STATE OF COLORADO

Colorado Water Conservation Board
Department of Natural Resources
1313 Sherman Street, Room 721
Denver, Colorado 80203
Phone: (303) 866-3441
Fax: (303) 866-4474
www.cwcb.state.co.us

TO: Colorado Water Conservation Board Members

FROM: Linda J. Bassi, Chief
Kaylea White
Stream and Lake Protection Section

DATE: May 5, 2011

SUBJECT: **Agenda Item 19, May 17-18, 2011 Board Meeting**
Stream and Lake Protection Section – Injury with Mitigation – Case No. 4-09CW144; Application of Energy Fuels Resources Corporation

Introduction

This agenda item addresses a proposed pretrial resolution under ISF Rule 8i. (3) Injury Accepted with Mitigation, ("IWM"). Rule 8i.(3) requires the Board to consider an injury with mitigation proposal using a two-meeting process. This is the first meeting of the process. This proposal is to mitigate impacts of water supply wells and the operation of the Pinon Ridge Mill Project, a uranium/vanadium-processing mill proposed in the East Paradox Creek Basin. Depletions to the Dolores River instream flow ("ISF") water right cannot be replaced in time, place and amount because of the predicted 100-300 year lagged depletions to the River and a 40-year expected life of the project. Therefore, the Applicant is seeking to replace all out-of-priority diversions (not just depletions) caused by the project over a condensed 40-50 year period as part of this mitigation proposal.

The proposal would allow some injury to the Dolores River ISF water right downstream of its confluence with Paradox Creek along approximately 12 miles of the reach year-round after the project is closed. The mitigation proposal is to provide to CWCB water stored in McPhee Reservoir in an amount of up to 282 acre-feet per year during the 40-year expected life of the mill. This amount of water should provide sufficient mitigation to enable the CWCB to continue to preserve the natural environment to a reasonable degree on the Dolores River. Applicant's formal request to the Board for approval of this proposal is attached to this memo as Exhibit 1.

Staff Recommendation

Staff recommends that the Board:

1) Make a preliminary determination that the natural environment of the Dolores River could be preserved to a reasonable degree with the proposed injury if the Applicant provides the proposed mitigation, and

2) Provide comments to Staff on the proposal and identify any issues that the Applicant and Staff should address before bringing the proposal to the Board for final approval.

Procedural Background

CWCB's water court appeal seeking confirmation of its authority to accept an injury with mitigation in the Division 5 Water Court was granted in December 2010. During the appeal process, which took more than a year, CWCB halted all work on injury with mitigation proposals. Now with the court's confirmation of CWCB's authority, Staff is moving forward with this case for the Board's consideration.

Case Background

Applicant filed a water court application for surface and groundwater rights tributary to the Dolores River in Montrose County. The water will be used in the proposed Pinon Ridge Mill Facility, which will process uranium and vanadium ore mined nearby. Applicant has not filed an augmentation plan for its junior depletions because this basin has not yet been deemed "over-appropriated," and an augmentation plan is not required by the State and Division Engineer. However, the Applicant is seeking to reach a stipulation with CWCB to mitigate injury to CWCB's instream flow water right on the Dolores River.

In March 2009, the Board ratified the statement of opposition to this application because the junior appropriation of water rights would cause un-replaced out-of-priority depletions that would likely injure the Board's ISF water right on the Dolores River. CWCB became a party in this case with the intent of negotiating terms and conditions to fully protect the Board's ISF water right. Staff has been unable to secure full protection, and is therefore recommending this injury with mitigation proposal to include in a stipulation and final decree. The exercise of the proposed rights could adversely impact the Board's ISF water right listed below.

CWCB Case No.	Stream/Lake	Amount (cfs)	Approp. Date	Watershed	County
7-75W1346	Dolores River	78	5/1/1975	Dolores	San Miguel, Montrose, Montezuma, Dolores

(See map attached to this memo). The Dolores River ISF water right decreed in 7-75W1346 extends from McPhee Reservoir to the confluence with the San Miguel River. Depletions associated with the wells and zero-discharge facility will occur within the lower portion of the Dolores River ISF reach from the confluence with East Paradox Creek to the ISF lower terminus at the San Miguel River. Applicant has agreed to mitigate impacts to the Dolores River ISF right by providing to CWCB water stored in McPhee Reservoir as replacement water for Applicant's out-of-priority depletions on the Dolores River, as described more fully below.

