APPENDIX E
COORDINATION AND CONSULTATIONS

Notice of Intent

[Federal Register: July 27, 2006 (Volume 71, Number 144)]
[Notices]
[Page 42659-42660]
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DEPARTMENT OF THE INTERIOR

Bureau of Land Management

[CO-130; COC 69290]

Notice of Intent To Prepare an Environmental Impact Statement for the Proposed Red Cliff Coal Mine, Railroad Spur Line, and Other Associated Surface Facilities in Garfield County and Mesa County, CO

AGENCY: Bureau of Land Management, Interior; U.S. Army Corps of Engineers, Army; Office of Surface Mining, Interior.

ACTION: Notice of intent.

SUMMARY: Pursuant to Section 102(2)(c) of the National Environmental Policy Act of 1969 (NEPA) and the Federal Land Policy and Management Act of 1976, notice is hereby given that the Bureau of Land Management (BLM), Grand Junction Field Office located in Grand Junction, CO, will be directing the preparation of an Environmental Impact Statement (EIS) for the Proposed Red Cliff Coal Mine near Loma, Colorado, including Right-of-Way and Land Use Applications for facilities on Federal Lands, submitted by CAM-Colorado, LLC (CAM).

The EIS will analyze the development of surface facilities for coal mining associated with CAM's proposed underground Red Cliff Mine, including roads, a water pipeline, coal stockpile and waste disposal areas, a coal preparation plant, the mine portal, other administrative and operations facilities, and a railroad spur line that would connect to the existing Union Pacific Railroad line near Mack, Colorado. Cooperating agencies include the U.S. Army Corps of Engineers, the Office of Surface Mining, the Colorado Department of Natural Resources, Mesa County, and Garfield County. The BLM invites the public to participate in the NEPA process.

DATES: The scoping comment period will commence with the publication of this notice and terminate at 45 days. A public meeting will be held during the scoping comment period in Fruita, Colorado. Comments on the scope of the EIS, including concerns, issues, or proposed alternatives that should be considered, can be made at the public meeting or can be submitted in writing to the address below. The date of the public meeting will be announced through the local media, newsletters, and the BLM Red Cliff Mine mailing list. The Draft EIS is expected to be available for public review and comment in Spring 2007 and the Final EIS is expected to be available in late 2007.

ADDRESSES: Written comments should be sent to: David Lehmann, BLM, 2815

H Road, Grand Junction, Colorado 81506. At the close of the scoping comment period, written comments, including names and addresses of respondents, will be available for public review at the offices of the BLM Grand Junction Field Office, 2815 H Road, Grand Junction, Colorado 81506, during normal working hours (7:30 a.m. to 4:30 p.m., except holidays). Submissions from organizations or businesses will be made available for public inspection in their entirety. Individuals may request confidentiality with respect to their name, address, and phone number. If you wish to have your name or street address withheld from public review, or from disclosure under the Freedom of Information Act, you must state this prominently at the beginning of your comment. Such requests will be honored to the extent allowed by law. Comment contents will not be kept confidential. The Draft EIS will consider comments and issues received during public scoping, and responses to comments on the Draft EIS will be published as part of the Final EIS.

FOR FURTHER INFORMATION CONTACT: For further information or to have your name added to our mailing list, contact David Lehmann, Supervisory Natural Resource Specialist, at (970) 244-3021. E-mail can be directed to David_Lehmann@blm.gov and mail can be sent to the address above.

SUPPLEMENTARY INFORMATION: On September 28, 2005, CAM filed a Right-of-Way application with BLM for facilities associated with the proposed Red Cliff Mine. Subsequently, on February 10, 2006, CAM submitted a Land Use Application to the BLM for other facilities supporting the proposed coal mine project. A mine permit will also be required for all mine facilities, in accordance with U. S. Office of Surface Mining and Colorado Division of Minerals and Geology regulations. This EIS will meet the National Environmental Policy Act requirements for the mine permit. There will be additional opportunities for public

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involvement when the mine permit application is processed.

The proposed Red Cliff Mine is located approximately 11 miles north of the towns of Mack and Loma, Colorado, and 1.5 miles east of Colorado State Highway 139. CAM is proposing a new portal and associated facilities to extract low-sulfur coal from Federal Coal Leases C-0125515 and C-0125516 and from several potential new Federal leases as well as a small amount of private coal.

The proposed railroad line would traverse approximately 9.5 miles of Federal land, and include one crossing of State Highway 139 and approximately 5 miles of private land. The EIS will analyze the potential impacts associated with the construction and operation of facilities proposed in CAM's Right-of-Way and Land Use Applications, and other potential impacts associated with the Red Cliff Mine project. Citizens are invited to help identify issues or concerns and to provide input on the proposed action. Alternatives will be developed through the public involvement process and analyzed in the EIS.

A company affiliated with CAM is currently mining approximately 280,000 tons of coal per year from the nearby McClane Canyon Mine. CAM's production from the Red Cliff Mine would be approximately 8 million tons per year. CAM is proposing to load the coal onto rail cars at the mine site and ship it to coal consumers. CAM would recover this coal by mining the Cameo Seam using both room and pillar and longwall mining techniques. As is consistent with the goals of the 2001 National Energy Policy report and the Energy Policy Act of 2005, this project

would help meet the existing and future domestic market demand for low-sulfur coal, thereby supporting clean coal initiatives; and would encourage and facilitate meeting national demands for electricity from a domestic source of energy.

The BLM will analyze the potential impacts of the proposed action and no action alternatives, as well as other reasonable alternatives that could include optional approaches for activities proposed in the project area. The alternatives will be further defined as part of the scoping and planning process. Consultation with tribal governments will be accomplished as part of the planning process. Section 106 consultations with the Colorado State Historic Preservation Officer will be conducted as required by the National Historic Preservation Act. U. S. Fish and Wildlife Service Section 7 consultations will be conducted as required by the Endangered Species Act. BLM will consult with the U.S. Army Corps of Engineers as required by the Clean Water Act.

Dated: June 5, 2006.
Catherine Robertson,
Field Manager.
[FR Doc. E6-12010 Filed 7-26-06; 8:45 am]
BILLING CODE 4310-JB-P

ESA Consultation

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Services
764 Horizon Drive, Building B
Grand Junction, Colorado 81506-3946

IN REPLY REFER TO:
ES/CO:BLM/GJFO
TAILS 65413-2006-SL-0151

September 5, 2006

Memorandum

To: Field Office Manager, Bureau of Land Management, Grand Junction, Colorado

From: Western Colorado Supervisor, Fish and Wildlife Service, Ecological Services, Grand Junction, Colorado Allan R Pfister

Subject: Species List and Comments Regarding Preparation of an Environmental Impact Statement for the Proposed Central Appalachia Mining Red Cliff Coal Mine Project, CO-130-1150.

This is in response to your letter dated August 2, 2006, requesting a list of threatened and/or endangered species which may be impacted by the proposed Central Appalachia Mining Red Cliff Coal Mine Project. The project comprises a coal mine operation north of Mack, Colorado, and an associated rail spur. The Fish and Wildlife Service (Service) provides these comments under the authority of, and in accordance with, the provisions of section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.), and the Interagency Cooperation Regulations (50 CFR 402).

The Service provides the following list of federally listed, threatened and endangered species, and candidates for potential future listing, that could be affected by the proposed project.

Bald eagle	*Haliaeetus leucocephalus*	T
Bonytail*	*Gila elegans*	E
Colorado pikeminnow*	*Ptychocheilus lucius*	E
Phacelia submutica	De Beque phacelia	C
Humpback chub*	*Gila cypha*	E
Razorback sucker*	*Xyrauchen texanus*	E
Sclerocactus glaucus	Uinta Basin hookless cactus	T

(T = federally-listed threatened; E = federally-listed endangered; C = a Federal candidate species)
* Water depletions in the Upper Colorado River Basin may affect the species and/or critical habitat in downstream reaches in other states.

Black-footed ferrets (*Mustela nigripes*) could potentially inhabit the prairie dog colonies north of the canal that have suitable habitat. The Service is not recommending spotlight surveys at this time. However, we recommend your EIS evaluate the potential adverse

- effects of the project on the white-tailed prairie dog colonies, including enumerating and estimating the sizes of the colonies that would be crossed by the proposed rail line to determine if colonies exist that may meet the requirements for conducting black-footed ferret surveys.

Although unconfirmed by the Service, the Uinta Basin hookless cactus has been reportedly observed during surveys conducted north of Mack, and so we recommend you perform springtime reconnaissance surveys for this species in the project area, including along the proposed rail corridor.

If the Service can be of further assistance, please contact Rick Krueger at the letterhead address or (970) 243-2778, extension 17.

RKrueger:BLMGJFOCAMRedCliffCoalMineSpcLst.doc:090506

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Grand Junction Field Office
2815 H Road
Grand Junction, Colorado 81506
(970)244-3000, Fax: (970)244-3087

TAKE PRIDE IN AMERICA

IN REPLY REFER TO:
BA/Red Cliffs Coal Mine
CO-130

September 15, 2008

Al Pfister
U.S. Fish and Wildlife Service
Ecological Services
Grand Junction Field Office
764 Horizon Drive South, Building B
Grand Junction, CO 81506-3946

Dear Mr. Pfister:

Attached is a biological assessment prepared by BLM on behalf of CAM - Colorado LLC. CAM is proposing to construct new mine entries (portals) and associated facilities to extract low-sulfur coal. In addition to locating facilities on the existing and potential new coal leases, CAM would locate surface facilities on approximately 1,140 acres of BLM lands. These facilities would include the waste rock pile, railroad loop, the unit train loadout, and a conveyor system to move the coal and waste rock. Mesa County Road (CR) X (also known as Mitchell Road or Power Line Road) would be upgraded to serve as the mine access road from SH 139. The proposed Red Cliff Mine project area is located in west-central Colorado approximately 11 miles north of the towns of Mack and Loma, Colorado, and 1.5 miles east of Colorado State Highway 139.

The attached biological assessment contains a "may affect, is likely to adversely affect" determination for the four Colorado River fishes based on water depletion, a "may affect, is not likely to adversely affect" determination for hazardous materials impacts on the Colorado River fishes and a "may affect, is not likely to adversely affect" determination for the black-footed ferret. We request that the Service prepare a Biological Opinion for the Colorado River fishes and concur with the determination for the black-footed ferret.

Please contact Heidi Plank, Biologist at the Grand Junction Field Office (970-244-3012) with any questions.

Sincerely,

Catherine Robertson
Field Manager

Enclosures:
Biological Assessment
Biological Inventory

CAM–Colorado, LLC
Red Cliff Mine
Biological Assessment
Garfield and Mesa Counties, Colorado

Razorback Sucker

Prepared by:

WestWater Engineering
2516 Foresight Circle #1
Grand Junction, CO 81505

September 2008

1.0 INTRODUCTION

This Biological Assessment (BA) was prepared at the request of the Bureau of Land Management (BLM), Grand Junction Field Office (GJFO), for submittal to the U.S. Fish and Wildlife Service (USFWS), Western Colorado Ecological Services Field Office, Grand Junction, Colorado.

The purpose of this BA is to review the proposed CAM–Colorado, LLC (CAM) Red Cliff coal mine proposal in sufficient detail to determine potential effects to Endangered Species Act (ESA) listed species.

Section 7(a)(2) of the ESA of 1973 (USFWS 1973) (as amended) requires Federal agencies to consult with the USFWS to ensure that any action the agency authorizes, funds, or implements is not likely to jeopardize the continued existence of a listed species, threaten a species or result in the destruction or adverse modification of habitat. This BA is intended to fulfill the consultation requirements of Section 7(a)(2) associated with the approval of the requested BLM right of way (ROW).

2.0 PROPOSED ACTION

2.1 Location of the Red Cliff Mine

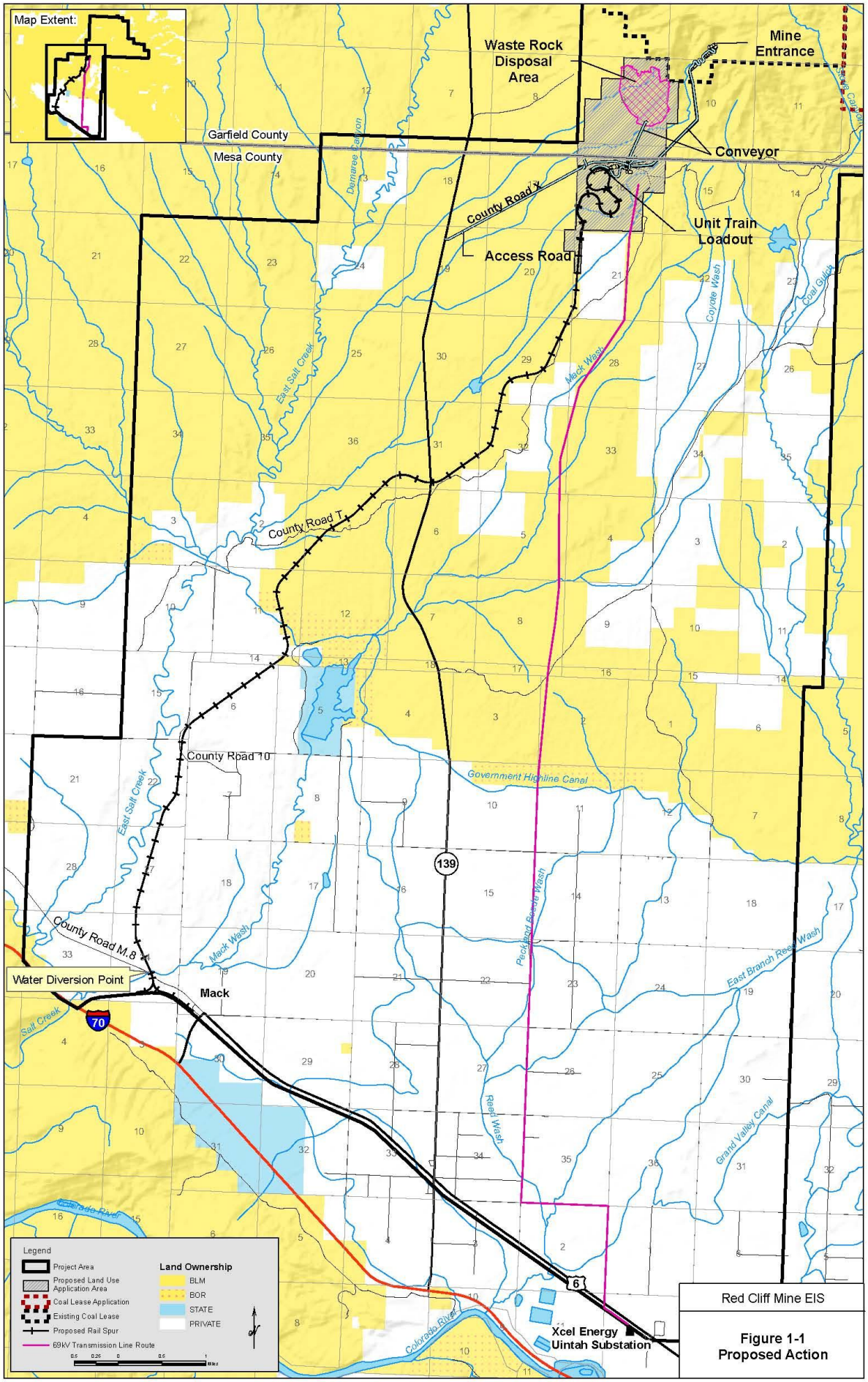
The proposed Red Cliff Mine project area is located in west-central Colorado approximately 11 miles north of the towns of Mack and Loma, Colorado, and 1.5 miles east of Colorado State Highway (SH) 139 (Figure 1). This location was selected based on location and quality of coal outcrop, access issues, and the need to be within CAM's existing coal leases.

The Proposed Action consists of a new underground coal mine including the construction of mine portals and associated processing facilities in Section 3, Township 8 South, Range 102 West (T8S, R102W). Coal would be transported from the mine site to the existing Union Pacific Railroad (UPRR) Grand Valley rail line, via a new spur line that will be constructed beginning near Mack, Colorado, to the mine site.

2.2 Purpose

The purpose of this project is to mine, transport, and offer coal for sale to help supply the energy needs of the United States. CAM proposes to utilize public and private lands to mine the coal and transport it to market.

Underground mining would be conducted 24 hours per day, 7 days per week, and 365 days per year by room and pillar and longwall mining techniques. CAM's production from the Red Cliff Mine would be up to 8 million tons per year of clean coal, with an estimated life of the mine of 30 years. CAM is proposing to load the coal onto rail cars at the mine site and ship it to coal consumers via the UPRR.


Map Extent:
Waste Rock Disposal Area
Mine Entrance
Garfield County
Mesa County
Conveyor
County Road X
Unit Train Loadout
Access Road
County Road T
County Road 10
Government Highline Canal
139
County Road M.8
Water Diversion Point
Mack
70
6
Xcel Energy Uintah Substation
Colorado River
Salt Creek
East Salt Creek
Mack Wash
Coyote Wash
Coal Gulch
Peckham Reese Wash
East Branch Reese Wash
Reese Wash
Grand Valley Canal
Legend
Project Area
Proposed Land Use Application Area
Coal Lease Application
Existing Coal Lease
Proposed Rail Spur
69kV Transmission Line Route
Land Ownership
BLM
BOR
STATE
PRIVATE
Red Cliff Mine EIS
Figure 1-1
Proposed Action

CAM is proposing to construct new mine entries (portals) and associated facilities to extract low-sulfur coal from existing Federal Coal Leases C 0125515, C 0125516, and C 0125439 (defined collectively as logical mining unit COC-57198); potential new federal coal leases; and a small amount of private coal. In addition to locating facilities on the existing and potential new coal leases, CAM would locate surface facilities on approximately 1,140 acres of BLM lands. These facilities would include the waste rock pile, railroad loop, the unit train loadout, and a conveyor system to move the coal and waste rock. Mesa County Road (CR) X (also known as Mitchell Road or Power Line Road) would be upgraded to serve as the mine access road from SH 139. Other facility components are listed below.

2.3 Construction Timing

The time of year that construction would commence depends upon obtaining BLM land use and ROW permits, along with other state and federal permits. Construction was broken down into two phases. Phase I (heavy earthwork) is estimated to take approximately six months; Phase II structure and installation) would require nine months, for an estimated total construction time of 12 to 15 months.

2.4 Facilities

2.4.1 Description

Proposed facilities associated with the mine include:

- Portal conveyor transfer buildings
- Fuel oil storage/fueling stations
- Electrical transformers
- Bathhouse/office building/parking lot
- Outdoor material storage areas
- Equipment shop
- Warehouse
- Washbay
- Covered storage
- Sewage treatment plant
- Water tank
- Water treatment building
- Mine vent fan
- Power line
- Non-coal waste storage
- Rock dust storage
- Pump house
- Conveyor transfer buildings
- Railroad
- Maintenance Road
- Water pipeline and diversion
- Coal storage piles
- Unit train loadout
- Coal preparation plant
- Mine access roads

2.4.2 Surface Facilities-Mine Site

A number of surface facilities are proposed to support the mining operation including, but not limited to, a ventilation fan, office, shop, package sewage treatment plant, and raw coal stockpile. These facilities would be located on the existing and proposed coal leases. It is also proposed to locate surface facilities on non-leased BLM-managed lands for which a land-use permit will be required. CAM submitted a Land Use Application and Permit dated February 10, 2006, to BLM for facilities to be located on BLM-managed lands. Surface facilities associated with the mine are described below. Dimensions and other details may change during final design.

- Coal Preparation Plant – The coal preparation plant would be a structural steel building where coal and rock are separated with heavy media circuits. The structure would be approximately 55 feet by 70 feet by 80 feet high. Facilities associated with the coal preparation plant include a thickener and motor control center.
- Motor Control Center – The motor control center room would be approximately 10 feet by 12 feet by 12 feet high.
- Thickener – The thickener would be a concrete structure where water is cleaned and returned to the preparation plant. The tank would be approximately 70 feet in diameter and 10 feet high. The reinforced concrete walls and floor would be approximately 10 inches thick.
- Conveyors – There would be fourteen separate conveyors associated with the mine. Conveyors would transport raw coal, waste rock, and clean coal throughout the facility.
- Conveyor Transfer Buildings – Conveyor transfer buildings are structural steel buildings where the beltline from the raw coal stockpile has angle points and, therefore, needs to change direction.
    - The portal conveyor transfer building would be a structural steel building where the main conveyor belt from the mine terminates. The coal from the mine will transfer to the stockpile conveyor. Waste rock conveyed from the mine will be transferred to the waste rock belt. The dimensions of the building would be approximately 22 feet by 26 feet by 45 feet high.
    - There would be four transfer buildings between the raw coal stockpile and the coal preparation plant. The dimensions of these buildings would be approximately 16 feet by 16 feet by 25 feet high.
    - There would be two additional transfer buildings near the preparation plant for clean coal and for waste rock.
- Raw Coal Stockpile – The raw coal stockpile would contain up to 300,000 tons of raw coal and would cover an area of 3.1 acres, including the stacking tubes.
- Stacking Tubes – The raw coal would be stacked by up to three concrete tubes each to minimize coal segregation and air particulate emissions. The tubes would be approximately 100 feet high and 12 feet in diameter.
- Reclaim Tunnel – A reclaim tunnel would be located under the stacking tubes and raw coal stockpile. It would be constructed of reinforced concrete. The inside dimensions of the tunnel would be approximately 13 feet high by 12 feet wide by approximately 430 feet long. A 42-inch diameter escape tube would be located on the northeast end of the tunnel. The 150-foot-long escape tube would terminate at a concrete fan housing that would be approximately 6 feet by 6 feet by 8 feet high.
- Washbay – The washbay would be a pre-engineered metal building used to clean equipment. The building would be approximately 50 feet by 25 feet with 24-foot eave heights.
- Unit Train Loadout – The disturbance associated with the unit train loadout would be located southwest of the mine on a private rail spur. Facilities associated with the unit train loadout would include the rail, access road, batch weigh system and conveyor. The loadout facilities would cover approximately 10.2 acres.

- Loadout Structure/Batch Weigh System – The loadout structure would consist of a structural steel building where the loadout conveyor terminates. The coal would be batch weighed and loaded into rail cars at this location. The dimensions of the building are approximately 30 feet by 40 feet by 120 feet high.
- Water Tank – A water tank would be a fabricated steel tank constructed on an oiled sand base. The tank would be approximately 52 feet in diameter and 32 feet high with a capacity of approximately 500,000 gallons.
- Water Treatment Building – The water treatment building would be located near the water tank. It would be approximately 14 feet by 20 feet with a 12-foot eave height.
- Sewage Treatment Plant – The package sewage treatment plant would utilize settling tanks, chlorine treatment, and an active aeration system. Any sludge generated would be hauled off-site and disposed of in accordance with local and state ordinances. Treated water would be discharged to a sedimentation pond and eventually into ephemeral surface drainage near the mine site. The building would be approximately 30 feet by 30 feet with a 10-foot eave height.
- Shop – The shop would be a pre-engineered metal building to store supplies and to repair and fabricate equipment. The building would be approximately 100 feet by 50 feet with a 24-foot eave height.
- Bath House/Office – The bath house and office would be a two story pre-engineered metal building of approximately 150 feet by 50 feet with a 24-foot eave height. There would be a paved parking area for employees and visitors at the office encompassing 0.8 acres.
- Retaining Wall – The 8-foot-high retaining wall would be approximately 850 feet long. This retaining wall would elevate the immediate portal area above the general portal level and provide a landing area for rock fall.
- Refuse Bin – The refuse (waste rock) bin would be utilized to hold surges in refuse production from the coal preparation plant and will load waste rock haul trucks. The refuse bin would be constructed of structural steel and is approximately 20 feet by 20 feet by 60 feet high.
- Rock Bins – Rock bins would be located at the mine portal. The bins would consist of a concrete base of 20 feet by 30 feet and back wall and separation walls are 90 feet long and 8 feet high.
- Mine Vent Fan – A mine ventilation fan and steel duct work would be located at the return entry of the mine portal. The ventilation fan would be approximately 8 feet in diameter.
- Substation – A gravel-surfaced fenced area located near the preparation plant would contain the substation for the mine facilities. The outside dimensions of the facility are 100 feet by 120 feet. The substation would contain transformers to reduce the primary line power to a suitable voltage.
- Power Line – A high-voltage overhead power line would extend from the substation to the preparation plant and portal level.
- Warehouse – The warehouse would be a pre-engineered metal building for materials storage. This building would be approximately 50 feet by 60 feet with a 24-foot eave height.

- Material Storage – Open areas would be reserved to store materials. Materials to be stored include roof bolts, roof pans, timbers, caps, wedges, hoses, pipe, pipe supplies, electrical equipment, electrical cable, electrical supplies, conveyor belt, conveyor components, motors, gear boxes, mine equipment, mine equipment components, surface equipment, surface equipment components, and rock dust. The material storage areas would cover about 1.6 acres.
- Covered Storage – Two three-sided, pre-engineered metal buildings would be used for storage. One would be approximately 30 feet by 80 feet with a 20-foot eave height and the other would be 30 feet by 100 feet with a 20-foot eave height.
- Non-Coal Waste Storage – Non-coal waste would be stored at various locations within the disturbance area in commercially available dumpsters.
- Rock Dust Storage Area – The rock dust would be contained in a silo approximately 50 feet high and 8 feet in diameter. The cinderblock building under the silo would contain a rock dust pod and a distribution compressor approximately 30 feet by 20 feet by 8 feet.
- Fuel Oil Storage/Fueling Station – The fueling station would be a concrete and steel structure containing gas, fuel and oil. The structure would be approximately 20 feet by 30 feet long. The facility would contain 10,000 gallon diesel tank, a 500 gallon DOT diesel tank, a 10,000 gallon hydraulic oil tank, a 500-gallon antifreeze tank, a 2,000-gallon gear oil tank, a 2,500-gallon gas tank and a 1,000-gallon motor oil tank. The containment area would be constructed of 6-inch-thick, 4-foot-high walls.
- Waste Rock Pile – A waste rock pile would be constructed southwest of the mine portals. The disturbance associated with the waste rock pile would include clearing the area necessary to form the boundary of the pile. Facilities associated with the waste rock pile include a topsoil stockpile, cover fill stockpile, conveyor, haul road, and a sediment pond.
- Temporary Waste Rock Pile – Waste rock would be periodically transported from the underground workings on the mine conveyors. At the portal transfer building, waste rock would be transferred to the waste rock conveyor. The waste rock would be stacked in a temporary waste rock pile located near the transfer building. The waste rock would then be transported to the permanent waste rock disposal area. Up to 1,500 tons may be stored in the temporary waste rock pile at one time.
- Sediment Ponds – There would be eight sediment ponds constructed for the mine facilities named sediment ponds A through H. The sediment ponds would be capable of containing the run-off from a 10-year event with a spillway system designed to handle the peak flow generated by a 25-year storm event. Dewatering of the sediment ponds would be by either a centrifugal pump or a primary spillway pipe with a normally closed valve. The water would flow into ephemeral drainages adjacent to the ponds. Dewatering would take place only when the run-off was greater than the ability of the ponds to hold the water until it evaporated and percolated into the soil.

2.4.3 Coal Operations

The coal would be transported from within the mine via a portal conveyor. The portal conveyor is an extension of the conveyor from within the mine. It would be 72-inches wide and extend from the portal to the portal transfer building. A 48-inch-wide non-coal waste rock belt would convey waste rock from the portal transfer building to a temporary waste rock pile. A 72-inch-

wide stockpile conveyor would then transfer coal from the portal transfer tower to the stacking tube and raw coal stockpile. A reclaim conveyor would transfer coal from the coal stockpile to the coal preparation plant. A 48-inch-wide clean coal belt would deliver the coal to the stacking tubes and clean coal loadout stockpile. A 72-inch-wide loadout belt would feed coal to the unit train loadout. A 48-inch-wide waste rock belt would send waste rock to the waste rock bin and waste rock pile.

Coal would be stored in one of two open stockpiles: run-of-mine or clean coal. There will be two potential streams of coal that will make up the clean coal pile. They are coal that has been washed through the preparation plant and raw coal that has bypassed the preparation plant.

Up to 300,000 tons of mixed coal and rock would be stored in the run-of-mine pile; located within the coal lease boundary. The clean coal stockpile would be located near the unit train loadout. Up to 350,000 tons of coal would be stored in the clean coal stockpile. Stacking tubes would also be used to transfer coal into stockpiles, to minimize coal size segregation and air particulate emissions. Stacking tubes would be 80 to 100 feet high and 10 to 12 feet in diameter. They have numerous, evenly spaced 4-foot-square openings to allow coal to flow from the tube to the stockpiles.

2.4.4 Railroad Spur

Significant mining of these coal reserves has not occurred because of the remote location and difficulties and cost to transport the coal to market. A key element of the proposal is the railroad spur from the Red Cliff Mine to the railroad main line near Mack, Colorado.

The railroad would be located on BLM and private lands, with the railroad connecting to the existing UPRR near Mack, Colorado. The proposed railroad would traverse approximately 9.5 miles of BLM land, including one crossing of SH 139 and approximately 5 miles of private land. The proposed railroad would also cross Mesa CR M.8, CR 10, and CR T.

Coal will be loaded onto rail cars at the mine site and transported via the rail spur to the main rail line connection. A “wye” (a triangular shaped arrangement of railway tracks with a switch point at each corner) would be constructed to link the railroad spur with the main line at Mack to allow uninterrupted train flow in all directions. Loaded coal trains from the spur line would enter the main line and proceed to carry coal to the specified destination.

The loadout would be comprised of a coal stockpile, reclaim tunnel, conveyor belt(s), and loadout tower. Ethylene glycol would be applied to the coal and coal cars to minimize freezing during winter months. These products are stored in sealed 500 gallon tanks located near the loadout structure. There would be an average of four trains per day (two full and two empty) at a maximum production rate of 8,000,000 tpy, traveling at a speed of approximately 20 miles per hour (mph) full and 25 mph empty. Each car would carry approximately 100 to 110 tons of coal and would typically consist of between 100 and 120 cars, with three, four, or five locomotives. Trains would typically be 6,500 to 7,700 feet in length.

Construction of the railroad spur would require construction of bridges. One bridge would cross Mack Wash and would be supported by concrete-capped piles with a center support in Mack Wash. Another bridge would be constructed over the Highline Canal, also supported by concrete-capped piles.

2.4.5 Auxiliary Facilities

The mine operations would require water, electricity, and access roads. These auxiliary facilities are discussed in this section.

2.4.5.1 Water Line

Adequate water resources for operations are not available at the Red Cliff Mine site, so water must be piped to the mining operation. CAM has a 3.0 cubic foot per second (cfs) absolute water right on Mack Wash, near Mack (Case No. 03CW228). A portion of those waters, totaling approximately 724 acre–feet per year (approximately 1 cfs), would be piped to the Red Cliff Mine site for use during mining operations. Due to the nature and location of CAM's water rights, the point of diversion must be on Mack Wash below (downstream of) more senior water rights. There are no feasible alternatives to diverting the water from Mack Wash at other upstream sites.

A water diversion structure would be constructed in-channel on the west bank of Mack Wash, just north of the CR M.8 Bridge (Figure 1) on CAM-owned land. The pump and waterline system would have a maximum capacity of approximately 750 gallons per minute (gpm). The diversion/pump would be connected to a meter and water pipeline. The pipeline would be constructed of steel and polyvinyl chloride (PVC) and would be buried along the railroad spur alignment. It would extend to a water tank above the mine portals. This pipeline would supply all of the water needs for the mine operation and would be pumping water, more or less, continuously throughout the year. The system would remain in operation for the life of the mine. Best Management practices (BMPs) would be utilized during construction to minimize impacts to in-channel and riparian habitat and to prevent bank degradation. CAM will obtain a permit from the United State Army Corps of Engineers (USACE) prior to constructing the diversion structure in Mack Wash.

Approximately nine roads to the mine sites would provide access for a variety of uses**.** The roads would be plated with gravel surfacing or would be paved. To control fugitive emissions, roads would be watered using water from the water pipeline and cleaned as necessary. Dust suppression would be used on heavily traveled roads to control air pollution. Roads would be constructed and maintained in accordance with Mesa County, BLM, and Mine Safety and Health Administration (MSHA) standards, as applicable and appropriate.

2.4.5.2 Electric Power

Electric power is needed at the mine to run the underground mining machinery, the conveyor system, and the other mine support facilities. CAM would contract with Grand Valley Power (GVP), the local utility, to supply the necessary electric power. GVP would need to construct a new 69-kilovolt (kV) transmission line from the Uintah Substation to the mine to supply this power. The transmission line would be approximately 14 miles long, with approximately 7 miles on federally managed lands and 7 miles on private land.

3.0 CONSULTATION HISTORY

Informal consultation with USFWS representatives concerning this project has included:

July 9, 2008 – WestWater Engineering, Inc. (WWE), personal communications with USFWS Ecological Services, Western Colorado Field Office, Biologist Rick Kruger regarding inclusion

of black-footed ferret in the BA analysis. He said that due to the presence of white-tailed prairie dog populations and the potential for ferrets to occur, a May Affect, Not Likely to Adversely Affect is likely warranted.

July 17, 2008 – WWE (Klish and Graham) discussed species to be addressed in the BA with USFWS biologist Collin Ewing. Affects to Colorado River endangered fish would include depletions and USFWS wanted clarification of potential effects to water quality.

July 30, 2008 - WWE discussed (with Collin Ewing) combining redundant Colorado River endangered fish management information regarding water depletions and hazardous-materials into one section rather than repeat the same information four times. Further discussions occurred regarding water discharges from the mine site and affects to waters in Mack Wash.

August 14, 2008 - WWE phone conversation with Patty Gelatt (USFWS, Grand Junction) regarding Colorado River endangered fish status and occurrence in the Colorado River at the confluence of Salt Creek with the Colorado River.

4.0 SPECIES CONSIDERED AND SPECIES EVALUATED

Based on the USFWS list of Threatened and Endangered Species for Garfield and Mesa Counties, Colorado (USFWS 2006) and consultation with the Grand Junction BLM and USFWS, the following species, which may be impacted by the project, were evaluated for consideration for inclusion in the BA.

- razorback sucker *(Xyrauchen texanus)*,
- Colorado pikeminnow *(Ptychocheilus lucius)*,
- humpback chub *(Gila cypha)*,
- bonytail *(Gila elegans)*,
- Black-footed ferret *(Mustela nigripes)*
- Colorado hookless cactus *(Sclerocactus glaucus)*
- DeBeque phacelia *(Phacelia scopulina* var. *submutica*)
- Bald Eagle *Haliaeetus leucocephalus)*

Only those species with identified habitat, potential habitat or critical habitat within the proposed project area, or habitat that could be affected by the project were analyzed in this BA. All of the species considered in the BA have identified habitat, potential habitat or critical habitat within the proposed project area, or habitat that could be affected by the project. These are listed in Table 1 along with their species status under the ESA. For purposes of this BA, the four fish species are collectively referred to as the "Colorado River endangered fishes."

Table 1. Species Evaluated in the CAM project BA

Common Name	Scientific Name	ESA Status
ESA Endangered, Candidate, Sensitive Species for Consultation		
COLORADO RIVER ENDANGERED FISHES		
Razorback sucker	*Xyrauchen texanus*	Endangered
Colorado pikeminnow	*Ptychocheilus lucius*	Endangered
Humpback chub	*Gila cypha*	Endangered
Bonytail	*Gila elegans*	Endangered
MAMMALS		
Black-footed ferret	*Mustela nigripes*	Endangered
PLANTS		
Colorado hookless cactus	*Sclerocactus glaucus*	Threatened
Debeque phacelia	*Phacelia scolelina spp. submutica*	Candidate

Colorado hookless cactus and DeBeque phacelia were not analyzed in detail based on the results of biological surveys for the hookless cactus and phacelia (described below). Bald eagle was not analyzed because of the removal of Bald Eagle from the USFWS threatened list in 2007.

4.1 Colorado Hookless Cactus

Colorado hookless cactus has been found at a few locations in the Grand Valley (Spackman et al. 1997), but not within the proposed project area. The cactus is usually found on rocky hills, mesa slopes, and alluvial benches in desert shrub communities, but can be found in other habitats.

Surveys of the project area by WWE and Cedar Creek Associates did not locate any individuals or populations of this species (WWE 2006; Cedar Creek 2006). Therefore, the project would have no effect on Colorado hookless cactus.

4.2 DeBeque Phacelia

This plant is a candidate for listing under the ESA and is also considered to be a BLM sensitive species. DeBeque phacelia grows only in Garfield and Mesa Counties within the Piceance Basin in western Colorado (Spackman et al. 1997). The species' total range is less than 300 square miles. To date, no individuals or populations of this plant have been reported in the Grand Valley or the proposed project area.

Surveys of the project area by WWE and Cedar Creek Associates did not locate any individual or population of this species (WWE 2006; Cedar Creek 2006). The project would have no effect on DeBeque phacelia.

5.0 AFFECTED ENVIRONMENT (BASELINE)

The project area is planned for development in a cold desert, saltbush/sagebrush shrublands landscape north of the Colorado River corridor. The terrain is gently rolling hills, bisected by numerous small washes and two larger drainages. The mine site is to be constructed in currently undeveloped piñon-juniper and shrubland habitat located at the base of the Book Cliffs. A portion of the project, including a railroad spur line and a water pipeline, lies below the Highline Canal on private lands. The natural shrub vegetation in this area has largely been altered due to agricultural production including the development of an extensive irrigation system. However, the majority of the spur rail line is designed to avoid irrigated farm lands and is situated in upland areas that still support native saltbush vegetation. The segment of the rail line above the Highline Canal would be constructed in native, saltbush shrublands.

The vegetation within the general project area can generally be categorized into ten vegetation associations/plant communities: saltbush, sagebrush, greasewood, mesic mountain shrub, piñon-juniper, riparian, Douglas-fir, aspen, grass dominated, and disturbed rangeland communities. However, the project area (mine facilities area and railroad corridor) is comprised of four dominant and reasonably distinct habitat community types: agricultural, salt desert shrub, sagebrush and juniper woodlands.

