United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Barstow Resource Area
150 Coolwater Lane
Barstow, California 92311-3221
(619) 255-8700

IN REPLY REFER TO:

CACA 33044
CAMC 20175
3809 (CA-068.28)

DEC 30 1994

George J. Hartman
Fort Cady Minerals Corporation
P.O. Box 100
Newberry Springs, CA 92365

Dear Mr. Hartman:

The Bureau of Land Management received Fort Cady Mineral Corporation's (FCMC) Proposed Plan of Operation (Mining and Land Reclamation Plan) for a solution mining project on the HEC claims (CAMC 20175, etc.) on April 25, 1990. After lengthy consultations and preparation of an extensive Environmental Impact Statement (EIS), I approve this Plan of Operations (POO) as modified by the enclosed Stipulations and incorporate the measures noted in the EIS by reference.

Authorizations specific to the associated Right-of-Way (ROW) applications are in addition to the project elements under the approved POO and are subject to additional terms and conditions.

My decision to approve this plan has been made in consultation with San Bernardino County to ensure that the project meets applicable State of California and San Bernardino County laws and regulations, including California's Surface Mining and Reclamation Act of 1975 as amended (SMARA).

APPEALS

If a party is adversely affected by this action, there is a right of appeal to the State Director in accordance with the regulation in 43 CFR, Part 3809.4. If an appeal is taken, the notice of appeal must be filed in this office. The appeal must contain:

1. The name-and mailing address of the appellant.

2. Where applicable, the name of the mining claim(s) and serial number(s) assigned to the mining claims recorded pursuant to 43 CFR Subpart 3833 which are subject to the appeal.

3. A statement of the reasons for the appeal and any arguments the appellant wishes to present which would justify reversal or modification of the decision.

If you have any questions regarding this matter please contact Larry Monroe of this office.

Sincerely,

Tim Read

Tim Read
Acting Area Manger

Enclosure

FORT CADY MINERALS PROJECT - STIPULATIONS

Fort Cady Minerals (FCMC) or any successor to FCMC interest by sale, assignment, transfer, conveyance, exchange or other means (hereinafter referred to as "the Operator") must comply with the following stipulations:

GENERAL

1. Any significant change in the Plan of Operation (Mining Plan) by the Operator, will require review and approval in the same manner as the initial plan. The U.S. Department of the Interior, Bureau of Land Management (BLM) may review and request modification of any operation approved in the Plan of Operation, as modified, that is causing unnecessary or undue degradation in accordance with the regulations at 43 CFR 3809.1-7.

2. This approval is conditioned upon the Operator obtaining all necessary county, State, or Federal permits and complying with all applicable local, State and Federal laws and regulations.

3. The Operator shall comply with all of the reclamation and other requirements set forth in the May, 1993, Revised Mining and Land Reclamation Plan for the Fort Cady Project (the "M & LR Plan").

4. Before proceeding with commercial mining operations, the Operator shall post a $265,440.00 letter of credit, cash, or surety bond jointly with the County of San Bernardino ("the County") and the BLM, to ensure compliance with all of the conditions of the M & LR Plan. That bond amount shall be reviewed for adequacy at an initial review meeting which shall take place as set forth in the Land Reclamation Plan, and thereafter during annual reviews. Portions of the bond shall be released to the Operator upon certification by the BLM and the County that all reclamation conditions applicable to a given reclamation area have been complied with, as specified in detail in the Reclamation Plan. The County has agreed to administer the bond, subject to Regulation No. 21(1)(2). Within 30 days following the release of this decision, the BLM, County, and the operator will begin developing an agreement to design and implement the administrative bonding procedures.

5. Project site access routes shall be limited to the projects operational period. Public use shall be discontinued following road reclamation.

6. The Operator shall provide road improvements and implement a regular maintenance program along the mitigated access routes in a manner acceptable to BLM and the County. A maximum speed limit of 20 miles per hour will be posted on all unpaved roads.

7. Fences and/or gates shall be constructed around potentially hazardous areas to preclude entry by unauthorized personnel or visitors.

12. Waste/product piles shall be constructed to avoid disruption of the large drainage that passes through the western portion of the project site. Minor drainages that would be restricted by construction shall be diverted.

13. The Operator shall obtain required permits from, and comply with RWQCB requirements concerning use and containment of liquids including, but not limited to:

    a. Impermeable synthetic liner for the gypsum holding area dam.

    b. Dikes or berms to confine and control drainage or accidental spills from stockpiles and tanks.

    c. Storage basins with adequate freeboard to safely contain storm run-off.

    d. Drainageways or ditches to divert surface runoff from the gypsum holding area.

14. Reclamation activities shall include control of slopes on cuts and fills, plus revegetation, to control surface erosion in accordance with the Reclamation Plan.

15. A spill prevention, control, and countermeasures plan shall be developed to establish procedures for spill prevention and cleanup.

16. The solution system shall be operated as a closed circuit, with solution transported from storage tanks, to processing plant, and back to the well field in a system of pipes, rather than open ditches. Open ditches will be used only to carry heavy storm run-off.

17. Domestic sewage shall be disposed of in leach fields acceptable to Department of Environmental Health Services (DEHS).

18. Non-hazardous waste materials generated on the site shall be disposed at approved facilities. Hazardous wastes shall be disposed off-site, using services and procedures approved by the California Department of Health Services and the U. S. Environmental Protection Agency.

BIOLOGICAL/BOTANICAL

19. At least 30 days prior to any construction activities, a survey shall be conducted by qualified biologists to identify sensitive species and record their location.

20. No on-site collection or killing of sensitive plant or wildlife species is permitted.

21. The mine operator shall designate a Field Contact Representative (FCR), with authority to halt all mining activities that are in violation of any stipulations, who shall be responsible for overseeing compliance with protective stipulations for the desert tortoise and the coordination of compliance with the BLM and USFWS.

8. Upon Project completion the Operator shall remove all operating facilities, including structures, equipment, transmission lines, and fencing, in conformance with the Reclamation Plan requirements.

9. In order to determine if surface movement is occurring as a result of the solution mining, a subsidence monitoring program shall be established. This program will consist of three lines of bench marks, spaced so as to cover the mine area, with approximately 560 foot spacing between marks. The end marks to be outside of the halo zone. These bench marks are to be surveyed (levelled) every two years by a surveyor registered in the State of California. The report of this survey is to be submitted to the Bureau of Land Management prior to September 1st of the year of survey.

WATER QUALITY

10. The Operator shall meet all of the requirements of the Regional Water Quality Control Board's ("RWQCB") Waste Discharge Requirements and make all monitoring data available to the BLM upon request.

a. Groundwater production from the water supply wells shall be recorded at each well with flow meters. The standing depth to ground water will be reported as required in the RWQCB Waste Discharge Requirements.

b. If any existing nearby wells, such as those at the adjacent Rheox mine, go dry as a result of the Fort Cady operation, the Operator shall pay the cost to have these wells deepened, or shall provide replacement water to the owner of the affected wells. If replacement water is to be provided from wells on public land, Fort Cady Minerals will amended their Plan of Operations or modify their Right-of-Way.

c. A groundwater monitoring plan shall be established in order to assess the quality of groundwater at the mine location. The primary objective of this monitoring plan is to determine if water quality changes outside the ore zone and allow time to address those changes should they occur. The initial perimeter monitoring wells established as a part of this plan, shall be drilled away from the "halo zone" in accordance with the requirements of the RWQCB. If, during the course of production, new data or experience indicates the need for additional wells/locations they will be drilled after consultation with the RWQCB and the BLM.

