Bonanza and Little Bonanza, Utah. In Pruitt, 1961, p. 35, Hendricks give the following description: The Little Bonanza vein is the southern branch of the Tabor vein. Until recently it was the most important vein in the area. Striking N66^{o}W, the vein averages 9 feet or more wide for a distance of nearly 6 miles. At its western end the vein measures 4 feet wide and begins to branch. The eastern end of the vein measures 16 feet wide and varies little with depth. The ore is mixed, with selects occurring as lenses in the pencillated "seconds" ore even to great depth. The Temperance mine, operated from 1904-1914 and revived again in 1935, is known today as the Bonanza mine. Both open pit and underground mining are carried out at this mine. The Little Bonanza mine, to the northwest, produced large amounts of ore from 1908 to 1917. Shafts are reported to have reached a depth of over 800 feet on this vein, exposing good ore with a soft film of gilsonite on the vein walls. The width of the vein increases slightly with depth and the percentage of selects is said to increase with depth. Ore reserves for the vein are estimated at 5,506,180 tons (Douglass, 1928). The melt point of ore from the Little Bonanza ranges from 290° to 300° F. (Hendricks, 1943).

The vicinity surrounding the mine area is well known as a natural gas producing field, but because of the nature of the gilsonite deposits being vertical, the two industries work simultaneously side by side with no apparent difficulties. It is believed the gilsonite originates in the oil shale deposits underlying the area. The oil shale development is slowly getting underway and will not likely have a competitive interest in the known gilsonite deposits areas for many years in the future.