Above the Highline Canal, the project crosses and impacts ephemeral washes that drain into Mack Wash and East Salt Creek. Below the Highline Canal, irrigation seepage and return flows from field irrigation provide permanent flows in most large natural drainages and in small field collection drains. Riparian and wetland vegetation is encountered where there is sufficient water to support this vegetation. Water potentially affected by the project flows into either East Salt Creek or Mack Wash. Mack Wash joins East Salt Creek south of Mack and the combined drainages flow into the Colorado River at a site locally known as Crow Bottom at the upper end of Ruby Canyon.

The USACE Jurisdictional Determination (JD) concluded that no potentially jurisdictional Waters of the United States were present in the project area north of the Highline Canal. South of the Highline Canal, several wetlands and one Relatively Permanent Water (RPW) were identified. Identified wetlands are related directly to application of irrigation water on agricultural lands, and on the basis of March 2007 USACE Regulatory Branch Memorandum 2007-1 (USACE 2007) were considered to be non-jurisdictional.

The only jurisdictional wetland in the project area is 0.7 acres along the RPW, Mack Wash. The jurisdictional Waters of the United States (WOUS) includes 0.6 acres of non-wetland (Mack Wash flow path) and 0.1 acres of adjacent fringe wetland. Approximately 16.1 acres of delineated wetlands were considered to be non-jurisdictional because they are related to irrigation water application and return flows. Of this, approximately 11.5 aces are emergent wetland marshes, 3.1 acres are fringe wetland along irrigation ditches, and 1.5 acres are emergent marsh that no longer has wetland hydrology. All of these wetlands exist on private lands located south of the Highline Canal along the rail spur alignment.

6.0 COLORADO RIVER ENDANGERED FISHES

6.1 Species Descriptions

6.1.1 Colorado Pikeminnow

Description: The Colorado pikeminnow, formerly known as the Colorado squawfish, is the largest North American minnow. These fish have been known to reach six feet in length and 80 pounds in weight. Adult fish may be green-gray to bronze on their backs and silver to white along their sides and bottoms. During spawning, their fins can take on an orange hue.

Range: Historically, the pikeminnow occurred in great numbers throughout the Colorado River system from Green River in Wyoming to the Gulf of California in Mexico. In Colorado, they are currently found in the Green, Yampa, White, Colorado, Gunnison, San Juan, and Dolores Rivers.

Habitat: The Colorado pikeminnow thrives in swift flowing muddy rivers with quiet, warm backwaters. Colorado pikeminnow live in warm-water reaches of the Colorado River mainstem and larger tributaries, and require uninterrupted stream passage for spawning migrations and dispersal of young. The species is adapted to a hydrologic cycle characterized by large spring peaks of snowmelt runoff and low, relatively stable base flows. The Colorado pikeminnow is an obligate warm-water species that requires relatively warm temperatures for spawning, egg incubation, and survival of young.

Critical Habitat: Designated critical habitat for the Colorado River pikeminnow in Colorado extends in its 100-year floodplain from the Colorado River Bridge at exit 90 (Rifle town exit) north off Interstate 70 (T6S, R93W, section 16 (6th Principal Meridian) to the Colorado-Utah state line. Other critical habitats are designated in portions of the Colorado River in Utah, downstream from the Colorado-Utah state line. . The primary constituent elements used to define critical habitat for the Colorado River pikeminnow are water, physical habitat, and biological environment.

Diet: Colorado pikeminnow are primarily piscivorous (fish-eaters), but smaller individuals also eat insects and other invertebrates.

Reproduction: The species spawns during the spring and summer over riffle areas with gravel or cobble substrate. Eggs are randomly splayed onto the bottom and usually hatch in less than one week.

6.1.2 Razorback Sucker

Description: The razorback sucker is a large, bronze to yellow fish that grows to a weight of about 15 pounds and has a sharp-edged keel behind the head. Breeding males turn gray-black with a bright orange belly.

Range: The razorback is most often found in quiet, muddy backwaters along the Colorado River. The razorback sucker was once widespread throughout most of the Colorado River Basin from Wyoming to Mexico. In the upper Colorado River Basin, they are now found only in the upper Green River in Utah, the lower Yampa River in Colorado and occasionally in the Colorado River near Grand Junction (USFWS 2008a). Small numbers of razorback suckers also have been found in Lake Powell at the mouths of the Dirty Devil, San Juan and Colorado rivers.

Habitat: Razorbacks are found in deep, clear to turbid waters of large rivers and some reservoirs over mud, sand or gravel. In the upper Colorado River, near Grand Junction, Colorado, Osmundson and Kaeding (1989) reported habitat use in pools and slow eddies from November through April; runs and pools from July through October; runs and backwaters during May; and backwaters, eddies, and flooded gravel pits during June. Selection of depths changed seasonally; use of relatively shallow water occurs during spring and use of deeper water during winter.

Critical Habitat: Designated critical habitat for the razorback sucker in Colorado extends in its 100-year floodplain from the Colorado River Bridge at exit 90 (Rifle town exit) north off Interstate 70 (T6S, R93W, section 16 (6th Principal Meridian) to the Colorado-Utah state line. Other critical habitats are designated in portions of the Colorado River in Utah, downstream from the Colorado-Utah state line. . The primary constituent elements used to define critical habitat for the razorback sucker are water, physical habitat, and biological environment.

Diet: Like most suckers, the razorback feeds on both plant and animal matter.

Reproduction: The razorback sucker spawns in the spring. Breeding males turn black up to the lateral line, with brilliant orange extending across the belly.

6.1.3 Humpback Chub

Description: The humpback chub is a member of the minnow family that is green to silver and white with an abrupt hump behind the head. They grow to about 18 inches in length.

Range: The historic range of the humpback is similar to the pikeminnow, occurring in great numbers throughout the Colorado River system from Green River in Wyoming to the Gulf of California in Mexico. Today, they can be found in deep, canyon-bound portions of the Colorado River system, such as Black Rocks and Westwater Canyons on the Colorado River and Yampa Canyon inside Dinosaur National Monument.

Habitat: The humpback prefers deep, fast-moving, turbid waters often associated with large boulders and steep cliffs.

Critical Habitat: Designated critical habitat for the humpback chub in Colorado extends in its 100-year flood plain from Black Rocks to the Colorado-Utah state line. Other critical habitats are designated in portions of the Colorado River in Utah, downstream from the Colorado-Utah state line. . The primary constituent elements used to define critical habitat for the humpback chub are water, physical habitat, and biological environment.

Diet: Humpback chubs feed predominately on small aquatic insects, diatoms and filamentous algae.

Reproduction: Spawning occurs between April and July during high flows from snowmelt. During breeding, males develop red tinges on the venter and cheeks.

6.1.4 Bonytail

Description: This large chub is also a member of the minnow family. It's similar to the humpback chub, but it has only a slight hump behind the head and a long, narrow tail. Adults are dark on top and light below. They are very dark in clear waters and pale in turbid waters.

Bonytails can reach 24 inches in length. They have green-gray backs with lighter sides and white bellies. During breeding, males turn red-orange on the belly and paired fins. Their fins are large, slightly falcate. Dorsal fins typically have 10 rays; tail fins have 10 to 11 rays.

"Bonytail" is the accepted common name for *Gila elegans*. The synonym "Bonytail chub" was used when the species was listed in 1980 and is an often-used common name.

Range: Historically, bonytail were present in the Colorado River system, which includes the Yampa, Green, Colorado and Gunnison rivers. Today, there are no known populations in Colorado. They can be found in the Green River drainage in Utah and Mohave Reservoir on the Arizona-Nevada border.

Habitat: This fish typically lives in large, fast-flowing waterways of the Colorado River system. But their distribution and habitat status are largely unknown due to its rapid decline prior to research into its natural history.

Critical Habitat: Designated critical habitat for the bonytail in Colorado extends in its 100-year flood plain from Black Rocks to the Colorado-Utah state line. Other critical habitats are designated in portions of the Colorado River in Utah, downstream from the Colorado-Utah state line. The primary constituent elements used to define critical habitat for the bonytail are water, physical habitat, and biological environment.

Diet: Adult bonytail feed on terrestrial insects, zooplankton, algae and plant debris. Young feed mainly on aquatic insects.

Breeding: Although bonytail spawning in the wild is now rare, the species does spawn in the spring and summer over gravel substrate. Many bonytail are now produced in fish hatcheries, with the offspring released into the wild when they are large enough to survive in the altered Colorado River system environment. Females produce between 1,000 and 17,000 eggs. Hatching occurs about nine hours after fertilization and swim-up begins generally 48 to 120 hours later. Survival rate of young fish is about 17 to 38 percent.

6.2 USFWS Management

Since publishing of the four Colorado River Endangered Fish Recovery Plans in 1991, the USFWS has pursued reasonable actions that were presented in the plan and followed subsequent supplements and amendments to the recovery plan. The following references are from the four Recovery Goals documents (USFWS 2002a-d) that address potential affects that may result from project effects including Colorado River water depletions and hazardous material spills.

6.2.1 Recovery Goals: Management Actions Needed

The USFWS has developed recovery goals for the Colorado River endangered fishes and uses site-specific management actions to aid in the recovery of the Colorado River endangered fish. The following management actions are included in the 2002 plans and applicable to the proposed action:

- Provide and legally protect habitat (including flow regimes necessary to restore and maintain required environmental conditions) necessary to provide adequate habitat and sufficient range for all life stages to support recovered populations (Listing Factor A).

- Minimize the risk of hazardous-materials spills in critical habitat (Listing Factor E).

The principles of recovery and conservation of a species including implementing regulations and USFWS policy demonstrate a strong relationship between the delisting criteria used for recovery and the five listing factors contained in the ESA. The following two of listing factors (A and E) are applicable to the Red Cliff Mine.

Listing Factor A: The Present or Threatened Destruction, Modification, or Curtailment of Its Habitat or Range (from Colorado River Endangered Fishes Goals 2002a-d: synopsis of sections)

Streamflow regulation and associated habitat modification are identified as primary threats to Colorado River endangered fish populations. Regulation of streamflows in the Colorado River Basin is manifested as changes in flow patterns, sediment loads, and water temperatures.

Flow recommendations have been developed that specifically consider flow-habitat relationships within occupied habitat of Colorado River endangered fish in the upper Colorado River. These flow recommendations will be evaluated and revised (as necessary) as part of an adaptive-management process, and flow regimes to benefit the endangered fishes will be implemented through multi-party agreements or by other means.

Listing Factor E: Other Natural or Manmade Factors Affecting Its Continued Existence Pesticides and Pollutants (Hazardous-materials Spills used in mining and transportation of coal)

Hazardous-materials spills are identified as a threat to Colorado River endangered fish. Pesticides find their way to the Colorado River from agricultural runoff, and other pollutants in the system include petroleum products, heavy metals (e.g., mercury, lead, zinc, copper), nonmetals (i.e., selenium), and radionuclides. Potential spills of petroleum products threaten wild populations of Colorado River endangered fish.

Management actions are directed at development of State and Federal hazardous-materials spills emergency-response plans to ensure adequate protection for Colorado River endangered fish populations from hazardous-materials spills, including prevention and quick response to hazardous-materials spills.

6.2.2 Recovery Goals: Site-Specific Management Actions and Tasks by Recovery Factor (applicable to upper Colorado River)

Factor A: Adequate habitat and range for recovered populations provided

Management Action A-1.—Provide flows necessary for all life stages of Colorado River endangered fish to support recovered populations, based on demographic criteria. This section addresses potential critical habitat water depletions resulting from CAM's use of 724 acre-feet per year of Mark Wash water, which directly affects flows in the Colorado River.

Task A-1.1.—Identify, implement, evaluate, and revise flow regimes to benefit Colorado River endangered fishes in the upper Colorado River.

Task A-1.2.—Provide flow regimes that are necessary for all life stages of Colorado River endangered fishes to support recovered populations in the upper Colorado River subbasin.

Factor E: Minimize the risk of hazardous-materials spills in critical habitat.

Management Action E-2.—Minimize the risk of hazardous-materials spills in critical habitat.

Task E-1.1.—Review and recommend modifications to State and Federal hazardous-materials spills emergency-response plans to ensure adequate protection for Colorado River endangered fish populations from hazardous-materials spills, including prevention and quick response to hazardous-materials spills.

Task E-1.2.—Implement State and Federal emergency-response plans that contain the necessary preventive measures for hazardous-materials spills.

6.2.3 Project Area Conditions

The Red Cliff Mine project is located in the Colorado River Basin. This is the second-largest basin in Colorado, encompassing more than 18,160 square miles and 19,340 miles of streams. The volume of water that flows through the basin is greater than the combined flows of all the other basins in the state. The project area is located in a sub-basin within the Lower Colorado River watershed, north of the Colorado River near the Colorado-Utah border. The site encompasses the East Salt Creek, Mack Wash, and Big Salt Wash sub-basins.

Many ditches and 20 major streams (19 intermittent and one perennial) are located in the Red Cliff Mine project area. The base flow of these streams is provided by groundwater seepage into the channel.

In addition to these streams, there are also four reservoirs and lakes, numerous springs, and irrigation ditches and laterals in the project area that may be affected. The reservoirs and lakes include Highline Lake, Ruby Lee Reservoir, Mack Mesa Lake, and Mack Mesa Reservoir. The main ditch/canal in the project area is the Highline Canal. A bridge is proposed to be constructed over the Highline Canal for the railroad spur.

The proposed railroad spur crosses one perennial stream (Mack Wash), one irrigation ditch (Highline Canal) and approximately 180 small ephemeral washes within the project area.

The railroad wye, water diversion and water pipeline construction will take place approximately 2.5 air-miles from the Colorado River. The closest known occupied Colorado River endangered fish habitat is in the Colorado River at the confluence of Salt Creek, which is approximately 3.6 river miles (linear drainage distance) from the coal mine rail spur junction.

The current status of the endangered fish in the Colorado River near the confluence with Mack Wash is as follows: Colorado pikeminnow are increasing in numbers; humpback chub are decreasing in numbers for unknown reasons, and razorback sucker and bonytail are increasing in numbers due to stocking of hatchery raised fish (USFWS 2008b).

Salt Creek and Mack Wash are not known occupied habitat for any of the endangered fish species. Fish species known to inhabit Mack Wash include flannel-mouth suckers, roundtail

chubs, bluehead suckers, and speckled dace. Natural spawning of flannel-mouth suckers occurs in Salt Creek (Martin, pers. comm. 2007). Salt Creek and East Salt Creek are not crossed by the railroad, and no flowing washes were encountered between the Highline Canal and the Book Cliffs during the field surveys that were conducted during all seasons in 2006 and 2007. Except for East Salt Creek and scattered stock ponds on the desert (mostly dry), all water in the project area is a result of irrigation development.

6.2.4 Effects Analysis

6.2.4.1 Project-Related Effects

6.2.4.1.1 Water Depletions

For several years the Department of Interior, Colorado, Wyoming, Utah, water users and environmental groups cooperated to develop a Recovery Program for the Colorado River endangered fish species. This process culminated in the USFWS issuing the *Final Programmatic Biological Opinion for Bureau of Reclamation's Operations and Depletions, Other Depletions and Funding and Implementation of the Recovery Program Actions in the Upper Colorado River Above the Confluence with the Gunnison River,* in 1999. This opinion covered existing depletions and addressed "new depletions" which were additional depletions by existing water rights that occur after 1995. Small amounts of water from the Salt Creek Mine and McClane mine water rights were considered existing depletions, but the increased depletions for this project would be considered "new depletions" and addressed by the opinion.

For the Red Cliff Mine Project, Colorado River hydrology would be affected by a total water depletion of approximately 724 acre-feet annually, which will be withdrawn from Mack Wash for mine operations.

Depletions would adversely affect water flow at different life-stages that are essential to these native fishes. Reduction in water quantity reduces the ability of the river to create and maintain the primary constituent elements that define critical habitats. Food supply, predation, and competition are important elements of the biological environment. Food supply is a function of nutrient supply and productivity, which may be limited by reduction of high spring flows brought about by water depletions. Predation and competition from nonnative fish species have been identified as factors in the decline of these endangered fishes. Water depletions contribute to alterations in flow regimes that favor nonnative fishes.

Particularly important are flows sufficient enough and at a reasonable frequency (mimicking the natural hydrograph) to allow for creation, maintenance and use of important micro-habitats including spawning bars and backwater habitats needed by adult and young fish. Reduced water flows can reduce spawning habitat availability and usability and dewater important backwater habitats or fail to connect river and backwater habitats, resulting in lowered habitat quality, complexity, and availability.

All of the above effects can result in declines in species recruitment and overall productivity.

CAM currently holds a 3 cfs water right in Mack Wash and an alternate point of diversion is expected to be applied for to move this existing right upstream by approximately 1 mile. The impacts of this diverted water have been accounted for in the original water right and will be similar in the alternate point.

Temporary impacts to surface waters may result during construction, resulting in the disturbance of soils that could potentially affect sediments loads in Mack Wash and the Colorado River. The project would potentially impact approximately 0.1 acre of jurisdictional wetlands along Mack Wash as a result of installing the water diversion structure. In addition, the center supports for the railroad bridge will occupy a very small area of Mack Wash.

6.2.4.1.2 Hazardous-materials

During construction, natural sediments and human-caused pollutants from petroleum products would potentially affect Colorado River waters. If spills occurred, petroleum products used during construction activities would adhere easily to soil particles and other surfaces and would potentially affect water quality in the Colorado River. Adverse effects are unlikely because of mitigations including spill containment and cleanup programs and because most of the construction area is located several miles or more from the Colorado River.

Normal operation of the Red Cliff mine and rail traffic would not result in the release of any hazardous material to the environment, although operation of the proposed mine-site facilities at the base of the Bookcliffs would involve potentially toxic or hazardous-materials including hydrocarbon waste, detergents, solvents, and batteries. These materials would be handled in accordance to Federal and State regulations and would be transported from the mine by motor vehicles. The proposed railroad would not haul hazardous-materials.

In the advent of a railroad derailment, no hazardous-materials likely would be spilled or released as a result of the Proposed Action alternative. The diesel fuel, which is used to power a locomotive, is contained in doubled walled tanks and is less likely to rupture than single walled fuel tanks on trucks. A coal spill is not a considered a hazardous material. The Federal Railroad Administration (FRA) requires that the track operator have in-place an Emergency Response Plan prior to commencement of any track operations. This plan includes very specific procedures to mitigate rail derailment and any resulting spills.

In the unlikely event of a major accidental release, the effects of a diesel fuel spill (from locomotive tanks) on Colorado River endangered fishes would be dependent on multiple variables. Diesel fuel is toxic to fish and direct mortality may result. Impacts to Colorado River endangered fishes would depend on where spills occurred, the amount of spill, time of the year (high or low water) and numerous other variables. Studies (Lytle and Peckarsky 2001) have demonstrated that a diesel fuel spill can significantly reduced the density of invertebrates and taxonomic richness in an aquatic environment for up to 15 months. Therefore, as well as potential direct effects to fish, habitats may be compromised for a period of time until recovery occurs.

In extreme cold Ethylene glycol will be sprayed on the rail cars as a de-icer. It will be stored in a closed 500 gallon tank at the rail loadout. It would be extremely unlikely that the tank would leak and product reach East Salt Creek. Likewise, the amount of glycol potentially dripping from the rail cars would be negligible by the time the train reached the bridge over Mack Wash.

6.2.4.2 Cumulative Effects

State or Private Development in the Project Area. Within the project area in Mesa County on private lands, there are approximately 20 active development applications for residential, commercial, and agricultural development as of mid-2008 (Mesa County 2008). There are no major highway projects planned in Mesa County within the project area (Mesa County 2008).

The development of natural gas resources in the general area (Grand Valley) is increasing as industry expands operations from on-going centralized operations that have been focused in the area of Parachute, Colorado. A limited amount of natural gas exploration and development is currently occurring in the project area.

Other Federal Actions: Other than CAM-Colorado, there are currently no formal plans or applications for coal leasing before the BLM near the project area. Other sources of disturbance associated with Federal actions in the project vicinity that may increase the potential for cumulative effects on Colorado River fishes include the potential for expanded exploratory natural gas development on BLM lands in the project area. Slate River Resources developed a natural gas well in the CAM project area during 2007.

6.2.5 Conservation Measures

Conservation measures included in the EIS include:

6.2.5.1 Construction Period

1. All gravel roads would be watered or treated with a surface surfactant to control potential fugitive air emissions. Water for dust suppression and compaction would be obtained from Mack Wash. A temporary pipeline would be installed along the rail route to provide necessary water for construction activities.
2. Any stormwater runoff that will be conveyed to surface water during construction activities would use appropriate erosion and sediment controls (i.e., BMPs), as applicable. These impacts are temporary in nature and would be mitigated with erosion and sediment controls, described further in the mitigation measures section.

6.2.5.2 Operational Period

1. In the event of a train derailment and spill, material could reach surface water from the contents of the rail cars. An emergency spill plan would be created to mitigate the likelihood that this causes an impact to the water quality. This will be part of the mine's industrial stormwater permit or other similar plan to address spills. Impacts to surface water from blowing coal dust from the trains should be minimal, as the coal would come from the coal preparation plant wet and the mining operation would employ dust suppression (watering) on their conveyor systems.
2. Compliance with all remediation actions contained in CAM's stormwater management plan to reduce the potential from increased silt loads in the Colorado River. CAM will be required to obtain a Storm Water Discharge Permit and a National Pollutant Discharge Elimination System (NPDES) permit from the State of Colorado Surface water runoff from the majority of the area, including all of the mine facilities and the rail loadout area, but not including the rail line, would be collected in sediment ponds. Sediment ponds are designed to provide adequate capacity to contain or treat the runoff or inflow entering the

pond as a result of a 10-year, 24-hour precipitation event and any additional storage resulting from inflow from the underground mine.

3. Surface runoff not collected in a sediment pond would be filtered through a sediment trap such as a silt fence or straw bales. Mine water discharge (groundwater) may mix with surface water. Surface infiltration around coal stockpiles or waste rock piles may allow mixing of surface and groundwater.
4. Aquatic species will be protected during pumping to fill the pipeline, by covering intakes systems with screening.
5. CAM will comply with the Toxic Substances Control Act of 1976 (15 U.S.C. 2601 et seq.) with regard to any toxic substances that are used, generated by or stored on the ROW or on facilities authorized under this ROW grant. Additionally, any release of hazardous wastes (leaks, spills, etc.) in excess of the reportable quantity would be reported as required by the Comprehensive Environmental Response, Compensation and Liability Act of 1980.
6. In the unlikely event of a water pipeline failure during operation, the decreased pressure and flow rate in the pipeline would be detected remotely, and flow would stop. Some short-term flooding could occur in topographic lows and drainage channels, resulting in short-term adverse impacts to the floodplain.
7. Generated wastes would be handled in accordance with applicable regulations as described in Section 3.1.10, Hazardous-materials. Hazardous wastes generated during operation would be removed from the site by a licensed regulated waste management contractor at regular intervals and trucked to authorized facilities for recycling or treatment and disposal.
8. Increased sediment load to any waterways that are tributary to the Colorado River is a concern during construction. Sediment loads are not expected to increase to levels, which would adversely affect Colorado River endangered fish that are well-adapted to the high sediment loads traditionally carried by the Colorado River. Water quality impacts, resulting from increased sedimentation in stream channels and increased turbidity and salinity of surface waters due to runoff and erosion from disturbed areas, are expected to be minimal because surface water control measures are part of the project design. All construction activities would utilize best management practices to prevent sediment from entering drainages that enter Mack Mesa Reservoir, Highline Lake, Mack Wash and Salt Creek.

   In order to mitigate erosion and sedimentation on construction sites, mitigation practices would include:

   - Adding mulch and seeding to protect the soil from erosion,
   - Utilizing standard stormwater management practices including straw bales, silt fences, gravel bags, terraces and diversions designed to catch sediment,
   - Implementation of reclamation and revegetation plans will decrease the likelihood of increased sedimentation into the Colorado River that would potentially affect water quality conditions. On federal lands, a BLM approved seed mix will be used. Reclamation standards on private surface should conform to the wishes of the landowner,
   - Implementation of an approved noxious weed management plan will increase the potential for successful revegetation of native plant communities.

9. As a means of offsetting the water depletion impacts associated with the proposed action, CAM-Colorado, LLC proposes to submit a one-time contribution in the form of a monetary payment to the National Fish and Wildlife Foundation on behalf of the Recovery Program for the 4 Colorado River endangered fishes in the current amount of $17.79 per acre-foot of the project's average annual depletion.

6.3.5 Determination 1: Colorado River Water Depletions

Determination of effects of action(s), as described, on the Colorado pikeminnow, razorback sucker, humpback chub and bonytail, and their critical habitat:

_____ No Effect

_____ May Affect, Is Not Likely to Adversely Affect

__X__ May Affect, Is Likely to Adversely Affect

Rationale: In accordance with the USFWS Final Section 7 Consultation Handbook (USFWS 1998), a determination of "may affect, is likely to adversely affect" is the appropriate conclusion if any adverse effect to listed species may occur as a direct or indirect result of the proposed action or its interrelated or interdependent actions, and the effect is not: discountable, insignificant, or beneficial.

The determination of "may affect, is likely to adversely affect|" is appropriate because water depletions from the Colorado River will occur. These water rights have not undergone Section 7 consultation and, therefore, are not addressed in the existing USFWS 1999 Programmatic Biological Opinion regarding the Colorado River endangered fishes (USFWS 1999). The volume of water is large enough to require mitigation. The BLM has a programmatic biological opinion covering small volumes of water, which would not be applicable for this project.

Conclusion: With respect to conservation measure bullet number 9 above, the applicant (CAM-Colorado, LLC) proposes to offset the water depletion impacts associate with the proposed action by submitting a one-time monetary contribution to the Recovery Program. At the time of this consultation, it has been determined that the proposed action would annually deplete up to 724 acre-feet of water per year. For Fiscal Year 2008 (October 1, 2007, to September 30, 2008), the depletion charge is $17.79 per acre-foot. Thus, based on our calculated average annual depletion, a one-time payment of **$12,879.96** would be required to cover the proposed action and help to offset projected impacts.

This amount will be provided to the Service's designated agent, the National Wildlife Foundation. The balance will be paid at the end of FY-08 by CAM-Colorado, LLC. Fifty percent of the funds will be used for acquisition of water rights to meet the instream flow needs of the endangered fishes (unless otherwise recommended by the Implementation Committee); the balance will be used to support other recovery activities for the Colorado River endangered fishes. The one-time payment will be made to the National Fish and Wildlife Foundation:

Rebecca Kramer, Special Funds Coordinator
National Fish and Wildlife Foundation
28 Second Street, 6th Floor
San Francisco, California 94105

The payment will be accompanied by a cover letter that identifies the project and biological

opinion that requires the payment, the amount of payment enclosed, check number, and any special conditions identified in the biological opinion relative to disbursement or use of the funds (there are none in this instance). The cover letter also shall identify the name and address of the payor, the name and address of the Federal Agency responsible for authorizing the project, and the address of the Service office issuing the biological opinion. This information will be used by the Foundation to notify the BLM, the lead Federal Agency, and the Service that payment has been received. The Foundation is to send notices of receipt to these entities within 5 working days of its receipt of payment.

6.3.6 Determination 2: Hazardous-materials affects

Determination of effects of action(s), as described, on the Colorado pikeminnow, razorback sucker, humpback chub and bonytail, and their critical habitat:

_____ No Effect

__X__ May Affect, Is Not Likely to Adversely Affect

_____ May Affect, Is Likely to Adversely Affect

Rationale: In accordance with the USFWS Final Section 7 Consultation Handbook (USFWS 1998), a determination of "may affect, is not likely to adversely affect" is the appropriate conclusion if any adverse effect to listed species may occur as a direct or indirect result of the proposed action or its interrelated or interdependent actions, and the effect is discountable, insignificant, or beneficial.

The determination of "may affect, is not likely to adversely affect|" is appropriate because potential effects on critical habitat including water quality affects from hazardous-materials is remote/insignificant due to mitigation programs including hazardous-waste handling programs. No hazardous material will be transported in the coal cars.

7.0 BLACK-FOOTED FERRET

7.1 Species Description

Black-footed ferrets are considered an endangered species by both federal and state authorities. Since 1967, black-footed ferrets have been listed as endangered under the federal Endangered Species Act.

The black-footed ferret is a large weasel, about the size of a mink, 18 – 22 inches long with a 4- to 6- inch tail. The pelage is yellowish brown above, with a blackish wash on the back, black feet and face mask, and a black-tipped tail. They are difficult to distinguish from domestic ferrets, but they are larger and heavier than the long-tailed weasel (which in Colorado seldom has a face mask).

Black-footed ferrets seem never to have been abundant in Colorado. They ranged statewide. Their habitat included the eastern plains, the mountain parks and the western valleys – grasslands or shrub lands that supported some species of prairie dog, the ferret's primary prey.

Females do not exhibit the delayed implantation of embryos typical of the weasel family. Instead they mate in early spring and give birth to a litter of three or four mouse-sized pups after a seven-week gestation period.

The native range in northwest Colorado includes remote scrubland in Rio Blanco and Moffat Counties in northwest Colorado.

7.2 USFWS Management-Colorado

USFWS management plans are directed at establishment of self-sustaining population in areas of suitable habitat that have been selected in northwest Colorado. Currently, the Wolf Creek Management Area for the black footed ferret, which is in Moffat County about 50 miles north of the project area, is the closest site to the CAM project area. Management is accomplished through a partnership with the BLM, the Colorado Division of Wildlife (CDOW) and the USFWS.

Ferrets have been reintroduced into the Wolf Creek population in northwestern Colorado near Rangely. Since 2001, 237 black-footed ferrets have been released in the Wolf Creek area and wild-born ferret kits were first found there in 2005. Recent survey conducted by CDOW and BLM confirmed 16 ferrets present in the reintroduction area at the end of 2007. A second ferret population has been established at Coyote Basin, which straddles the Colorado-Utah border west of Rangely.

Currently, there are no USFWS plans for reintroduction of black-footed ferrets in the Grand Valley area, which includes the CAM project site. There are no current inventories for ferret occurring in the project area though surveys have been conducted in the Grand Valley in the past.

Black-footed ferrets are obligate species and occurrence is directly related to the presence of prairie dog colonies. The USFWS service does not management prairie dog colonies in the Grand Valley area. The State of Colorado, CDOW provides management and regulatory authority.

7.3 Project Area Conditions

Numerous black-footed ferret surveys have been performed in the Grand Valley since the species was included on the ESA list. To date, no ferrets have been observed in the Grand Valley or within the project area. All existing populations of black-footed ferrets in Colorado were introduced from captive-reared stock. The nearest such experimental population is located at Wolf Creek between Massadona and Elk Springs, approximately 60 miles north of the project area.

Within the CAM project area, white-tailed prairie dog colonies were encountered at various points on public and private lands from the Highway 6&50 crossing to the mine facilities area. Figure 2 and Table 2 indicate areas on and adjacent to proposed facilities, roads, and rail line that currently support prairie dog populations. Thirteen separate white-tailed prairie dog colonies were identified. Of these, eleven are located along the proposed rail spur alignment, eight of which may be crossed by the rail spur. Two colonies were found along the access road to the facility site.

Burrow densities and areas occupied by various populations varied considerably. The largest concentrations occurred on private land north of Highway 6 & 50 and on private and public land east of the farm grounds along East Salt Wash and north of the Highline Canal.

Table 2. Area and estimated burrow density of white-tailed prairie dog colonies, Red Cliff Mine project area

Colony Number (numbered from south to north on Figure 2)	Area of Colony Acres	Estimated Burrow Density (Acre)
1	> 173.78 *	16
2	4.70	10
3	18.57	3
4	1.59	8
5	17.85	3
6	23.01	6
7	74.10	12
8	9.00	3
9	16.89	2
10	>12.33 *	2
11	137.73	11
12	56.77	4
13	9.43	2

*Surveys in these areas were limited by land ownership issues

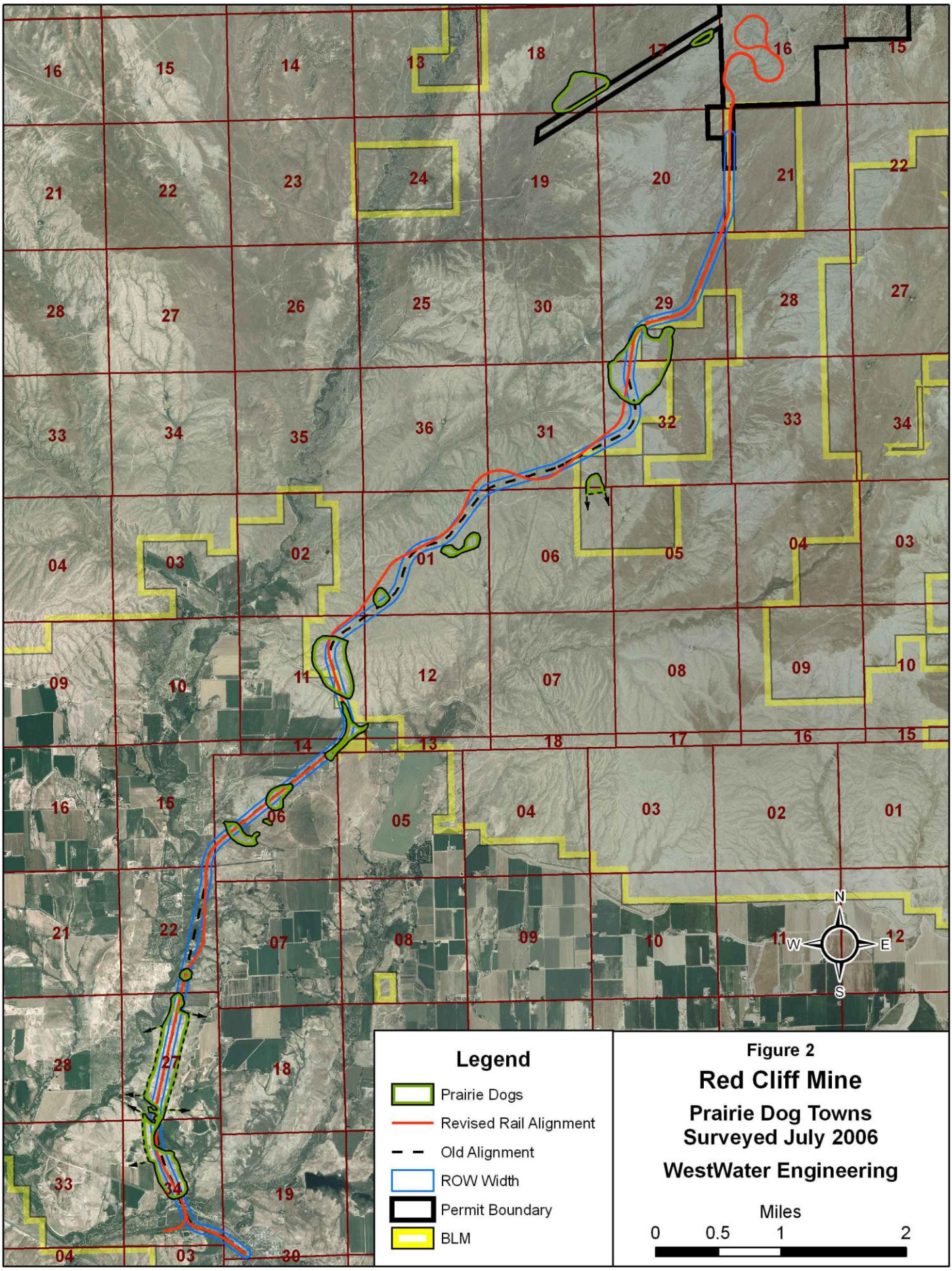


Figure 2

Red Cliff Mine

Prairie Dog Towns Surveyed July 2006

WestWater Engineering

CDOW has mapped prairie dog colonies in the Grand Valley as part of ongoing wildlife management programs (Figure 3). The most recent surveys were conducted in 2004 and 2005. Within the overall range in the Grand Valley from Palisade to the Colorado/Utah state line, CDOW estimates approximately 13,400 acres were within occupied white-tail prairie dog habitat at the time of the study. CDOW (Kindler, CDOW, pers. comm. 2008) cautions that this information was a snapshot of the occupied habitat at the time surveys were completed and may not represent current (2008) conditions. Prairie dog populations are dynamic; occupied ranges and colony densities may fluctuate due to disease outbreaks or changes in the carrying capacity related to habitat conditions.