11. Project water requirements shall be minimized by the following operational procedures:

a. The water supply network and process plant piping will be routinely inspected for leakage.

b. Water is to be recycled from processing facilities.

22. When major maintenance activities, involving construction, occur outside of areas enclosed by desert tortoise-proof fences, work areas shall be surveyed by the authorized biologist prior to the onset of maintenance to determine whether desert tortoises are present.

23. A desert tortoise education program, for the mine staff, shall be implemented.

24. Travel shall be limited to approved roads and off-road use shall be prohibited. If desert tortoise-proof fencing is not constructed along the water pipeline, all project associated vehicles shall maintain a speed limit of 20 mph or less on this access road.

25. When outside of areas enclosed by desert tortoise-proof fences, workers shall inspect underneath any parked vehicles for desert tortoises immediately prior to moving the vehicle. If a desert tortoise is located beneath the vehicle, the vehicle shall be moved in such a manner that the tortoise will not be harmed.

26. Structures that may function as common raven nesting or perching sites are not authorized except as specifically stated in the Plan of Operations and approved by the BLM.

27. No later than 90 days after completion of construction activities, the FCR and authorized biologist shall conduct a final inspection to evaluate any additional impacts to desert tortoise habitat and prepare a report of findings to be submitted to the BLM and Calif. Department of Fish and Game.

28. If feasible, construction shall take place during periods when tortoises are least active.

29. An authorized biologist shall be required on-site during pre-construction and construction activities which could harm desert tortoises.

30. An authorized biologist shall maintain a record of all desert tortoises encountered during mining activities.

31. Construction sites shall be surveyed for desert tortoises 30 days, 72 hours, and again immediately prior to the commencement of construction activities.

32. In general, desert tortoises shall be moved the minimum distance possible to ensure their safety.

33. Only qualified biologists shall handle tortoises, and accepted protocol for marking and displacement of tortoises shall be followed.

34. Desert tortoises moved from within a fenced site shall be marked for future identification.

35. An authorized biologist shall instruct appropriate mine employees in the proper method of handling desert tortoises in the event of emergencies involving animals during routine operation of the facility; or FCMC shall retain a local, BLM/USFWS-authorized biologist available on short notice.

36. All major project facilities shall be enclosed within desert tortoise-proof fences.

37. After fence installation, an authorized biologist shall conduct a through survey for desert tortoises within all enclosed areas.

38. A protocol specific to handling of hatchlings shall be developed.

39. Reduction of habitat fragmentation caused by the above ground pipeline shall be accomplished by periodic elevation or burial of the pipeline, or construction of ramps over the pipeline at appropriate intervals.

40. Reduction of habitat fragmentation shall be reduced further through the installation of culverts or underpasses under the access roads and the railroad at all washes and at 0.5 mile intervals.

41. After site rehabilitation, all desert tortoise-proof fencing shall be removed.

42. Within 12 months of the date of this approval 345 acres of off-site desert tortoise habitat lands shall be transferred to the BLM by the proponent to compensate for unmitigated desert tortoise impacts. EXTENDED TO JUNE 30, 1996 SEE LETTER DATED SEPT 1, 1995 TIM READ

43. Land disturbance during construction shall be restricted to the smallest area required.

44. A trash abatement program shall be implemented.

45. The contractor is responsible for post-construction clean-up. Following completion of construction, barriers shall be erected to limit traffic to the main access roads.

46. Hazardous material spills, including spills of oils, coolants, grease, diesel fuel, and gasoline shall be cleaned up immediately and the hazardous materials removed. Maintenance yards and containment areas shall be cleaned at the end of the project.

47. Spills involving acid solutions shall be promptly neutralized and cleaned up to prevent animals and birds from ingesting the solution.

48. The sides of the gypsum deposition area shall be gently sloped so as to reduce the possibility of entrapment or drowning of wildlife.

49. At the end of the project, disturbed areas, including new access roads, shall be recontoured and reseeded with an appropriate mixture of native plant species according to BLM specifications.

AIR QUALITY

50. Major construction and earth moving activities shall be curtailed during high winds (i.e. 10 m/sec.).

51. Exposed, disturbed surfaces shall be watered and/or vegetated as soon as practical to prevent wind blown dust.

52. Vehicular dust generation on access roads shall be minimized by applying water or approved dust pallatives to unpaved roads.

53. The contractor shall establish physical barriers to define the construction site and limit unnecessary disturbance beyond the actual construction zone.

54. The operator shall implement an inspection and maintenance program to reduce fugitive emissions from organic solvent handling equipment (i.e., valves, flanges, and pumps).

55. Optimal combustion conditions shall be maintained on driers and the cogeneration facility in order to reduce emissions of air pollutants.

56. The baghouse dust collection system, used for PM10 removal, shall be inspected, cleaned, and maintained regularly to promote maximum system design levels.

57. The acid absorption system, shall be inspected, cleaned, and maintained regularly to promote maximum removal efficiency approaching system design levels.

58. After the project is under operation, FCMC shall evaluate the feasibility of paving the main access road.

VISUAL

59. Landform screening shall be incorporated wherever physically practical.

60. Structural colors shall be of the type that minimize reflected light and shall blend with predominate background colors.

61. To a substantial extent, graded surfaces including final overburden and waste piles shall have the color, texture, and contour of adjacent sand and lava surfaces.

62. Outdoor lighting shall be shielded to direct lighting to the area of activity while minimizing detrimental effects to adjacent lands occupiers.

CULTURAL

63. If previously unidentified cultural resources are encountered, construction activities shall be halted until a qualified archaeologist is consulted regarding the significance of the finds. The BLM shall be notified and concerned Native Americans shall be involved, where appropriate.

64. The Operator shall implement an informational program for employees to increase their awareness of the value of cultural resources and the need for their preservation.

65. If feasible, cultural resources shall be avoided.

PALEONTOLOGICAL

66. A paleontologist shall spot check construction activities in areas where paleontological resources are most likely to be found.

67. Worker education with respect to the potential for uncovering fossil remains and the legal protection such fossils are afforded shall be implemented.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
FISH AND WILDLIFE ENHANCEMENT
SOUTHERN CALIFORNIA FIELD STATION
2730 Loker Avenue West
Carlsbad, California 92008

October 29, 1992

Memorandum

To: State Director, Bureau of Land Management, Sacramento, California

From: Field Supervisor

Subject: Biological Opinion for the Fort Cady Project Mining Plan Proposal, San Bernardino County, California (3809 CAMC 20175 (CA-068.28)) (1-6-92-F-54)

This biological opinion responds to your request for formal consultation with the Fish and Wildlife Service (Service) pursuant to section 7 of the Endangered Species Act of 1973, as amended (Act). Your request for consultation was dated June 25, 1992, and received by us on June 29, 1992. At issue are the impacts that the development and operation of the Fort Cady Mining Plan Proposal may have on the desert tortoise (Gopherus agassizii), a federally listed threatened species.