Mitigation on the Dolores River

Under the mitigation proposal, the Applicant would purchase the mitigation water, including a sufficient amount to cover transit losses, which will be stored in McPhee Reservoir and made available to the CWCB. The Dolores Water Conservancy District has indicated to the Applicant that a purchase of this amount of stored water is feasible. The details of reservoir operations and agreements are yet to be developed; however, CWCB should have control over the release of up to 282 AF/yr for instream flow purposes. The 282 AF/yr represents 100% of the 95 AF/yr of intercepted precipitation in the zero-discharge area plus the out-of-priority portion of groundwater depletions and transit losses. Applicant's calculations are computed as out-of-priority depletions, rather than total depletions, assuming the Dolores River ISF is not satisfied 58% of the time in

the affected segment. Under Applicant's analysis, 170% of the total project's out-of-priority depletions will be replaced during the 40-50 year life of the project. Applicant's analysis is presented in Exhibit 1.

Agreements are yet to be written, but generally, CWCB will coordinate with the Division of Wildlife to schedule releases of the 282 AF/yr with the Dolores Water Conservancy District, the operator of the reservoir. It is anticipated that the released water under the proposed mitigation will be shepherded by the Division Engineers in both Division 7 and Division 4, through the upper portion of the Dolores River ISF down to the confluence with East Paradox Creek, less transit losses, to replace out-of-priority diversions by the Applicant.

Extent of proposed injury

Applicant plans to install up to 7 wells for industrial uses with a maximum pumping rate of 175 gpm (0.39 cfs). Maximum total combined withdrawals from the wells shall not exceed 282 AF/yr. Applicant has calculated a maximum groundwater depletion rate to the Dolores River of 101.7 AF/yr using assumptions published in a USGS basin report. Applicant also plans to intercept precipitation across a 240-acre zero discharge facility. However, the entire 240 acres will not be operating at any one time. Portions of the total area will be operating at various times; in aggregate, the time-weighted zero-discharge area is 90.6 acres. Total precipitation captured by this area is 95 AF/yr.

Total depletions caused by the project could be as high as 11,470 AF. Of the total depletions, it is anticipated that only 58% of these depletions will be out-of-priority in relation to the Dolores River ISF. Total out-of-priority depletions are expected to be 6,653 AF over more than 100 years. Applicant has proposed to replace 11,280 AF over the expected life of the project, which is 40-50 years. Thus, given the assumptions for out-of-priority depletions, the Applicant will over-replace out-of-priority depletions during the project life and under-replace after the project is closed and the site is reclaimed. As shown on Figure 6 in Exhibit 1, annual lagged groundwater depletions will rapidly decline at the end of the mill operations.

Benefits of mitigation

At the Board meeting, Mr. Eric Bikis, Applicant's water resources consultant, will provide comments on (1) the potential injury to the Dolores River ISF water rights resulting from Applicant's plan, and (2) benefits to the natural environment resulting from Applicant's mitigation proposal.

The entire Dolores River ISF will benefit from the stored water provided by Applicant. Applicant will provide 1.7% of the total project out-of-priority depletions at the far upstream end of the ISF reach. The lower reach of the ISF is most likely to need water in the late irrigation season. Ideally, releases from McPhee Reservoir could be scheduled to cover those times when the river needs the water most, and could potentially be coordinated with Reservoir fish pool releases or with acquired water on the Dolores River to provide the most benefits.

Under this plan, reservoir released water, less 8.9% transit loss, will be shepherded down the Dolores River by the Division Engineers through Division 7 and Division 4 to the confluence with East Paradox Creek. Therefore, the water will remain in the river and will benefit the environment from McPhee reservoir downstream for approximately 100 miles during the 40-50 year life of the project.

Alternatives

Applicant has explored the following alternatives to the injury with mitigation proposal described herein:

1. Curtailing operations to protect the ISF was considered. However, this option would not be economically viable nor would it physically halt depletions on the Dolores River due to the lagged depletion effects.

2. Alternative water supply and replacement sources were considered such as purchasing, changing and storing senior irrigation rights or using non-tributary water. However, constructing storage for senior rights would be cost prohibitive, and there are no non-tributary sources identified in the area.

3. The Applicant has applied for water rights from the San Miguel River in Case No. 10CW176, which may be developed as a supplemental supply for the project.

Colorado Division of Wildlife Evaluation of Proposal

CWCB and Colorado Division of Wildlife ("CDOW") staff members have met with Applicant's representatives to discuss this proposal. The CDOW's review of the proposal was positive. The CDOW staff's analysis and recommendation will be presented at the Board meeting.

Terms and Conditions

Staff, the Attorney General's Office and representatives of the Applicant have discussed proposed terms and conditions related to the injury with mitigation proposal. Some terms and conditions are yet to be negotiated, but injury with mitigation terms and conditions in the final decree should include the following:

1. Measuring Devices. Applicant will install and pay operation and maintenance costs of (or commit to pay operation and maintenance costs if the CWCB installs) any measuring device deemed necessary by the Division Engineer to administer terms of the stipulation and decree implementing the injury with mitigation.