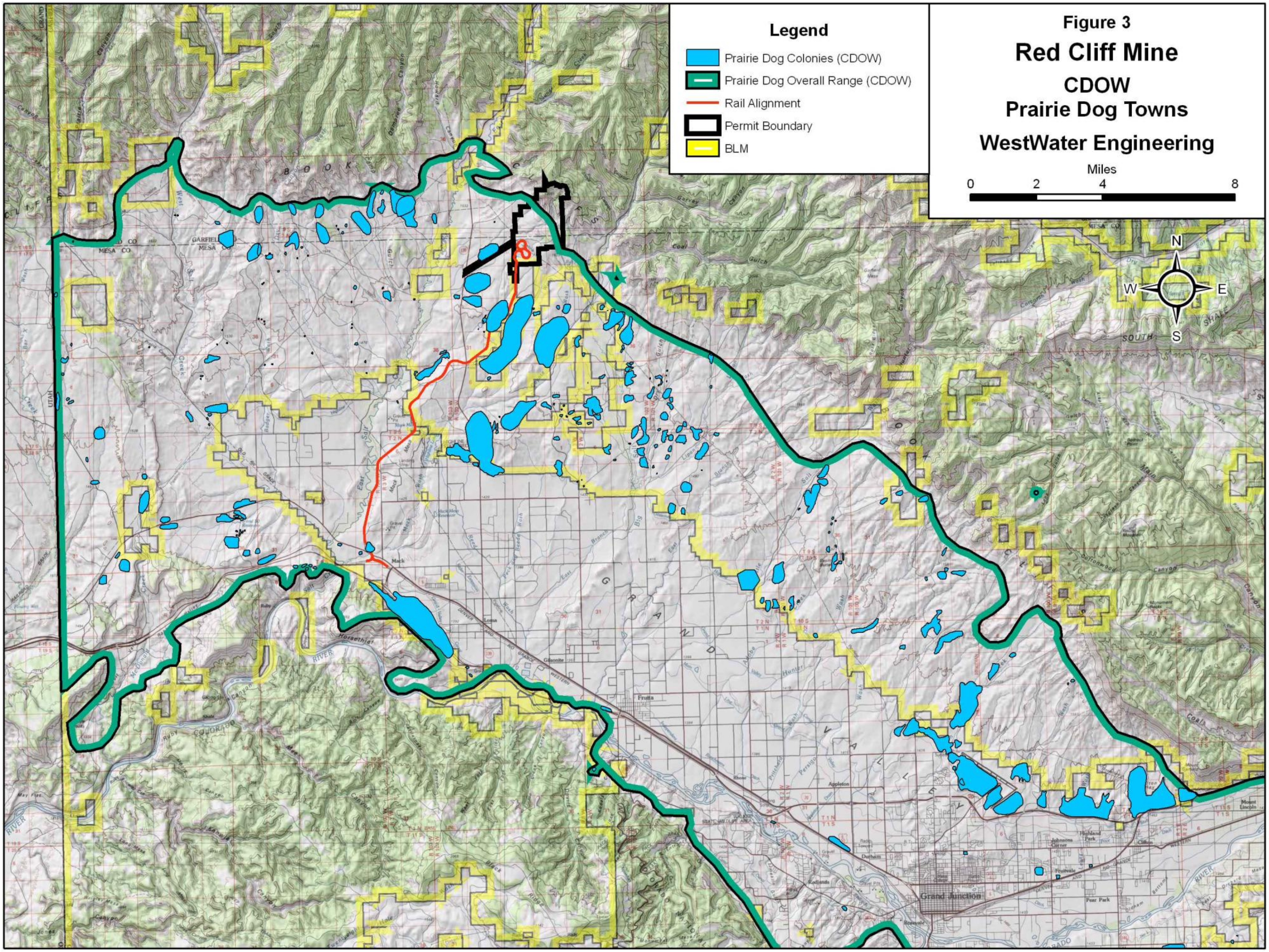
7.4 Effects Analysis

Black-footed ferret surveys were conducted in the Grand Valley by CDOW and BLM during the early 1980s when extensive searches were being conducted in Western states in an effort to locate evidence of the species existence. These searches were in part a response to the discovery of black-footed ferrets in Meeteetse, Wyoming, in 1981. No black-footed ferret individuals or populations have ever been documented in the Grand Valley or within the project area.

The black-footed ferret is an obligate species; its existence is dependent upon the prairie dog (Cynomys spp.) as a source of food and uses its burrows for shelter. Active prairie dog colonies are an essential component of black-footed ferret habitat. The USFWS has determined that any actions that kill prairie dogs or alter their habitat could prove detrimental to ferrets occupying the affected prairie dog towns(s). The USFWS has established minimum guidelines for ferret surveys (USFWS 1996). For white-tailed prairie dog colonies or complexes with at least 200 acres in area, with a burrow density of at least 8 burrows per acre and located within 4.34 miles of a similar colony may be considered potential black-footed ferret habitat (USFWS 1996).

Based on the results of surveys for this project and CDOW surveys, white-tailed prairie dog habitat may be of sufficient size and juxtaposition to be potential habitat for black-footed ferret. The prairie dog colonies north of the Highline Canal in the project ROW are less than 200 acres, but likely are located close enough to other occupied colonies to be considered a suitable complex. The 6 prairie dog colonies located south of the Highline Canal are either linear in nature or each is less than 200 acres. The surrounding habitat is largely developed irrigated farmland, which result in a narrow corridor of potential ferret habitat and likely compromises a complex of sufficient size to be suitable black-footed ferret habitat. The prairie dog habitat north of the Highline Canal is extensive on BLM lands.

The lack of any data demonstrating the presence of black-footed ferret in the Grand Valley supports the supposition that a self-sustaining population is not present. In order for the habitat to become occupied by black-footed ferret, a reintroduction program would be necessary or a wild population could potentially immigrate into the area. Currently, the USFWS, CDOW and BLM are not planning on a reintroduction program in the Grand Valley area. Immigration to the project area and establishment of a self-sustaining black-footed ferret population from the Wolf Creek-Coyote Basin population north of Rangely is unlikely. Approximately 50 miles of unsuitable habitat that lacks prairie dog colonies separates to the two areas.


Legend
Prairie Dog Colonies (CDOW)
Prairie Dog Overall Range (CDOW)
Rail Alignment
Permit Boundary
BLM
Figure 3
Red Cliff Mine
CDOW
Prairie Dog Towns
WestWater Engineering
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Grand Junction
Fruita

Black-footed ferrets, under current environmental conditions and lack of planned management actions (reintroductions), are unlikely to occur in the Grand Valley and, therefore, would not be affected by the Red Cliff mine project.

7.5 Cumulative Effects

7.5.1 State or Private Development in the Project Area

Within the project area in Mesa County on private lands, there are approximately 20 active development applications for residential, commercial, and agricultural development as of mid-2008 (Mesa County 2008). There are no major highway projects planned in Mesa County within the project area (Mesa County 2008).

The development of natural gas resources in the general area (Grand Valley) is increasing as industry expands operations from on-going centralized operations that have been focused in the area of Parachute, Colorado. A limited amount of natural gas exploration and development is currently occurring in the project area

7.5.2 Other Federal Actions

Other than CAM-Colorado, there are currently no formal plans or applications for coal leasing before the BLM near the project area. Other sources of disturbance associated with Federal actions in the project vicinity that may increase the potential for cumulative effects on potential black-footed ferret habitat include the potential for expanded exploratory natural gas development on BLM lands in the project area. Slate River Resources developed a natural gas well in the CAM project area during 2007.

7.6 Conservation Measures

1. Implementation of reclamation and revegetation plans will help maintain native vegetation community to provide a forage base for potentially affected prairie dog colonies. On federal lands, a BLM approved seed mix will be used. Reclamation standards on private surface should conform to the wishes of the landowner.
2. Implementation of an approved noxious weed management plan will increase the potential for successful revegetation of native plant communities.
3. Minimize the width of the spur line within affected prairie dog colonies and minimize construction affects.

7.7 Determination

Determination of effects of action(s), as described, on the black-footed ferret:

_____ No Effect

__X__ May Affect, Is Not Likely to Adversely Affect

_____ May Affect, Is Likely to Adversely Affect

Rationale: In accordance with the USFWS Final, Section 7, Consultation Handbook (USFWS 1998), a determination of "may affect, is not likely to adversely affect" is the appropriate conclusion when effects on listed species are expected to be discountable, or insignificant, or completely beneficial.

The determination of "may affect, is not likely to adversely affect|" is appropriate given the fact that white-tailed prairie dog habitat may be suitable habitat for the black-footed ferret, however the ferret is highly unlikely to naturally colonize the project area and no reintroduction program is planned for the project area.

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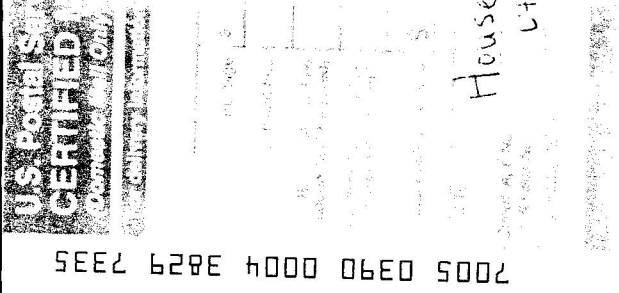
Native American Consultation



FEB 12 2008

8120(CO130)

CERTIFIED MAIL NO. 7005 0390 0004 3829 7335
RETURN RECEIPT REQUESTED

Ernest House Sr., Chairman
Ute Mountain Ute Tribe
P.O. Box 248
Towoac, CO 81334

Dear Chairman House Sr.:

The Bureau of Land Management Grand Junction Field Office would like to bring the following project to your attention. Our office is in the process of preparing an Environmental Impact Statement (EIS) to analyze the Red Cliff Mine, proposed by Central Appalachia Mining, Colorado LLC (CAM). CAM proposes opening new portals to extract low-sulfur coal from the underground Red Cliff Mine. In addition to locating facilities on their existing and potential new coal leases, CAM has also applied for rights-of-way and land-use applications to locate surface facilities on approximately 1,140 acres of federally managed lands. A general map showing the project area and two other maps showing the surface facilities associated with the rail line and the transmission line alternatives are enclosed.

The proposed Red Cliff Mine is located approximately 20 miles northwest of Grand Junction, Colorado, and 1.5 miles east of Colorado State Highway 139. CAM currently mines coal from the underground McClane Mine, located three miles north of the proposed Red Cliff Mine but would cease operations there once the Red Cliff Mine was operational. The coal from the McClane Mine is currently transported by trucks to the Cameo Power Plant east of Grand Junction. CAM has proposed building a railroad line to connect the Red Cliff mine to the existing Union Pacific Railroad near Mack, Colorado, crossing approximately 10 miles of federally managed lands and 5 miles of private land. Electric power needed to operate the mine would be purchased from Grand Valley Power the local utility company; they will need to construct a new 69 kV transmission line from a substation near the town of Fruita to supply electricity to the mine. This line will be approximately 14 miles long, with 7 miles on federally managed lands and 7 miles on private land.

Underground mining would be conducted 24 hours a day, 7 days per week, and 365 days per year. CAM's production from the Red Cliff Mine would be up to 8 million tons per year, with an estimated mine life of 30 years depending on market conditions. Construction of the facilities for the Red Cliff Mine would take approximately 2 years and would cost approximately $163 million.

The EIS will analyze the potential impacts associated with the construction and operation of the facilities proposed in CAM's Right-of-Way and Land Use Applications, and other potential impacts associated with the operation of the Red Cliff Mine. In addition to other environmental studies a Class III cultural resource inventory to evaluate the entire area that would be potentially affected by the surface operations of the mine has been completed on 1,940 acres of BLM land and 280 acres of private land. A total of nine sites were recorded; six prehistoric sites, two historic sites, and one site with both a prehistoric and historic component. The final evaluation was that four prehistoric sites were evaluated as NRHP eligible under criterion "d", for their potential to provide information important to understanding prehistory in the region. These sites, open camps and lithic scatters, date to the late Paleo-Indian through the late Archaic eras. The remaining five sites were evaluated as not eligible.

In consultation with the State Historic Preservation Office we have developed appropriate redesign and monitoring so no archaeological sites would be affected by the proposed mine or its facilities. The purpose of this letter is for this project to be brought before the Council, not only to inform the tribe of the general scope of the coal mining activity in the area, but to specifically review the location of the proposed Red Cliff Mine. Religious concerns or traditional cultural values are a type of heritage resource that inventories may not identify but we need to be aware if there are any at risk if we approve the Mining Plan of Operations.

Because of the distance required to meet at the Grand Junction Field Office, if the Council would like the opportunity to discuss this information in person, I would ask for a place on the agenda at a time that is convenient to the Council. I will have my staff archaeologist Aline LaForge contact Terry Knight Sr. in 30 days as a follow-up to this letter. If I do not receive a written response or a request for a meeting, I will assume that the Council has no concerns with the CAM Red Cliff Mine proposal.

If the council determines that additional consultation is appropriate and necessary, please contact us at your earliest convenience. I want to ensure that all tribal concerns are considered including traditional cultural properties, culturally significant places, or religious values that may be associated with the current project area. Please contact Aline at (970) 244-3038 for any additional information or to schedule a meeting.

Sincerely,

/S/ Catherine Robertson

Catherine Robertson
Field Manager

Enclosure
Maps: location of the Red Cliff Mine, surface facilities and rail line, transmission line alternatives (3 pp.)

cc: Terry Knight Sr., NAGPRA Representative w/enclosure

8120 (CO130)

CERTIFIED MAIL NO. 7007 0390 0004 3829 7328
RETURN RECEIPT REQUESTED

Clement J. Frost, Chairman
Southern Ute Indian Tribe
P.O. Box 737
Ignacio, CO 81137

Dear Chairman Frost:

The Bureau of Land Management Grand Junction Field Office would like to bring the following project to your attention. Our office is in the process of preparing an Environmental Impact Statement (EIS) to analyze the Red Cliff Mine, proposed by Central Appalachia Mining, Colorado LLC (CAM). CAM proposes opening new portals to extract low-sulfur coal from the underground Red Cliff Mine. In addition to locating facilities on their existing and potential new coal leases, CAM has also applied for rights-of-way and land-use applications to locate surface facilities on approximately 1,140 acres of federally managed lands. A general map showing the project area and two other maps showing the surface facilities associated with the rail line and the transmission line alternatives are enclosed.

The proposed Red Cliff Mine is located approximately 20 miles northwest of Grand Junction, Colorado, and 1.5 miles east of Colorado State Highway 139. CAM currently mines coal from the underground McClane Mine, located three miles north of the proposed Red Cliff Mine but would cease operations there once the Red Cliff Mine was operational. The coal from the McClane Mine is currently transported by trucks to the Cameo Power Plant east of Grand Junction. CAM has proposed building a railroad line to connect the Red Cliff mine to the existing Union Pacific Railroad near Mack, Colorado, crossing approximately 10 miles of federally managed lands and 5 miles of private land. Electric power needed to operate the mine would be purchased from Grand Valley Power the local utility company; they will need to construct a new 69 kV transmission line from a substation near the town of Fruita to supply electricity to the mine. This line will be approximately 14 miles long, with 7 miles on federally managed lands and 7 miles on private land.

Underground mining would be conducted 24 hours a day, 7 days per week, and 365 days per year. CAM's production from the Red Cliff Mine would be up to 8 million tons per year, with an estimated mine life of 30 years depending on market conditions. Construction of the facilities for the Red Cliff Mine would take approximately 2 years and would cost approximately $163 million.

The EIS will analyze the potential impacts associated with the construction and operation of the facilities proposed in CAM's Right-of-Way and Land Use Applications, and other potential impacts associated with the operation of the Red Cliff Mine. In addition to other environmental studies a Class III cultural resource inventory to evaluate the entire area that would be potentially affected by the surface operations of the mine has been completed on 1,940 acres of BLM land and 280 acres of private land. A total of nine sites were recorded; six prehistoric sites, two historic sites, and one site with both a prehistoric and historic component. The final evaluation was that four prehistoric sites were evaluated as NRHP eligible under criterion "d", for their potential to provide information important to understanding prehistory in the region. These sites, open camps and lithic scatters, date to the late Paleo-Indian through the late Archaic eras. The remaining five sites were evaluated as not eligible.

In consultation with the State Historic Preservation Office we have developed appropriate redesign and monitoring so no archaeological sites would be affected by the proposed mine or its facilities. The purpose of this letter is for this project to be brought before the Council, not only to inform the tribe of the general scope of the coal mining activity in the area, but to specifically review the location of the proposed Red Cliff Mine. Religious concerns or traditional cultural values are a type of heritage resource that inventories may not identify but we need to be aware if there are any at risk if we approve the Mining Plan of Operations.

Because of the distance required to meet at the Grand Junction Field Office, if the Council would like the opportunity to discuss this information in person, I would ask for a place on the agenda at a time that is convenient to the Council. I will have my staff archaeologist Aline LaForge contact Neil Cloud in 30 days as a follow-up to this letter. If I do not receive a written response or a request for a meeting, I will assume that the Council has no concerns with the CAM Red Cliff Mine proposal.

If the council determines that additional consultation is appropriate and necessary, please contact us at your earliest convenience. I want to ensure that all tribal concerns are considered including traditional cultural properties, culturally significant places, or religious values that may be associated with the current project area. Please contact Aline at (970) 244-3038 for any additional information or to schedule a meeting.

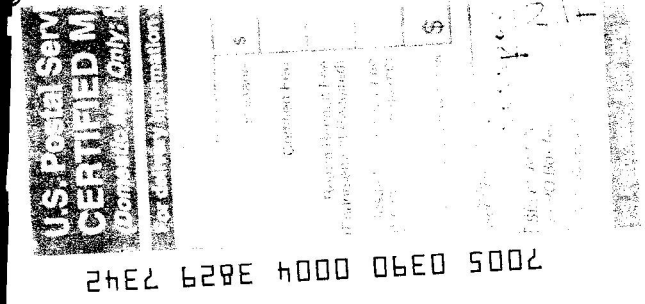
Sincerely,

/S/ Catherine Robertson

Catherine Robertson
Field Manager

Enclosure
Maps: location of the Red Cliff Mine, surface facilities and rail line, transmission line alternatives (3 pp.)

cc: Neil Cloud, NAGPRA Representative w/enclosure



FEB 12 2008

8120 (CO130)

CERTIFIED MAIL NO.7005 0390 0004 3829 7342
RETURN RECEIPT REQUESTED

Mr. Curtis R. Cesspooch, Chairman
Ute Indian Tribe
Uintah and Ouray Tribal Business Committee
P.O. Box 190
Fort Duchesne, UT 84026

Dear Chairman Cesspooch:

The Bureau of Land Management Grand Junction Field Office would like to bring the following project to your attention. Our office is in the process of preparing an Environmental Impact Statement (EIS) to analyze the Red Cliff Mine, proposed by Central Appalachia Mining, Colorado LLC (CAM). CAM proposes opening new portals to extract low-sulfur coal from the underground Red Cliff Mine. In addition to locating facilities on their existing and potential new coal leases, CAM has also applied for rights-of-way and land-use applications to locate surface facilities on approximately 1,140 acres of federally managed lands. A general map showing the project area and two other maps showing the surface facilities associated with the rail line and the transmission line alternatives are enclosed.

The proposed Red Cliff Mine is located approximately 20 miles northwest of Grand Junction, Colorado, and 1.5 miles east of Colorado State Highway 139. CAM currently mines coal from the underground McClane Mine, located three miles north of the proposed Red Cliff Mine but would cease operations there once the Red Cliff Mine was operational. The coal from the McClane Mine is currently transported by trucks to the Cameo Power Plant east of Grand Junction. CAM has proposed building a railroad line to connect the Red Cliff mine to the existing Union Pacific Railroad near Mack, Colorado, crossing approximately 10 miles of federally managed lands and 5 miles of private land. Electric power needed to operate the mine would be purchased from Grand Valley Power the local utility company; they will need to construct a new 69 kV transmission line from a substation near the town of Fruita to supply electricity to the mine. This line will be approximately 14 miles long, with 7 miles on federally managed lands and 7 miles on private land.

Underground mining would be conducted 24 hours a day, 7 days per week, and 365 days per year. CAM's production from the Red Cliff Mine would be up to 8 million tons per year, with an estimated mine life of 30 years depending on market conditions. Construction of the facilities for the Red Cliff Mine would take approximately 2 years and would cost approximately $163 million.

The EIS will analyze the potential impacts associated with the construction and operation of the facilities proposed in CAM's Right-of-Way and Land Use Applications, and other potential impacts associated with the operation of the Red Cliff Mine. In addition to other environmental studies a Class III cultural resource inventory to evaluate the entire area that would be potentially affected by the surface operations of the mine has been completed on 1,940 acres of BLM land and 280 acres of private land. A total of nine sites were recorded; six prehistoric sites, two historic sites, and one site with both a prehistoric and historic component. The final evaluation was that four prehistoric sites were evaluated as NRHP eligible under criterion "d", for their potential to provide information important to understanding prehistory in the region. These sites, open camps and lithic scatters, date to the late Paleo-Indian through the late Archaic eras. The remaining five sites were evaluated as not eligible.

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Because of the distance required to meet at the Grand Junction Field Office, if the Council would like the opportunity to discuss this information in person, I would ask for a place on the agenda at a time that is convenient to the Council. I will have my staff archaeologist Aline LaForge contact Betsy Chapoose in 30 days as a follow-up to this letter. If I do not receive a written response or a request for a meeting, I will assume that the Council has no concerns with the CAM Red Cliff Mine proposal.

If the council determines that additional consultation is appropriate and necessary, please contact us at your earliest convenience. I want to ensure that all tribal concerns are considered including traditional cultural properties, culturally significant places, or religious values that may be associated with the current project area. Please contact Aline at (970) 244-3038 for any additional information or to schedule a meeting.

Sincerely,

/s/ Catherine Robertson

Catherine Robertson
Field Manager

Enclosure
Maps: location of the Red Cliff Mine, surface facilities and rail line, transmission line alternatives (3 pp.)

cc: Betsy Chapoose Director Cultural Rights and Protection w/enclosure

SHPO Consultation

FOR OFFICIAL USE ONLY: DISCLOSURE OF SITE LOCATIONS IS PROHIBITED (43 CFR 7.18)

CLASS III CULTURAL RESOURCE INVENTORY REPORT
FOR THE
PROPOSED RED CLIFF MINE PROJECT
IN GARFIELD AND MESA COUNTIES, COLORADO,
FOR
CAM-COLORADO LLC
BLM REF. NO. 1106-11

GRI Project No. 2640
25 October 2006

Prepared by

Carl E. Conner, Principal Investigator
James C. Miller, Nicole Darnell, and Barbara J. Davenport
Grand River Institute
P.O. Box 3543
Grand Junction, Colorado 81502
BLM Antiquities Permit No. C-52775

Submitted to

Bureau of Land Management
Grand Junction Field Office
2815 H Road
Grand Junction, Colorado 81506

49349
GAW

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Grand Junction Field Office
2815 H Rd
Grand Junction, Colorado 81506
www.co.blm.gov/gjra/gjra.html

TAKE PRIDE IN AMERICA

8100(CO130)

DEC 1 8 2006

State Historic Preservation Officer
Colorado Historical Society
1300 Broadway
Denver, Co 80203

Part I. Project Description
County: Garfield and Mesa
Project Number: BLM CRIR GJFO 1106-11
NEPA Number: CO 130-2006-62 EA for exploration, and notification of an Environmental Impact Statement (EIS) pending (2008) for Red Cliff Mine

The following undertaking is located in: 6th PM, T. 7 S., R. 101 W. sections 17, 20, 21, & 29;
T. 7 S., R. 102 W. sections 23 – 26, 35, & 36;
T. 8 S., R. 101 W. sections 5 – 9, and 17

Undertaking Name: Proposed Red Cliff Mine Project in Garfield and Mesa Counties, Colorado

The current undertaking is an application from CAM Colorado LLC (CAM) to conduct geotechnical exploration (drilling) and short-term right-of-way for access roads located on federal lands managed by the Bureau of Land Management (BLM), Grand Junction Field Office (GJFO). The BLM is also requesting the SHPO to consider the BLM's recommendation and evaluation of eligibility and effect for cultural properties that are within the Area of Potential Effect (APE) for the proposed Red Cliff mine, located approximately 11 miles north of the towns of Mack and Loma, Colorado, and 1.5 miles east of Colorado State Highway 139 (see proposal map enclosed). The Notice of Intent to prepare an Environmental Impact Statement for the proposed Red Cliff Coal Mine, Railroad Spur Line, and other associated surface facilities was published in the Federal Register (Doc E6-12010) on July 27, 2006.

This undertaking:

	(1) is a non-routine interstate and/or interagency project or program
	(2) directly affects a National Register eligible or listed property
	(3) has been determined by BLM, the SHPO or the Council to be highly controversial
	(4) is one of the following: a land exchange, land sale, Recreation and Public Purpose lease, or transfer
	(5) has been analyzed by a BLM staff person with limited experience or lacking appropriate expertise
X	(6) is one which we wish to bring to your attention

Undertaking Description:
Proposed Red Cliff Mine Project in Garfield and Mesa Counties, Colorado BLM CRIR GJFO 1106-11

The Area of Potential Effect (APE) for the exploration is relatively small but anticipating the need for additional information for EIS analysis CAM Colorado LLC contracted Grand River Institute to conduct a Class III cultural resource inventory to evaluate the entire area that would be potentially affected by the surface operations of the mine. A total of 2,220 acres were surveyed; 1,940 acres of BLM land and 280 acres of private land.

The surface disturbance from the exploration phase of this undertaking involves road construction and drill exploration used to design the proposed facilities for the Red Cliff Mine. Existing roads, an upgraded portion of an existing road, and overland travel would be used to access the drill sites on BLM managed lands. Drill sites are located immediately adjacent to roads or at the terminus of overland travel. There are no related structures or facilities during the exploration phase.

The surface disturbance from the development of the mine will be significant. CAM is proposing a new portal and associated facilities to extract low-sulfur coal from Federal Coal Leases C-0125515 and C-0125516 and from several potential new Federal leases as well as a small amount of private coal. The proposed railroad line would traverse approximately 9.5 miles of Federal land, and include one crossing of State Highway 139 and approximately 5 miles of private land. The EIS will analyze the potential impacts associated with the construction and operation of facilities proposed in CAM's Right-of-Way and Land Use Applications, and other potential impacts associated with the Red Cliff Mine project.

Twenty-one Isolated Finds (IF) were recorded. By definition IFs are not eligible for nomination to the National Register of Historic Places (NRHP). A total of eight sites were recorded; six prehistoric sites, one historic site, and one site with both a prehistoric and historic component. During the inventory survey phase one site, 5GF3880, was tested with BLM's permission to determine eligibility. The final evaluation was that four prehistoric sites were evaluated as NRHP eligible under criterion "d"; 5GF3878, 5GF3879, 5GF3880, and 5ME15398. The remaining four sites were evaluated as not eligible. Detailed documentation of the findings and evaluations is enclosed.

Sites 5GF3878, 5GF3879, and 5ME15398 are outside of the APE for exploration. 5GF3880 will be avoided during exploration phase by incorporating the following mitigation. A Colorado BLM permitted archeological consultant must be present to monitor and ensure the avoidance of 5GF3880 during any work associated with the overland travel that is proposed to access drill sites #6 and #8. Following overland use from the end of the existing route hand tools should be used to obscure the vehicle tracks to avoid the public from extending the existing route and thereby creating a new 2-track road which would impact the site. Any changes in drill location or access routes will require review by the archaeologist prior to authorization.

Only two of the eligible sites are within the APE from the proposed development of the mine. 5GF3880 is located between the proposed conveyor, the waste rock disposal area, and the Unit Train Loadout. As currently located in the preferred alternative it will be avoided but may require monitoring during conveyor construction. A different location for the waste rock disposal area is anticipated as an alternative in the EIS because of habitat concerns identified by the Colorado Division of Wildlife in the scoping phase. If the design changes in this area of the mine project and facilities cannot avoid the site a testing plan to determine if any remaining cultural deposits are present will be developed and submitted for review through additional consultation with your office. 5ME15398 will be avoided by the mine project but because of it's location overlooking the train loadout, it may be affected by secondary impacts associated with off highway vehicle use or changes in the current BLM transportation plan in this area of the North Fruita Desert Planning Area. If the road is not closed as a result of the mine development secondary impacts will be avoided by fencing the road along the site boundary. Sites 5GF3878 and 5GF3879 are located east of the mine entrance access road and are isolated by terrain. They will be avoided.

PART II. Determination of Eligibility to the National Register of Historic Places.

BLM GJFO has made the following determinations of eligibility and effect for the project:

DETERMINATION OF ELIGIBILITY				DETERMINATION OF EFFECT ON HISTORIC PROPERTIES		
SITE NUMBER	NOT ELIGIBLE	ELIGIBLE	ELIGIBILITY CRITERIA	NO EFFECT	NO ADVERSE EFFECT	ADVERSE EFFECT
5GF3876	X		"d"	X		
5GF3877	X		"d"	X		
5GF3878		X	"d"	X		
5GF3879		X	"d"	X		
5GF3880		X	"d"		X	
5ME15397	X		"d"	X		
5ME15398		X	"d"	X		
5ME15399	X		"d"	X		

A narrative discussing eligibility determination(s) and effects determination(s) is enclosed. Please review the enclosed documentation, then sign and return this letter with your comments within ten working days.

Alina La Forge — Dec. 14, 2006

BY FIELD OFFICE ARCHAEOLOGIST — DATE

Kent Morales — 12/15/06

BY MANAGER — DATE

COLORADO STATE HISTORIC PRESERVATION OFFICER

X Concur _____ Do Not Concur

Susan M Collins, Deputy — January 2, 2007

BY — DATE

COMMENTS:

Enclosures

1. Map of Proposed Red Cliff Mine
2. Class III Cultural Resource Inventory Report for the Proposed Red Cliff Mine Project in Garfield and Mesa Counties, Colorado (CRIR GJFO 1106-11) and supporting documentation (Conner et al 2006)

8100(CO130)

State Historic Preservation Officer
Colorado Historical Society
1300 Broadway
Denver, Co 80203

Part I. Project Description
County: Garfield and Mesa
Project Number: BLM CRIR GJFO 1106-11 SHPO #49349

Undertaking Name: Proposed Red Cliff Mine Project in Garfield and Mesa Counties, Colorado

The Bureau of Land Management (BLM) Grand Junction Field Office (GJFO) consulted with your office on this project in December 2006. At the request of Greg Wolff an historic cultural resource that was originally recorded by this project as an Isolated Find, 5GF3889 has been re-documented as a linear property, 5GF3889.1. As we discussed there is no change in the determination that this cultural resource is not eligible for nomination to the National Register of Historic Places.

Because this undertaking does not exceed any of the review thresholds listed in Part VIII (C)(2)(a) of the Protocol, **this letter is for informational purposes only**. Please find enclosed the site record for your files.

Sincerely

Aline LaForge
Archaeologist

Enclosure
5GF3889.1

GRIR 1107-04

OAHP Use Only: OAHP Doc. No. _____ OAHP Project No. _____

Colorado Office of Archaeology and Historic Preservation

LIMITED-RESULTS CULTURAL RESOURCE SURVEY FORM

Small scale limited results projects include block surveys under 160 acres and linear surveys under four miles. To be included under these guidelines there should be no sites and a maximum of four Isolated Finds. See manual for instructions. This form must be typed.

I. IDENTIFICATION

1. Report Title (include County): Class III Cultural Resources Inventory for an Addendum to the Redcliff Mine Project in Mesa County, Colorado, for CAM-Colorado LLC. BLM Project No. 1107-04. [GRI Project No. 2716]
2. Date of Field Work: March 12 and April 11, 2007
3. Form completed by: Nicole Darnell Date: 09 May 2007
4. Survey Organization/Agency: Grand River Institute
   Principal Investigator: Carl E. Conner
   Principal Investigator's Signature: Carl E. Conner
   Other Crew: Kevin O'Hanlon and Nicole Darnell
   Address: P.O. Box 3543, Grand Junction, CO 81502
5. Lead Agency / Land Owner: Bureau of Land Management, Grand Junction Resource Area
   Contact: Aline LaForge, Archaeologist
   Address: 2815 H Road, Grand Junction, CO 81506
6. Client: J.E. Stover and Assoc. Inc., PO Box 60340, Grand Junction, CO 81506
7. Permit Type and Number: BLM -- C-52775
8. Report / Contract Number: GRI Project No. 2716
9. Comments: _____

II. PROJECT DESCRIPTION

10. Type of Undertaking: Proposed disturbance in selected areas to relieve drainage from deep cuts along the rail line.
11. Size of Undertaking (acres): Unknown Size of Project (if different): 125
12. Nature of the Anticipated Disturbance: Dozing to relieve drainage
13. Comments: _____

SEP 2 4 2007

8100 (CO130)

State Historic Preservation Officer
Colorado Historical Society
1300 Broadway
Denver, CO 80203

Part I. Project Description
County: Mesa and Garfield

Project Number and Undertaking Name:
1) **BLM GJFO CRIR 1107-04** Addendum to the CAM Redcliff Mine Project, Class III linear survey for rail line drainage, right-of-way, Mesa County
2) **BLM GJFO CRIR 16807-02** Class III for Oxy Cascade Creek Pipeline and Access Road, rights-of-way, Garfield County
3) **BLM GJFO CRIR 16307-01** Class III for Williams Gas Pipeline Moab Recoat Locations, existing right-of-way, Mesa County
4) **BLM GJFO CRIR 5407-04** Class III for Buys and Associates Winter Flats Well Pad and Access Road, APD and right-of-way, Mesa County
5) **BLM GJFO CRIR 1107-14** Class III for PDC aka Mineral Land Services access road right-of-way, Garfield County

NEPA Number:

1) **BLM GJFO CRIR 1107-04**	EIS pending
2) **BLM GJFO CRIR 16807-02**	CO-130-2007-62 EA
3) **BLM GJFO CRIR 16307-01**	CO-130-2007-61CX
4) **BLM GJFO CRIR 5407-04**	EA pending
5) **BLM GJFO CRIR 1107-14**	CO-130-2007-68 EA

The above Class III cultural inventories were conducted for energy related projects. The surveys were linear or small block projects associated with pipeline and road rights-of-ways or applications for permit to drill (APD) that will be authorized by the Bureau of Land Management (BLM), Grand Junction Field Office. Surface disturbance will result from heavy equipment constructing trenches, roads, drainage ditches and well pads. A Class III inventory to current standards was conducted within the Area of Potential Effect of all projects by contractors who hold current BLM Cultural Resource Use Permits.

No sites or isolates were found by any of these surveys. Because these undertakings do not exceed any of the review thresholds listed in Part VIII (C)(2)(a) of the Protocol, **this letter is for informational purposes only**.

PART II. Determination of Eligibility to the National Register of Historic Places.

Since *no historic properties were found,* only a limited results cultural resource inventory form documenting the inventory are enclosed for the

1) **BLM GJFO CRIR 1107-04** Addendum to the CAM Redcliff Mine Project, Class III linear survey for rail line drainage, Mesa County

2) **BLM GJFO CRIR 16807-02** Class III for Oxy Cascade Creek Pipeline and Access Road, rights-of-way, Garfield County

3) **BLM GJFO CRIR 16307-01** Class III for Williams Gas Pipeline Moab Recoat Locations, existing right-of-way, Mesa County

4) **BLM GJFO CRIR 5407-04** Class III for Buys and Associates Winter Flats Well Pad and Access Road, APD and right-of-way, Mesa County

5) **BLM GJFO CRIR 1107-14** Class III for PDC aka Mineral Land Services access road right-of-way, Garfield County

/s/ William LaForge 9-18-07

BY FIELD OFFICE ARCHAEOLOGIST DATE

/s/ Catherine Robertson SEP 21 2007

BY FIELD MANAGER DATE

Enclosures:

1- *Class III Cultural Resources Inventory for an Addendum to the Redcliff Mine Project in Mesa County, Colorado for CAM Colorado LLC. BLM Project No. 1107-04 (Darnell 2007)*

2- *A Class III Cultural Resources Inventory for Oxy Cascade Creek 797-06-22D Pipeline and Access Road conducted for Occidental Oil & Gas Corporation (USA) Inc. in Garfield County, Colorado, BLM GJFO CRIR 16807-02 (Bradley 2007)*

3- *Williams Gas Pipeline Co. Moab Recoat Locations, Mesa County, Colorado: Results of a Class III (Intensive) Cultural Resources Inventory (CRIR 16307-01 (Tucker Jr. 2007)*

4- *Winter Flats 11-43-100 Well Pad, A Class III Cultural Resources Inventory in Mesa County, Colorado (BLM GJFO CRIR 5407-04)*

5- *Class III Cultural Resources Inventory for a proposed access road (1200') above Riley Gulch in Garfield County, Colorado for Mineral Land Services. BLM # 1107-14 (Davenport 2007)*

USACE Consultation

Jurisdictional Determination Request

January 31, 2008

WestWater Engineering
Environmental Consulting Services

2516 FORESIGHT CIRCLE, #1 GRAND JUNCTION, COLORADO 81505 (970) 241-7076 FAX: (970)241-7097

January 31, 2008

Mr. Steve Moore
US Army Corps of Engineers
402 Rood Ave., Room 142
Grand Junction, CO 81501

Via e-mail: Stephen.A.Moore@spk01.usace.army.mil

RE: Jurisdictional Determination Request: Part 2, Request for confirmation of wetland delineation and jurisdictional determination for the CAM Colorado LLC Coal Mine and Rail Spur Project, Mesa and Garfield Counties, Colorado

Mr. Moore:

This is WestWater's request for a confirmation of a wetland delineation and jurisdictional determination for the potential wetlands portion of the CAM Colorado LLC project in Mack, CO. This request includes the wetland delineation report, figures, photos, a jurisdictional JD form (2a), a non-jurisdictional JD form (2b), and COE data sheets.

Feel free to contact our office if you have questions, or if we can be of service in any way.

Sincerely,

Brett F. Fletcher
Environmental Scientist/ Wetland Biologist

cc: Bill_Killam@urscorp.com
Jeffrey_dawson@urscorp.com

Jurisdictional Determination Request
Proposed CAM Colorado LLC Red Cliff Mine and Rail Spur
Mesa County, Colorado

January 2008

This is a request for U.S. Army Corps of Engineers (COE) jurisdictional determination and confirmation of a wetland delineation performed on the site of the proposed Red Cliff Mine and related rail spur, north of Mack, Colorado (Figure 1). The delineation was performed by WestWater Engineering (WestWater) biologists on the following dates: June 19, 20, 21, Aug. 17, Nov. 17, 18, 20, 21, 27, Dec. 8, 18, 2006 and Feb. 23, 24, 2007.

Background

CAM Colorado, LLC, proposes to develop a coal mine facility in the southwest corner of Garfield County. Development of the mine will also require the construction of approximately 15 miles of rail spur on public and private lands in Mesa and Garfield Counties to transport coal from the mine facility to the Union Pacific Railroad south of Mack, Colorado. Based on maps of the proposed railroad right-of-way and the proposed mine facility provided by CAM Colorado, WestWater Biologists surveyed the approximately 2,450 acre project site and surrounding areas to identify and delineate potential wetlands and Waters of the United States (WOUS) within and adjacent to proposed construction boundaries (Figure 1). At the request of the COE the project was divided into two parts:

1. Request for a Jurisdictional determination identifying potential non-wetland WOUS.
2. Request for confirmation of Wetland delineation and Jurisdictional determination.