This biological opinion was prepared using information: contained in your request for consultation to the Service's Regional Office in Portland, Oregon; obtained during informal consultation between our staffs; and contained in our files.

Biological Opinion

It is the opinion of the Service that the proposed project is not likely to jeopardize the continued existence of the desert tortoise. Critical habitat has not been proposed for this species in California. Therefore, critical habitat will not be adversely modified by the proposed action.

Description of the Proposed Action

The Fort Cady Minerals Corporation proposes to construct, own, and operate a boron mine and processing plant near Pisgah Crater, California. The proposed operation would produce gypsum and 90,000 tons of boric acid per year for an expected project life of 130 years. Project facilities would include a processing facility, water well field, 200 injection and extraction wells, a gypsum deposition area, and a railroad spur. The project area occupies approximately 7,000 acres, of which 368 would be disturbed by project operations. The Fort Cady Minerals Corporation leases mining rights from several companies and has several of its own claims in the area. The Fort Cady Minerals Corporation would also be required to obtain easements from the

Bureau of Land Management (Bureau) for the water line, access and utility corridors, and well sites. The project information contained in this biological opinion is from the biological assessment developed by Dames and Moore (1992).

The recovery of boron and gypsum would be accomplished by injecting a weak acid solution into the ore body through the solution wells. The same wells would then be used to extract the resulting solution, which would be processed on-site. The approximate area to be disturbed by the proposed action is as follows:

Well Field	273 acres
Process plant	10
Gypsum deposition area	27
Runoff interceptor ditch	8
Process water supply well network	20
Railroad spur and natural gas pipeline	10
Access roads	20
Total	368

Detailed descriptions of the construction and operation of the various components of the proposed action are contained in Dames and Moore (1992). The information contained in this biological opinion is intended only to describe specific actions that would adversely affect desert tortoises and their habitat.

The solution wells would be used to inject acid solution and withdraw raw materials for processing. As any of the 200 wells deplete the ore body in its immediate vicinity, the well would be dismantled and located over an unused portion of the well field. Acid and boron solutions would be moved to and from the well field by above-ground, eight-inch plastic trunk and lateral collector pipelines. Roads would be constructed throughout the well field to allow access. Fill dirt would be placed over lava in areas where blading of roads is not possible. The biological assessment does not discuss construction of a specific borrow site.

Extraction and purification of the minerals would occur within and adjacent to the processing plant, which would be a 600 by 400 foot building with concrete extensions totaling 340 feet in length at its ends. Power would be supplied by both a cogeneration facility located within the process plant and a 1.5-mile transmission line, linked to the existing Southern California Edison transmission line along Pisgah Crater Road. The transmission line would be located within the same right-of-way as the main access road to the site.

Other ancillary items include a main electrical substation, a process and fire water storage area, and a natural gas station. Sewage from the offices will be directed to a septic tank and tile bed system which would occupy an area of approximately 100 by 200 feet.

The gypsum would be deposited on a 27-acre area which would be dammed at both ends. An underground pipeline would convey the gypsum slurry to the deposition area. The Fort Cady Minerals Corporation also proposes to

construct an interceptor ditch from its north dam to the west side of the well field to collect water that would normally flow into the deposition area. The ditch would be approximately 6,000 feet long and have an average depth of one foot.

Water supply wells would be located a maximum of approximately six miles from the processing facility. Water would be transported to the project area in above-ground delivery lines with a maximum size of four inches in diameter.

A 2.5-mile long railroad spur would be constructed from the process plant to the existing railroad to the northeast. A buried natural gas pipeline, approximately two miles in length, would be constructed between the plant and an existing gas line near Interstate 40. The gas line would parallel Pisgah Crater Road on the west side and follow the access road to the project site. Three access roads would be built for the proposed action. The road from Pisgah Crater Road to the process plant would be 1.6 miles long and 30 feet wide. The right-of-way for this road would also contain the natural gas pipeline, the electrical transmission line, and the railroad spur. The second access road would extend for 0.5 mile from the plant to the well field. Overhead transmission lines and solution pipelines would also be placed along this road, which would be 20 feet wide. The third access road would be 0.5 mile long and extend from the plant to the gypsum deposition area. A transmission line and several pipelines would also be contained in the same right-of-way. Employee traffic has been estimated at 130 vehicle trips per day.

The restoration plan primarily notes that wells would be capped, equipment removed, disturbed areas recontoured, and stockpiled soils redistributed. Access roads would be graded to blend with the surrounding terrain and the rail line would be removed. Unspecified revegetation plans would also be implemented.

The Bureau included measures to mitigate the impact of the proposed action with its request for consultation. These measures are:

1. The mine operator shall designate a field contact representative (FCR) who will be responsible for overseeing compliance with protective stipulations for the desert tortoise and for coordination on compliance with the Bureau. The FCR shall have the authority to halt all mining activities that are in violation of the stipulations. The FCR may be the mine operator, the mine manager, any other mine employee, or a contracted biologist.

2. An employee education program must be received, reviewed, and approved by the Bureau at least 15 days prior to the presentation of the program. The program may consist of a class or video presented by a qualified biologist (Bureau or contracted) or a video. Wallet-sized cards with important information for workers to carry are recommended. All mine employees shall participate in the desert tortoise education program prior to initiation of mining activities. The operator is responsible for ensuring that the education program is developed and presented prior to conducting activities. New employees shall receive formal, approved

training prior to working on-site. The program shall cover the following topics at a minimum:

- distribution of the desert tortoise,
- general behavior and ecology of the desert tortoise,
- sensitivity to human activities,
- legal protection,
- penalties for violations of State or Federal laws,
- reporting requirements, and
- project protective mitigation measures.

3. Only biologists authorized by the Service and the Bureau shall handle desert tortoises. The Fort Cady Minerals Corporation shall submit the name(s) of the proposed authorized biologist(s) to the Service for review and approval at least 15 days prior to the onset of activities. No mining activities shall begin until an authorized biologist is approved. Authorization for handling will be granted under the auspices of the Fort Cady Minerals Project section 7 consultation.

4. The authorized biologist shall be required on-site during the initial construction activities. This biologist shall have authority from the operator to halt any action that might result in harm to a desert tortoise.

5. The area of disturbance shall be confined to the smallest practical area, considering topography, placement of facilities, location of burrows, pubic health and safety, and other limiting factors. Work area boundaries shall be delimited with flagging or other marking to minimize surface disturbance associated with vehicle straying. Special habitat features, such as burrows, identified by the qualified biologist shall be avoided to the extent possible. To the extent possible, previously disturbed areas within the mining site shall be utilized for the stockpiling of excavated materials, storage of equipment, digging of slurry pits, location of office trailers, and parking of vehicles. The qualified biologist, in consultation with the project proponent, shall ensure compliance with this measure.

6. For mine development in desert tortoise habitat, the entire site shall be enclosed within a desert tortoise-proof fence. The fence shall be constructed under the direction of the authorized biologist or a Bureau compliance technician. The fence shall be located to avoid all desert tortoise burrows; to the extent possible, burrows will be placed on the outside of the exclosure. The fence shall be constructed of 1/2-inch mesh hardware cloth. It shall extend 18 inches above ground and 12 inches below ground. Where burial of the fence is not possible, the lower 12 inches shall be folded outward against the ground and fastened to the ground so as to prevent entry by desert tortoises. The fence shall be supported sufficiently to maintain its integrity. The fence shall be checked at least monthly and maintained when necessary by the mine operator to ensure its integrity. All desert tortoise-proof fencing shall be removed after site rehabilitation.