2. Retained jurisdiction. Applicant will include in any final decree a retained jurisdiction provision allowing the water court to enforce the provisions of the injury with mitigation stipulation as a water matter.

Staff anticipates that the parties will work to refine the above-listed terms and conditions and incorporate them into a stipulation and the resulting water court decree, along with standard protective terms and conditions.

Based upon a review of the report prepared by Bikis Water Consultants,LLC, and upon staff's and CDOW's discussions with the Applicant's representatives, it appears that the Applicant's mitigation proposal on the Dolores River supports the conclusion that the natural environment of the Dolores River can continue to be preserved to a reasonable degree under the conditions described herein as a result of the mitigation provided by the Applicant. Staff and the Attorney General's Office are in the process of consulting with the Division Engineer on the administration of this IWM proposal. Storage and reservoir operations agreements will be drafted soon.

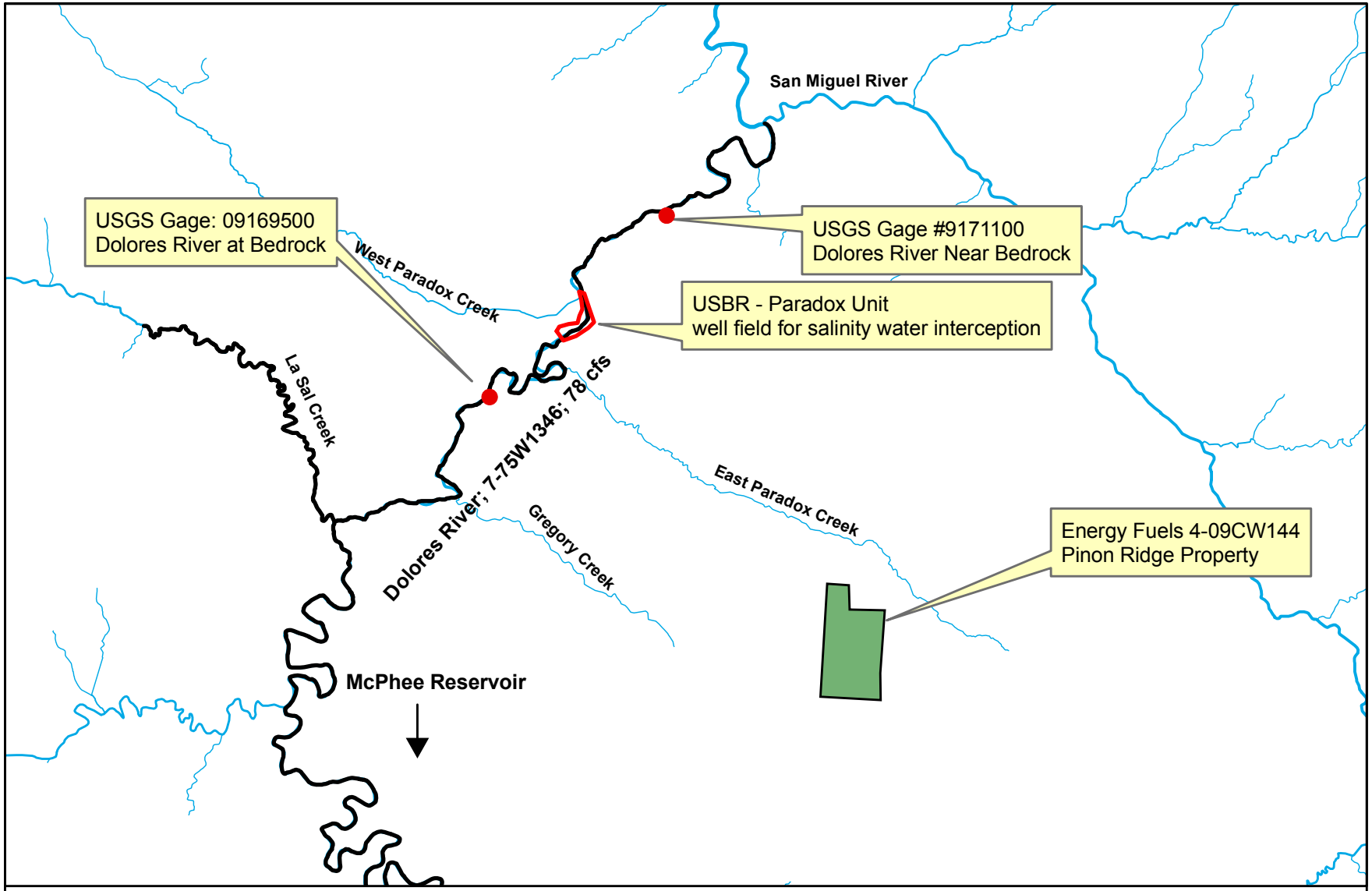
Staff Recommendation

As stated above, injury with mitigation is a two-meeting process. At the first meeting, the Board may "conduct a preliminary review of the pretrial resolution during any regularly scheduled meeting to determine whether the natural environment could be preserved to a reasonable degree with the proposed injury or interference if applicant provided mitigation." At a subsequent meeting, the Board may "take final action to ratify, refuse to ratify or ratify with additional conditions."