Part 1 of this project report identified non-wetland dry wash crossings within the project area. The majority of these washes were located north of the Government Highline Canal and the report was submitted to the Colorado/Gunnison Basin Office of the Army Corps of Engineers December 5, 2007. Part 2 of this project report identifies wetland areas within the project area, all of which are south of the Government Highline Canal (Figure2). This report is a request for confirmation on wetland delineations preformed and a request for a determination on the jurisdictional status of these wetland areas.

This report is Part 2

Delineation Methods

Wetland delineation was performed during the 2006 growing season while irrigation of nearby agricultural areas was underway. Recent (2005 and 2007) precipitation has been near normal for the Grand Valley, unlike the preceding drought years (2002 through 2004), so related wetland characteristics were considered to be in relatively normal condition as well.

WestWater biologists surveyed approximately 15.5 miles of the proposed rail alignment extending from the existing rail line in the town of Mack, Colorado to the base of the Book Cliffs. Potential wetlands were identified within the 500 foot rail spur right-of-way and any wetlands that could potentially be disturbed were also identified. Wetland boundaries were

identified on the basis of the vegetation, soils and hydrologic characteristics present at the site in accordance with Interim Arid West Regional supplement to the COE Wetland Delineation Manual, December 2006, and the U.S. Army Corps of Engineers Jurisdictional Determination Form Instructional Guide Book, May 30, 2007. The wetland boundary delineation included identification of plant species, vegetation composition and structure. Soil borings (18 ± inches deep) were taken with an auger for observation of wetland hydrologic and soil characteristics. Soil horizons were examined for color, texture, and moisture characteristics. The wetland boundaries based on these evaluation methods were marked with numbered orange flags and surveyed by Meritt L S. Army Corps of Engineers wetland delineation data forms are in appendix A of this report. Jurisdictional findings are presented in this report and on the Jurisdictional Determination Forms (JDF) 2a and 2b.

Significant nexus determinations were made by examining the functions that may significantly affect the physical, chemical, and biological integrity of downstream Traditionally Navigable Waters (TNWs) or contributing Relatively Permanent Waters (RPWs) and Non-RPWs. Additionally, these wetlands were evaluated for their potential to retain or transport sediment and/or pollutants into a TNW or RPW. Where wetland characteristics were present, wetlands were walked to determine surface water connectivity to WOUS and TNWs. Individual wetlands were evaluated based on their physical, chemical, and biological functions and values. Upland to wetland transects were installed and relevant vegetation, soils and hydrologic characteristics were recorded on COE Data Forms.

Delineation Findings

This delineation included an irrigation canal, irrigation ditches, wetlands, and 2 potential crossings of one perennial stream. WestWater's delineation identified 19 polygons with wetland characteristics. Wetland type, polygon ID's, areas, and flag numbers are summarized in Table 1, jurisdictional findings are summarized in Table 2, and individual flag and transect locations are listed in Table 3.

Table 1. Wetland Area Summary

Wetland Type	Area ID	Area in acres	Flag Numbers	Upland/Wetland Transects and comments
Emergent Wetland	A	0.4	A001-A021	TAU (upland) – TAW
Marsh	H	10.85	H001-H112	(wetland), Located at
(Total area = 11.51 acres)	K	0.166	K001-K018	boundary flags A004.
	M	0.077	M001-M006	
	O	0.008	O001-O003	THU – THW, between flags H019 & H020
	D	0.0001	D001	Raised water table from
	E	0.013	E001-E004	impounded irrigation water
Wetland Fringe	B	0.26	B001-B018	TBU – TBW, located between
(Total area = 3.12 acres)	C	0.6	C001-C052	flags B002 & B003
	F	0.023	F001-F004	Ditch water has been
	G	0.01	G001-G005	impounded to raise water
	P	0.1	P001-P014	levels (B,C,P,Q,R)

Table 1. Wetland Area Summary

Wetland Type	Area ID	Area in acres	Flag Numbers	Upland/Wetland Transects and comments
Wetland Fringe (Total area = 3.12 acres	Q	0.38	Q001-Q014	TPU – TPW, between flags P008 & L009.
	R	1.09	R001-R039	
	S	0.49	S001-S032	
	T	0.03	T001-T008	
	U	0.11	U001-U047	Mack Wash
	V	0.035	V001-V024	Gov. Highline Canal
De-Watered Wetland Marsh (total area = 1.45 acres)	L	1.45	L001-L019	TLU- TLW, between flags L018 & L019
Dry areas within Wetlands	J		J001-J008	Within polygon H

Emergent Wetland Marsh

Polygons H, K, M, and O are located on a terrace east of East Salt Creek. This complex consists of one large emergent wetland marsh (H) (Photos 19 & 20), and three smaller emergent wetland marshes, polygons K, M, & O (Figure 3). These polygons receive irrigation return flow from elevated agricultural lands and a tree farm east of 10 Road. Excess water in spring and summer months provides a surface water connection to East Salt Creek. Irrigation return flows appear to be augmented by groundwater that sustains hydrology when irrigation flows stop. Surface water connections that were observed with East Salt Creek were associated with irrigation return flows. Plant species in these wetlands include: cattail (*Typha latifolia*), three-square (*Scirpus pungens*), and alkaligrass (*Puccinellia spp.*).

Polygon A is located 1.6 miles south of polygon H on the same terrace. It is located below an agricultural field, Photo 18 and Figure 4, and its primary source of hydrology is irrigation return flows from that field. During irrigation season the area establishes periodic surface water connections with Mack Wash and groundwater seepage maintains hydrology during the growing season. Vegetation in polygon A is dominated by cattails and some common spikerush.

Soils for all polygons on the terrace are mapped as Persayo silty clay loam. Polygons A, H, K, M, and O had hydric soil indictors categorized as F3, Depleted Matrix, which is characterized by 60 percent or more chroma of 2 or less and meets thickness requirements established by NRCS. Soils in polygon A also showed gleying.

Wetland Fringe

Polygons B, C, D, E, F, G, S, and T receive water from an irrigation ditch that passes underneath the railroad tracks near delineation flag B-6. Water at polygon B is impounded and transferred through a culvert into polygon C (Photos 2-4). Polygons E and D are associated with a subsurface connection from impounded water in Polygon B (Figure 5). Polygon C also impounds water and conveys it down an irrigation ditch to the west. This ditch is elevated 2 to 4

feet above the existing area topography (Photos 4-6). Polygons F and G are remnants of a previous ditch and are subject to seepage from the elevated irrigation ditch in polygon C (Figure 5). Polygon C passes through a culvert under an access road into the concrete ditch in Polygon S. Broken portions of the concrete ditch and vegetation-induced blockages have caused the ditch to leak water into the Hwy 6&50 borrow ditch. It also overflows into the old agricultural fields to the south, widening the wetland footprint (Photos 7-10). Polygon S flows west through a culvert under an access road and into Polygon T. Polygon T terminates at a culvert that conveys the remainder of flow into Mack Wash just south of Hwy 6&50 bridge (Figure 5) (Highway 6&50 is also known as M 8/10 Road in this part of Mesa County). Vegetation in these polygons is dominated by cattails along the outer edges, except for polygon T which is dominated by Reed canarygrass (Photo 11). Soils are mapped as the Sagers and Homko series and show redoximorphic features and low chroma colors in the first 12 inches.

Polygons P, Q, and R appear to be ditches that are raised above the natural topography. They receive water from an irrigation ditch that passes under the railroad near flag P-1. Polygon P curves around a disturbed fill area. The water passes through a culvert to the west into Polygon Q and flows between an access road and the railroad. Polygon Q conveys water through a culvert under the access road to Polygon R which follows the railroad west (Figure 5). The dominant species in polygons P, Q, and R is cattails. The wetland in Polygon R continues another 500 feet west beyond the limits of the project boundary (Figure 5). The remaining water from the ditch empties into a confined channel that west eventually flowing into Mack Wash, approximately 1.5 miles down stream of the 6&50 bridge. Soils are mapped as the Sagers and Homko series and show redoximorphic features and low chroma colors in the first 12 inches.

Polygon U is emergent fringe wetlands along Mack Wash. Polygon U extends from the Hwy 6&50 Bridge upstream approximately 800 feet (Photo 17 and Figure 5). The polygon includes 1 potential crossing of Mack Wash and an alternative restructuring of the Hwy 6&50 bridge. Fringe wetlands along Mack Wash are dominated by tamarisk. Soils are mapped as Ustiffuvents and showed gleying within the first 12 inches. Mack Wash flows year round except in years of extreme drought.

Polygon V is a proposed crossing along Government Highline Canal (Figure 6). Wetland vegetation along the canal is limited to a 1 foot wide row of cattails on the canal edges. Soils did not show redoximorphic features and were highly compacted. Hydrology is supplied by irrigation water diverted from the Colorado River during irrigation season. Water is withdrawn from the Colorado River near Palisade, CO and the canal terminates near West Salt Creek, west of Mack, CO.

De-Watered Wetland Marsh

Polygon L appeared to be two manmade ponds that were connected by a ditch (Figure 3). Soil borings in wetland Polygon L had redoximorphic features with sharp and distinct boundaries indicating relict redoximorphic features. WestWater biologists observed declines in wetland vegetation (reduced re-establishment and dead vegetation). Lack of wetland hydrology in

Polygon L appears to be due to a change in irrigation practices upslope. Polygon L does not appear to be a groundwater discharge area and had no signs of hydrology during site visits.

Jurisdictional Findings

The polygons were divided into 2 groups; those likely to be jurisdictional and those believed to be non-jurisdictional. The project area includes 2 crossings of 1 perennial stream, Mack Wash, with its associated fringe wetlands. There are 18 polygons with wetland characteristics that are believed to be non-jurisdictional in the project area. Waters of the US, other waters, and their associated wetlands are summarized in Table 2. Surveyed UTM coordinates of wetland points and transects are listed in Table 3.

Table 2. Jurisdictional Summary

Type	Area ID	Total acres	Status	Justification and Dimensions	Distance to RPW
Waters of the U.S. (WOUS)	U	0.6	Jurisdictional	RPW	0
Wetlands Associated With WOUS	U	0.11	Jurisdictional	Adjacent wetlands	0
Other Waters	B,C,D,E,F, G,S,T	0.1	Non-Jurisdictional	Irrigation waters 3000ft x 1.5ft	300ft to 1500ft To *Mack Wash
	P,Q,R	0.09	Non-Jurisdictional	Irrigation waters 3000ft x 1.5ft	2600ft to *Mack Wash
	A	0.01	Non-Jurisdictional	Irrigation waters 900ft x 0.5ft	3000ft to 7000ft to *Mack Wash
	H	0.08	Non-Jurisdictional	Irrigation waters 3100ft x 1ft	500ft to 1500ft to **East Salt Creek
	K,M,O	0.02	Non-Jurisdictional	Irrigation waters 700ft x 1ft	3000ft to **East Salt Creek
	V	0..6	Non-Jurisdictional	Irrigation Canal 750ft x 35ft	6 miles to *** West Salt Creek
Wetlands Associated With Other Waters	A,H,K,M,O	11.50	Non-Jurisdictional	Marsh created by irrigation seepage	
	D,E,	0.013	Non-Jurisdictional	Resultant of impounded Irrigation water	
	B,C,F,G,P, Q,R,S,T,V	3.01	Non-Jurisdictional	Adjacent to irrigation ditches	
De-Watered Wetlands	L	1.45	Non-Jurisdictional	Lacks wetland hydrology	

* Distance from Mack Wash at Hwy 6&50 bridge to Colorado River Approx. 3.5 river miles.
** Distance from East Salt Creek (just below polygon H) to Colorado River Approx. 8 miles.
*** Distance from Gov. Highline Canal and West Salt Ck. to Colorado River Approx. 16 miles

Jurisdictional Wetlands

Jurisdictional waters and wetlands in the project area consist of the perennial stream Mack Wash and its associated riparian fringe wetlands. Mack Wash flows year around and is considered a relatively permanent water of the US. The surveyed portion of Mack Wash extended 800 lineal feet up stream starting from just south of the Hwy 6&50 bridge. The area of jurisdictional non-wetland WOUS was 0.6 acres, adjacent riparian fringe wetlands totaled 0.11 acres.

Non-Jurisdictional Wetlands

Wetlands evaluated in this jurisdictional determination are associated with irrigation ditches, seepage, and irrigation return flows. Wetland characteristics and vegetation are a direct result of irrigation water. Without this source of hydrology these wetlands would cease to exist. Non-jurisdictional wetlands in the project area are associated with water allocated from the Colorado River, TNW, as irrigation water in a series of canals, and lateral ditches constructed by the Bureau of Reclamation in the late 19th century (BOR 1985). Wetlands established and maintained solely by artificial irrigation does not meet the definition of Waters of the U.S. under the criteria contained in the 1987 Corps of Engineers Wetlands Jurisdictional Manual or its regional supplements**.** Artificially irrigated wetlands that would revert to uplands if irrigation would cease are not generally considered to be jurisdictional waters of the United States under section 404 of the Clean Water Act (Sacramento RBM 2007-01). The 18 polygons showing wetland characteristics that are likely to be non-jurisdictional based on their source of hydrology are A, B, C, D, E, F, G, H, K,L, M, N, O, P, Q, R, S, T, and V (Figures 2 through 6). A description of the progression of water flow through a series of ditches to the project area follows.

Flow into the Grand Valley Canal is diverted from the Colorado River east of Grand Junction in Palisade, Colorado. The canal flows west through the City of Grand Junction distributing irrigation water to lateral ditches. Between 12 and 13 Roads the canal turns south, crosses underneath Highway 6&50, and returns flow to the Colorado River near 13 Road. On the south side of the Highway 6&50 crossing, the Grand Valley Canal distributes water into the Mack Lateral. The Mack Lateral conveys water from the canal, via underground pipe, approximately 1.5 miles east to the town of Mack and its associated agricultural lands. The section of the Mack lateral that is piped ends at the Interstate-70 exit to the Town of Mack and is an open ditch from there on. The lateral meanders around the southern portion of Mack until just west of 10 Road where it turns north. The lateral splits into two main irrigation ditches. One ditch feeds two small agricultural ponds, crosses under the railroad tracks and turns west eventually flowing into to Mack Wash 1.5 miles downstream of the Highway 6&50 bridge. The other ditch continues north, crosses under the railroad tracks and divides into two smaller ditches. One of the smaller ditches flows north under Highway 6&50 and into Mack Wash. The other ditch is diverted to the west paralleling Highway 6&50 and ends up flowing through an underground conduit into Mack Wash, just south of the Highway 6&50 bridge (Photo 12 and Figure 5). From the Highway 6&50 bridge, Mack Wash flows southwest to Salt Creek and then into the Colorado River.

The proposed rail alignment crosses the Government Highline Canal, which is another main irrigation canal in the Grand Valley. Government Highline Canal originates just north of the Grand Valley Canal from the Colorado River in Palisade, CO. The canal parallels the Grand Valley Canal to the north until the Grand Valley Canal turns south near 13 Road. Government Highline Canal continues west distributing irrigation water to lateral ditches north and west of Mack (Figures 1 & 6). The canal terminates at West Salt Creek. West Salt Creek flows into Salt Creek, which flows into the Colorado River.

Irrigation ditches within the project area have been constructed in uplands. These ditches do not capture or convey jurisdictional waters of the US from tributaries along their flow path. The dry washes that are crossed flow only in times of heavy precipitation events (BOR 1977) and do not exhibit any wetland indicators such as hydric soils or wetland vegetation. Aerial photos in Figures 7 and 8 show distinct land surface changes in previously non-irrigated land that has been converted into agricultural production in the Mack area. Prior to the construction of these ditches the area was considered salt shrub desert and wetlands were confined to perennial washes. Transit loss and leakage from ditches have created wetland hydrology in some areas where it was previously non-existent. Unlined ditches and laterals, depending on substrate and sediment load, have losses of up to 2 cubic feet per square foot of ditch area per day (BOR 1986). During the last century of agricultural irrigation in the Grand Valley, a shallow perched water table has developed from water infiltrating weathered fractures in the Mancos shale (BOR 1986 & 1977). Water is leached through the fractures down to an impermeable layer of shale, which creates a perched water table. The impermeable shale can be 30 feet below the ground surface or just a few feet from the ground surface (BOR 1985 & 1977). Ground water is derived almost entirely from deep percolation of irrigation water and seepage from irrigation systems. Natural ground water recharge is less than 1% of the recharge occurring in the Grand Valley (BOR 1977 & 1985). The perched water table in the Grand Valley would be non existent without irrigation (BOR 1977). Aerial photos show the distinct vegetative boundaries between irrigation canals, lateral ditches, and the non-irrigated naturally arid salt-shrub desert (see Figures 7 and 8).

Several local soil scientists were interviewed regarding their professional opinions as to the causes and extent of wetland redoximorphic soil features and groundwater soil inclusions in the project area. All of these individuals are considered local soil experts and have been involved in numerous projects and studies involving soils and groundwater. The following paragraph is based on the professional opinions they provided during discussions about the project area in Mack, Colorado.

> Ken Weston, Bureau of Reclamation Project Manager retired, Grand Junction Office. Extensive involvement in the Colorado River Basin Salinity Control Project and connected research.
>
> Bob Rayer, NRCS Soil Survey Project Manager, Grand Junction Office

Max Schmidt, NRCS Soil Survey Project Manager retired, Grand Junction Office, and Bureau of Reclamation and EPA research on polyacrylamide used to line canals, ditches, and ponds to decrease transit losses.

Soils in the area develop redoximorphic features as a result of impeded or excess surface water; this allows water to infiltrate through weathered fractures in the Mancos shale to an impermeable shale layer (Schmidt and BOR 1977 & 1985). Impermeable shale depths vary from the ground surface to depths of ~30 feet (Weston and BOR 1977). Water trapped in this horizon creates an unconfined perched water table and what would appear to be formation of near surface wetland soil inclusions and groundwater pockets (Rayer & Weston). The lack of water in the area precludes natural redoximorphic soil feature development; except where soils are in direct contact with perennial streams (Ken Weston and BOR 1977 & 1985). Studies on canal seepage that were conducted during the Colorado River Basin Salinity Control Project indicate that sub-surface water tables directly relate to water levels present in irrigation canals and ditches (Ken Weston and BOR 1977 & 1985). Local area soil scientists believe that wetlands would not exist in the Grand Valley if it were not for irrigation, except when directly associated with perennial streams and permanent bodies of water (Weston, Rayer, Schmidt). When these scientists were asked if these wetlands would remain if irrigation was removed, they replied with a "No".

Significant Nexus

Physical

These areas with wetland characteristics are adjacent to non-jurisdictional irrigation ditches that provide insignificant contributions to the system other than returning irrigation flows. Natural runoff is limited in the arid environment and the lateral irrigation ditches in the area do not convey runoff from anything but small non-jurisdiction intermittent washes that only flow in times of severe localized precipitation events (BOR 1977). The functions of regulation of flow and flood attenuation are not applicable to irrigation ditches in the project area. Surface water connections from the Colorado River and into the Mack Lateral irrigation ditch are controlled by head gates during irrigation season.

Chemical

Natural salinity from salt-shrub desert and selenium transport from Mancos shale is expected when soils maintain extended periods of saturation. Irrigation runoff is assumed to include fertilizers and herbicides (not tested). Irrigation ditches may also provide a filtration and storage capacity for agriculturally related chemicals. Groundwater re-charge and creation of the perched water table can be viewed as a potential negative function as it mobilizes selenium and salinity that will be eventually transported into the Colorado River (TNW).

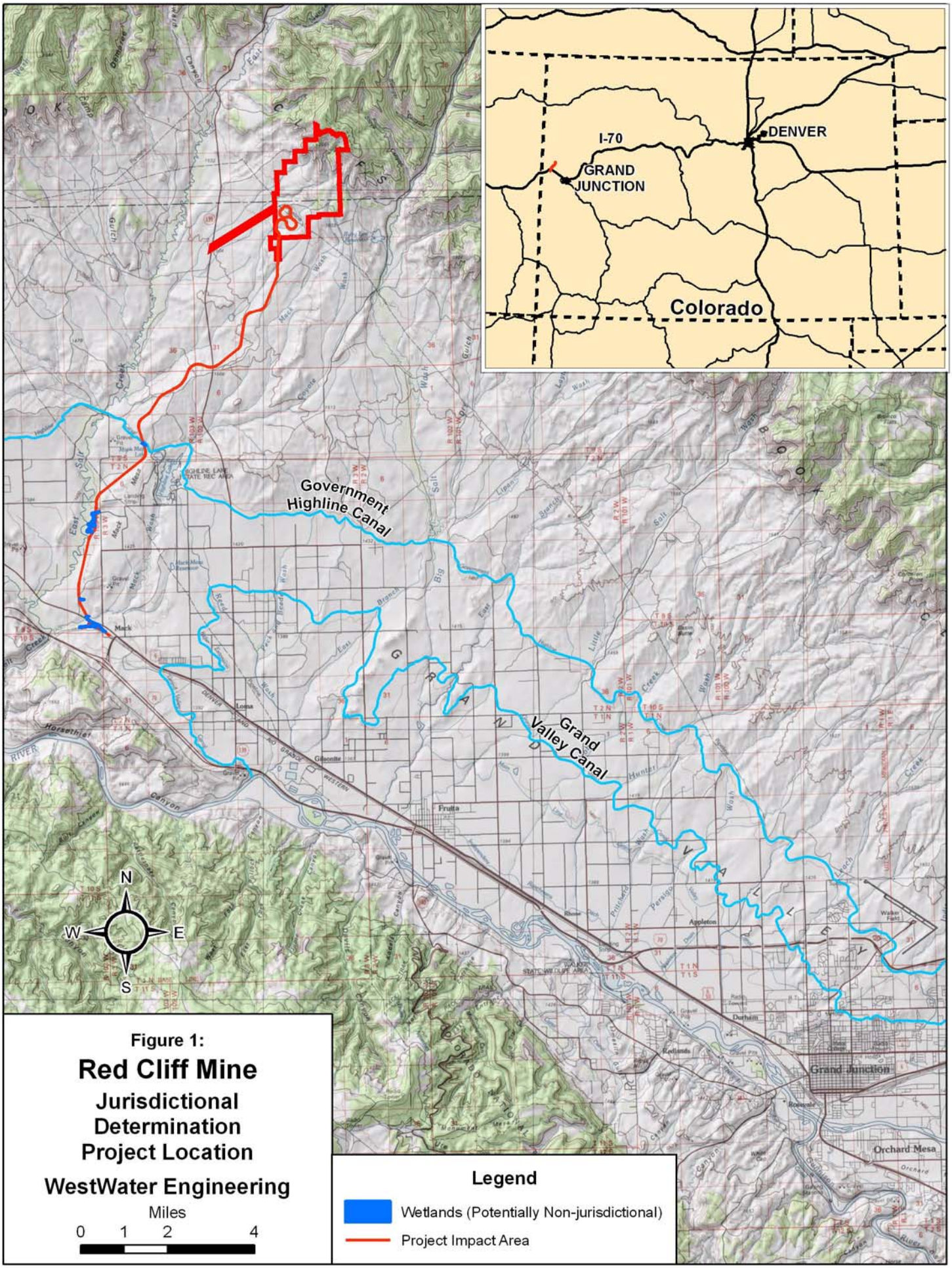
Biological

The habitat supports common amphibians and incidental use by terrestrial species that are characteristic of the salt desert shrub community. Active Northern Harrier Hawk nests were found in polygons A and H, and mule deer were frequently observed in these areas as well.

Irrigation water has created wildlife habitat which differs considerably from those occurring naturally (BOR 1985).

Conclusion

This report presents information demonstrating the project area was not likely to have wetland characteristics prior to introduction of irrigation water. Most wetlands in the project area are the direct result of irrigation and are believed to be non-jurisdictional. A wetland established and maintained solely by artificial irrigation does not meet the definition of adjacent wetlands to WOUS under the criteria contained in the 1987 COE Wetlands Jurisdictional Manual or its regional supplements. Irrigation waters are generally considered non-jurisdictional by COE (RBM 2007-02). The hydrologic source associated with these wetlands should not be considered a tributary because it is water allocated from the TNW, Colorado River, to the Grand Valley Canal for the sole purpose of irrigation. No jurisdictional WOUS are collected from tributaries in the Mack lateral and water in excess of that required for agricultural purposes is conveyed back to the Colorado River as irrigation return flow. There is no information available to show that these irrigation ditches: 1) are or could be used by interstate or foreign travelers for recreational or other purposes, 2) produce fish or shellfish which are or could be taken and sold in interstate or foreign commerce, or 3) are or could be used for industrial purposes by industries in the interstate commerce (33 CFR 328.3). Consensus of local experts and studies is that the areas with wetland characteristics are a direct result of irrigation. If the source of irrigation water was removed the area would revert to uplands and wetland characteristics would no longer be apparent. Fringe wetlands and adjacent flood plains are the only naturally occurring wetlands in the area.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Colorado
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Grand Valley Canal
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Figure 1:
Red Cliff Mine
Jurisdictional Determination
Project Location
WestWater Engineering
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Legend
Wetlands (Potentially Non-jurisdictional)
Project Impact Area

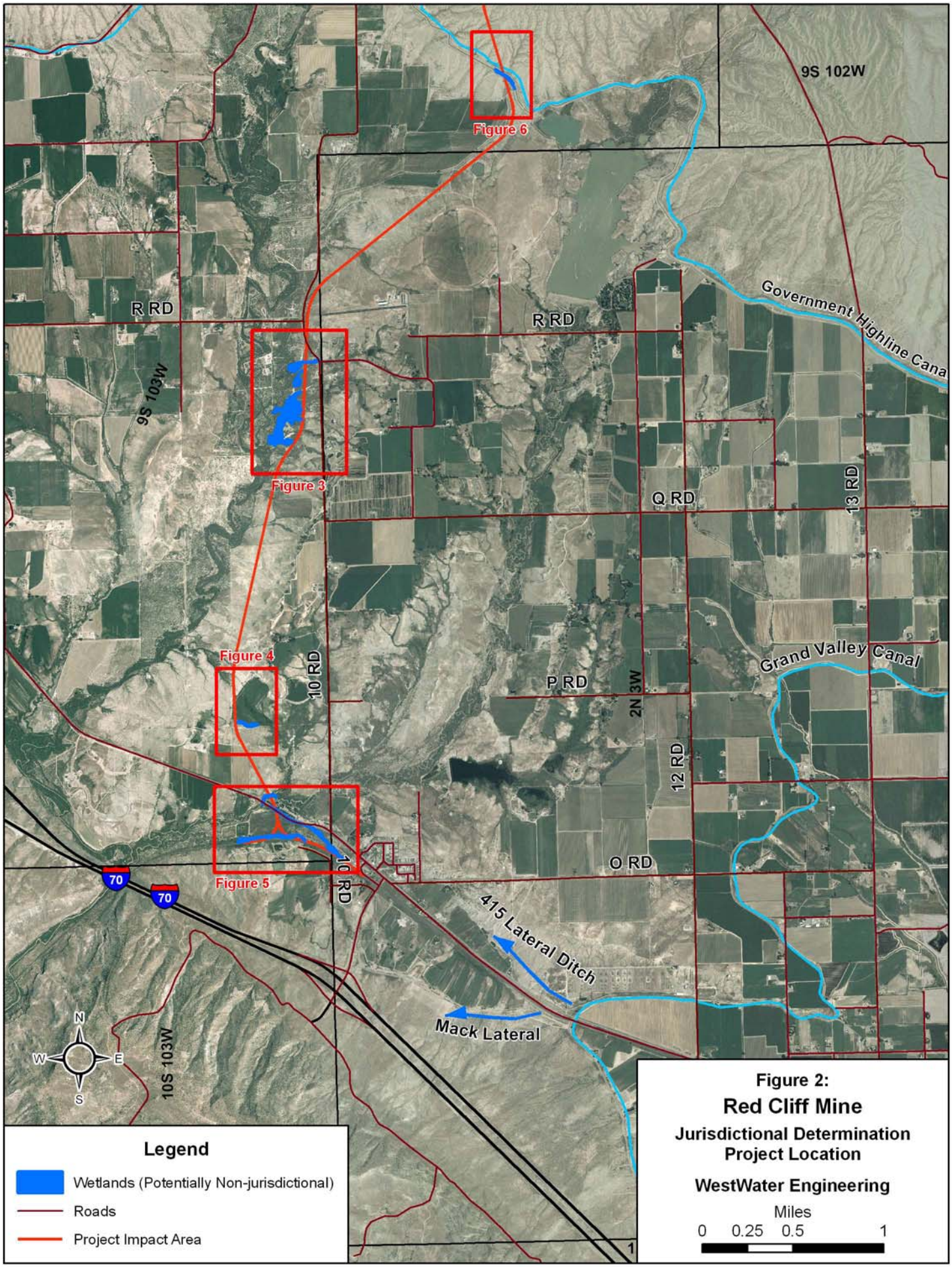
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Figure 3
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Figure 4
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Grand Valley Canal
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10S 103W
Legend
Wetlands (Potentially Non-jurisdictional)
Roads
Project Impact Area
Figure 2:
Red Cliff Mine
Jurisdictional Determination
Project Location
WestWater Engineering
Miles
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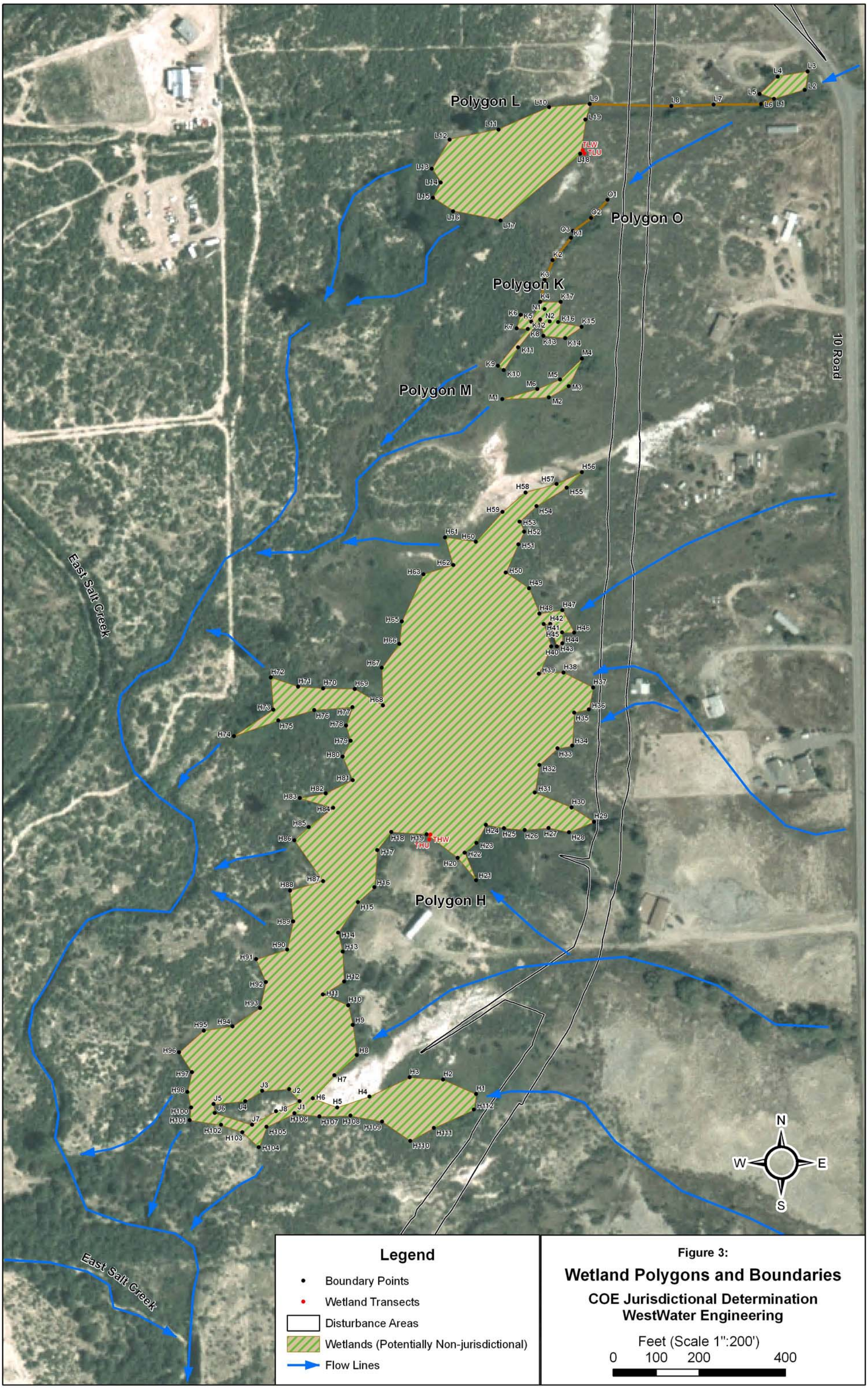
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Polygon K
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Polygon M
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10 Road
East Salt Creek
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Boundary Points
Wetland Transects
Disturbance Areas
Wetlands (Potentially Non-jurisdictional)
Flow Lines
Figure 3:
Wetland Polygons and Boundaries
COE Jurisdictional Determination
WestWater Engineering
Feet (Scale 1":200')
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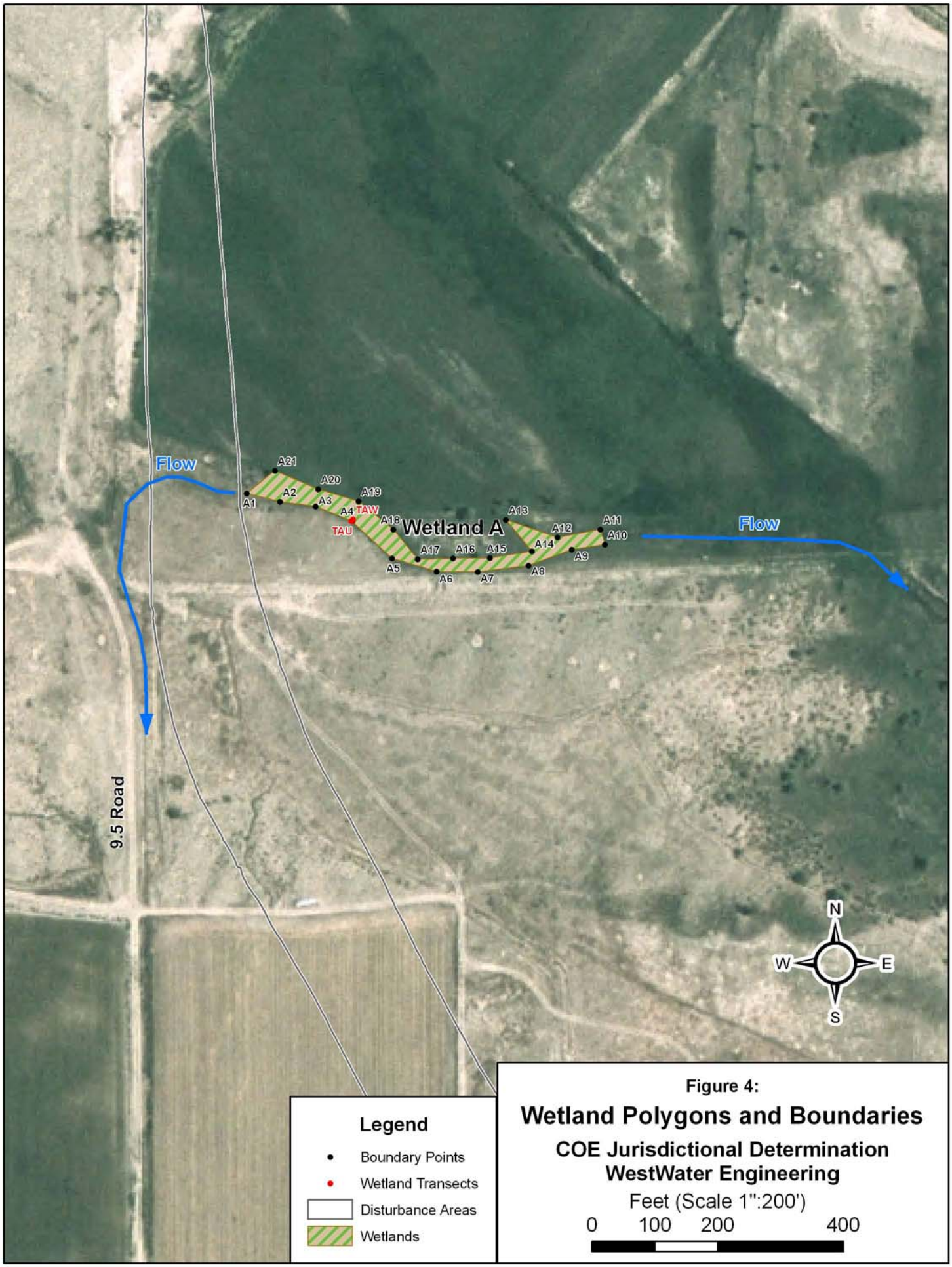
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A1
A4
TAW
TAU
A18
Wetland A
A13
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A16
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A5
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Flow
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Legend
Boundary Points
Wetland Transects
Disturbance Areas
Wetlands
Figure 4:
Wetland Polygons and Boundaries
COE Jurisdictional Determination
WestWater Engineering
Feet (Scale 1":200')
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Figure 5:

Wetland Polygons and Boundaries

COE Jurisdictional Determination
WestWater Engineering

Feet (Scale 1":200')
0 125 250 500

Legend

- Boundary Points
- Wetland Transects
- Disturbance Areas
- Wetlands (Potentially Non-jurisdictional)
- Fringe Wetlands