7. After fence installation, the authorized biologist shall conduct a thorough survey for desert tortoises within the mine site. All desert tortoises found shall be marked and removed from the exclosure and placed outside the nearest fence. If the removal is during the season of above-ground activity, the desert tortoises shall be placed beside a nearby burrow of appropriate size. If the removal is not in the season of above-ground activity, the desert tortoise shall be moved (dug out of burrow if necessary) on a seasonably warm day and placed at the mouth of a nearby burrow of appropriate size. If the desert tortoise does not enter the burrow, an artificial burrow may be needed. The authorized biologist shall be allowed some judgement and discretion to ensure that survival of the desert tortoise is likely.

8. Desert tortoises moved from within a fenced site shall be marked for future identification. An identification number using the acrylic paint/epoxy covering technique shall be placed on the fourth left costal scute (Fish and Wildlife Service 1990). 35-mm slide photographs of the carapace, plastron, and the fourth costal scute shall be taken. No notching is authorized.

9. Desert tortoises may be handled only by the authorized biologist and only when necessary. New latex gloves shall be used when handling each desert tortoise to avoid the transfer of infectious diseases between animals. Aside from the initial site clearance, any desert tortoise moved shall be placed in the shade of a shrub in the direction in which it was facing when found or at the entrance to a burrow if hibernating. In general, desert tortoises should be moved the minimum distance possible to ensure their safety.

10. The authorized biologist shall maintain a record of all desert tortoises encountered during mining activities. This information shall include for each desert tortoise:
    1) the locations (narrative and maps) and dates of observations;
    2) general condition and health, including injuries and state of healing and whether animals voided their bladders;
    3) location moved from and location moved to; and
    4) diagnostic markings (i.e., identification numbers or marked lateral scutes).

11. No later than 90 days after completion of construction activities, the FCR and authorized biologist shall prepare a report for the Bureau. The report shall document the effectiveness and practicality of the mitigation measures, the number of desert tortoises excavated from burrows, the number of desert tortoises moved from the site, the number of desert tortoises killed or injured, and the specific information for each desert tortoise as described in measure 10. The report shall make recommendations for modifying the stipulations to enhance desert tortoise protection or to make it more workable for the operator. The report shall provide an estimate of the actual acreage disturbed by various aspects of the operation.

12. Upon locating a dead or injured desert tortoise, the operator is to notify the Bureau. The Bureau must then notify the appropriate field office (Ventura) of the Service by telephone within three days of the finding. Written notification must be made within five days of the finding. The information provided must include the date and time of the finding or incident (if known), location of the carcass, a photograph, cause of death, if known, and other pertinent information. Desert tortoise remains shall be collected, delivered to the Bureau, and frozen as soon as possible. Injured animals shall be transported to a qualified veterinarian for treatment at the expense of the project proponent. If an injured animal recovers, the Service should be contacted for final disposition of the animal.

13. All trash and food items shall be promptly contained within raven-proof containers. These shall be regularly removed from the project site to reduce the attractiveness of the area to common ravens (Corvus corax) and other desert tortoise predators.

14. Structures that may function as common raven nesting or perching sites are not authorized except as specifically stated by the Bureau. The project proponent shall describe anticipated structures to the Bureau during initial project review.

15. At the end of the project, disturbed areas, including new access roads, shall be recontoured and reseeded with an appropriate mixture of native plant species according to Bureau specifications. After site rehabilitation, all desert tortoise-proof fence shall be removed.

16. The project proponent shall acquire sufficient off-site habitat lands to compensate for the unmitigated impacts of the project on the desert tortoise. The Bureau's compensation formula defined in Recommendations for the Management of the Desert Tortoise in the California Desert (1988) yields a compensation ratio of 4:1 for permanently disturbed acreage and a ratio of 2:1 for temporarily disturbed acreage associated with the proposed action. Therefore, desert tortoise habitat acreage totalling 1,480 acres shall be purchased by the Fort Cady Minerals Corporation and transferred to the Bureau. All compensation lands shall be within Bureau-designated Category I tortoise habitat within the West Mojave Region and shall be approved by the Bureau prior to satisfaction of this requirement. Acquisition of compensation lands shall be coordinated through the Bureau's California Desert District Realty Staff. Compensation requirements must be satisfied within one year of mining plan authorization.

Effects of the Proposed Project on the Listed Species

Species Account

On August 4, 1989, the Service published an emergency rule listing the Mojave population of the desert tortoise as endangered. In its final rule, dated April 2, 1990, the Service determined the Mojave population of the desert

tortoise to be threatened. The Service is currently in the process of developing a recovery plan. Critical habitat has not yet been proposed.

The desert tortoise is a large, herbivorous reptile found in portions of the California, Arizona, Nevada, and Utah deserts. It also occurs in Sonora and Sinaloa, Mexico. Generally, desert tortoises are active during the spring and early summer when annual plants are most common. Additional activity occurs during warmer fall months and occasionally after summer rain storms. Desert tortoises spend the remainder of the year in burrows, escaping the extreme weather conditions of the desert.

Further information on the range, biology, and ecology of the desert tortoise can be found in Burge (1978), Burge and Bradley (1976), Hovik and Hardenbrook (1989), and Weinstein et al. (1987).

Approximately two-thirds of the project site is located on a bajada with numerous washes. Creosote bush (Larrea tridentata), bursage (Ambrosia dumosa), beavertail cactus (Opuntia basilaris), pencil cholla (O. ramosissima), and big galleta grass (Hilaria rigida) are common perennial species on this bajada. The remainder of the site is covered by lava flows with sparse vegetation.

Thirteen standard triangular transects were conducted to estimate the density of desert tortoises in the areas surrounding the project site. The plant site, well fields, gypsum deposition area, a 200-foot wide corridor centered on the access roads and main water line, and a 500-foot wide corridor centered on the railroad spur and access road were surveyed for desert tortoises using the Service's recommended 100 percent methodology.

Based on the number of sign detected, Dames and Moore (1992) rated desert tortoise densities as being from very low to very high as follows:

Range (number of desert tortoises per square mile)	Relative Density
0 - 10	Very low
10 - 45	Low
45 - 90	Moderate
90 - 140	High
140+	Very high

The solution well field, gypsum deposition site, and evaporation ponds were surveyed in October, 1990, by the Lilburn Corporation. The ponds and gypsum site were rated as supporting relatively low densities of desert tortoises and the solution well field was rated as moderate. These surveys were conducted prior to the heavy rains of March, 1991, after several years of drought. The Service has noted several instances where surveys conducted during the drought underestimated the numbers of desert tortoises. These results should be viewed with this information in mind.

The remainder of the desert tortoise surveys were conducted by Dames and Moore in February, 1992. These surveys indicated a patchy distribution of desert tortoises, ranging from areas of low to very high relative densities (Figure

1). The combined Lilburn and Dames and Moore surveys detected 363 corrected sign, including 7 live desert tortoises.

The biological assessment does not discuss the degree of existing disturbance on the site. However, a pilot operation for boron extraction was operated prior to 1989 and a processing plant remains on-site from that activity in the eastern portion of section 25. The existing Pisgah Crater cinder mine and Rheox mine are located in the immediate vicinity.