Polygon U
Polygon T
Polygon S
Polygon R
Polygon Q
Polygon P
Polygon C
Polygon G
Polygon F
Polygon B
Polygon D
Polygon E
Mack Wash
10 Road
Flow
Flow
Flow
Flow
End of Delineation
Wetland Continues
Inflow
Inflow
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Government Highline Canal
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Legend
Boundary Points
Disturbance Areas
Fringe Wetlands
Figure 6:
Wetland Polygons and Boundaries
COE Jurisdictional Determination
WestWater Engineering
Feet (Scale 1":200')
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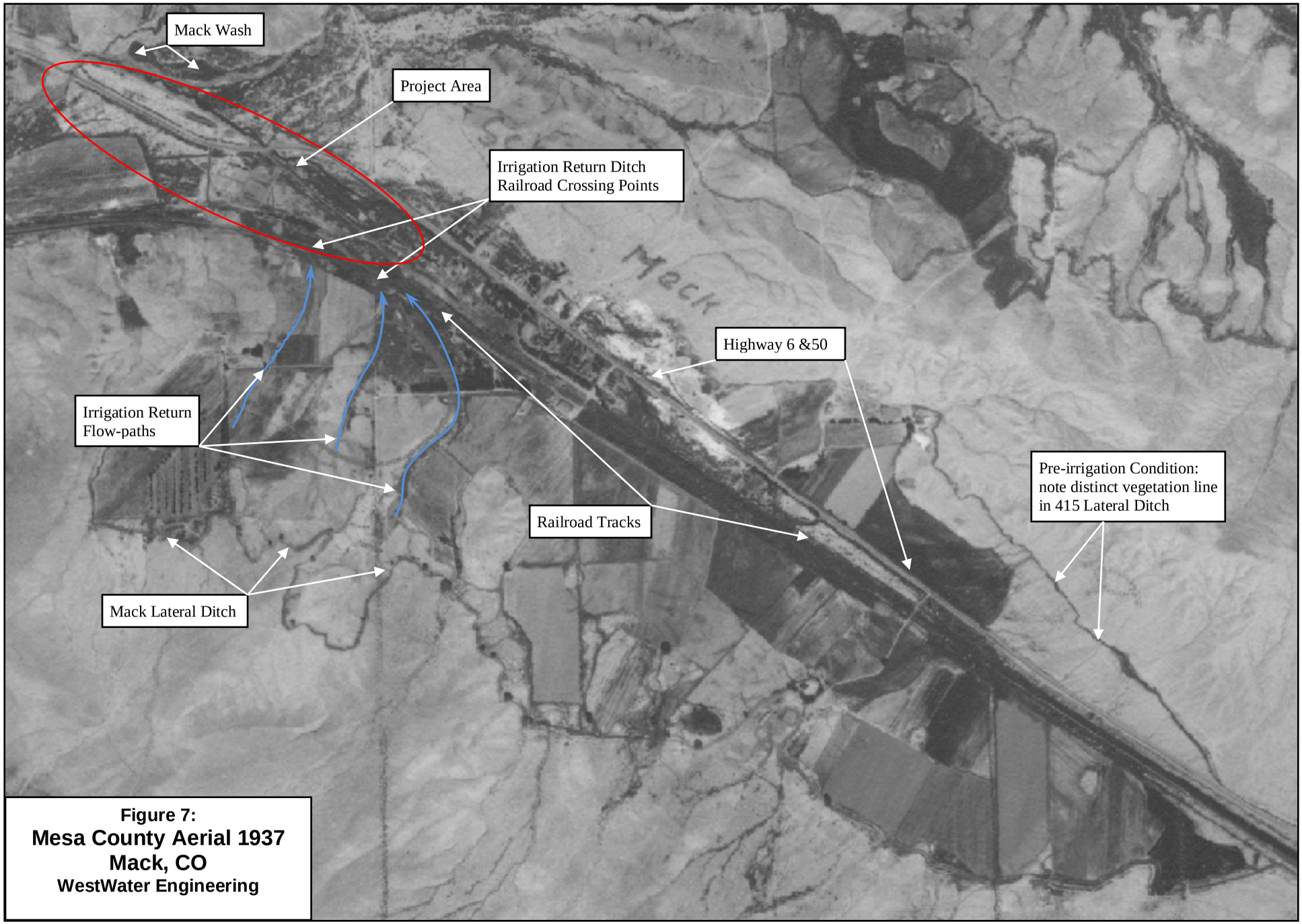

Figure 7:
Mesa County Aerial 1937
Mack, CO
WestWater Engineering

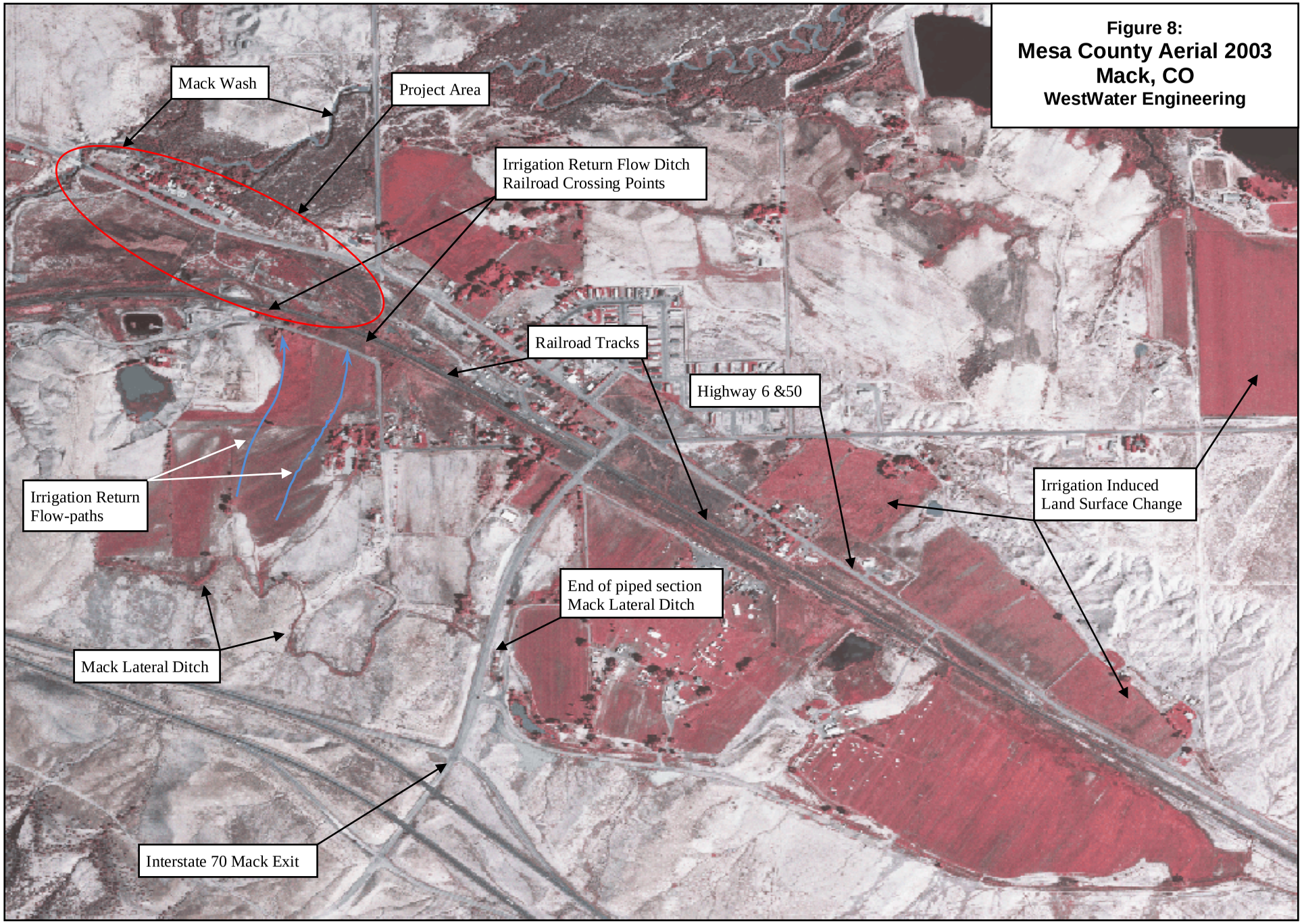

Figure 8:
Mesa County Aerial 2003
Mack, CO
WestWater Engineering

Photo 1. Return ditches south of railroad before coming into project area.

Photo 2. Return flow culvert into polygon B, north side of photo 1

Photo 3. Small pond in polygon B and culvert to elevated ditch polygon C

Photo 4. Road side Hwy 6&50 looking east borrow ditch and elevated irrigation ditch with cattails

Photo 5. Polygon C culverts under road to concrete ditch in polygon S at blue truck

Photo 6. Elevated ditch in polygon C is approximately 3 feet above adjacent landscape

Photo7. Concrete ditch overgrown with cattails in polygon S

Photo 8. Leakage from concrete ditch in polygon S to road side borrow ditch, looking east, Hwy 6&50 just to left of photo

Photo 9. East end of concrete ditch in polygon S

Photo 10. West end of concrete ditch in polygon S, most of the water has leaked into the borrow ditch by this point

Photo 11. Waters from polygon S flows through a culvert into polygon T (above)

Photo 12. Return flows from polygon T are released via culvert into Mack Wash just south of Hwy 6&50 bridge

Photo 13. Culvert under railroad into polygon P

Photo 14. Polygon P flows around gravel pile and through a culvert into polygon Q

Photo 15. Wooden box culvert under road from polygon Q to polygon R

Photo 16.East end of polygon R, composition similar to polygons P & Q

Photo 17. Mack Wash near proposed crossing north of Hwy 6&50 bridge

Photo 18. Polygon A and adjacent agricultural field.

Photo 19. Looking north along western edge of polygon H

Photo 20. Looking northeast across polygon H

Table 3. Survey Boundary Flags					
Description	**Easting**	**Northing**	**Description**	**Easting**	**Northing**
B1	683986.7171	4343930.312	C26	683655.4764	4344165.431
B2	683985.1446	4343907.573	C27	683651.3304	4344155.511
TBW	683991.4528	4343907.459	C28	683667.1417	4344154.198
TBU	683992.5349	4343904.057	C29	683689.6849	4344147.964
B3	683998.3796	4343904.185	C30	683715.5824	4344139.033
B4	684003.0099	4343907.098	C31	683733.3114	4344132.204
B5	684016.6633	4343891.068	C32	683757.1664	4344123.083
B6	684026.3269	4343862.166	C33	683781.2412	4344113.8
B7	684040.4491	4343855.214	C34	683802.193	4344103.624
B8	684056.6618	4343844.959	C35	683812.6297	4344088.45
B9	684075.4657	4343834.34	C36	683826.1818	4344076.698
B10	684101.3638	4343823.981	C37	683841.8499	4344062.755
D1	684086.1304	4343842.537	C38	683854.7152	4344050.832
B11	684076.8688	4343838.583	C39	683869.9034	4344037.465
B12	684060.2916	4343849.278	C40	683886.1857	4344021.284
B13	684041.7859	4343858.239	C41	683901.7581	4344007.009
B14	684032.2831	4343869.666	C42	683917.833	4343991.942
B15	684026.0486	4343886.098	C43	683934.292	4343976.334
B16	684015.0335	4343900.495	C44	683945.6063	4343964.263
B17	684004.0288	4343915.553	C45	683958.7038	4343950.191
B18	683989.6787	4343932.562	C46	683970.7262	4343940.698
C1	683979.6688	4343937.283	C47	683967.7102	4343934.888
C2	683965.5192	4343952.745	C48	683954.0793	4343940.423
C3	683950.036	4343966.524	C49	683939.3755	4343929.888
C4	683936.9628	4343981.767	C50	683952.4393	4343914.68
C5	683922.0107	4343995	C51	683966.7478	4343903.109
C6	683903.1642	4344011.862	C52	683971.8189	4343917.756
C7	683888.9274	4344026.27	E1	683983.469	4343896.194
C8	683871.8368	4344041.193	E2	683988.4219	4343889.071
C9	683858.1719	4344053.329	E3	683997.5303	4343884.851
C10	683846.8537	4344063.008	E4	683992.7583	4343893.097
C11	683832.1663	4344077.12	G5	683838.0725	4344087.482
C12	683814.719	4344094.367	G4	683848.8826	4344081.411
C13	683804.3881	4344103.572	G3	683860.1838	4344074.288
C14	683821.1489	4344095.315	G2	683878.723	4344064.241
C15	683830.7218	4344090.798	G1	683892.2028	4344055.568
C16	683821.2389	4344097.365	F1	683891.3513	4344031.548
C17	683806.3249	4344105.692	F2	683889.5578	4344047.941
C18	683791.1102	4344112.848	F3	683883.0444	4344057.885
C19	683769.4976	4344121.372	F4	683883.8054	4344044.261
C20	683753.708	4344126.535	A1	683146.5536	4345044.571
C21	683735.6921	4344133.44	A2	683162.6013	4345040.462
C22	683716.9652	4344140.102	A3	683179.849	4345038.212
C23	683698.0563	4344146.787	A4	683197.6977	4345031.326
C24	683677.2009	4344153.972	TAW	683197.8561	4345031.937
C25	683659.0877	4344158.041	TAU	683197.0985	4345031.096

Table 3. Survey Boundary Flags					
Description	**Easting**	**Northing**	**Description**	**Easting**	**Northing**
A5	683216.7622	4345013.105	H28	683694.0628	4347729.158
A6	683238.3659	4345006.667	H29	683711.6985	4347736.601
A7	683258.1726	4345006.522	H30	683695.8858	4347746.717
A8	683282.7903	4345009.668	H31	683669.8837	4347757.285
A9	683303.8148	4345017.247	H32	683673.0676	4347776.815
A10	683319.8631	4345019.745	H33	683685.8135	4347788.427
A11	683317.5494	4345027.074	H34	683696.2251	4347790.273
A12	683296.809	4345023.212	H35	683697.5971	4347813.789
A13	683271.9524	4345031.73	H36	683708.042	4347816.052
A14	683284.5035	4345016.524	H37	683711.0487	4347831.363
A15	683264.1214	4345013.223	H38	683690.1484	4347841.961
A16	683246.265	4345013.067	H39	683672.6761	4347841.163
A17	683229.1212	4345012.72	H40	683681.4529	4347860.388
A18	683217.3839	4345027.108	H41	683676.0962	4347876.337
A19	683200.6046	4345040.686	H42	683680.8532	4347876.337
A20	683181.0948	4345046.594	H43	683685.4032	4347860.547
A21	683160.0213	4345055.471	H44	683689.264	4347862.673
H1	683628.4643	4347544.207	H45	683689.1352	4347870.35
H2	683605.0252	4347554.434	H46	683697.6521	4347870.16
H3	683581.4348	4347556.048	H47	683689.3874	4347886.053
H4	683552.951	4347542.519	H48	683673.0773	4347883.562
H5	683530.3305	4347534.822	H49	683665.7847	4347901.438
H6	683512.9402	4347541.159	H50	683649.2712	4347912.733
H7	683528.2021	4347557.425	H51	683658.1817	4347932.51
H8	683544.0384	4347571.65	H52	683662.3457	4347941.565
H9	683541.1962	4347593.03	H53	683659.0445	4347948.679
H10	683537.9246	4347606.964	H54	683670.9934	4347959.665
H11	683520.0454	4347614.64	H55	683692.3682	4347972.55
H12	683535.0373	4347623.651	H56	683703.2613	4347983.64
H13	683534.0198	4347644.901	H57	683685.2754	4347975.33
H14	683530.8575	4347658.227	H58	683663.438	4347969.266
H15	683544.854	4347679.826	H59	683647.1063	4347955.592
H16	683556.4273	4347690.287	H60	683628.2852	4347934.333
H17	683558.5794	4347716.63	H61	683606.4449	4347937.565
H18	683568.4143	4347729.421	H62	683612.2657	4347918.024
H19	683593.4628	4347727.828	H63	683591.1739	4347911.45
THW	683596.1201	4347727.538	H65	683575.9494	4347878.211
THU	683595.3705	4347724.171	H66	683574.2366	4347862.202
H20	683615.4379	4347711.177	H67	683561.8472	4347845.337
H21	683628.4083	4347695.268	H68	683562.6186	4347818.768
H22	683620.2557	4347714.837	H69	683542.5577	4347830.398
H23	683628.6604	4347721.626	H70	683520.2729	4347830.857
H24	683635.29	4347734.51	H71	683502.592	4347831.955
H25	683648.0318	4347731.991	H72	683483.3493	4347838.528
H26	683662.7272	4347730.832	H73	683485.1359	4347815.772
H27	683679.6854	4347732.212	H74	683457.2312	4347797.11

Table 3. Survey Boundary Flags					
Description	**Easting**	**Northing**	**Description**	**Easting**	**Northing**
H75	683488.6006	4347808.306	K1	683695.4635	4348149.203
H76	683514.0963	4347815.593	K2	683682.543	4348133.294
H77	683541.012	4347817.556	K3	683676.7512	4348119.312
H78	683536.5532	4347804.506	K4	683673.7554	4348103.906
H79	683539.837	4347793.721	K5	683667.4549	4348089.893
H80	683534.2096	4347782.638	K6	683659.9	4348094.707
H81	683541.2828	4347766.007	K7	683656.9488	4348085.11
H82	683522.0518	4347756.644	K8	683664.8991	4348084.775
H83	683503.9228	4347753.292	K9	683643.8486	4348058.849
H84	683527.4618	4347746.493	K10	683647.9803	4348055.697
H85	683510.1957	4347732.874	K11	683658.11	4348071.71
H86	683499.9605	4347723.52	K12	683673.6411	4348091.515
H87	683520.3672	4347694.617	K13	683676.027	4348080.005
H88	683496.8583	4347688.001	K14	683691.3471	4348078.324
H89	683499.2374	4347666.119	K15	683702.9005	4348086.295
H90	683494.9973	4347646.326	K16	683686.3421	4348089.605
H91	683472.9855	4347639.56	K17	683688.2155	4348103.915
H92	683479.947	4347623.271	N2	683680.3839	4348090.034
H93	683475.7993	4347605.052	M1	683646.8215	4348035.227
H94	683456.3419	4347592.079	M2	683679.8325	4348036.412
H95	683435.8737	4347589.057	M3	683693.7678	4348044.423
H96	683418.5852	4347573.794	M4	683703.237	4348063.923
H97	683427.697	4347559.683	M5	683687.651	4348049.019
H98	683424.3902	4347545.724	M6	683671.6747	4348042.264
H100	683426.9359	4347534.748	O3	683696.8441	4348154
H101	683426.0573	4347525.844	O2	683709.6355	4348163.284
H102	683448.0819	4347522.525	O1	683721.3435	4348176.051
H103	683463.2607	4347517.346	L19	683705.6001	4348232.785
H104	683474.8217	4347506.668	TLW	683703.7298	4348211.01
H105	683480.2336	4347521.055	TLU	683704.9472	4348208.803
H106	683499.9859	4347530.67	L18	683702.0509	4348208.617
H107	683517.7526	4347528.522	L17	683645.6218	4348161.461
H108	683539.5318	4347529.037	L16	683612.1377	4348167.939
H109	683561.9745	4347524.834	L15	683597.8267	4348177.379
H110	683581.8408	4347511.236	L14	683603.4352	4348188.146
H111	683598.5743	4347520.354	L13	683597.1879	4348197.935
H112	683626.7961	4347533.272	L12	683609.7808	4348218.597
J1	683503.5844	4347539.196	L11	683644.1882	4348225.707
J2	683496.2167	4347547.781	L10	683679.9745	4348241.359
J3	683477.2114	4347546.425	L9	683708.6581	4348243.707
J4	683465.2502	4347539.231	L8	683766.3142	4348242.358
J5	683442.7829	4347537.137	L7	683796.3088	4348243.291
J6	683443.6901	4347530.861	L6	683829.7958	4348243.658
J7	683470.0292	4347522.5	L5	683828.6693	4348250.802
J8	683486.9	4347532.026	L4	683841.6057	4348263.079
N1	683676.6747	4348098.712	L3	683862.7417	4348266.629

Table 3. Survey Boundary Flags					
Description	**Easting**	**Northing**	**Description**	**Easting**	**Northing**
L2	683860.6888	4348253.725	R15	683258.1387	4344010.062
L1	683839.0001	4348247.254	R16	683233.9354	4344009.37
P1	683741.5344	4343987.411	R17	683213.2303	4344009.413
P2	683736.5718	4344003.408	R18	683192.4327	4344013.402
P3	683726.94	4344015.212	R19	683161.1052	4344008.951
P4	683711.8974	4344025.332	R20	683147.6306	4343977.62
P5	683697.6173	4344032.781	R21	683174.6651	4343983.191
P6	683688.1456	4344041.446	R22	683208.8102	4343987.2
P7	683662.2741	4344040.069	R23	683237.0157	4343992.557
P8	683662.2544	4344036.862	R24	683251.5787	4344002.132
TPU	683664.0571	4344035.5	R25	683272.9017	4344006.314
TPW	683664.5589	4344036.938	R26	683296.7174	4344010.646
P9	683682.7856	4344035.032	R27	683321.2872	4344015.232
P10	683695.2355	4344031.587	R28	683345.3241	4344018.229
P11	683709.0683	4344022.954	R29	683365.1008	4344022.046
P12	683723.1201	4344012.361	R30	683388.1205	4344024.59
P13	683733.6031	4344000.356	R31	683397.7983	4344018.17
P14	683738.4431	4343988.106	R32	683401.6188	4344024.681
Q1	683658.7795	4344039.547	R33	683432.0243	4344023.511
Q2	683632.0291	4344038.449	R34	683455.9608	4344030.79
Q3	683614.9875	4344036.234	R35	683480.2835	4344029.336
Q4	683590.5831	4344032.705	R36	683502.6957	4344030.164
Q5	683557.5734	4344027.431	R37	683520.3002	4344033.051
Q6	683542.7155	4344023.075	R38	683533.3551	4344035.103
Q7	683530.2606	4344020.853	R39	683552.8884	4344035.307
Q8	683546.0649	4344019.112	T-1	683460.9126	4344279.829
Q9	683558.7796	4344018.734	T-8	683460.1477	4344278.562
Q10	683580.3225	4344018.692	T-2	683449.9499	4344285.805
Q11	683603.0114	4344017.672	T-7	683448.126	4344282.558
Q12	683626.3075	4344018.01	T-3	683440.4135	4344293.206
Q13	683642.4839	4344023.596	T-6	683437.7287	4344290.573
Q14	683658.5621	4344036.669	T-4	683428.123	4344297.246
R1	683554.2544	4344041.135	T-5	683427.2138	4344295.869
R2	683535.1113	4344041.977	S-20	683467.3343	4344275.603
R3	683517.2304	4344042.03	S-21	683465.4256	4344270.444
R4	683495.1177	4344041.327	S-22	683477.0346	4344262.693
R5	683477.9758	4344037.867	S-23	683489.7504	4344254.522
R6	683457.6843	4344036.847	S-24	683500.5674	4344247.395
R7	683435.1187	4344036.303	S-25	683511.493	4344240.428
R8	683409.2132	4344031.959	S-26	683527.0513	4344230.386
R9	683387.0928	4344028.266	S-27	683538.47	4344223.022
R10	683366.7475	4344026.228	S-28	683552.1849	4344214.239
R11	683345.2306	4344021.849	S-29	683565.5301	4344205.02
R12	683323.2864	4344019.85	S-30	683578.6564	4344197.034
R13	683303.3353	4344017.576	S-31	683589.2938	4344188.735
R14	683281.0868	4344016.769	S-32	683579.0494	4344184.712

Table 3. Survey Boundary Flags					
Description	**Easting**	**Northing**	**Description**	**Easting**	**Northing**
S-1	683587.3782	4344179.829	U27	683475	4344395
S-2	683601.6188	4344179.932	U28	683467.7	4344399
S-3	683613.056	4344172.52	U29	683461	4344401
S-4	683613.8612	4344169.493	U30	683451.7	4344401
S-5	683629.4669	4344164.066	U31	683444.6	4344401
S-6	683643.3208	4344157.465	U32	683439.6	4344396
S-7	683645.1891	4344169.487	U33	683430.7	4344394
S-8	683633.049	4344176.298	U34	683421.7	4344392
S-9	683622.6782	4344179.863	U35	683411.7	4344391
S-10	683609.3314	4344186.941	U36	683402.4	4344391
S-11	683596.5397	4344195.391	U37	683392.7	4344389
S-12	683582.2217	4344204.838	U38	683385.3	4344390
S-13	683567.1154	4344213.65	U39	683377.8	4344387
S-14	683552.8199	4344222.143	U40	683374.8	4344380
S-15	683538.2517	4344231.581	U41	683373.9	4344371
S-16	683521.9319	4344243.522	U42	683372.6	4344361
S-17	683507.6068	4344253.65	U43	683370.4	4344351
S-18	683493.5375	4344262.445	U44	683367.8	4344340
S-19	683481.7662	4344270.119	U45	683365	4344331
U1	683355.8	4344310	U46	683360.5	4344322
U2	683363.7	4344313	U47	683353.6	4344317
U3	683368.5	4344320	V1	685432.7	4350835
U4	683371.7	4344329	V2	685447.7	4350825
U5	683374.5	4344338	V3	685465.1	4350816
U6	683376.7	4344346	V4	685483.3	4350806
U7	683379.7	4344355	V5	685498.3	4350798
U8	683381.9	4344363	V6	685517.2	4350786
U9	683382.7	4344374	V7	685537	4350772
U10	683385.8	4344381	V8	685552	4350757
U11	683392.3	4344383	V9	685567	4350742
U12	683401.1	4344382	V10	685578	4350727
U13	683410	4344381	V11	685590.6	4350706
U14	683422.7	4344383	V12	685600.9	4350688
U15	683435	4344386	V13	685608	4350665
U16	683441.7	4344391	V14	685599.3	4350713
U17	683450.6	4344396	V15	685582	4350738
U18	683460.6	4344394	V16	685569.3	4350755
U19	683471.3	4344388	V17	685555.1	4350770
U20	683477.8	4344382	V18	685543.3	4350781
U21	683482.8	4344376	V19	685526.7	4350792
U22	683488.7	4344366	V20	685506.2	4350806
U23	683497.3	4344371	V21	685486.4	4350816
U24	683492.8	4344377	V22	685461.1	4350831
U25	683487.3	4344385	V23	685443	4350841
U26	683481.9	4344391	V24	685424	4350851

PROJECT INFORMATION

Project Proponent:	CAM Colorado, LLC 116 Main Street Pikeville, KY 41501
Proponent Contact:	Mr. Nicholas R. Glancy CAM Colorado PO Box 1169 Pikeville, KY 41502 (859) 389-6500
Land Owners:	CAM Colorado, LLC 116 Main St. Pikeville, KY 41501 United States Bureau of Land Management Grand Junction Field Office 2815 H Road Grand Junction, CO 81506 Hudson Ranch Estates of Great Western Colorado LLC P.O. Box 123 Mack, CO 81525 Vernon Langford 1725 10 Road Mack, CO 81525 Joseph Bennett P.O. Box 59 Mack, CO 81525 Michael J Ballew 1852 10 Road Mack, CO 81525 Doug Johnson 1833 11 Road Loma, CO 81524 State of Colorado Dept. of Natural Resources 1313 Sherman Street Denver, CO 80203 Joanne M Leishuck 1910 10 Road. Mack, CO 81525 #11 Enterprises 1218 Webster Street Houston, TX 77002
EIS Consultant:	URS Corporation 8181 East Tufts Avenue Ph: (303)-740-3816 Denver, CO 80237
Wetland Consultant:	WestWater Engineering 2516 Foresight Circle #1 Ph: (970) 241-7076 Grand Junction, CO 81505 Fax: (970) 241-7097 URS Corporation 8181 East Tufts Avenue Ph: (303)-740-3816 Denver, CO 80237
Project Location:	Mine Facility and Access Roads: Sections 3, 4, 9, 10, 15, 16, 17, 18, 19, T8S, R102W, 6th PM Rail Spur: Sec. 16, 21, 20, 29, 31, 32 T8S, R102W, 6th PM; Sec. 36, T8S, R103W, 6th PM; Sec. 1, 2, 11, 14, T9S, R103W, 6th PM; Sec. 6, 19, T2N, R3W, Ute PM; & Sec. 15, 22, 27, 34, T2N, R103W, 6th PM
Project Description:	Red Cliff Coal Mine and associated facilities supporting the proposed coal mine project.

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Jurisdictional Determination

Request for Confirmation Wetland Delineation

Form 2a, Jurisdictional Wetlands

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD):

B. DISTRICT OFFICE, FILE NAME, AND NUMBER:

C. PROJECT LOCATION AND BACKGROUND INFORMATION: CAM Colorado proposes to develop a coal mine facility on approximately 1,886 acres of Bureau of Land Management land at the Red Cliff Mine site in the southwest corner of Garfield County. Development of the mine will also require the construction of approximately 15 miles of rail line on public and private lands in Mesa County to transport coal from the mine facility to the Union Pacific Railroad south of Mack, Colorado. Based on maps of the proposed railroad right of way and the proposed mine facility provided by CAM Colorado, WestWater Biologists surveyed the approximately 2,450 acre project site and surrounding areas to identify and delineate potential wetlands and waters of the U.S.(WOUS) within and adjacent to proposed construction boundaries. At the request of the COE the project was divided into two parts:

1. Request for a Jurisdictional Determination identifying potential non-wetland WOUS.
2. Request for confirmation of Wetland Delineation and Jurisdictional Determination.
   Form 2a Jurisdictional wetlands and waters of the U.S.
   Form 2b Non-jurisdictional wetlands and other waters

This form is part 2a, Jurisdictional wetlands.

State: CO County/parish/borough: Mesa City: Mack
Center coordinates of site (lat/long in degree decimal format): Lat. 39.3183° N,Long. -108.8072° E.
Universal Transverse Mercator:
Name of nearest waterbody: Salt Creek and Mack Wash, RPWs
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Colorado River
Name of watershed or Hydrologic Unit Code (HUC): 14010005
☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
☒ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):
☐ Office (Desk) Determination. Date:
☐ Field Determination. Date(s):

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There Are no *"navigable waters of the U.S."* within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]
☐ Waters subject to the ebb and flow of the tide.
☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. Explain: .

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There Are "*waters of the U.S.*" within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [*Required*]

1. **Waters of the U.S.**
   a. **Indicate presence of waters of U.S. in review area (check all that apply):** [1]
   - ☐ TNWs, including territorial seas
   - ☐ Wetlands adjacent to TNWs
   - ☒ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
   - ☐ Non-RPWs that flow directly or indirectly into TNWs
   - ☒ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
   - ☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
   - ☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
   - ☐ Impoundments of jurisdictional waters
   - ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

   b. **Identify (estimate) size of waters of the U.S. in the review area:**
   Non-wetland waters: 800 linear feet: 32 width (ft) and/or 0.6 acres. This area starts just south of the Hwy 6 &50 bridge (Highway 6 &50 is also known as M and 8/10 Road in this part of Mesa County) on Mack Wash and extends upstream approx. 800 feet.
   Wetlands: 0.11 acres for the total riparian fringe in the surveyed area.

   c. **Limits (boundaries) of jurisdiction** based on: Interim Arid West Regional Supplement to the Corps of Engineers Wetland Delineation Manual, December 2006.
   Elevation of established OHWM (if known): .

2. **Non-regulated waters/wetlands (check if applicable):**[3]

   ☒ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain: Other waters and associated wetlands likely to be considered non-jurisdictional will be evaluated in JD form 2b.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. **TNW**

   Identify TNW: .

   Summarize rationale supporting determination: .

2. **Wetland adjacent to TNW**
   Summarize rationale supporting conclusion that wetland is "adjacent": .

[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3] Supporting documentation is presented in Section III.F.

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. Characteristics of non-TNWs that flow directly or indirectly into TNW washes are

(i) General Area Conditions:
Watershed size: **Pick List**
Drainage area: **Pick List**
Average annual rainfall:
Average annual snowfall:

(ii) Physical Characteristics:
(a) Relationship with TNW:
☐ Tributary flows directly into TNW.
☐ Tributary flows through tributaries before entering TNW.

Project waters are **Pick List** river miles from TNW.
Project waters are **Pick List** river miles from RPW.
Project waters are **Pick List** (straight) miles from TNW.
Project waters are **Pick List** aerial (straight) miles from RPW.
Project waters cross or serve as state boundaries. Explain: .

Identify flow route to TNW[5]:
Tributary stream order, if known: .

[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.
[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

(b) General Tributary Characteristics (check all that apply):

Tributary is: ☐ Natural
☐ Artificial (man-made). Explain: .
☐ Manipulated (man-altered). Explain:

Tributary properties with respect to top of bank (estimate):
Average width: feet
Average depth: feet
Average side slopes:

Primary tributary substrate composition (check all that apply):

☐ Silts	☐ Sands	☐ Concrete
☐ Cobbles	☐ Gravel	☐ Muck
☐ Bedrock	☐ Vegetation. Type/% cover:	
☐ Other. Explain:		

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain:
Presence of run/riffle/pool complexes. Explain:
Tributary geometry:
Tributary gradient (approximate average slope

(c) Flow:

Tributary provides for
Estimate average number of flow events in review area/year
Describe flow regime
Other information on duration and volume
Surface flow is: Characteristics
Subsurface flow: Explain findings:
☐ Dye (or other) test performed: .

Tributary has (check all that apply):
☐ Bed and banks
☐ OHWM[6] (check all indicators that apply):

☐ clear, natural line impressed on the bank	☐ the presence of litter and debris
☐ changes in the character of soil	☐ destruction of terrestrial vegetation
☐ shelving	☐ the presence of wrack line
☐ vegetation matted down, bent, or absent	☐ sediment sorting
☐ leaf litter disturbed or washed away	☐ scour
☐ sediment deposition	☐ multiple observed or predicted flow events
☐ water staining	☐ abrupt change in plant community
☐ other (list):	☐ Discontinuous OHWM.[7] Explain:

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

☐ High Tide Line indicated by:	☐ Mean High Water Mark indicated by:
☐ oil or scum line along shore objects	☐ survey to available datum;
☐ fine shell or debris deposits (foreshore)	☐ physical markings;
☐ physical markings/characteristics	☐ vegetation lines/changes in vegetation types.
☐ tidal gauges	
☐ other (list):	

(iii) Chemical Characteristics: Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.). Explain:

Identify specific pollutants, if known:

[6]A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7]Ibid.

(iv) Biological Characteristics. Channel supports (check all that apply):

- ☐ Riparian corridor. Characteristics (type, average width): .
- ☐ Wetland fringe. Characteristics: .
- ☐ Habitat for:
- ☐ Federally Listed species. Explain findings: .
- ☐ Fish/spawn areas. Explain findings: .
- ☐ Other environmentally-sensitive species. Explain findings: Aquatic/wildlife diversity. Explain findings:

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:

(a) General Wetland Characteristics:

Properties:

Wetland size: acres

Wetland type: Explain:

Wetland quality: Explain:

Project wetlands cross or serve as state boundaries. Explain:

(b) General Flow Relationship with Non-TNW:

Flow is: Explain:

Surface flow is**:**

Characteristics:

Subsurface flow: Explain findings:

- ☐ Dye (or other) test performed: .

(c) Wetland Adjacency Determination with Non-TNW:

- ☐ Directly abutting
- ☐ Not directly abutting
- ☒ Discrete wetland hydrologic connection. Explain:
- ☐ Ecological connection. Explain: .
- ☐ Separated by berm/barrier. Explain:

(d) Proximity (Relationship) to TNW

Project wetlands are river miles from TNW.

Project waters are aerial (straight) miles from TNW.

Flow is from:

Estimate approximate location of wetland as within the floodplain:

(ii) Chemical Characteristics:

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain:

Identify specific pollutants, if known: .

(iii) Biological Characteristics. Wetland supports (check all that apply):

- ☐ Riparian buffer. Characteristics (type, average width):
- ☐ Vegetation type/percent cover. Explain:
- ☒ Habitat for:
  - ☐ Federally Listed species. Explain findings:
  - ☐ Fish/spawn areas. Explain findings:
  - ☒ Other environmentally-sensitive species. Explain findings:
- ☐ Aquatic/wildlife diversity. Explain findings

3. Characteristics of all wetlands adjacent to the tributary (if any)

All wetland(s) being considered in the cumulative analysis: 6

Approximately ( ) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)

Summarize overall biological, chemical and physical functions being performed

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs. **Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D:**

2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D:

   Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW. Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
   - ☐ TNWs: linear feet width (ft), Or, acres.
   - ☐ Wetlands adjacent to TNWs: acres.

2. **RPWs that flow directly or indirectly into TNWs.**
   - ☒ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial: Mack Wash flows year around except in years of extreme drought.
   - ☐ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: .

   Provide estimates for jurisdictional waters in the review area (check all that apply):
   - ☒ **Tributary waters:** 800 **linear feet** 32 **width (ft)** This area starts just south the Hwy 6&50 bridge on Mack Wash and extends upstream approx. 800 feet (Figure 5 in report).
   - ☐ Other non-wetland waters: acres.

     Identify type(s) of waters: .

3. **Non-RPWs[8] that flow directly or indirectly into TNWs.**
   - ☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

   Provide estimates for jurisdictional waters within the review area (check all that apply): N/A
   - ☐ Tributary waters: linear feet width (ft).
   - ☐ Other non-wetland waters: acres.

     Identify type(s) of waters: .

4. **Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**
   - ☒ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
   - ☒ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: Mack Wash riparian fringe wetland.
   - ☐ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

   Provide acreage estimates for jurisdictional wetlands in the review area: 0.11 acres.

5. **Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**
   - ☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

     Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. **Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**
   - ☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

   Provide estimates for jurisdictional wetlands in the review area: acres.

[8]See Footnote # 3.

7. **Impoundments of jurisdictional waters.**[9]
As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.
☐ Demonstrate that impoundment was created from "waters of the U.S.," or
☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]
☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
☐ which are or could be used for industrial purposes by industries in interstate commerce.
☐ Interstate isolated waters. Explain: .
☐ Other factors. Explain: .