Analysis of Impacts

The proposed project would result in the take of desert tortoises which inhabit the plant facility, gypsum deposition area, pipeline and access rights-of-way, and well field sites. These impacts, including the loss of habitat within these areas, would occur during the construction phase of the proposed action. Additional desert tortoises could be taken if measures are not implemented to prevent animals from entering work areas, the rail line, and the access roads.

Approximately 368 acres of habitat would be destroyed by construction of project facilities. The area of the solution well field is estimated to be 273 acres. Habitat loss within the well field would likely be restricted to the access roads and individual well sites with areas between the well sites would remain undisturbed. However, desert tortoises would be excluded from use of the entire site during operation of the mine.

The proposed gypsum deposition area was described in the biological assessment as supporting a low density of desert tortoises. However, this density estimate is based on a survey of a 92 acre site, which is larger than the area that was actually proposed. Also, as discussed previously in this biological opinion, this density estimate was determined during an extended drought when desert tortoise abundance was occasionally underestimated during surveys. Bureau staff estimate, with supporting evidence from surveys conducted in an adjacent area, that the proposed location for the gypsum deposition area contains more desert tortoises than is indicated by the biological assessment. The area immediately west of the existing processing plant (i.e., the NW¼SW¼ of section 25) supports fewer desert tortoises than the proposed site (T. Egan, Barstow Resource Area, Bureau, personal communication) and may be a viable site for the gypsum holding area.

The proposed action may also have several indirect adverse impacts on the desert tortoise. Construction activities, facility operation, and carcasses of animals killed on the access roads could result in the attraction of common ravens, which are known to prey on desert tortoises, to the vicinity of the Fort Cady facility. The access routes, both within and to the project area, would fragment desert tortoise habitat through the establishment of barriers to movement. Non-project associated use of the access roads would also potentially add to the number of road-killed animals and increase opportunities for vandalism and collection of desert tortoises.

The description of the proposed action does not specify how storm water would be diverted around the gypsum deposition area by the interceptor ditch. The

diversion of sheet flow or washes across the bajada has the potential to alter the plant communities and physical structure of the habitat downslope from the ditch. These impacts have not been quantified and may not be possible to mitigate.

Fragmentation of desert tortoise populations may occur where above ground water and solution pipelines would restrict the movement of animals. The recommended mitigation measures in the biological assessment are to bury or place fill dirt over the pipeline every 1/2 mile to allow passage of desert tortoises. We anticipate that desert tortoise-proof fencing along the main access road from the freeway and around the solution well field and other major project facilities, with the subsequent removal of desert tortoises from these areas, would eliminate the need to provide passage for animals over pipelines in these areas. However, the above ground water well line is over six miles long, which may render the installation of desert tortoise-proof fencing infeasible. The recommended passages at 1/2-mile intervals may not be adequate to allow adult desert tortoises to cross the pipeline while remaining within their home ranges. Also, hatchling desert tortoises, which have presumably much smaller activity areas, could be even more restricted in their movements.

Desert tortoises would also be at risk from maintenance of project facilities that lie outside of areas protected by desert tortoise-proof fences, such as along the water well pipeline. The recommended speed limit of 25 miles per hour in the biological assessment would not allow drivers to see smaller desert tortoises in time to avoid them.

The Bureau's request for formal consultation also notes that the applicant would be required to compensate, through the acquisition of private lands their subsequent transferral to the Bureau, for habitat that would be destroyed by the proposed action. Such acquisitions have the potential to improve the overall management of the species, as desert tortoise habitat is brought into public ownership and becomes subject to Federal regulation of multiple use. Acquired lands also are eligible for inclusion in habitat enhancement and management plans which could further improve their wildlife values. Therefore, implementation of the proposed action would include the acquisition and management of compensation lands which support desert tortoises, and would result in some beneficial impact to this species.

The Service believes that the impacts described above will not jeopardize the continued existence of the species. We present this conclusion for the following reasons:

1. Although the proposed project area consists of 7,000 acres, a relatively small portion would be disturbed by project activities. The proposed facilities would be located in several discrete areas that would disperse the impacts to the desert tortoise.

2. The Bureau's biological assessment includes mitigation measures which would reduce the take of individual desert tortoises and their habitat, and should not fragment desert tortoise populations within the area.

Cumulative Effects

Cumulative effects are those impacts of future State and private actions that are reasonably certain to occur in the project area. Future Federal actions will be subject to the consultation requirements established in section 7 of the Act and, therefore, are not considered cumulative to the proposed project.

Many of the actions that are reasonably expected to occur within the vicinity of the project will be subject to section 7 consultations, because large portions of the desert consist of Federal lands. Numerous unauthorized actions on both Federal and non-Federal lands, such as collection and vandalism of desert tortoises and off-highway vehicle use, will continue to degrade desert tortoise populations and their habitat, particularly in areas that receive large amounts of recreational use. The general vicinity of the project area is not known to receive intensive use for recreation.

The Service has contacted the Counties of Inyo, San Bernardino, Kern, Riverside, and Los Angeles (and the incorporated areas within the desert) regarding the listing of the desert tortoise and its implications for activities permitted by these agencies. Several agencies in these counties have expressed interest in attempting to obtain a section 10(a)(1)(B) permit from the Service in connection with a coordinated Habitat Management Plan/Habitat Conservation Plan. This plan, which is currently being developed by the Bureau, Service, California Department of Fish and Game, local agencies, and numerous interest groups in the desert, would be submitted in support of a section 10(a)(1)(B) permit application.

Incidental Take

Section 9 of the Act prohibits the take of listed species without special exemption. Taking is defined as harassing, harming, pursuing, hunting, shooting, wounding, killing, trapping, capturing, collecting, or attempting to engage in any such conduct. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavior patterns, including breeding, feeding, or sheltering. Under the terms of sections 7(b)(4) and 7(o)(2) of the Act, taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with this incidental take statement. The measures described as reasonable and prudent measures and terms and conditions in this biological opinion are nondiscretionary, and must be undertaken by the agency or made a binding condition of any grant or permit, as appropriate.

This biological opinion anticipates the following forms of take which would be associated with implementation of the reasonable and prudent measures:

1. Three (3) desert tortoises in the form of direct mortality during construction of project facilities.

2. One (1) desert tortoise every two (2) years in the form of direct mortality during operation of the proposed facility.

3. Thirty (30) desert tortoises in the form of harassment resulting from moving animals out of harm's way during construction and operation of the proposed project.

This biological opinion does not authorize any form of take that is not incidental to construction and operation of the mining operation proposed by the Fort Cady Minerals Corporation.

If the incidental take authorized by this biological opinion is met, the Bureau shall immediately notify the Service in writing. If the incidental take authorized by this biological opinion is exceeded, the Bureau shall immediately notify the Fort Cady Minerals Corporation to cease the activity resulting in the take and shall reinitiate formal consultation with the Service.

Reasonable and Prudent Measures

The Service believes that the following reasonable and prudent measures are necessary and appropriate to minimize the incidental taking authorized by this biological opinion:

1. Worker education programs, defined work areas, and well-defined operational procedures shall be implemented, with the cooperation of on-site qualified biologists, to avoid the take of desert tortoises and minimize loss of their habitat during construction and operation of the proposed mining operation.