Identify water body and summarize rationale supporting determination: .

Provide estimates for jurisdictional waters in the review area (check all that apply):

☐ Tributary waters: linear feet width (ft).

☐ Other non-wetland waters: acres. Identify type(s) of waters: .

☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):
☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.

☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.

☐ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).

☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: ☐ Other: (explain, if not covered above): .

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):

☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):

☐ Non-wetland waters (i.e., rivers, streams):
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.
[10] **Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.***

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):

- ☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: WestWater Engineering.
- ☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
  - ☐ Office concurs with data sheets/delineation report.
  - ☐ Office does not concur with data sheets/delineation report.
- ☐ Data sheets prepared by the Corps: .
- ☐ Corps navigable waters' study: .
- ☐ U.S. Geological Survey Hydrologic Atlas: www-atlas.usgs.gov.
  - ☒ USGS NHD data.
  - ☒ USGS 8 and 12 digit HUC maps.
- ☒ U.S. Geological Survey map(s). Cite scale & quad name: USGS 1:24,000 Mack, CO., Ruby Canyon, CO., Badger Wash, CO., Highline Lake, CO., Howard Canyon, CO.
- ☒ USDA Natural Resources Conservation Service Soil Survey. Citation: http://websoilsurvey.nrcs.usda.gov/app/
- ☒ National wetlands inventory map(s). Cite name: www.fws.gov/nwi/
- ☐ State/Local wetland inventory map(s): .
- ☐ FEMA/FIRM maps: .
- ☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
- ☒ Photographs: ☒ Aerial (Name & Date): USDA NAIP 2005.
  or ☒ Other (Name & Date): WestWater Engineering,
- ☐ Previous determination(s). File no. and date of response letter: .
- ☐ Applicable/supporting case law:
- ☐ Applicable/supporting scientific literature
- ☐ Other information (please specify):

B. ADDITIONAL COMMENTS TO SUPPORT JD: .

Jurisdictional Determination Form

Request for Jurisdictional Determination

Form 2b, Non-Jurisdictional Wetlands and Other Waters

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD):

B. DISTRICT OFFICE, FILE NAME, AND NUMBER:

C. PROJECT LOCATION AND BACKGROUND INFORMATION: CAM Colorado proposes to develop a coal mine facility on approximately 1,886 acres of Bureau of Land Management land at the Red Cliff Mine site in the southwest corner of Garfield County. Development of the mine will also require the construction of approximately 15 miles of rail line on public and private lands in Mesa County to transport coal from the mine facility to the Union Pacific Western Railroad south of Mack, Colorado. Based on maps of the proposed railroad right of way and the proposed mine facility provided by CAM Colorado, WestWater Biologists surveyed the approximately 2,450 acre project site and surrounding areas to identify and delineate potential wetlands and waters of the U.S.(WOUS) within and adjacent to proposed construction boundaries. At the request of the COE the project was divided into two parts:

1. Request for a Jurisdictional Determination identifying potential non-wetland WOUS.
2. Request for confirmation of Wetland Delineation and Jurisdictional Determination.
   Form 2a Jurisdictional wetlands and waters of the U.S.
   Form 2b Non-jurisdictional wetlands and other waters

This form is part 2b, Non-Jurisdictional wetlands.

State: CO County/parish/borough: Mesa City: Mack
Center coordinates of site (lat/long in degree decimal format): Lat. 39.3183° N,Long. -108.8072° E.
Universal Transverse Mercator:
Name of nearest waterbody: Salt Creek and Mack Wash, RPWs
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Colorado River
Name of watershed or Hydrologic Unit Code (HUC): 14010005
☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
☒ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):
☐ Office (Desk) Determination. Date:
☐ Field Determination. Date(s):

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There Are no *"navigable waters of the U.S."* within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]
☐ Waters subject to the ebb and flow of the tide.
☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. Explain: .

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There Are no "*waters of the U.S.*" within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [*Required*]

1. **Waters of the U.S.**
   a. **Indicate presence of waters of U.S. in review area (check all that apply):** [1]
      - ☐ TNWs, including territorial seas
      - ☐ Wetlands adjacent to TNWs
      - ☐ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
      - ☐ Non-RPWs that flow directly or indirectly into TNWs
      - ☐ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
      - ☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
      - ☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
      - ☐ Impoundments of jurisdictional waters
      - ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

   b. **Identify (estimate) size of waters of the U.S. in the review area:**
      Non-wetland waters: linear feet: width (ft) and/or acres.
      Wetlands: acres.

   c. **Limits (boundaries) of jurisdiction** based on: Interim Arid West Regional Supplement to the Corps of Engineers Wetland Delineation Manual, December 2006, 33 CFR Part 328.3, RGL 07-02, and CESPK-CO-R (1145) RBM 2007-01.
      Elevation of established OHWM (if known): .

2. **Non-regulated waters/wetlands (check if applicable):**[3]
   - ☒ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain:

Waters are not currently used, or used in the past, and are not susceptible to use in interstate or for foreign commerce, nor are these waters subject to ebb and flow of tide.

Artificially irrigated wetlands that would revert to uplands if irrigation would cease are not considered to be waters of the United States under section 404 of the Clean Water Act. (Sacramento RBM 2007-01)

There is no information available to show that these ditches: 1) are or could be used by interstate or foreign travelers for recreational or other purposes, 2) produce fish or shellfish which are or could be taken and sold in interstate or foreign commerce, or 3) are or could be used for industrial purposes by industries in interstate commerce

The hydrologic source associated with these wetlands is not considered a tributary because it is water allocated from the TNW, Colorado River, for the sole purpose of irrigation. Water in excess of that required for agricultural purposes in conveyed back to the TNW, Colorado River, as irrigation return flow.

Irrigation canals are augmented by dry washes that flow only in times of intense short term precipitation events, these washes lack the ability to support wetland vegetation and have no indicators of hydric soils. There are no jurisdictional flows captured by the lateral ditches within the project area and aerial photos show distinct vegetative boundaries between irrigation canals, laterals, ditches, and the naturally arid salt desert environment.

Wetlands established and maintained solely by artificial irrigation do not meet the definition of Waters of the U.S. under the criteria contained in the 1987 Corps of Engineers Wetlands Jurisdictional Manual or its regional supplements.

[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3] Supporting documentation is presented in Section III.F.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. TNW

Identify TNW: .

Summarize rationale supporting determination: .

2. Wetland adjacent to TNW

Summarize rationale supporting conclusion that wetland is "adjacent": .

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. Characteristics of non-TNWs that flow directly or indirectly into TNW washes are

(i) General Area Conditions:
Watershed size: 436 **square miles**
Drainage area: 225 **square miles**
Average annual rainfall: 7.34 inches
Average annual snowfall: 9.8 inches

[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

(ii) Physical Characteristics:

(a) Relationship with TNW:

☐ Tributary flows directly into TNW.

☒ Tributary flows through **Pick List** tributaries before entering TNW. Irrigation ditches are not generally considered tributaries. These ditches are subdivided into numerous lateral ditches and piped sections that distribute water to agricultural fields. Multiple return ditches combine to collect and distribute waters to down gradient agricultural fields. The ditches eventually return irrigation water into an RPW (Mack Wash, East Salt Creek).

Project waters are 3-5 river miles from TNW.
Project waters are 0-1 river miles from RPW.
Project waters are 2-3 (straight) miles from TNW.
Project waters are 1 (or less) (straight) miles from RPW.
Project waters cross or serve as state boundaries. Explain: N/A

Identify flow route to TNW[5]: Flow into the Grand Valley Canal is diverted from the Colorado River east of Grand Junction in Palisade, CO. The canal flows west through the City of Grand Junction distributing irrigation water to lateral ditches. Between 12 and 13 Road the canal turns south, crosses underneath Highway 6&50 (Highway 6&50 is also known as M and 8/10 Road in this part of Mesa County), continues south and returns flow to the Colorado River near 13 Road. The projects area of concern is the Mack Lateral Ditch south of the Highway 6&50 crossing. The Mack Lateral conveys water from the canal, via underground pipe, approximately 1.5 miles east to the town of Mack and its associated agricultural lands. The section of the Mack lateral that is piped ends at the Interstate-70 exit to the Town of Mack and is open ditch from there on. The lateral meanders around the southern portion of Mack just west of 10 Road where it turns north. The lateral splits into 2 main irrigation ditches. One ditch feeds 2 small agricultural ponds, crosses under the railroad tracks and turns west eventually flowing into to Mack Wash approximately 1.5 miles downstream of the Highway 6&50 bridge. The other ditch continues north, crosses under the railroad tracks and divides into 2 smaller ditches. One of the smaller ditches flows north under Highway 6&50 and into Mack Wash. The other ditch is diverted to the west paralleling Highway 6&50 and ends up flowing through underground corrugated plastic pipe into Mack Wash, just south of the Highway 6&50 bridge. From the Highway 6&50 bridge, Mack Wash flows southwest into Salt Creek, which flows into the Colorado River (Figure 5).

The proposed rail alignment crosses the Government Highline Canal, which is another main irrigation canal in the Grand Valley. Government Highline Canal originates just north of the Grand Valley Canal from the Colorado River in Palisade, CO. The canal parallels the Grand Valley Canal to the north until the Grand Valley Canal turns south near 13 Road. Government Highline Canal continues west distributing irrigation water to lateral ditches north and west of Mack. The canal terminates at West Salt Creek. West Salt Creek flows into Salt Creek, which flows into the Colorado River.

Tributary stream order, if known: Mack Wash, East Salt Creek, and West Salt Creek are a 1, Salt Creek is a 2.

(b) General Tributary Characteristics (check all that apply):

Tributary is:
☐ Natural
☒ Artificial (man-made). Explain: Government Highline Canal, Mack Lateral, and connected irrigation ditches are all created in uplands.
☐ Manipulated (man-altered). Explain:

Tributary properties with respect to top of bank (estimate):
Average width: 3 feet open ditch portion of Mack lateral
Average depth: 3 feet
Average side slopes: 2:1
Return ditches are considerably smaller, with an average width and depth of 1 foot or less. Government Highline Canal is approximately 35 feet wide and 7 feet deep.

[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

Primary tributary substrate composition (check all that apply):

☐ Silts ☐ Sands ☒ Concrete
☐ Cobbles ☐ Gravel ☒ Muck
☐ Bedrock ☒ Vegetation. Type/% cover: 0-100%
☒ Other. Explain: Portions of the Highline canal, Mack lateral, and subsequent ditches are lined with concrete, rip-rap, and flow through culverts and piping made of various materials.

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: Ditch leakage and seepage is evident in some areas.

Approximately 57 miles of Government Highline Canal have been lined with polyacrylamide (PAM) and other substances to reduce transit loss and improve bank stability (BOR. 1986).

Presence of run/riffle/pool complexes. Explain: N/A
Tributary geometry: Determined by irrigation requirements.
Tributary gradient (approximate average slope): 2 % or less

(c) Flow:

Tributary provides for: Seasonal irrigation

Estimate average number of flow events in review area/year: Typically flows from May through October.

Other information on duration and volume: Flow into the Mack Lateral from the Grand Valley Canal is approximately 5 cfs during irrigation season.
Surface flow is: Discrete and confined
Characteristics: Discrete flows are present where ditch leakage has persisted.

Subsurface flow: perched watertable Explain findings: Lined portions of the Grand Valley Canal have a transit loss of approximately 1cfs. per canal mile. Unlined ditches and laterals, depending on substrate and sediment load have losses of up to 2 cubic feet per square foot of ditch area per day (BOR 1986). Over a century of agricultural irrigation in the Grand Valley has caused a shallow perched water table to develop. Water infiltrates weathered fractures in the Mancos shale and is leached to impermeable layer of shale. (BOR 1986 & 1977. The impermeable shale can be just a few feet from the ground surface or up to 30 feet below the ground surface (BOR 1985 & 1977). Ground water is derived almost entirely from deep percolation of irrigation water and seepage from irrigation systems. Natural ground water recharge is less than 1% of the recharge occurring in the Grand Valley (BOR 1977 & 1985). The perched water table in the Grand Valley would be non existent without irrigation (BOR 1977).

☒ Dye (or other) test performed: Numerous studies have been conducted by the Bureau of Reclamation and NRCS in conjunction with the Grand Valley Unit Colorado River Salinity Project. The focus of the investigation was to determine salinity transport capability of the perched water table and if lining canals and ditches would reduce the salinity load in the Colorado River (BOR 1977, 1985, 1986). A system of monitoring wells was installed and long-term water table investigations were conducted.

Tributary has (check all that apply):

☐ Bed and banks
☒ OHWM[6] (check all indicators that apply):

☐ clear, natural line impressed on the bank ☐ the presence of litter and debris
☒ changes in the character of soil ☐ destruction of terrestrial vegetation
☐ shelving ☐ the presence of wrack line
☐ vegetation matted down, bent, or absent ☐ sediment sorting
☐ leaf litter disturbed or washed away ☐ scour
☒ sediment deposition ☐ multiple observed or predicted flow

[6]A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.

events
☒ water staining
☐ other (list):
☐ Discontinuous OHWM.[7] Explain:
☒ abrupt change in plant community

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

☐ High Tide Line indicated by:
☐ oil or scum line along shore objects
☐ fine shell or debris deposits (foreshore)
☒ physical markings/characteristics
☐ tidal gauges
☐ Mean High Water Mark indicated by:
☐ survey to available datum;
☐ physical markings;
☒ vegetation lines/changes in vegetation types.
☒ other (list): 1987 Corps of Engineers Wetland Delineation Manual, Interim Arid West Regional Supplement to the Corps of Engineers Wetland Delineation Manual, December 2006, 33 CFR Part 328.3, RGL 07-02, and CESPK-CO-R (1145) RBM 2007-01.

(iii) Chemical Characteristics: Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.). Explain: Water flowing through irrigation ditches is mostly clear. Natural salinity from salt-shrub desert soils and selenium from Mancos shale is expected. Irrigation return flows are also assumed to contain fertilizers and herbicides (not tested).

. Identify specific pollutants, if known:

(iv) Biological Characteristics. Channel supports (check all that apply):

☐ Riparian corridor. Characteristics (type, average width): .
☐ Wetland fringe. Characteristics: .
☒ Habitat for:
☐ Federally Listed species. Explain findings: .
☐ Fish/spawn areas. Explain findings: .
☒ Other environmentally-sensitive species. Explain findings:
Aquatic/wildlife diversity. Explain findings: The habitat supports common amphibians and incidental use by terrestrial species that are characteristic of the salt desert shrub community (BOR 1976).

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:

(a) General Wetland Characteristics:

Properties:

Wetland size: 15.97 acres Total for 18 polygons

Wetland type. Explain: Fringe wetlands along ditches and Marsh wetlands associated with ditch leakage.

Wetland quality. Explain: Wetland conditions are marginal. Annual changes in irrigation water allocation and urban expantion to agricultural land have created an inconsistent runoff regime. De-watered wetlands are common and ditch leakage has created wetlands in undesirable locations.

Project wetlands cross or serve as state boundaries. Explain: N/A

(b) General Flow Relationship with Non-TNW:

Flow is: Seasonal. Explain: Typically surface flows are associated with irrigation season or extreme precipitation events in early spring and late fall (BOR 1977 & 1986).

Surface flow is: Discrete and Confined Characteristics: Surface flows primarily come from irrigation return water ditches; discrete flows are associated with leaky portions of the ditches (BOR 1976, 1977 & 1985).

Subsurface flow: **Yes**. Explain findings: Polygons A, H, M, K, and O have hydrology associated

[7] Ibid.

with the discharge of a shallow perched aquifer that supplies ground water to portions of these wetlands throughout most of the growing season. Ground water in this perched aquifer is derived almost entirely from deep percolation of irrigation water and seepage from irrigation systems. Natural ground water recharge is less than 1% of the recharge occurring in the Grand Valley (BOR 1977 & 1985). The perched water table in the Grand Valley would be non existent without irrigation (BOR 1977).

☒ Dye (or other) test performed: Numerous studies have been conducted by the Bureau of Reclamation and NRCS in conjunction with the Grand Valley Unit Colorado River Salinity Project. The focus of the investigation was to determine salinity transport capability of the perched water table and if lining canals and ditches would reduce the salinity load in the Colorado River (BOR 1977, 1985, 1986). A system of monitoring wells was installed and long-term water table investigations were conducted.

(c) Wetland Adjacency Determination with Non-TNW:

☒ Directly abutting: Irrigation ditches

☒ Not directly abutting

☒ Discrete wetland hydrologic connection. Explain: Polygons A, H, M, and O receive irrigation return flow from elevated agricultural lands east of 10 Road (Figure 3). During irrigation season excess water is spilled off into small channels that form a periodic surface water connection with East Salt Creek. Polygon A receives water from an adjacent agricultural field and returns flow to Mack Wash (Figure 4). Polygon L has been de-watered from changes in upslope irrigation; flow lines in Figure 3 show historical flow paths when return flows were present.

☐ Ecological connection. Explain: .

☒ Separated by berm/barrier. Explain: Portions of the ditches have been impounded to raise water levels to allow for extended delivery area. Ditches conveying impounded waters are sometimes elevated 4 feet above the existing topography.

(d) Proximity (Relationship) to TNW

Project wetlands are 2-5 river miles from TNW.

Project waters are 2-3 aerial (straight) miles from TNW.

Flow is from: TNW to irrigation ditches to RPW and returned to TNW.

Estimate approximate location of wetland as within the floodplain. N/A

(ii) Chemical Characteristics:

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: Water flowing from wetlands is mostly clear. Natural salinity from salt-shrub desert and selenium transport from Mancos shale is expected. Irrigation runoff is assumed to include fertilizers and herbicides (not tested).

Identify specific pollutants, if known: .

(iii) Biological Characteristics. Wetland supports (check all that apply):

☐ Riparian buffer. Characteristics (type, average width):

☐ Vegetation type/percent cover. Explain:

☒ Habitat for:

☐ Federally Listed species. Explain findings:

☐ Fish/spawn areas. Explain findings:

☐ Other environmentally-sensitive species. Explain findings:

☒ Aquatic/wildlife diversity. Explain findings: The habitat supports common amphibians and incidental use by terrestrial species that are characteristic of the salt desert shrub community. Active Northern Harrier Hawk nests were found in polygons A and H, and mule deer were frequently observed in these areas as well. Irrigation water has created wildlife habitat which differs considerably from the habitat occurring historically (BOR 1985).

3. Characteristics of all wetlands adjacent to the tributary (if any)

All wetland(s) being considered in the cumulative analysis: 18
Approximately (15.97) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following: Polygons A, B, C, D, E, F, G, H, K, L, M, O, P, Q, R, S, T and V, are potentially non-jurisdictional wetland polygons. Their sole source of hydrology is irrigation water. They maintain a surface water connection with the nearest RPW only by irrigation return flows.

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)
A, No	0.40	L, No	1.45
B, Yes	0.26	M, No	0.077
C, Yes	0.6	O, No	0.008
D, No	0.0001	P, Yes	0.1
E, No	0.013	Q, Yes	0.38
F, Yes	0.023	R, Yes	1.09
G, Yes	0.01	S, Yes	0.49
H, No	10.85	T, Yes	0.03
K, No	0.166	V, Yes	0.035

** **No, indicates the wetlands are not adjacent or abutting an irrigation ditch**
***Yes, indicates the wetlands are adjacent or abutting an irrigation ditch**

Summarize overall biological, chemical and physical functions being performed: Potential wetlands evaluated in this jurisdictional determination are associated with irrigation ditches, seepage, and irrigation return flows. Wetland characteristics and vegetation are a direct result of irrigation water, without this source of hydrology these wetlands would cease to exist. Although these wetlands are relatively low in quality and diversity, they do perform some wetland functions. These areas may serve as migratory bird habitat. Irrigation ditch fringe wetlands that lack open water serve as limited habitat for most birds. Some predator species have been observed in the area including: Golden Eagle, Red-tailed Hawk, and Northern Harrier Hawk. Wetlands are subject to use by terrestrial species that are characteristic of the salt desert shrub community, particularly mule deer. Irrigation ditches may also provide a filtration and storage capacity for agriculturally related chemicals. Groundwater re-charge and creation of the perched water table can be viewed as a potential negative function as it mobilizes selenium and salinity that will be eventually transported into the Colorado River (TNW).

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?

- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs. **Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D:**

2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: Based on the information provided in Section III, B-1, B-2, and B-3 above, the wetlands within the proposed project impact area were found to be the direct result of irrigation water return flows and not from natural hydrology. Waters associated with these areas are unlikely to meet the definition of a WOUS as presented in Section 404 of the Clean Water Act.

   Irrigation ditches and their associated wetlands within the proposed project impact area are likely to have no more than an insignificant and speculative impact on the physical, chemical, and biological integrity of the downstream TNW (Colorado River) or its RPW tributaries (Mack Wash and East Salt Creek).

3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
   - ☐ TNWs: linear feet width (ft), Or, acres.
   - ☐ Wetlands adjacent to TNWs: acres.

2. **RPWs that flow directly or indirectly into TNWs.**
   - ☐ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial:
   - ☐ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: .

   Provide estimates for jurisdictional waters in the review area (check all that apply):

   - ☐ Tributary waters: linear feet width (ft).
   - ☐ Other non-wetland waters: acres.

     Identify type(s) of waters: .

3. **Non-RPWs[8] that flow directly or indirectly into TNWs.**

   - ☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

   Provide estimates for jurisdictional waters within the review area (check all that apply):

[8]See Footnote # 3.

☐ Tributary waters: linear feet width (ft).

☐ Other non-wetland waters: acres.

Identify type(s) of waters: .

4. Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.

☐ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.

☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above.

Provide rationale indicating that wetland is directly abutting an RPW:

☐ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

5. Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.

☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.

☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional wetlands in the review area: acres.

7. Impoundments of jurisdictional waters.[9]

As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.

☐ Demonstrate that impoundment was created from "waters of the U.S.," or

☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or

☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]

☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.

☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.

☐ which are or could be used for industrial purposes by industries in interstate commerce.

☐ Interstate isolated waters. Explain: .

☐ Other factors. Explain: .

Identify water body and summarize rationale supporting determination: .

[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.

[10] **Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.***

Provide estimates for jurisdictional waters in the review area (check all that apply):

☐ Tributary waters: linear feet width (ft).

☐ Other non-wetland waters: acres.

Identify type(s) of waters: .

☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):

☒ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements. Wetlands established and maintained solely by artificial irrigation do not meet the definition of a wetland under the criteria contained in the 1987 Corps of Engineers Wetlands Jurisdictional Manual or its regional supplements (COE 2007a & d)

☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.

☐ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).

☒ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: Waters within the proposed project impact area are likely to have no more than an insignificant and speculative impact on the physical, chemical, and biological integrity of the down stream TNW (Colorado River) or its RPW tributaries.

☐ Other: (explain, if not covered above):

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):

☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).

☒ Lakes/ponds: 0.5 acres. Approximate acreage of impounded irrigation water creating ponds.

☒ Other non-wetland waters: 0.94 acres. List type of aquatic resource: Irrigation ditch and canal surface water area.

☒ Wetlands: 3.01 acres. Wetlands adjacent or abutting irrigation ditches. 12.96 acres not adjacent or abutting irrigation ditches.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):

☐ Non-wetland waters (i.e., rivers, streams):

☒ Lakes/ponds: 0.5 acres. Approximate acreage of impounded irrigation water creating ponds.

☒ Other non-wetland waters: .94 acres. List type of aquatic resource: Irrigation ditch and canal surface water area.

☒ Wetlands: 15.97 acres. Wetlands adjacent or abutting irrigation ditches that are likely to have no more than an insignificant and speculative impact on the physical, chemical, and biological integrity of the down stream TNW (Colorado River) or its RPW tributaries.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):

- ☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: WestWater Engineering.
- ☐ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
  - ☐ Office concurs with data sheets/delineation report.
  - ☐ Office does not concur with data sheets/delineation report.
- ☐ Data sheets prepared by the Corps: .
- ☐ Corps navigable waters' study: .
- ☐ U.S. Geological Survey Hydrologic Atlas: www-atlas.usgs.gov.
  - ☒ USGS NHD data.
  - ☒ USGS 8 and 12 digit HUC maps.
- ☒ U.S. Geological Survey map(s). Cite scale & quad name: USGS 1:24,000 Mack, CO., Ruby Canyon, CO., Badger Wash, CO., Highline Lake, CO., Howard Canyon, CO.
- ☒ USDA Natural Resources Conservation Service Soil Survey. Citation: http://websoilsurvey.nrcs.usda.gov/app/
- ☒ National wetlands inventory map(s). Cite name: www.fws.gov/nwi/
- ☐ State/Local wetland inventory map(s): .
- ☐ FEMA/FIRM maps: .
- ☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
- ☒ Photographs: ☒ Aerial (Name & Date): USDA NAIP 2005.
  or ☒ Other (Name & Date): WestWater Engineering,
- ☐ Previous determination(s). File no. and date of response letter: .
- ☒ Applicable/supporting case law: Rapanos.
- ☒ Applicable/supporting scientific literature: Colorado River Basin Salinity Control Project and associated studies, and Groundwater well data logs from the Bureau of Reclamation and NRCS.
- ☒ Other information (please specify): RGL 07-02, Sacramento district RBM 07-01, 33 CFR Part 328.3, Section 404 CWA

B. ADDITIONAL COMMENTS TO SUPPORT JD: .

Appendix A

COE Data Forms

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Red Cliff Mine City/County: Mesa Sampling Date: 8/17/06

Applicant/Owner: CAM Colorado LLC State: CO Sampling Point: TPU

Investigator(s): WestWater Engineering Renner/Fletcher Section, Township, Range: Section 34, T9S, R103W

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): <2%

Subregion (LRR): D - Interior Deserts Lat: 39.22614 N Long: 108.87230 W Datum: NAD83

Soil Map Unit Name: Avalon NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (•) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (•) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ( )	No (•)	
Hydric Soil Present?	Yes ( )	No (•)	**Is the Sampled Area**
Wetland Hydrology Present?	Yes ( )	No (•)	**within a Wetland?** **Yes** ( ) **No** (•)

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum			
1. *Sarcobatus vermiculatus*	30	Yes	FACU
2. *Chrysothamnus nauseosus*	20	Yes	UPL
3.			
4.			
5.			
Total Cover:	50 %		
Herb Stratum			
1. *Muhlenbergia asperifolia*	50	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	50 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3 % (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals:	(A) (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- Dominance Test is >50%
- Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** ( ) **No** (•)

Remarks:

SOIL

Sampling Point: TPU

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
0-6	10 YR 6/4	90					Silt	
6-12	10 YR 6/3	90					Silt	
12-18	10 YR 6/4	90					Silt	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches): _____

Water Table Present? Yes ○ No ◉ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches): _____

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

US Army Corps of Engineers

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Red Cliff Mine City/County: Mesa Sampling Date: 6/21/06

Applicant/Owner: CAM Colorado LLC State: CO Sampling Point: TLW

Investigator(s): WestWater Engineering Renner/Fletcher Section, Township, Range: Section 22, T9S, R103W

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): <2%

Subregion (LRR): D - Interior Deserts Lat: 39.26371 N Long: 108.87071 W Datum: NAD83

Soil Map Unit Name: Cojam NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes ( )	No (●)	

Remarks: This area has apparently been de-watered by a change in upslope irrigation practices. Soils are dry and hydrophytic vegetation is dying.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum			
1. *Tamarix spp.*	30	Yes	FACW
2.			
3.			
4.			
5.			
Total Cover:	30 %		
Herb Stratum			
1. *Typha latifolia*	30	Yes	OBL
2. *Scirpus pungens*	10	Yes	OBL
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	40 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals:	(A) (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks: Condition of vegetation was marginal, most of the basil cover was dead or wilting from lack of water. It is likely that the primary source of hydrology was from irrigation return flows that have been redirected up slope and no longer contribute to the area. There was no evidence of a ground water source.

SOIL

Sampling Point: TLW

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
0-6	10 YR 5/2	90					Silty loam	oxidation mottles
6-12	10 YR 5/3	90					Silty loam	
12-18	10 YR 5/3	90					Silty loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks: Oxidation mottles had sharp and distinct boundaries and appeared to be relict of when a more consistent source of hydrology was present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches): _____

Water Table Present? Yes ○ No ◉ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches): _____

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: It is likely that the primary source of hydrology was from irrigation return flows that have been redirected up slope and no longer contribute to the area. There was no evidence of a ground water source.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Red Cliff Mine City/County: Mesa Sampling Date: 6/21/06

Applicant/Owner: CAM Colorado LLC State: CO Sampling Point: TLU

Investigator(s): WestWater Engineering Renner/Fletcher Section, Township, Range: Section 22, T9S, R103W

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): <2%

Subregion (LRR): D - Interior Deserts Lat: 39.26371 N Long: 108.87071 W Datum: NAD83

Soil Map Unit Name: Cojam NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (•) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (•) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ( )	No (•)	
Hydric Soil Present?	Yes ( )	No (•)	**Is the Sampled Area within a Wetland?** Yes ( ) No (•)
Wetland Hydrology Present?	Yes ( )	No (•)	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum			
1. *Sarcobatus vermiculatus*	40	Yes	FACU
2. *Tamarix spp.*	15		FACW
3.			
4.			
5.			
Total Cover:	55 %		
Herb Stratum			
1. *Distichlis spicata*	30	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	30 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals:	(A) (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- Dominance Test is >50%
- Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ( ) No (•)

Remarks:

SOIL

Sampling Point: TLU

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
0-6	10 YR 5/3	90					Silty loam	
6-12	10 YR 6/3	90					Silty loam	
12-18	10 YR 6/3	90					Silty loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches): _____

Water Table Present? Yes ○ No ◉ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches): _____

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

US Army Corps of Engineers

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Red Cliff Mine City/County: Mesa Sampling Date: 6/21/06

Applicant/Owner: CAM Colorado LLC State: CO Sampling Point: THW

Investigator(s): WestWater Engineering Renner/Fletcher Section, Township, Range: Section 22, T9S, R103W

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): concave Slope (%): <2%

Subregion (LRR): D - Interior Deserts Lat: 39.25941 N Long: 108.87250 W Datum: NAD83

Soil Map Unit Name: Cojam NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (•) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (•) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (•)	No ( )	
Hydric Soil Present?	Yes (•)	No ( )	**Is the Sampled Area within a Wetland?** Yes (•) No ( )
Wetland Hydrology Present?	Yes (•)	No ( )	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Typha latifolia*	60	Yes	OBL
2. *Scirpus pungens*	10		OBL
3. *Pucinellia spp.*	10		OBL
4.			
5.			
6.			
7.			
8.			
Total Cover:	80 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum ____ % % Cover of Biotic Crust ____ %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

[X] Dominance Test is >50%

Prevalence Index is ≤3.0[1]

[ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

[ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (•) No ( )

Remarks:

SOIL

Sampling Point: THW

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-6	10 YR 4/2	90					Silty loam	
6-12	10 YR 4/2	90					Silty loam	
12-18	10 YR 4/2	90					Silty loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks: Redoximorphic features may be related to the length of time the soils have been subject to wetland hydrology or soil chemistry of the clay soils involved. In the opinion of the field observers the clear wetland hydrology observed (likely to be a combination of irrigation return flow and ground water discharge) indicated the soils should be considered hydric.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ◉ No ○ Depth (inches): 7

Saturation Present? (includes capillary fringe) Yes ◉ No ○ Depth (inches): 7

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

US Army Corps of Engineers

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Red Cliff Mine City/County: Mesa Sampling Date: 6/21/06

Applicant/Owner: CAM Colorado LLC State: CO Sampling Point: THU

Investigator(s): WestWater Engineering Renner/Fletcher Section, Township, Range: Section 22, T9S, R103W

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): concave Slope (%): <2%

Subregion (LRR): D - Interior Deserts Lat: 39.25941 N Long: 108.87250 W Datum: NAD83

Soil Map Unit Name: Cojam NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (•) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (•) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (•)	No ( )	
Hydric Soil Present?	Yes ( )	No (•)	**Is the Sampled Area within a Wetland?** Yes ( ) No (•)
Wetland Hydrology Present?	Yes ( )	No (•)	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum			
1. *Sarcobatus vermiculatus*	30	Yes	FACU
2. *Chrysthamus nauseosus*	20	Yes	UPL
3.			
4.			
5.			
Total Cover:	50 %		
Herb Stratum			
1. *Muhlenbergia asperifolia*	40	Yes	FACW
2. *Disticulas spicata*	15	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	55 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum ____ % % Cover of Biotic Crust ____ %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- (•) Dominance Test is >50%
- Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (•) No ( )

Remarks:

SOIL

Sampling Point: THU

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
0-6	10 YR 4/3						Silty loam	
6-12	10 YR 5/3						Silty loam	
12-18	10 YR 5/4						Silty loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches): _____

Water Table Present? Yes ○ No ◉ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches): _____

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

US Army Corps of Engineers

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Red Cliff Mine | City/County: Mesa | Sampling Date: 6/19/06

Applicant/Owner: CAM Colorado LLC | State: CO | Sampling Point: TBW

Investigator(s): WestWater Engineering Renner/Fletcher | Section, Township, Range: Section 19, T2N, R3W

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): None | Slope (%): <2%

Subregion (LRR): D - Interior Deserts | Lat: 39.22487 N | Long: 108.86845 W | Datum: NAD83

Soil Map Unit Name: Cojam | NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes (●)	No ( )	**Is the Sampled Area within a Wetland?** Yes (●) No ( )
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum			
1. *Salix exigua*	20	Yes	FACW
2. *Tamarix spp.*	10	Yes	FACW
3.			
4.			
5.			
Total Cover:	30 %		
Herb Stratum			
1. *Muhlenbergia asperifolia*	50	Yes	FACW
2. *Typha spp.*	30	Yes	OBL
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	80 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum ____ % % Cover of Biotic Crust ____ %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks:

SOIL

Sampling Point: TBW

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
0-6	10 YR 4/2	75					Silty loam	diffuse oxidation
6-12	10 YR 4/1	50	GC1 4/5G	30	RM	M	Silty loam	gley
12-18	10 YR 3/3	40	GC1 4/5G	40	RM	M	Silty loam	gley

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☒ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☒ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☒ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ◉ No ○ Depth (inches): 8

Water Table Present? Yes ○ No ◉ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ◉ No ○ Depth (inches): 8

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

US Army Corps of Engineers

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Red Cliff Mine City/County: Mesa Sampling Date: 6/19/06

Applicant/Owner: CAM Colorado LLC State: CO Sampling Point: TBU

Investigator(s): WestWater Engineering Renner/Fletcher Section, Township, Range: Section 19, T2N, R3W

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): <2%

Subregion (LRR): D - Interior Deserts Lat: 39.22487 N Long: 108.86845 W Datum: NAD83

Soil Map Unit Name: Cojam NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes ( )	No (●)	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum			
1. *Tamarix spp,*	5	Yes	FACW
2.			
3.			
4.			
5.			
Total Cover:	5 %		
Herb Stratum			
1. *Acroptilon repens*	40	Yes	UPL
2. *Muhlenbergia asperifolia*	20	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	60 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7 % (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals:	(A) (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

[X] Dominance Test is >50%

Prevalence Index is ≤3.0[1]

[ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

[ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks:

SOIL

Sampling Point: TBU

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-6	10 YR 6/3	90						
6-12	10 YR 6/3	90						
12-18	10 YR 5/4	80						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches): _____

Water Table Present? Yes ○ No ◉ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches): _____

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

US Army Corps of Engineers

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Red Cliff Mine City/County: Mesa Sampling Date: 6/19/06

Applicant/Owner: CAM Colorado LLC State: CO Sampling Point: TAW

Investigator(s): WestWater Engineering Renner/Fletcher Section, Township, Range: Section 34, T9S, R103W

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): <2%

Subregion (LRR): D - Interior Deserts Lat: 39.23519 N Long: 108.87741 W Datum: NAD83

Soil Map Unit Name: Killpack NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes (●)	No ( )	**Is the Sampled Area within a Wetland?** Yes (●) No ( )
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum			
1. *Tamarix spp.*	10	Yes	FACW
2.			
3.			
4.			
5.			
Total Cover:	10 %		
Herb Stratum			
1. *Typha latifolia*	65	Yes	OBL
2. *Eleocharis palustris*	20	Yes	OBL
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	85 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals:	(A) (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

[X] Dominance Test is >50%

Prevalence Index is ≤3.0[1]

[ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

[ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks:

SOIL

Sampling Point: TAW

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
0-6	7.5 YR 4/2	70	GC1 4/5G	5	C	M	Silty loam	spotty oxidation and gley
6-12	7.5 YR 5/2	65	GC1 4/5G	10	RM	M	Silty loam	increased gley
12-18	7.5 YR 5/2						Silty loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☒ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks: Redoximorphic features may be related to the length of time the soils have been subject to wetland hydrology or soil chemistry of the clay soils involved. In the opinion of the field observers the wetland hydrology observed (likely to be a combination of irrigation return flow and ground water discharge) indicated the soils should be considered hydric.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☒ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☒ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ◉	No ○	Depth (inches):	1
Water Table Present?	Yes ◉	No ○	Depth (inches):	1
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches):	0

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

US Army Corps of Engineers

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Red Cliff Mine City/County: Mesa Sampling Date: 6/19/06

Applicant/Owner: CAM Colorado LLC State: CO Sampling Point: TAU

Investigator(s): WestWater Engineering Renner/Fletcher Section, Township, Range: Section 34, T9S, R103W

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): <2%

Subregion (LRR): D - Interior Deserts Lat: 39.23519 N Long: 108.87741 W Datum: NAD83

Soil Map Unit Name: Killpack NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ( )	No (●)	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes ( )	No (●)	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum			
1. *Chrysothamnus nauseosus*	30	Yes	UPL
2. *Tamarix spp.*	20	Yes	FACW
3.			
4.			
5.			
Total Cover:	50 %		
Herb Stratum			
1. *Muhlenbergia asperifolia*	30	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	30 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7 % (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals:	(A) (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

[X] Dominance Test is >50%

Prevalence Index is ≤3.0[1]

[ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

[ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ( ) No (●)

Remarks:

SOIL

Sampling Point: TAU

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
0-6	7.5 YR 4/3	70					Silty loam	
6-12	7.5 YR 4/3	70					Silty loam	
12-18	7.5 YR 5/4	70					Silty loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches): _____

Water Table Present? Yes ○ No ◉ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches): _____

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

US Army Corps of Engineers

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Red Cliff Mine City/County: Mesa Sampling Date: 8/17/06

Applicant/Owner: CAM Colorado LLC State: CO Sampling Point: TPW

Investigator(s): WestWater Engineering Renner/Fletcher Section, Township, Range: Section 34, T9S, R103W

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): <2%

Subregion (LRR): D - Interior Deserts Lat: 39.22614 N Long: 108.87230 W Datum: NAD83

Soil Map Unit Name: Avalon NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (•) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (•) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (•)	No ( )	
Hydric Soil Present?	Yes (•)	No ( )	**Is the Sampled Area**
Wetland Hydrology Present?	Yes (•)	No ( )	**within a Wetland?** **Yes** (•) **No** ( )

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Typha spp,*	60	Yes	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	60 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals:	(A) (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

[X] Dominance Test is >50%

Prevalence Index is ≤3.0[1]

[ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

[ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** (•) **No** ( )

Remarks:

SOIL

Sampling Point: TPW

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
0-6	10 YR 4/2	85					Silty loam	
6-12	10 YR 4/3	60	GC1 4/5G	15	C	M	Silty loam	gley
12-18	10 YR 4/3	50	GC1 4/5G	20	RM	M	Silty loam	gley

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☒ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☒ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☒ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ◉ No ○ Depth (inches): 2

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ◉ No ○ Depth (inches): 6

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

US Army Corps of Engineers

Jurisdiction Determination
July 2, 2008

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO
CORPS OF ENGINEERS
COLORADO WEST REGULATORY BRANCH
400 ROOD AVENUE, ROOM 142
GRAND JUNCTION, COLORADO 81501-2563

REPLY TO
ATTENTION OF

July 2, 2008

Regulatory Division (SPK-2008-00202)

Mr. Brett Fletcher
West Water Engineering
2516 Foresight Circle, #1
Grand Junction, Colorado 81505

Dear Mr. Fletcher:

We are responding to your request for an approved jurisdictional determination for the CAM Colorado LLC Project. This portion of the project pertaining to this review is located near the City of Mack, as depicted on the enclosed vicinity map labeled *Figure 2: Red Cliff Mine Jurisdictional Project Location*, Mesa County, Colorado.

Based on available information, we concur with the estimate of waters of the United States, as depicted in the West Water Engineering report titled *Jurisdictional Determination Request: Part 2, Request for confirmation of wetland delineation and jurisdictional determination for the CAM Colorado LLC Coal Mine and Rail Spur Project, Mesa and Garfield Counties, Colorado.* Approximately .61 acres of waters of the United States, located in and adjacent to Mack Wash, and identified in the report as polygon "U", are present within the survey area. These waters are regulated under Section 404 of the Clean Water Act. All other identified water features, including wetlands, depicted in the report were determined to derive hydrology soley from agricultural irrigation systems. As such, these water features are not considered jurisdictional under Section 404 of the Clean Water Act.

This verification is valid for five years from the date of this letter, unless new information warrants revision of the determination before the expiration date. This letter contains an approved jurisdictional determination for your subject site. If you object to this determination, you may request an administrative appeal under Corps regulations at 33 CFR Part 331.

A Notification of Appeal Process (NAP) fact sheet and Request for Appeal (RFA) form is enclosed. If you request to appeal this determination you must submit a completed RFA form to the South Pacific Division Office at the following address: Administrative Appeal Review Officer, Army Corps of Engineers, South Pacific Division, CESPD-PDS-O, 1455 Market Street, San Francisco, California 94103-1399, Telephone: 415-503-6574, FAX: 415-503-6646.

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR Part 331.5, and that it has been received by the Division Office within 60 days of the NAP. Should you decide to submit an RFA form, it must be received at the above address by 60 days from the date of this letter. **It is not necessary to submit an RFA form to the Division Office if you do not object to the determination in this letter.**

You should provide a copy of this letter and notice to all other affected parties, including any individual who has an identifiable and substantial legal interest in the property.

We appreciate your feedback. At your earliest convenience, please complete our customer survey at *http://www.spk.usace.army.mil/customer_survey.html.* Your passcode is "conigliaro".

Please refer to identification number SPK-2008-00202 in any correspondence concerning this project. If you have any questions, please contact Steve Moore at the above letterhead address, email at *stephen.a.moore@usace.army.mil*, or telephone at (970) 243-1199 extension 13. You may also use our website: *www.spk.usace.army.mil/regulatory.html.*

Sincerely,

Ken Jacobson
Chief, Colorado West
Regulatory Branch

Enclosures

Copy furnished without enclosures:
Ms. Catherine Robertson, Bureau of Land Management, Grand Junction, Colorado 81506

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: Brett Fletcher, West Water Engnineering	File No.: SPK-2008-00202	Date: July 2, 2008

Attached is:		See Section below
	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A
	PROFFERED PERMIT (Standard Permit or Letter of permission)	B
	PERMIT DENIAL	C
X	APPROVED JURISDICTIONAL DETERMINATION	D
	PRELIMINARY JURISDICTIONAL DETERMINATION	E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at *http://www.usace.army.mil/inet/functions/cw/cecwo/reg* or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the DISTRICT engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- OBJECT: If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the DISTRICT engineer. Your objections must be received by the DISTRICT engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the DISTRICT engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the DISTRICT engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the DISTRICT engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- APPEAL: If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the DIVISION (not district) engineer (address on reverse). This form must be received by the DIVISION engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the DIVISION (not district) engineer (address on reverse). This form must be received by the DIVISION (not district) engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- ACCEPT: You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- APPEAL: If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the DIVISION (not district) engineer (address on reverse). This form must be received by the DIVISION engineer within 60 days of the date of this notice. Exception: JD appeals based on new information must be submitted to the DISTRICT engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

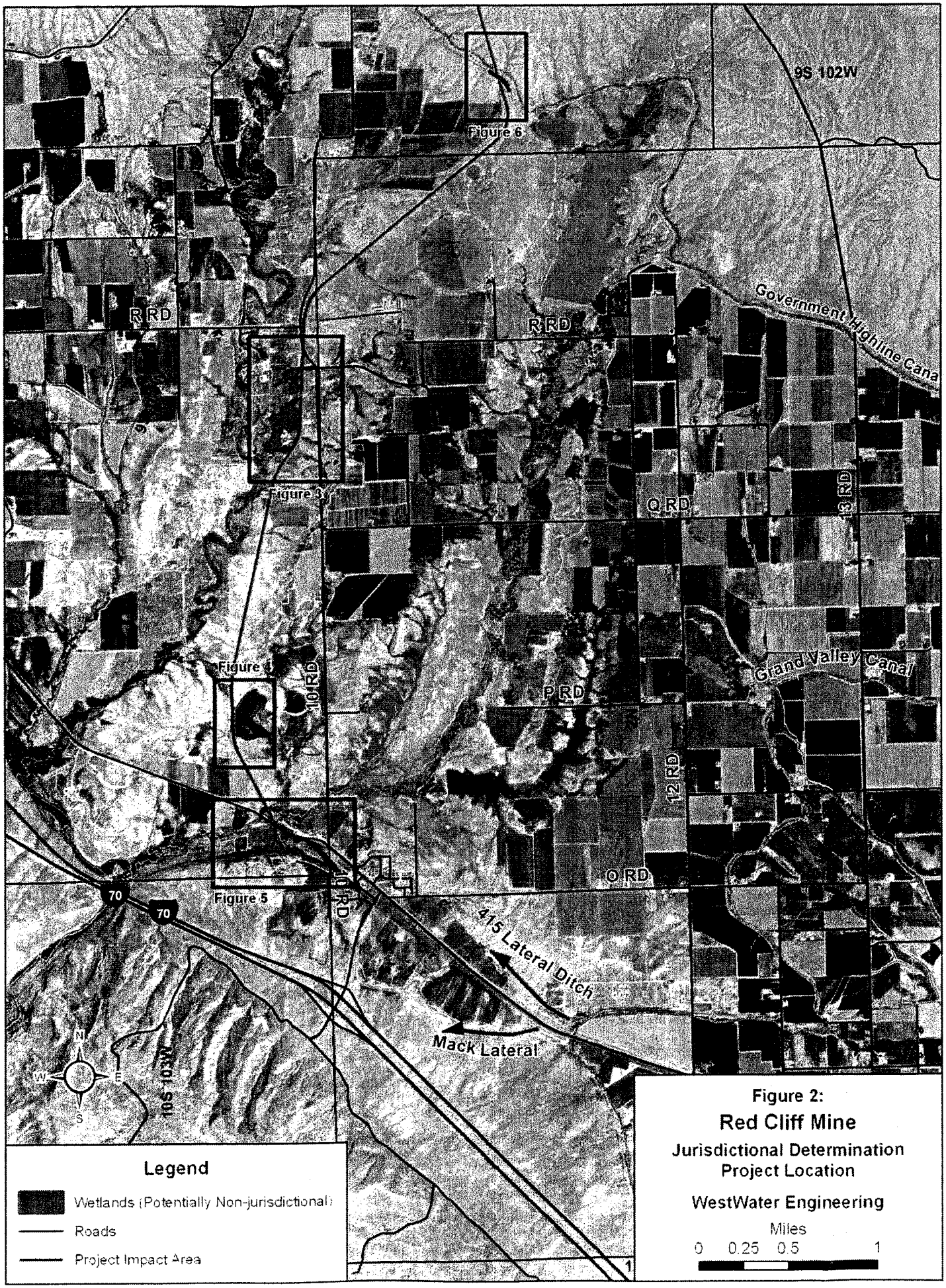
ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact: **DISTRICT ENGINEER** Sacramento District, Corps of Engineers Attn: Steve Moore , Project Manager, Regulatory Division 400 Rood Ave, Rm 142, Grand Junction, CO 81501 FAX: 970-241-2358 (Use this address for submittals to the **DISTRICT** ENGINEER)	If you only have questions regarding the appeal process you may also contact: **DIVISION ENGINEER** Army Engineer Division, South Pacific, CESPD-CM-O Attn: Tom Cavanaugh, Administrative Appeal Review Officer, Army Corps of Engineers , CESPD-PDS-O, 1455 Market Street, San Francisco, CA 94103-1399 (415-503-6574, FAX 415-503-6646) (Use this address for submittals to the **DIVISION** ENGINEER)

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of any site investigation, and will have the opportunity to participate in all site investigations.

_____ Signature of appellant or agent.	Date:	Telephone number:


9S 102W
Figure 6
R RD
R RD
Government Highline Cana
Figure 3
Q RD
9 RD
Figure 4
10 RD
P RD
Grand Valley Canal
12 RD
O RD
Figure 5
10 RD
70
70
415 Lateral Ditch
Mack Lateral
10S 103W
N
W
E
S
Legend
Wetlands (Potentially Non-jurisdictional)
Roads
Project Impact Area
Figure 2:
Red Cliff Mine
Jurisdictional Determination
Project Location
WestWater Engineering
Miles
0 0.25 0.5 1

U.S. Army Corps of Engineers
Colorado West Regulatory Branch
400 ROOD AVENUE, RM 142
GRAND JUNCTION, CO 81501

Mr. Brett Fletcher
WestWater Engineering
2516 Foresight Cir Ste 1
Grand Junction CO 81505-1022

Jurisdictional Determination Request

December 5, 2007

WestWater Engineering

2516 FORESIGHT CIRCLE, #1 GRAND JUNCTION, COLORADO 81505 (970) 241-7076 FAX: (970) 7097

December 5, 2007

Via email: Bill_Killam@urscorp.com
jeffrey_dawson@urscorp.com

Mark Gilfillan
US Army Corps of Engineers
400 Rood Avenue, Room 142
Grand Junction, CO 81501

RE: Jurisdictional Determination Request: Part 1, Identifying Potential Waters of the US
CAM Colorado LLC Coal Mine and Rail Spur Project
Mesa County and Garfield County, Colorado

Mr. Gilfillan:

WestWater's request for a non-Jurisdiction Determination for Part 1, Potential Waters of the US portion of the CAM Railroad is attached for your review.

Feel free to contact our office if you have questions, or if we can be of service in any way.

Sincerely,

Brett F. Fletcher
Environmental Scientist/ Wetland Biologist

Attachments

cc URS, B. Killam
URS, J. Dawson

Jurisdictional Determination Request
Proposed CAM Colorado LLC Red Cliff Mine and Rail Spur
Mesa County, Colorado

December 2007

This is a request for U.S. Army Corps of Engineers (COE) jurisdictional determination and confirmation of a wetland delineation performed on the site of the proposed Red Cliff Mine and related rail spur, north of Mack, Colorado (Figure 1). The delineation was performed by WestWater Engineering (WestWater) biologists on the following dates: June 19, 20, 21, Aug. 17, Nov. 17, 18, 20, 21, 27, Dec. 8, 18, 2006 and Feb. 23, 24, 2007. Wetlands were delineated in accordance with COE standards included in the "Corps of Engineers Wetlands Delineation Manual, Environmental Laboratory, Vicksburg, MS, January 1987" and the "U.S. Army Corps of Engineers Jurisdictional Determination Form Instructional Guide Book" (May 30, 2007).

Background

Wetland delineation was performed during the 2006 growing season while irrigation of nearby agricultural areas was underway. Recent (2005 and 2006) precipitation has been near normal for the Grand Valley, unlike the preceding drought years (2002 through 2004), so related wetland characteristics were considered likely to be in a relatively normal condition as well.

CAM Colorado proposes to develop a coal mine facility on approximately 1,886 acres of Bureau of Land Management land at the Red Cliff Mine site in the southwest corner of Garfield County. Development of the mine will also require the construction of approximately 15 miles of rail spur on public and private lands in Mesa and Garfield Counties to transport coal from the mine facility to the Union Pacific Railroad south of Mack, Colorado. Based on maps of the proposed railroad right of way and the proposed mine facility provided by CAM Colorado, WestWater Biologists surveyed the approximately 2,450 acre project site and surrounding areas to identify and delineate potential wetlands and waters of the United States (WOUS) within and adjacent to proposed construction boundaries (Figure 1). At the request of the COE the project was divided into two parts:

1. Request for a Jurisdictional determination identifying potential non-wetland WOUS.
2. Request for confirmation of Wetland delineation and Jurisdictional determination.

Delineation Methods

Drainages were identified as potentially jurisdictional WOUS based on the drainage's Ordinary High Water Mark (OHWM) and the drainages ability to contribute flow to a Relatively Permanent Water (RPW), Traditional Navigable Water (TNW), or drainages that form a significant nexus with a TNW. Significant nexus determinations were made by examining the functions that may significantly affect the chemical, physical, and biological integrity of downstream TNWs or contributing RPWs and Non-RPWs. Additionally, these drainages were evaluated for potential to transport sediment and/or pollutants into a TNW or RPW. Where evidence of flow was apparent, drainages were walked downstream to determine the likelihood that the storm water flow eventually connected to RPWs or TNWs of the United States. Non-

RPW drainage measurements were made at the proposed railroad centerline crossing and included depth and width at OHWM. Locations of potentially jurisdictional drainages were recorded using handheld GPS units (Datum: NAD 83) and mapped electronically onto aerial photographs. The East Salt Creek drainage area was divided into sub-basin drainages that were measured from rail spur drainage crossing points upstream. Sub-basin crossing points were then grouped by the general location within larger drainage basins. Group distances, in river miles, were measured to the TNW (Colorado River) from the crossing point nearest to the RPW East Salt Creek in each group. In-channel flow distances (river miles) to RPW's and TNW's were measured from aerial photos (Tables 1 and 2; Figures 2 and 3). These measurements were used to evaluate each of the individual drainage's potential to affect the physical, chemical, and biological integrity of the down stream TNW.

Table 1. River mile distance from southern most point in grouped crossings to TNW Colorado River

Distance to TNW (river miles)	Sub-Drainage Measuring Point	Crossing Point Groups
5.700	W006	W002-W022 and V001-V016
11.271	V017	W023-W031 and V017-V023
11.932	V024	W-032-W033 and V024-V029
14.165	W035	W-034-W040 and V030-V036
14.916	W041	W-041-W074 and V037-V050
17.786	W075	W-075-W079 and V051-V052
20.014	W080	W-079-W086B and V053-V054
19.464	V057	W-100-W111B and V055-V060

Delineation Findings

WestWater located one RPW Perennial Stream (Mack Wash), one irrigation ditch (Government Highline Canal (GHC)), and examined approximately 180 washes within the project area. Drainage crossing points (W002-W086B and V001-V054) are located along the proposed railroad alignment, and crossing points (W100-W111B) are located within the proposed mine facility site and along the existing access road to the facility site. The locations of washes are shown on attached Figures 2 and 3. UTM coordinates of washes are listed in Table 2.

The RPW perennial stream is Mack Wash, which was measured near the old Hwy 50 Bridge. Information pertaining to Mack Wash and its abutting and adjacent wetlands will follow in the second JD and request for wetland delineation confirmation for this project. The majority of the washes examined in this report are north of GHC. All of these washes drain to the west and are part of the East Salt Creek Drainage area.

Soils in the East Salt Creek drainage area are mapped as the Persayo series which consist of shallow well-drained soils that occupy slopes from 3-25%. Vegetation primarily consists of saltbush, rabbitbrush, galletagrass, Indian ricegrass, and cheat grass. Annual precipitation for the east Salt Creek drainage ranges from 9.18 inches in the valley to 23 inches in the higher elevations of the Book Cliffs (NWCC 2007).

Points W011-W019 originate from an old irrigation ditch constructed on the upland terrace that runs along the west side of Mack Mesa. The ditch is no longer functional and has numerous failures along its length. Eroded gullies have developed below many of the failures in the ditch and were not considered to be jurisdictional tributaries (COE 2007a).

Points V001-V060 are believed to be non-jurisdictional due to lack of OHWM. These drainages also lacked evidence of flow and contained perennial and annual vegetation in the drainage bottoms, absence of evidence of flow such as shelving and detritus build up, and lack of connectivity to other WOUS.

Points W002-W111B are drainages that showed some evidence of an OHWM. The OHWMs within these washes were inconsistent and lack continuity in their flow path to RPW East Salt Creek. These drainages were further evaluated for their potential to significantly alter the physical, chemical, and biological properties of down stream TNW in a significant nexus evaluation. Photos representing typical washes and drainage basins within the project area are in Appendix A – they are labeled by crossing points in Table 2 and mapped in Figures 2 and 3.

Significant Nexus Evaluation

Physical

These dry washes are believed to be non-RPW's with no abutting or adjacent wetlands and are contained within the East Salt Creek drainage. The East Salt Creek drainage covers approximately 225 square miles of which approximately 151 square miles are part of the Book Cliffs geographic area to the north of the project area. The proposed project utilizes approximately 16 of the remaining 74 square miles of the lower East Salt Creek drainage. The Book Cliffs provide snow melt and spring runoff from elevations up to 8500 ft. The lower valley of East Salt drainage receives 9.18 inches of precipitation annually with most of the volume of flow in the washes associated with precipitation events between the months of April and October (NWCC 2007). Typically high flow volumes in neighboring drainages are associated with October precipitation events; however, the spring runoff month of May contributed the highest average flow volume in East Salt Creek over the gauging period of record. Spring flows are related to snow melt from the 14 miles the East Salt Creek drainage extends into the Book Cliffs. Peak flows at the gauging station in East Salt Creek averaged 30 cfs and are typically sustained for an average of 15 days during the months of peak runoff. Intermittent flows in East Salt Creek outside of the peak runoff months average less than 5 cfs. The USGS gauging station 9163310 in East Salt Wash (recording period 1973-1982), is located 4.5 straight miles and 7.92 river miles upstream from the confluence of the East and West Salt Wash (RPW) and measured run off for 197 square miles of drainage area (USGS 2007).

Discharges from storm events are localized into small drainages and are the result of fast moving microburst storms (NWCC 2007). Spatial storm variation can produce runoff in one wash and none in another; variation of precipitation can be as much as 0.4 inches between small drainages within 0.5 linear miles of each other, resulting in intermittent and inconsistent surface water connections between sub-basins and the nearest RPW (USGS 1956-1972). A 2-year

precipitation event is 1 inch in 24 hours. It is unlikely that a storm of this magnitude would extend over the entire East Salt Creek drainage area. Runoff generated from such an event is estimated at approximately 0.03 cfs per acre and drainage basins within the project impacted area could potentially produce 195 cfs.

The proposed dry wash crossings are located in the upper reaches of drainage basins. The dry wash crossing points range from approximately 0.5 miles to 20 plus miles (river miles) away from East Salt Wash (the nearest RPW) and an additional 5 to 10 miles from the nearest TNW, the Colorado River. Individual drainages average 38.55 acres, the smallest being 0.2 acres and the largest being 951 acres. Some of the smaller drainage basin areas are contained within boundaries of larger drainage basins. The total area of all individual drainages represent less than 0.04% of the total drainage area in the East Salt Creek drainage basin and less than 0.02% of the total area of the Salt Creek Watershed contributing to the nearest TNW, Colorado River. Drainage information is contained in Table 2.

Washes in drainage basins with areas of 35 acres or larger typically had channels with a predominantly gravel substrate with some sand and cobble. These channels were evaluated throughout their individual lengths to the point where the OHWM was no longer clear and distinct and surface water connectivity was no longer evident.

The largest drainage basin, 951 acres, within the project impact area contributes to crossing point W100. The wash disperses 1.5 miles below crossing point W100 forming an alluvial fan. Weak indicators of OHWM and perennial and annual vegetation growing in the channel bottoms were observed at the time of survey. Changes in the channel as it flows downstream are depicted in a sequence of pictures provided in Appendix B. The photos illustrate changes in the OHWM and lack of surface water connectivity. Similar trends are present in the large drainages to the south below grouped points W080, W075, W041, and W035.

Chemical

No water was present in washes during the time of survey. Potential railroad crossing points are typically located in upper reaches of the individual drainage basins and even in high intensity localized precipitation events are not considered capable of contributing significant sediment and nutrients or transporting pollutants to down stream RPWs. The Salt Creek watershed extends 30 aerial miles from the Colorado River to the Book Cliffs. Elevation at the base of the Book Cliffs is 5,486 ft; elevations in the Book Cliff portion of the watershed exceed 8,000 ft. The range of elevation in the project area is 4,400 to 5,200 ft. Spring runoff events are associated with precipitation and snow melt from the higher elevations. Snow accumulation below 5,500 ft. is minimal and seldom remains on the ground for more than a few days (NWCC 2007). Chemical transport functions of the drainages is most likely insignificant; however, during severe wide spread precipitation events the washes could connect with East Salt Creek (RPW) and transport sediment and potential pollutants downstream. Naturally occurring selenium in Mancos shale could be transported during these events.

Biological

No aquatic species are supported by the washes within the project area, however, incidental use by terrestrial species characteristic of the salt desert shrub community occurs. Species common to the project area include deer, elk, pronghorn antelope, mountain lion, bobcat, badger, cottontail rabbits, white-tailed prairie dogs, and a number of small rodents. Several U.S. Fish and Wildlife Service Birds of Conservation Concern (BOCC) were observed by WestWater Biologists during the project survey including: Northern Harrier, Burrowing Owl, and Golden Eagle. Red-tailed Hawks and Great-horned Owls were also observed (CDOW 2007 and FWS 2002). The long-nosed leopard lizard and Grand Buckwheat (*Eriogonum contortum*), reside in the project area and are considered sensitive species by the BLM and state special concern species by the Colorado Division of Wildlife (CNHP 1997, CDOW 2007 and FWS 2002).

Summary of Significant Nexus Findings

The dry washes would be impacted in the upper reaches of drainage basins in the East Salt Creek Drainage (ESCD). The ESCD drainage receives most of its flow volume from spring snow melt in the Book Cliffs and the impacted project area represents a small portion, less than 3%, of the total drainage area. There is no surface water connection to RPW's and the OHWM is discontinuous and inconsistent in drainage channels. Variations in precipitation intensity and spatial distribution further decrease the ability of the washes to transfer nutrients, sediment, or pollution to down stream RPW's. No aquatic species are supported by the washes within the project area, however, incidental use by terrestrial species characteristic of the salt desert shrub community occur.

Based on findings in the significant nexus evaluation, dry wash tributaries within the proposed project impact area were found to have no more than an insignificant and speculative impact on the physical, chemical, and biological integrity of the down stream TNW (Colorado River) or its RPW tributaries. There is no information available to show that these washes: 1) are or could be used by interstate or foreign travelers for recreational or other purposes, 2) produce fish or shellfish which are or could be taken and sold in interstate or foreign commerce, or 3) are or could be used for industrial purposes by industries in interstate commerce (COEa 2007).

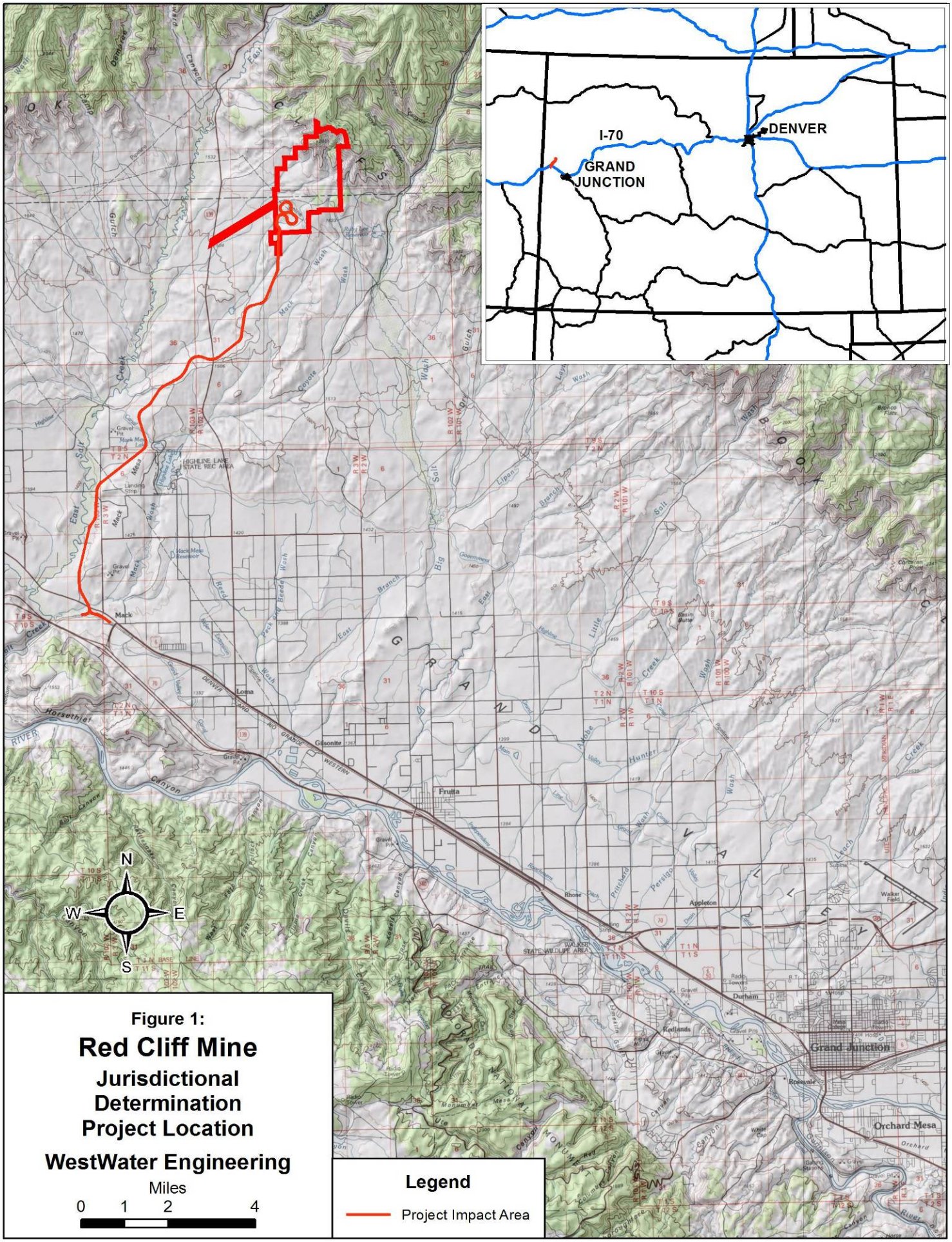
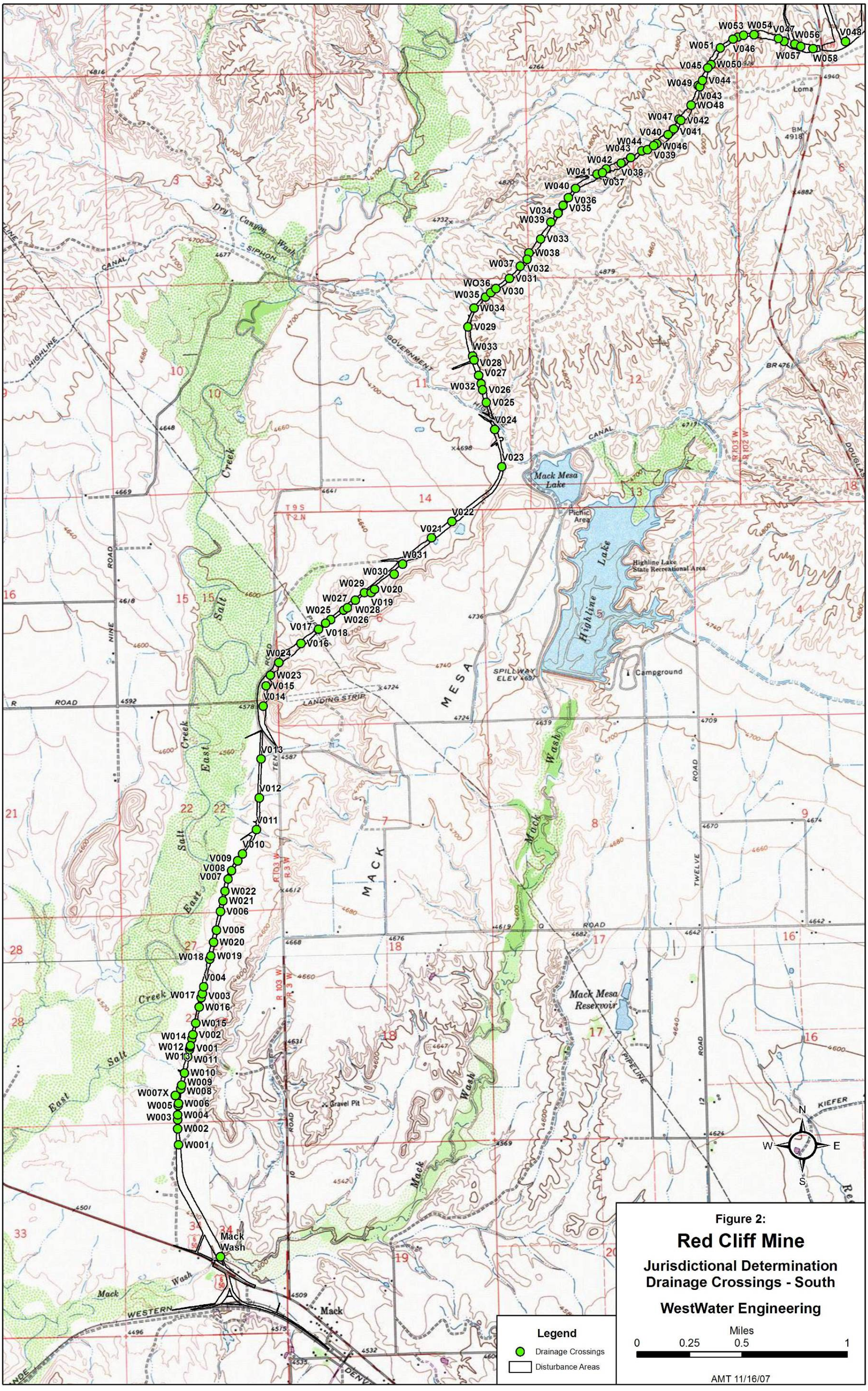


Figure 1:

Red Cliff Mine

Jurisdictional Determination Project Location

WestWater Engineering


W053 W054 V047 W056 V048
W051 V046 W057 W058
V045 W050
W049 V044
V043
WO48
W047 V042
V040 V041
W044 W046
W043 V039
W042
W041 V038
V037
W040
V036
V034 V035
W039
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W037 V032
V031
WO36 V030
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V029
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V028
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W032 V026
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V024
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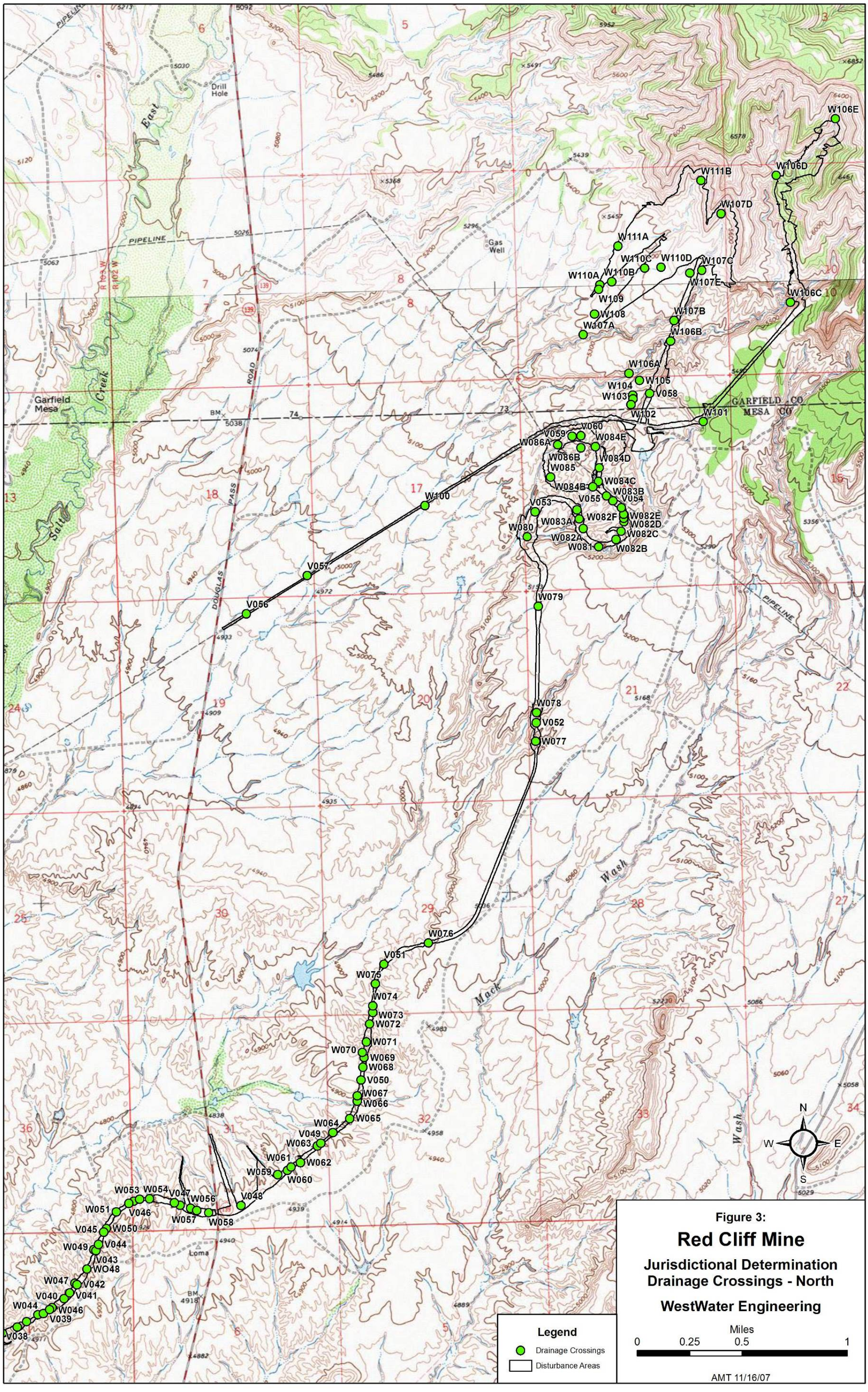
V021
W031
W030
W029 V020
W027 V019
W025 W028
W026
V017 V018
V016
W024
W023
V015
V014
V013
V012
V011
V010
V009
V008
V007
W022
W021
V006
V005
V020
W018 W019
V004
W017 V003
W016
W015
W014 V002
W012 V001
W013 W011
W010
W009
W007X W008
W005 W006
W003 W004
W002
W001
Dry Canyon Wash
SIPHON
CANAL
HIGHLINE
GOVERNMENT
Mack Mesa Lake
Picnic Area
Highline Lake
Highline Lake State Recreational Area
Campground
SPILLWAY ELEV 4697
MESA
LANDING STRIP
Mack Mesa Reservoir
Gravel Pit
PIPELINE
Mack Wash
Salt Creek
East
NINE ROAD
R ROAD
TEN ROAD
TWELVE ROAD
Q ROAD
KIEFER
WESTERN
DENVER
Loma
BM 4918
BR 476
Mack
N
W
E
S
Legend
Drainage Crossings
Disturbance Areas
Figure 2:
Red Cliff Mine
Jurisdictional Determination
Drainage Crossings - South
WestWater Engineering
Miles
0 0.25 0.5 1
AMT 11/16/07