2. Attraction of common ravens and other potential tortoise predators to the project area areas shall be reduced to the maximum extent possible.

Terms and Conditions

To be exempt from the prohibitions of section 9 of the Act, the Bureau is responsible for compliance with the following terms and conditions, which implement the reasonable and prudent measures described above.

1. If the Fort Cady Minerals Corporation fails to comply with any of the reasonable and prudent measures or terms and conditions of this biological opinion, the Bureau shall suspend the right-of-way permit for the public lands until such time that the Fort Cady Minerals Corporation is in compliance with these terms and conditions. The Bureau shall also notify the Fort Cady Minerals Corporation at that time that failure to comply will lead to revocation of the right-of-way permit.

2. The Bureau shall ensure that the following mitigation measures, submitted by the Bureau with the request for formal consultation and slightly modified herein by the Service, are implemented:

> 2.1 The mine operator shall designate a field contact representative (FCR) who will be responsible for overseeing compliance with protective stipulations for the desert tortoise and for coordination on compliance with the Bureau and the Service. The FCR shall have the authority to

halt all mining activities that are in violation of the stipulations. The FCR may be the mine operator, the mine manager, any other mine employee, or a contracted biologist.

2.2 An employee education program must be received, reviewed, and approved by the Bureau at least 15 days prior to the presentation of the program. The program may consist of a class or video presented by a qualified biologist (Bureau or contracted) or a video. Wallet-sized cards with important information for workers to carry are recommended. All mine employees and contractors shall participate in the desert tortoise education program prior to initiation of mining activities. The operator shall be responsible for ensuring that the education program is developed and presented prior to conducting activities. New employees shall receive formal, approved training prior to working on-site. The program shall cover the following topics at a minimum:

- distribution of the desert tortoise,
- general behavior and ecology of the desert tortoise,
- sensitivity to human activities,
- legal protection,
- penalties for violations of State or Federal laws,
- reporting requirements, and
- project protective mitigation measures.

2.3 Only biologists authorized by the Service and the Bureau shall handle desert tortoises. The mine operator shall submit the name(s) of the proposed authorized biologist(s) to the Service for review and approval at least 15 days prior to the onset of activities. No mining activities shall begin until an authorized biologist is approved.

2.4 The authorized biologist shall be required on-site during pre-construction and construction activities which could harm desert tortoises. This biologist shall have authority from the operator to halt any action that might result in harm to a desert tortoise.

2.5 The area of disturbance shall be confined to the smallest practical area, considering topography, placement of facilities, location of burrows, pubic health and safety, and other limiting factors. Work area boundaries shall be delimited with flagging or other marking to minimize surface disturbance associated with vehicle straying. Special habitat features, such as burrows, identified by the qualified biologist shall be avoided to the extent possible. To the extent possible, previously disturbed areas within the mining site shall be utilized for the stockpiling of excavated materials, storage of equipment, digging of slurry and borrow pits, location of office trailers, and parking of vehicles. The qualified biologist, in consultation with the project proponent, shall ensure compliance with this measure.

2.6 All project facilities, including any borrow pits, shall be enclosed within desert tortoise-proof fences. The fences shall be constructed under the direction of the authorized biologist or a Bureau compliance technician. The fences shall be located to avoid all desert tortoise burrows; to the extent possible, burrows will be placed on the

outside of the exclosures. The fences shall be constructed of 1/2-inch mesh hardware cloth. They shall extend 18 inches above ground and 12 inches below ground. Where burial of the fences is not possible, the lower 12 inches shall be folded outward against the ground and fastened to the ground so as to prevent entry by desert tortoises. The fences shall be supported sufficiently to maintain their integrity. The fences shall be checked at least monthly and maintained when necessary by the mine operator to ensure their integrity. All desert tortoise-proof fencing shall be removed after site rehabilitation.

2.7 After fence installation, the authorized biologist shall conduct a thorough survey for desert tortoises within all enclosed areas. All desert tortoises found shall be marked and removed from the exclosures and placed outside the nearest fence. If the removal is during the season of above-ground activity, the desert tortoises shall be placed beside a nearby burrow of appropriate size. If the removal is not in the season of above-ground activity, the desert tortoise shall be moved (dug out of burrow if necessary) on a seasonably warm day and placed at the mouth of a nearby burrow of appropriate size. If the desert tortoise does not enter the burrow, an artificial burrow may be needed. The authorized biologist shall be allowed some judgement and discretion to ensure that survival of the desert tortoise is likely.

2.8 Desert tortoises moved from within a fenced site shall be marked for future identification. An identification number using the acrylic paint/epoxy covering technique shall be placed on the fourth left costal scute (Fish and Wildlife Service 1991). 35-mm slide photographs of the carapace, plastron, and the fourth costal scute shall be taken. No notching is authorized.

2.9 Desert tortoises may be handled only by the authorized biologist and only when necessary. New latex gloves shall be used when handling each desert tortoise to avoid the transfer of infectious diseases between animals. In general, desert tortoises should be moved the minimum distance possible to ensure their safety. The authorized biologist(s) shall follow the general handling methods contained in the "Protocols for Handling Live Tortoises" (Arizona Game and Fish Department et al. 1991). This biological opinion does not authorize replacement of lost fluids in any desert tortoise with a syringe or the drawing of blood.

2.10 The authorized biologist shall maintain a record of all desert tortoises encountered during mining activities. This information shall include for each desert tortoise:

1) the locations (narrative and maps) and dates of observations;
2) general condition and health, including injuries and state of healing and whether animals voided their bladders;
3) location moved from and location moved to; and
4) diagnostic markings (i.e., identification numbers or marked lateral scutes).

2.11 No later than 90 days after completion of construction activities, the FCR and authorized biologist shall prepare a report for the Bureau. The report shall document the effectiveness and practicality of the mitigation measures, the number of desert tortoises excavated from burrows, the number of desert tortoises moved from the site, the number of desert tortoises killed or injured, and the specific information for each desert tortoise as described in measure 10. The report shall make recommendations for modifying the stipulations to enhance desert tortoise protection or to make it more workable for the operator. The report shall provide an estimate of the actual acreage disturbed by various aspects of the operation.

2.12 All trash and food items shall be promptly contained within raven-proof containers. These shall be regularly removed from the project site to reduce the attractiveness of the area to common ravens and other desert tortoise predators.

2.13 Structures that may function as common raven nesting or perching sites are not authorized except as specifically stated by the Bureau. The project proponent shall describe anticipated structures to the Bureau during initial project review.

2.14 At the end of the project, disturbed areas, including new access roads, shall be recontoured and reseeded with an appropriate mixture of native plant species according to Bureau specifications. After site rehabilitation, all desert tortoise-proof fence shall be removed.

2.15 The project proponent shall acquire and transfer to the Bureau 1,480 acres of off-site desert tortoise habitat lands to compensate for the unmitigated impacts of the project on the desert tortoise. All compensation lands shall be within Bureau-designated Category I tortoise habitat within the West Mojave Region and shall be approved by the Bureau prior to satisfaction of this requirement. Acquisition of compensation lands shall be coordinated through the Bureau's California Desert District Realty Staff. Compensation requirements must be satisfied within one year of mining plan authorization.

3. The Bureau shall ensure that common ravens do not nest on any structures erected by the Fort Cady Minerals Corporation. Any above-ground utility poles shall be designed and installed to preclude nesting by common ravens. If common ravens construct nests on its facilities, the Fort Cady Minerals Corporation or the Bureau shall be responsible for obtaining the appropriate permit from the Service's Division of Law Enforcement to remove the nests. The Bureau shall also ensure that the Fort Cady Minerals Corporation monitors common raven use in the vicinity of the proposed facility in accordance with standard Bureau raven monitoring techniques.

4. Fragmentation of desert tortoise habitat shall be reduced through the installation of culverts or underpasses under the access roads and the railroad at all washes and at 0.5 mile intervals. Culvert size, location, and installation shall be in accordance with methods developed by the Bureau's Desert Tortoise Research Group. Culverts or underpasses shall be maintained

to remove trash and other debris at least twice per year and to ensure that they are in all ways passable to desert tortoises, prior to its spring and late summer activity periods.

5. If desert tortoise-proof fencing is not constructed along the water pipeline, all project-associated vehicles shall maintain a speed limit of 20 miles per hour on this access road. The water pipeline shall be either buried or elevated for at least 100 feet every 1/4 to 1/2 mile to allow for the passage of desert tortoises. If the pipeline is elevated, the Bureau shall ensure that the height of elevation will allow for the free passage of the largest possible desert tortoise.

6. The Bureau shall require the Fort Cady Minerals Corporation to relocate the gypsum deposition area to an area containing a relatively low density of desert tortoises. We suggest that the area immediately west of the existing processing plant (i.e., the NW¼SW¼ of section 25) be evaluated as a potential alternate site for the deposition area.

7. A speed limit of 20 miles per hour shall be maintained by all employees and contractors of the Fort Cady Minerals Corporation on all project roads that are not protected by desert tortoise-proof fencing.

8. When outside of areas enclosed by desert tortoise-proof fences, workers shall inspect underneath any parked vehicles immediately prior to moving the vehicles. If a desert tortoise is beneath the vehicle, the authorized biologist shall be contacted to move the desert tortoise from harm's way. Alternatively, the vehicle shall not be moved until the desert tortoise has left of its own accord. The authorized biologist shall be responsible for taking appropriate measures to ensure that any desert tortoise moved in this manner are not exposed to temperature extremes which could be harmful to the animal.

9. When maintenance activities occur outside of areas enclosed by desert tortoise-proof fences, work areas shall be surveyed by the authorized biologist prior to the onset of maintenance to determine whether desert tortoises are present. If desert tortoises are present, the appropriate terms and conditions of this biological opinion shall be implemented to avoid take. All trenches, holes, or other hazards to desert tortoises shall be surrounded by desert tortoise-proof fencing or eliminated as hazards prior to the workers leaving the site. Alternatively, if fence construction is not feasible, the authorized biologist shall be present at all times that hazards to desert tortoises exist.

10. The authorized biologist shall instruct appropriate mine employees, such as environmental compliance personnel or project managers, in the proper method of handling desert tortoises in the event of emergencies involving animals during routine operation of the facility. Alternatively, the Fort Cady Minerals Corporation shall retain a local biologist, to be authorized by the Service and the Bureau, who would be available on short notice in the event of an emergency. All desert tortoises handled under emergency circumstances shall be reported to the Service and Bureau immediately and the

information described in term and condition 2.10 of this biological opinion shall be collected.

Disposition of Dead, Injured, or Sick Desert Tortoises

Upon locating dead, injured, or sick desert tortoises, initial notification must be made within three working days of the finding to the Service's Division of Law Enforcement in Torrance, California, at (310) 297-0062. The Service's Ventura Office should also be notified at (805) 644-1766. Written notification to both offices must be made within five calendar days and include the date, time, and location of the carcass, a photograph, and any other pertinent information. Care must be taken in handling sick or injured animals to ensure effective treatment and care, and in handling dead specimens to preserve biological material in the best possible state. The Bureau shall endeavor to place the remains of intact desert tortoises with educational or research institutions holding the appropriate State and Federal permits per their instructions. If such institutions are not available or the shell has been damaged, the information noted above shall be obtained and the carcass left in place. The Bureau should consider marking the carcass in a manner that would not be toxic to other wildlife to ensure that it would not be re-recorded in the future.

Arrangements regarding proper disposition of potential museum specimens shall be made with the institution by the Bureau prior to implementation of the action. Injured animals should be transported to a qualified veterinarian. Should any treated desert tortoises survive, the Service should be contacted regarding the final disposition of the animals.

Conservation Recommendations

In furtherance of the purposes of the Endangered Species Act (sections 2(c) and 7(a)(1)) that mandate Federal agencies to utilize their authorities to carry out programs for the conservation of listed species, we recommend implementing the following actions:

1. The Bureau should assist the Fort Cady Minerals Corporation in evaluating alternative means of providing flood protection to the facility that would not adversely affect desert tortoise habitat downslope from the diversion structure. The Service is concerned that alteration of flood flows by the proposed structure would result in unquantifiable deterioration of desert tortoise habitat.

2. The Bureau should require the Fort Cady Minerals Corporation to closely monitor desert tortoises that are translocated during project construction through use of radio transmitters to ensure the survival of these animals. Such a program would also provide valuable information on the effectiveness of this commonly used mitigation measure in reducing take. The Service's Ventura Office is willing to assist the Bureau and the Fort Cady Minerals Corporation with receiving authorization for this monitoring, either under the auspices of this biological opinion or through a section 10(a)(1)(A) permit.

3. The Bureau should prepare and implement a management plan for desert tortoises and other sensitive biological resources in the vicinity of the Pisgah lava flows. This area supports desert tortoises in extremely unusual habitat conditions for the western Mojave Desert, but has been largely overlooked in recent planning efforts.

The Service requests notification of the implementation of any conservation recommendations so we can be kept informed of actions that either minimize or avoid adverse effects, or that benefit listed species or their habitats.

Conclusion

This concludes formal consultation on the Fort Cady Project Mining Plan Proposal. Reinitiation of formal consultation is required if: 1) the amount or extent of incidental take is reached; 2) new information reveals effects of the agency action that may adversely affect listed species or critical habitat in a manner or to an extent not considered in this biological opinion; 3) the agency action is subsequently modified in a manner that causes an effect to a listed species or critical habitat that was not considered in this biological opinion; or 4) a new species is listed or critical habitat designated that may be affected by this action (50 CFR 402.16). We would appreciate notification of your final decision on this matter. Any questions or comments should be directed to Ray Bransfield at the Ventura Office at (805) 644-1766.

Attachment: Figure 1 from Dames and Moore 1992.

Literature Cited

Arizona Game and Fish Department, California State Resource Agencies, Nevada Department of Wildlife, Utah Division of Wildlife Resources, United States Department of the Interior, Bureau of Land Management, Fish and Wildlife Service. 1990. Protocols for handling live tortoises. In: Interim techniques handbook for collecting and analyzing data on desert tortoise populations and habitats. In: procedures for Endangered Species Act compliance for the Mojave desert tortoise. United States Department of the Interior, Fish and Wildlife Service. 1990. Regions 1, 2, and 6.