W106E
W106D
W111B
W107D
W111A
W110C
W110D
W107C
W110A
W110B
W107E
W106C
W109
W108
W107A
W107B
W106B
W106A
W105
W104
W103
V058
W102
W101
GARFIELD CO
MESA CO
V060
V059
W084E
W086A
W086B
W084D
W085
W084B
W084C
W083B
V055
V054
V053
W082F
W082E
W083A
W082D
W080
W082C
W082A
W081
W082B
W100
V057
V056
W079
W078
V052
W077
W076
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W071
W070
W069
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V050
W067
W066
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W060
W053
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V047
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V048
W051
V046
W057
W058
V045
W050
W049
V044
V043
WO48
W047
V042
V040
V041
W044
W046
V039
V038
Drill Hole
East
Gas Well
PIPELINE
Garfield Mesa
Creek
ROAD
PASS
DOUGLAS
Salt
Wash
Mack
Loma
BM 5038
BM 4918
N
W
E
S
Legend
Drainage Crossings
Disturbance Areas
Figure 3:
Red Cliff Mine
Jurisdictional Determination
Drainage Crossings - North
WestWater Engineering
Miles
0
0.25
0.5
1
AMT 11/16/07

Table 2. Crossing Locations (UTM NAD 83, zone 12) Depth, Width, Distance from TNW, Drainage Area, and Group Measuring Point

Crossing point	Easting	Northing	Depth (Inches)	Width (Inches)	River miles to TNW from group measuring point	Drainage Area square (miles)	Drainage Area (Acres)	River Miles Measuring Point for Groups
W001	683112	4345238						Irrigation ditch
W002	683106	4345362	3.96	49.2	5.700	0.00251	1.61	W006
W003	683106	4345429	3	6	5.700	0.00036	0.23	W006
W004	683107	4345466	3	21.6	5.700	0.00415	2.66	W006
W005	683114	4345549	2.4	21.6	5.700	0.00866	5.54	W006
W006	683113	4345555	3.6	16.8	5.700	0.01451	9.28	W006
W008	683114	4345677	4.8	21.6	5.700	0.00405	2.60	W006
W009	683125	4345701	5.4	20.4	5.700	0.00669	4.28	W006
W010	683159	4345789	4.2	13.2	5.700	0.01561	9.99	W006
W011	683185	4345911	6	30	5.700	0.00141	0.90	W006
W012	683199	4345968	3.6	18	5.700	0.00379	2.43	W006
W013	683203	4345987	3	24	5.700	0.00669	4.28	W006
W014	683217	4346051	3.6	7.2	5.700	0.01406	9.00	W006
W015	683244	4346169	4.2	33.6	5.700	0.00666	4.26	W006
W016	683271	4346291	2.4	3.6	5.700	0.00401	2.57	W006
W017	683288	4346365	1.8	6	5.700	0.02193	14.04	W006
W018	683353	4346657	2	11	5.700	0.02011	12.87	W006
W019	683362	4346684	1	12	5.700	0.01554	9.94	W006
W020	683382	4346790	1.73	13	5.700	0.02696	17.25	W006
W021	683455	4347106	1.75	12	5.700	0.03210	20.55	W006
W022	683470	4347179	2	6	5.700	0.07060	45.18	W006
W023	683817	4348833	2.4	4.8	11.271	0.00493	3.15	V017
W024	683881	4348929	1	10	11.271	0.01061	6.79	V017
W025	684352	4349270	2	6	11.271	0.02971	19.01	V017
W026	684420	4349314	1	5	11.271	0.01490	9.54	V017
W027	684428	4349331	0.75	13	11.271	0.01343	8.59	V017
W028	684481	4349381	1.5	8	11.271	0.00226	1.44	V017
W029	684562	4349438	0.75	11	11.271	0.00130	0.83	V017
W030	684763	4349607	1.75	8	11.271	0.00529	3.39	V017
W031	684831	4349683	1.5	6	11.271	0.00481	3.08	V017
W032	685432	4351065	0.5	27.5	11.932	0.00133	0.85	V024
W033	685366	4351276	2	33	11.932	0.01438	9.20	V024
W34	685377	4351643	1.75	29	14.165	0.00297	1.90	W035
W35	685464	4351727	4	41	14.165	0.01844	11.80	W035
W36	685504	4351762	3	38	14.165	0.04390	28.10	W035
W37	685730	4351964	8.5	89	14.165	0.00859	5.50	W035
W38	685796	4352066	6	65	14.165	0.02109	13.50	W035
W39	685963	4352302	8.5	56	14.165	0.05173	33.10	W035
W40	686152	4352559	3.75	49	14.165	0.04230	27.07	W035
W41	686319	4352670	4	15	14.916	0.00074	0.47	W041
W42	686388	4352708	6.75	23.25	14.916	0.00387	2.47	W041
W43	686576	4352795	2.25	31.5	14.916	0.00342	2.19	W041
W44	686661	4352847	2	25.25	14.916	0.00528	3.38	W041
W45	686704	4352856	1.75	15	14.916	0.00098	0.63	W041
W46	686773	4352902	5.25	33	14.916	0.01151	7.36	W041
W47	686945	4353090	1.5	17.5	14.916	0.00582	3.72	W041

Table 2. Crossing Locations (UTM NAD 83, zone 12) Depth, Width, Distance from TNW, Drainage Area, and Group Measuring Point

Crossing point	Easting	Northing	Depth (Inches)	Width (Inches)	River miles to TNW from group measuring point	Drainage Area square (miles)	Drainage Area (Acres)	River Miles Measuring Point for Groups
W48	687038	4353198	1.75	22.5	14.916	0.00507	3.25	W041
W49	687092	4353347	3.75	31.5	14.916	0.00956	6.12	W041
W50	687189	4353509	3.25	18.5	14.916	0.01337	8.56	W041
W51	687262	4353635	3.75	29	14.916	0.00209	1.34	W041
W52	687396	4353717	6	31	14.916	0.00776	4.96	W041
W53	687441	4353732	3.75	42	14.916	0.00251	1.60	W041
W54	687519	4353738	4.5	88.5	14.916	0.02920	18.69	W041
W55	687752	4353686	5.5	47	14.916	0.02215	14.17	W041
W56	687833	4353665	4.25	31.5	14.916	0.00960	6.14	W041
W57	687879	4353647	2	20	14.916	0.00192	1.23	W041
W58	687972	4353629	3.5	33.75	14.916	0.00808	5.17	W041
W59	688500	4353923	5	21.5	14.916	0.00341	2.18	W041
W60	688576	4353954	5.5	24	14.916	0.00579	3.71	W041
W61	688603	4353980	8.5	28.25	14.916	0.00187	1.20	W041
W62	688675	4354014	3	22	14.916	0.01845	11.81	W041
W63	688803	4354143	5.75	21.5	14.916	0.01870	11.97	W041
W64	688922	4354244	11.75	45.25	14.916	0.04339	27.77	W041
W65	689052	4354352	7.5	30.75	14.916	0.00886	5.67	W041
W66	689110	4354485	8.75	89.75	14.916	0.11719	75.00	W041
W67	689110	4354526	6.25	60.5	14.916	0.01524	9.76	W041
W68	689153	4354746	2.5	25	14.916	0.00466	2.98	W041
W69	689162	4354817	3.25	10.5	14.916	0.00089	0.57	W041
W70	689150	4354858	6.5	33	14.916	0.00487	3.12	W041
W71	689181	4354940	5.5	18.75	14.916	0.00067	0.43	W041
W72	689204	4355076	9	37.75	14.916	0.00673	4.31	W041
W73	689228	4355163	2	13.5	14.916	0.00034	0.22	W041
W74	689228	4355215	10.25	51	14.916	0.02936	18.79	W041
W75	689248	4355383	8.25	38.75	17.786	0.02384	15.26	W075
W76	689656	4355696	4.5	24.75	17.786	0.00538	3.44	W075
W77	690478	4357242	4.75	37.5	17.786	0.03173	20.31	W075
W78	690483	4357462	3.75	26.75	17.786	0.30972	198.22	W075
W79	690497	4358276	3.5	16	19.742	0.04258	27.25	W079
W80	690414	4358810	9.75	67.5	19.742	0.54003	345.62	W079
W81	690962	4358733	6.25	13	19.742	0.31955	204.51	W079
W82A	690842	4358874	12.75	31.5	19.742	0.03806	24.36	W079
W82B	691093	4358790	6.25	13	19.742	0.00295	1.89	W079
W82C	691132	4358851	3.75	15.75	19.742	0.00057	0.36	W079
W82D	691156	4358925	3.25	10.5	19.742	0.00188	1.20	W079
W82E	691153	4358951	8.25	18.75	19.742	0.01056	6.76	W079
W82F	691152	4358980	5.5	9.25	19.742	0.00216	1.39	W079
W83A	690811	4358945	8.5	31.75	19.742	0.03112	19.92	W079
W83B	691070	4359084	7.5	18	19.742	0.01817	11.63	W079
W84A	690793	4359015	12.5	57.75	19.742	0.08697	55.66	W079
W84B	690914	4359193	9	43.5	19.742	0.06221	39.81	W079
W84C	690960	4359235	6	30.5	19.742	0.01463	9.36	W079
W84D	690966	4359337	6	19.75	19.742	0.01484	9.50	W079

Table 2. Crossing Locations (UTM NAD 83, zone 12) Depth, Width, Distance from TNW, Drainage Area, and Group Measuring Point

Crossing point	Easting	Northing	Depth (Inches)	Width (Inches)	River miles to TNW from group measuring point	Drainage Area square (miles)	Drainage Area (Acres)	River Miles Measuring Point for Groups
W84E	690935	4359500	9.5	15.75	19.742	0.01609	10.30	W079
W85	690591	4359267	9	33.75	19.742	0.00947	6.06	W079
W86A	690647	4359513	19	20.25	19.742	0.01408	9.01	W079
W86B	690825	4359491	4.25	9.25	19.742	0.00096	0.61	W079
W100	689630	4359049	10.25	140	19.464	1.48543	950.67	V057
W101	691763	4359691	7.25	48	19.464	0.10269	65.72	V057
W102	691208	4359822	3.25	11.25	19.464	0.00234	1.50	V057
W103	691224	4359866	3.75	19	19.464	0.00105	0.67	V057
W104	691220	4359895	6.75	28	19.464	0.00802	5.13	V057
W105	691274	4360006	3.5	25.5	19.464	0.00546	3.50	V057
W106A	691192	4360061	7	98	19.464	0.89775	574.56	V057
W106B	691512	4360309		50	19.464	0.86013	550.48	V057
W106C	692430	4360606	7.25	75	19.464	0.21314	136.41	V057
W106D	692321	4361578	4.75	45	19.464	0.33817	216.43	V057
W106E	692776	4362012	5.5	62.5	19.464	0.03925	25.12	V057
W107A	690842	4360358	11.5	92.5	19.464	0.22236	142.31	V057
W107B	691538	4360466	12.5	50.25	19.464	0.16061	102.79	V057
W107C	691752	4360852	6.25	29.75	19.464	0.06675	42.72	V057
W107D	691899	4361286	13.5	38.25	19.464	0.01513	9.69	V057
W107E	691658	4360831	4	25.75	19.464	0.01952	12.49	V057
W108	690962	4360704	5	15.25	19.464	0.01907	12.21	V057
W109	690929	4360515	5	14.25	19.464	0.02068	13.23	V057
W110A	690970	4360740	4.75	23.25	19.464	0.02505	16.03	V057
W110B	691061	4360765	4.75	15.25	19.464	0.02086	13.35	V057
W110C	691313	4360867	5	25.25	19.464	0.00769	4.92	V057
W110D	691439	4360875	4.25	17	19.464	0.00311	1.99	V057
W111A	691109	4361037	14.75	57.75	19.464	0.15544	99.48	V057
W111B	691744	4361539	12.5	105.8	19.464	0.01432	9.16	V057
V001	683205	4345997			5.700			W006
V002	683224	4346081			5.700			W006
V003	683295	4346397			5.700			W006
V004	683307	4346447			5.700			W006
V005	683404	4346881			5.700			W006
V006	683435	4347025			5.700			W006
V007	683493	4347272			5.700			W006
V008	683521	4347339			5.700			W006
V009	683567	4347412			5.700			W006
V010	683604	4347466			5.700			W006
V011	683709	4347651			5.700			W006
V012	683731	4347894			5.700			W006
V013	683744	4348191			5.700			W006
V014	683762	4348597			5.700			W006
V015	683785	4348750			5.700			W006
V016	684050	4349076			5.700			W006
V017	684240	4349230			11.271	0.02776	17.77	V017
V018	684240	4349231			11.271			V017

Table 2. Crossing Locations (UTM NAD 83, zone 12) Depth, Width, Distance from TNW, Drainage Area, and Group Measuring Point

Crossing point	Easting	Northing	Depth (Inches)	Width (Inches)	River miles to TNW from group measuring point	Drainage Area square (miles)	Drainage Area (Acres)	River Miles Measuring Point for Groups
V019	684587	4349463			11.271			V017
V020	684615	4349491			11.271			V017
V021	685051	4349884			11.271			V017
V022	685206	4350009			11.271			V017
V023	685590	4350428			11.271			V017
V024	685471	4350921			11.932	0.00069	0.44	V024
V025	685442	4351017			11.932	0.00449	2.87	V024
V026	685443	4351017			11.932			V024
V027	685411	4351128			11.932			V024
V028	685375	4351246			11.932			V024
V029	685330	4351501			11.932			V024
V030	685543	4351793			14.165			W035
V031	685646	4351870			14.165			W035
V032	685784	4352018			14.165			W035
V033	685886	4352173			14.165			W035
V034	686018	4352369			14.165			W035
V035	686059	4352429			14.165			W035
V036	686099	4352489			14.165			W035
V037	686360	4352679			14.916			W041
V038	686503	4352754			14.916			W041
V039	686753	4352888			14.916			W041
V040	686861	4352971			14.916			W041
V041	686905	4353015			14.916			W041
V042	686961	4353080			14.916			W041
V043	687106	4353339			14.916			W041
V044	687127	4353387			14.916			W041
V045	687166	4353481			14.916			W041
V046	687360	4353701			14.916			W041
V047	687708	4353707			14.916			W041
V048	688219	4353685			14.916			W041
V049	688831	4354163			14.916			W041
V050	689138	4354646			14.916			W041
V051	689314	4355534			17.786			W075
V052	690481	4357386			17.786			W075
V053	690472	4359000			19.742			W079
V054	691134	4359032			19.742			W079
V055	691022	4359122			19.464			V057
V056	688260	4358220			19.464			V057
V057	691350	4359906			19.464	0.01811	11.59	V057
V058	691351	4359907			19.464			V057
V059	690756	4359581			19.464			V057
V060	690825	4359584			19.464			V057

Crossing points V001-V060 did not have indicators of an OHWM, so width, depth, and areas were not measured, except for points (V017,024,025,and 057) that were utilized to estimate group distances to the Colorado River.

PROJECT INFORMATION

Project Proponent:	CAM Colorado, LLC 116 Main Street Pikeville, KY 41501
Proponent Contact:	Mr. Nicholas R. Glancy CAM Colorado PO Box 1169 Pikeville, KY 41502 (859) 389-6500
Land Owners:	CAM Colorado, LLC 116 Main St. Pikeville, KY 41501 United States Bureau of Land Management Grand Junction Field Office 2815 H Road Grand Junction, CO 81506 Hudson Ranch Estates of Great Western Colorado LLC P.O. Box 123 Mack, CO 81525 Vernon Langford 1725 10 Road Mack, CO 81525 Joseph Bennett P.O. Box 59 Mack, CO 81525 Michael J Ballew 1852 10 Road Mack, CO 81525 Doug Johnson 1833 11 Road Loma, CO 81524 State of Colorado Dept. of Natural Resources 1313 Sherman Street Denver, CO 80203 Joanne M Leishuck 1910 10 Road. Mack, CO 81525 #11 Enterprises 1218 Webster Street Houston, TX 77002
EIS Consultant:	URS Corporation 8181 East Tufts Avenue Ph: (303)-740-3816 Denver, CO 80237
Wetland Consultant:	WestWater Engineering 2516 Foresight Circle #1 Ph: (970) 241-7076 Grand Junction, CO 81505 Fax: (970) 241-7097 URS Corporation 8181 East Tufts Avenue Ph: (303)-740-3816 Denver, CO 80237
Project Location:	Mine Facility and Access Roads: Sections 3, 4, 9, 10, 15, 16, 17, 18, 19, T8S, R102W, 6th PM Rail Spur: Sec. 16, 21, 20, 29, 31, 32 T8S, R102W, 6th PM; Sec. 36, T8S, R103W, 6th PM; Sec. 1, 2, 11, 14, T9S, R103W, 6th PM; Sec. 6, 19, T2N, R3W, Ute PM; & Sec. 15, 22, 27, 34, T2N, R103W, 6th PM
Project Description:	Red Cliff Coal Mine and associated facilities supporting the proposed coal mine project.

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APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD):

B. DISTRICT OFFICE, FILE NAME, AND NUMBER:

C. PROJECT LOCATION AND BACKGROUND INFORMATION: CAM Colorado proposes to develop a coal mine facility on approximately 1,886 acres of Bureau of Land Management land at the Red Cliff Mine site in the southwest corner of Garfield County. Development of the mine will also require the construction of approximately 15 miles of rail line on public and private lands in Mesa County to transport coal from the mine facility to the Union Pacific Railroad south of Mack, Colorado. Based on maps of the proposed railroad right of way and the proposed mine facility provided by CAM Colorado, WestWater Biologists surveyed the approximately 2,450 acre project site and surrounding areas to identify and delineate potential wetlands and waters of the U.S.(WOUS) within and adjacent to proposed construction boundaries. At the request of the COE the project was divided into two parts:

1. Request for a Jurisdictional Determination identifying potential non-wetland WOUS.
2. Request for confirmation of Wetland Delineation and Jurisdictional Determination.

This is part 1, Jurisdictional Determination of non-wetland Waters of the US.

State: CO County/parish/borough: Mesa City: Mack
Center coordinates of site (lat/long in degree decimal format): Lat. 39.3183° N,Long. -108.8072° E.
Universal Transverse Mercator:
Name of nearest waterbody: Salt Creek, RPW
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Colorado River
Name of watershed or Hydrologic Unit Code (HUC): 14010005

- ☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
- ☒ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

- ☐ Office (Desk) Determination. Date:
- ☐ Field Determination. Date(s):

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There Are no *"navigable waters of the U.S."* within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]

- ☐ Waters subject to the ebb and flow of the tide.
- ☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.
  Explain: .

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There Are no "*waters of the U.S.*" within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [*Required*]

1. **Waters of the U.S.**
   a. **Indicate presence of waters of U.S. in review area (check all that apply):** [1]
      - ☐ TNWs, including territorial seas
      - ☐ Wetlands adjacent to TNWs
      - ☐ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
      - ☐ Non-RPWs that flow directly or indirectly into TNWs
      - ☐ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
      - ☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
      - ☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
      - ☐ Impoundments of jurisdictional waters
      - ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

   b. **Identify (estimate) size of waters of the U.S. in the review area:**

[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).

Non-wetland waters: linear feet: width (ft) and/or acres.
Wetlands: acres.

c. Limits (boundaries) of jurisdiction based on: Not established at this time.
Elevation of established OHWM (if known): .

2. Non-regulated waters/wetlands (check if applicable):[3]

☒ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional.
Explain:

Mack Wash crossing is an RPW crossing that will be evaluated in the (Part 2) request for confirmation of Wetland Delineation and Jurisdictional Determination.

Crossing Points W011-W019 originate from an irrigation ditch constructed on the upland terrace that runs along the west side of Mack Mesa. The ditch is no longer functional and has numerous failures along its length. Eroded gullies have developed below many of the failures in the ditch and were not considered to be jurisdictional tributaries. The irrigation ditch was constructed in upland and is not considered to be jurisdictional.

Crossing Points V001-060 are points that were considered to be non-jurisdictional due to lack of OHWM. These drainages also lacked evidence of flow and contained perennial and annual vegetation in the drainage bottoms, absence of evidence of flow such as shelving and detritus build up, and lack of connectivity to other waters of the U.S.

Crossing Points W002-W111B are drainages that showed some evidence of an OHWM. These drainages were further evaluated for their potential to significantly alter the chemical, biological, or physical properties of down stream TNWs. Information on these washes is provided in Section III, B-1. The washes within the proposed project impact area have an insignificant and speculative impact on the physical, chemical, and biological integrity of the down stream TNW (Colorado River) or its tributaries. There is no information available to show that these washes: 1) is or could be used by interstate or foreign travelers for recreational or other purposes, 2) produces fish or shellfish which are or could be taken and sold in interstate or foreign commerce, or 3) is or could be used for industrial purposes by industries in the interstate commerce.

[3] Supporting documentation is presented in Section III.F.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. TNW
Identify TNW: .

Summarize rationale supporting determination: .

2. Wetland adjacent to TNW
Summarize rationale supporting conclusion that wetland is "adjacent": .

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i) General Area Conditions:
Watershed size: 436 **square miles** **Salt Creek**
Drainage area: 225 **square miles** **East Salt Creek**
Average annual rainfall: 7.34 inches
Average annual snowfall: 9.8inches 9.18 total annual precipitation

(ii) Physical Characteristics:
(a) Relationship with TNW:
☐ Tributary flows directly into TNW.
☒ Tributary flows through 4 (or more) tributaries before entering TNW.

Project waters are 10-15 river miles from TNW.
Project waters are 1-2 river miles from RPW.
Project waters are 2-5 aerial (straight) miles from TNW.
Project waters are 1 (or less) aerial (straight) miles from RPW.
Project waters cross or serve as state boundaries. Explain: N/A.

Identify flow route to TNW[5]: Typically multiple dry washes combine before formation of a non-RPW tributary occurs. All Non-RPW tributaries within the project area eventually join East Salt Creek (RPW). East Salt Creek and West Salt Creek (RPW) converge and flow into Mack Wash (RPW). Mack Wash then combines with Salt Creek (RPW) and flows into the Colorado River. Depending on their individual location within the East Salt Creek drainage basin non-RPW tributaries can be directly adjacent to RPW East Salt Creek or combine with as many as 16 non-RPW tributaries before reaching RPW East Salt Creek. Individual crossing distances from the Colorado River TNW varied from 5.7 river miles to more than 25 miles.
Tributary stream order, if known: .

[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.
[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

(b) General Tributary Characteristics (check all that apply):

Tributary is: ☒ Natural
☐ Artificial (man-made). Explain: .
☒ Manipulated (man-altered). Explain: Project area contains pipelines, gas wells, powerlines, man made ponds, and roads. This area has been used for grazing cattle as well as an off-road recreation area.

Tributary properties with respect to top of bank (estimate):
Average width: 2.11 feet
Average depth: 0.372 feet
Average side slopes: 2:1.

Primary tributary substrate composition (check all that apply):

☒ Silts	☒ Sands	☐ Concrete
☒ Cobbles	☒ Gravel	☐ Muck
☐ Bedrock	☒ Vegetation. Type/% cover: variable 0 to 10%	

☒ Other. Explain: Substrate is largely dependent on the tributaries location within the sub-basins. Drainage heads are sandy and covered with perennial and annual vegetation. Basin confluences typically have more gravels and some cobbles with perennial vegetation bordering a narrow flow path that will ocasionally have some annuals growing in it. Basin flats are generally areas of heavy silt deposition dominated by woody perennials and scattered annuals.

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: Banks are typically compact and erode only in extreme events; however, some washes exhibit deep entrenchment and show signs of sloughing banks in meanders.

Presence of run/riffle/pool complexes. Explain: Tributaries tend to disperse and fan out in flat basins where water flows braid out, divide, and form new discrete channels. Confined channels above and below flat basins show signs of periodic pooling with silt accumulations.

Tributary geometry: Meandering

Tributary gradient (approximate average slope): less than 1% in basin flats and 1.5 to 30% in drainage basins.

(c) Flow:

Tributary provides for: Seasonal flow

Estimate average number of flow events in review area/year: 20 (or greater)

Describe flow regime: Flows are associated with precipitation events between the months April and October. Typically high flow volumes are associated with October precipitation events; however, the spring runoff month of May contributed the highest average flow volume in East Salt Wash over the gauging period of record. The East Salt Drainage is approximately 225 square miles of which approximately 151 square miles are part of the Book Cliffs that provides spring runoff from elevations up to 8500 ft.

Other information on duration and volume: Discharges from storm events are localized into small drainages and are the result of fast moving microburst storms. Spatial storm variation can produce runoff in one wash and none in another. Measured variability of precipitation can be as much as 0.4 inches between small catchments within 0.5 linear miles of each other, resulting in a high variability of discharge rates within a small area. This also results in a low level of continuous surface water connectivity between basins and the nearest RPW. Average annual precipitation is 9.18 inches in areas south of the Book Cliffs and the percentage of precipitation to runoff ratios average 66% in neighboring washes.

Surface flow is: Discrete and confined. Characteristics: Combination of discrete, confined, and sheet flow.

Subsurface flow: No. Explain findings: Depth of impermeable Mancos shale (clay) to Dakota formation (sandstone) can be in excess of 1000 ft, which is typically where water table is found.

☐ Dye (or other) test performed: .

Tributary has (check all that apply):

☒ Bed and banks

☒ OHWM[6] (check all indicators that apply):

☐ clear, natural line impressed on the bank	☒ the presence of litter and debris
☒ changes in the character of soil	☐ destruction of terrestrial vegetation
☒ shelving	☒ the presence of wrack line
☒ vegetation matted down, bent, or absent	☒ sediment sorting
☒ leaf litter disturbed or washed away	☐ scour
☒ sediment deposition	☐ multiple observed or predicted flow events
☒ water staining	☐ abrupt change in plant community

☐ other (list):

☒ Discontinuous OHWM.[7] Explain: Distinct OHWM indicators are lost as channel flows are dispersed over basin flats. The OHWM in down gradient channels are inconsistent.

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

[6]A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7]Ibid.

☐ High Tide Line indicated by:
- ☐ oil or scum line along shore objects
- ☐ fine shell or debris deposits (foreshore)
- ☐ physical markings/characteristics
- ☐ tidal gauges
- ☐ other (list):

☒ Mean High Water Mark indicated by:
- ☐ survey to available datum;
- ☒ physical markings;
- ☒ vegetation lines/changes in vegetation types.

(iii) Chemical Characteristics: Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.). Explain: No Water was present in washes during time of survey. The Salt Creek watershed extends 30 aerial miles from the Colorado River in to the Book Cliffs. Topography is relatively flat 14 aerial miles to the base of the Book Cliffs. From the base of the Book Cliffs at 5486 ft., elevations in the watershed exceed 8000 ft. Spring runoff events are associated with snow melt from the higher elevations and snow accumulation below 5500 ft. is minimal and seldom remains as ground cover for more than a few days. The range in elevation of the project area is 4400 to 5200 ft. Chemical function is most likely insignificant, however, during severe wide spread precipitation events the washes could conect with East Salt Creek (RPW) and transport sediment and pollutants downstream. The naturally occuring selenium in mancos shale could be transported during these events.

.

Identify specific pollutants, if known:

(iv) Biological Characteristics. Channel supports (check all that apply):

☐ Riparian corridor. Characteristics (type, average width): .
☐ Wetland fringe. Characteristics: .
☐ Habitat for:
☐ Federally Listed species. Explain findings: .
☐ Fish/spawn areas. Explain findings: .
☒ Other environmentally-sensitive species. Explain findings: Several US Fish and Wildlife Service Birds of Conservation Concern (BOCC) were observed the survey area including: Northern Harrier, Burrowing Owl, and Golden Eagle. The long-nosed leopard lizard, a BLM sensitive species, and Grand Buckwheat (Eriogoneum contortum) a BLM sensitive plant species also reside in the project area.

Aquatic/wildlife diversity. Explain findings: No aquatic species, however, incidental use by terrestrial species that are characteristic of the salt desert shrub community.

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:

(a) General Wetland Characteristics:
Properties:
Wetland size: acres
Wetland type. Explain: .
Wetland quality. Explain: .
Project wetlands cross or serve as state boundaries. Explain: .

(b) General Flow Relationship with Non-TNW:
Flow is: **Pick List**. Explain: .

Surface flow is**: Pick List**
Characteristics:

Subsurface flow: **No**. Explain findings: .
☐ Dye (or other) test performed: .

(c) Wetland Adjacency Determination with Non-TNW:
☐ Directly abutting
☐ Not directly abutting
☐ Discrete wetland hydrologic connection. Explain: .
☐ Ecological connection. Explain: .
☐ Separated by berm/barrier. Explain: .

(d) Proximity (Relationship) to TNW
Project wetlands are **Pick List** river miles from TNW.
Project waters are **Pick List** aerial (straight) miles from TNW.
Flow is from: **Pick List.**
Estimate approximate location of wetland as within the **Pick List** floodplain.

(ii) Chemical Characteristics:

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: .
Identify specific pollutants, if known: .

(iii) Biological Characteristics. Wetland supports (check all that apply):

☐ Riparian buffer. Characteristics (type, average width): .
☐ Vegetation type/percent cover. Explain: .
☐ Habitat for:
☐ Federally Listed species. Explain findings: .
☐ Fish/spawn areas. Explain findings: .
☐ Other environmentally-sensitive species. Explain findings: .
☐ Aquatic/wildlife diversity. Explain findings: .

3. Characteristics of all wetlands adjacent to the tributary (if any)

All wetland(s) being considered in the cumulative analysis: **Pick List**
Approximately ( ) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)

Summarize overall biological, chemical and physical functions being performed: .

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs. **Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D:**

The dry washes would be impacted in the upper reaches of drainage basins in the East Salt Creek Drainage (ESCD). The ESCD drainage receives most of its flow volume from spring snow melt in the Book Cliffs and the impacted project area represents a small portion, less than 3%, of the total drainage area. There is no surface water connection to RPW's and the OHWM is discontinuous and inconsistent in drainage channels. Variations in precipitation intensity and spatial distribution further decrease the ability of the washes to transfer nutrients, sediment, or pollution to down stream RPW's. No aquatic species are supported by the washes within the project area, however, incidental use by terrestrial species characteristic of the salt desert shrub community occurs.

Based on the information provided in Section III, B-1 above, tributaries within the proposed project impact area were found to have an insignificant and speculative impact on the physical, chemical, and biological of the down stream TNW (Colorado River) or its RPW tributaries. There is no information available to show that these washes: 1) is or could be used by interstate or foreign travelers for recreational or other purposes, 2) produces fish or shellfish which are or could be taken and sold in interstate or foreign commerce, or 3) is or could be used for industrial purposes by industries in the interstate commerce

2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
   - ☐ TNWs: linear feet width (ft), Or, acres.
   - ☐ Wetlands adjacent to TNWs: acres.

2. **RPWs that flow directly or indirectly into TNWs.**
   - ☐ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial: .
   - ☐ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: .

Provide estimates for jurisdictional waters in the review area (check all that apply):
- ☐ Tributary waters: linear feet width (ft).
- ☐ Other non-wetland waters: acres.
  Identify type(s) of waters: .

3. Non-RPWs[8] that flow directly or indirectly into TNWs.

☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional waters within the review area (check all that apply):
- ☐ Tributary waters: linear feet width (ft).
- ☐ Other non-wetland waters: acres.
  Identify type(s) of waters: .

4. Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.

☐ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.

☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

☐ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

5. Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.

☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.

☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional wetlands in the review area: acres.

7. Impoundments of jurisdictional waters.[9]

As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.
- ☐ Demonstrate that impoundment was created from "waters of the U.S.," or
- ☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
- ☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]
- ☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
- ☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
- ☐ which are or could be used for industrial purposes by industries in interstate commerce.
- ☐ Interstate isolated waters. Explain: .
- ☐ Other factors. Explain: .

Identify water body and summarize rationale supporting determination: .

[8] See Footnote # 3.
[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.
[10] Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.*

Provide estimates for jurisdictional waters in the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .
☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):
☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
☐ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
☒ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: Tributaries within the proposed project impact area have been determined to have no more than an insignificant and speculative impact on the physical, chemical, and biological of the down stream TNW (Colorado River) or its RPW tributaries.
☐ Other: (explain, if not covered above): .

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):
☒ Non-wetland waters (i.e., rivers, streams): Crossings impact an average of 200 linear feet of dry wash, Dry wash average width 2.11 (ft). Based on the average wash dimensions, for 180 dry washes, approximately 2 acres of dry washes will be impacted.
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):
☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: WestWater Engineering.
☐ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
☐ Office concurs with data sheets/delineation report.
☐ Office does not concur with data sheets/delineation report.
☐ Data sheets prepared by the Corps: .
☐ Corps navigable waters' study: .
☐ U.S. Geological Survey Hydrologic Atlas: www-atlas.usgs.gov.
☒ USGS NHD data.
☒ USGS 8 and 12 digit HUC maps.
☒ U.S. Geological Survey map(s). Cite scale & quad name: USGS 1:24,000 Mack, CO., Ruby Canyon, CO., Badger Wash, CO., Highline Lake, CO., Howard Canyon, CO.
☒ USDA Natural Resources Conservation Service Soil Survey.
Citation: http://websoilsurvey.nrcs.usda.gov/app/
☒ National wetlands inventory map(s). Cite name: www.fws.gov/nwi/
☐ State/Local wetland inventory map(s): .
☐ FEMA/FIRM maps: .
☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
☒ Photographs: ☒ Aerial (Name & Date): USDA NAIP 2005.
or ☒ Other (Name & Date): WestWater Engineering,
☐ Previous determination(s). File no. and date of response letter: .
☒ Applicable/supporting case law: Rapanos.
☒ Applicable/supporting scientific literature: USGS Badger Wash Study (1957-1972).
☐ Other information (please specify): RGL 07-02

B. ADDITIONAL COMMENTS TO SUPPORT JD:

Appendix A

Photos of Typical Washes and Drainage Basins (see Figures 2 and 3)

Photo 1. Crossing Point W061

Photo 2. Crossing Point W061

Photo 3. Crossing Point W061

Photo 4. Crossing Point W043

Photo 5. Crossing Point W044

Photo 6. Crossing Point W044

Photo 7. Crossing Point W053

Photo 8. Crossing Point W057

Photo 9. Crossing Point W053

Photo 10. Crossing Point W057

Photo 11. Crossing Point W045

Photo 12. Crossing Point W082F

Photo 13. Crossing Point W084A

Photo 14. Crossing Point W086A

Photo 15. Crossing Point W084E

Photo 16. Crossing Point W106C

Photo 17. Crossing Point W101

Photo 18. Crossing Point W107

Photo 19. Crossing Point W040

Photo 20. Crossing Point W035

Appendix B

Photos of Changes in Channel
(see Figures 2 and 3)

Photo 1. Looking downstream at point W100

Photo 2. Looking upstream one mile below W100

Photo 3. Looking at alluvial fan at the end of drainage

Photo 4. Looking downstream of alluvial fan west of Hwy 139

Jurisdictional Determination
February 25, 2008

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO
CORPS OF ENGINEERS
COLORADO WEST REGULATORY BRANCH
400 ROOD AVENUE, ROOM 142
GRAND JUNCTION, COLORADO 81501-2563

REPLY TO
ATTENTION OF

February 25, 2008

Regulatory Branch (200675329)

Mr. Nicholas R. Glancy
CAM Colorado
Post Office Box 1169
Pikeville, Kentucky 41502

Dear Mr. Glancy:

We are responding to your consultant's request for an approved jurisdictional determination for the CAM Colorado LLC, Coal Mine and Rail Spur Project. The coal mine site is located within Section 9, Township 8 South, Range 102 West, near East Salt Creek, Garfield County, Colorado. The associated rail spur traverses numerous sections, townships and ranges (approximately 17 miles) south of the coal mine site into Mesa County, Colorado.

Based on available information, we have determined the identified nine (9) erosional features from abandoned ditches, the sixty (60) upland swale areas and the ninety (90) flow features with discontinuous, ordinary high water marks as non-jurisdictional upland areas. Therefore, we concur with the information submitted on December 5, 2007, represented and depicted on the November 16, 2007 (AMT), Figures 2 and 3, identified as the South and North drainage crossings for the coal mine rail spur. These features are not regulated under Section 404 of the Clean Water Act, since they are upland areas.

This verification is valid for five years from the date of this letter, unless new information warrants revision of the determination before the expiration date. This letter contains an approved jurisdictional determination for your subject site. If you object to this determination, you may request an administrative appeal under Corps regulations at 33 CFR Part 331.

A Notification of Appeal Process (NAP) fact sheet and Request for Appeal (RFA) form is enclosed. If you request to appeal this determination you must submit a completed RFA form to the South Pacific Division Office at the following address: Administrative Appeal Review Officer, Army Corps of Engineers, South Pacific Division, CESPD-PDS-O, 1455 Market Street, San Francisco, California 94103-1399, Telephone: 415-503-6574, FAX: 415-503-6646.

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR Part 331.5, and that it has been received by the Division Office within 60 days of the NAP. Should you decide to submit an RFA form, it must be received at the above address by 60 days from the date of this letter. It is not necessary to submit an RFA form to the Division Office if you do not object to the determination in this letter.

You should provide a copy of this letter and notice to all other affected parties, including any individual who has an identifiable and substantial legal interest in the property.

This determination has been conducted to identify the limits of Corps of Engineers' Clean Water Act jurisdiction for the particular site identified in this request. This determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985. If you or your tenant are USDA program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service, prior to starting work.

We appreciate your feedback. At your earliest convenience, please complete our customer survey at http://www.spk.usace.army.*mil/customer_survey.html*. Your passcode is "conigliaro".

Please refer to identification number 200675329 in any correspondence concerning this project. If you have any questions, please contact Mr. Mark Gilfillan at the letterhead address, email *mark.a.gilfillan@usace.army.mil*, or telephone (970) 243-1199, extension 15. You may also use our website: *www.spk.usace.army.mil/regulatory.html*.

Sincerely,

Ken Jacobson
Chief, Colorado West
Regulatory Branch

Enclosure

Copies furnished without enclosure:

Mr. Bill Killam, URS Corporation, 8181 East Tufts Avenue, Denver, Colorado 80237
Mr. Michael W. Klish, WestWater Engineering, 2516 Foresight Circle, #1, Grand Junction, Colorado 81505
Mr. Glen Wallace, BLM Colorado State Office, 2850 Youngfield, Lakewood, Colorado 80215