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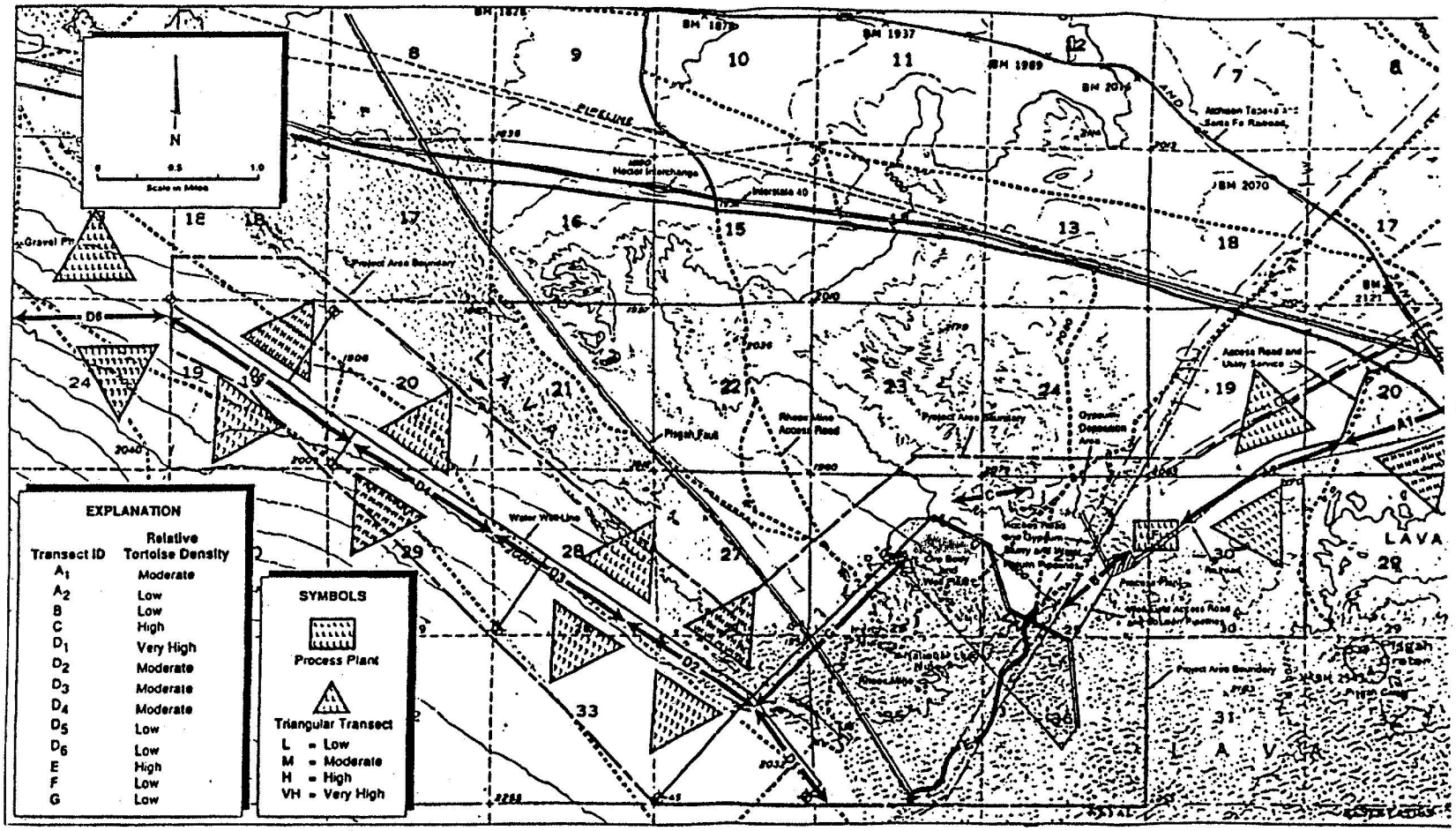

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FEBRUARY 1

DAMES & MOORE

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FIGURE 1

United States Department of the Interior

FISH AND WILDLIFE SERVICE

FISH AND WILDLIFE ENHANCEMENT
Ventura Field Office
2140 Eastman Avenue, Suite 100
Ventura, California 93003

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April 9, 1993

Memorandum

To: Area Manager, Barstow Resource Area, Bureau of Land Management, Barstow, California

From: Field Supervisor, Fish and Wildlife Enhancement, Ventura Field Office, Ventura, California

Subject: Amendment to the Biological Opinion for the Fort Cady Project Mining Plan, San Bernardino County, California (CAMC 20175, CACA 2853-32, CACA 28182, CACA 31199, 3809(CA-068.32)) (1-6-92-F-54)

The Fish and Wildlife Service (Service) has reviewed your request to amend the referenced biological opinion. The proposed amendments were discussed in detail at an on-site meeting on January 28, 1993, attended by staff from the Bureau of Land Management (Bureau) and the Service, and representatives of the Fort Cady Minerals Corporation and its consultant, Dames and Moore. Specifically, the following alterations to the biological opinion have been requested:

1. Removal of the limit on the number of desert tortoises which could be harassed, through moving them from harm's way, during project construction and operation; and

2. Relocation of the gypsum deposition area from the proposed location to a previously disturbed site. The freshwater delivery pipeline would also need to be moved to service the new deposition site.

The Service has previously discussed the issue of harassment limits for desert tortoises with Dames and Moore personnel in relation to the Kern river Pipeline. Dames and Moore observed that monitors often watched individual desert tortoises for long periods of time without handling them to ensure their safety and to keep from reaching the harassment limit. During these times, the monitors would be unavailable to protect desert tortoises along other portions of the line. We believe that elimination of the harassment limit would enable the authorized biologists to use more discretion in protecting desert tortoises without increasing the adverse impacts of the proposed action on the species.

The Service fully supports relocation of the gypsum deposition area to the newly proposed location. We believe that the new location would greatly

reduce the direct and indirect impacts of the proposed action on the desert tortoise, and fully meets the intent of term and condition 6. Therefore, amendment of the biological opinion for the relocation of the deposition area is not required. The impacts of the water delivery pipeline and the measures proposed to mitigate the impacts would remain the same under the alternative site and are thus covered by the biological opinion.

We understand that the revised compensation acreage is in conformance with the policies of the Desert Tortoise Management Oversight Group.

The referenced biological opinion is hereby amended in the following manner:

1. The incidental take limit of 30 desert tortoises in the form of harassment from moving animals from harm's way during construction and operation of the proposed project is deleted from the biological opinion.

2. The first sentence of term and condition 2.15 now reads: The project proponent shall acquire and transfer to the Bureau 341 acres of off-site habitat desert tortoise habitat lands to compensate for the unmitigated impacts of the project on the desert tortoise.

Staff at the Ventura Field Office are available to assist the Bureau in obtaining appropriate authorization for monitoring desert tortoises that may be moved as a result of the proposed action. Please notify us as study plans are developed so we can assist you as efficiently as possible.

The Service would like to extend its full appreciation to the Bureau for its efforts to conserve the desert tortoise and other biological resources in the Fort Cady area, and we look forward to continued cooperation with you and your staff. If you have any questions concerning these comments, please contact Ray Bransfield of my staff at (805) 644-1766.

Judy Hohman

cc: BLM, Sacramento, CA
BLM, Riverside, CA