Staff recommends that the Board:

1. Make the preliminary determination that the natural environment of the Dolores River could be preserved to a reasonable degree with the proposed injury if Applicant provides the proposed mitigation; and
2. Provide comments to Staff on the proposal and identify any issues that Applicant and Staff should address before bringing the proposal to the Board for final approval.

Attachments


San Miguel River
USGS Gage: 09169500
Dolores River at Bedrock
West Paradox Creek
USGS Gage #9171100
Dolores River Near Bedrock
USBR - Paradox Unit
well field for salinity water interception
La Sal Creek
Dolores River; 7-75W1346; 78 cfs
East Paradox Creek
Gregory Creek
Energy Fuels 4-09CW144
Pinon Ridge Property
McPhee Reservoir
May 17-18, 2011 Board Meeting
Agenda Item 19; Injury with Mitigation
Case No. 4-09CW144; Energy Fuels Resource Corporation
0
1.25
2.5
5
Miles
N

BĪKIS
Water Consultants LLC

EVALUATION OF INJURY WITH MITIGATION PROPOSAL FOR ENERGY FUELS RESOURCES CORPORATION PIÑON RIDGE MILL PROJECT (CASE NO. 09CW144)

Prepared for:
Energy Fuels Resources Corporation
44 Union Blvd., Suite 600
Lakewood, CO 80228

Prepared by:
Bikis Water Consultants, LLC

April 2011

EXHIBIT 1

555RiverGate Lane, Suite B4-82
Durango, Colorado 81301
Tele: 970.385.2340
Fax: 970.385.2341

TABLE OF CONTENTS

TABLES

FIGURES

APPENDICES

1.0 INTRODUCTION AND PURPOSE

The purpose of this report is to provide information to support a finding of "injury accepted with mitigation" by the Colorado Water Conservation Board (CWCB) for the water supply for the Piñon Ridge Mill Project (Project) proposed in Montrose County, Colorado. This report was prepared consistent with Rule 8.i.3 (e) of the "Rules Concerning the Colorado Instream Flow and Natural Lake Level Program" (2 CCR 408-2), which pertains to submittal requirements for such a finding.

This report was prepared by Bikis Water Consultants, LLC (BWC) based on work competed by BWC, Golder Associates, Inc. (Golder), and others on the Project. Relevant reports that were relied upon are listed in Section 10.0.

This revised version of this report incorporates comments on the previous (February 2011) draft report from a meeting with CWCB and Colorado Division of Wildlife (CDOW) staff on March 28, 2011, and also from a telephone call with Robert Hurford, Water Division 4 Engineer, on April 8, 2011. A framework for a proposal for injury with mitigation was discussed at the March 28, 2001 meeting; the telephone call with Mr. Hurford on April 8, 2011 was to discuss an appropriate transit loss for water released to replace depletions. Mr. Rege Leach, Water Division 7 Engineer, was also contacted and informed of the outcome of these transit loss discussions.

1.1 PROJECT LOCATION AND DESCRIPTION

The Project is a uranium/vanadium-processing mill proposed by Energy Fuels Resources Corporation (EFRC) in the Paradox Valley, approximately 12 miles northwest of Naturita, Colorado. The Project is located along East Paradox Creek, an ephemeral stream, which is tributary to the Dolores River. The Project is located approximately seven miles from the Dolores River. Figure 1 is a vicinity map.

The Project is located on approximately 880 acres owned by EFRC. Approximately 240 acres of this area will be a zero-discharge facility (Facility) for waste management (described in Sections 3.1 and 3.2 below). The mill will have an initial capacity of 500 tons per day which could be expanded to 1000 tons per day in the future, depending on demand. The mill is planned to operate 24 hours a day, 350 days per year, for approximately 40 years, or longer if economic

conditions warrant. A license for the project was approved by the Colorado Department of Public Health and Environment in January 2011.

1.2 INSTREAM FLOW APPROPRIATION

The CWCB received a decree for a 78-cubic feet per second (cfs), year-round, instream flow right (ISF) in the Dolores River from the outlet of McPhee Reservoir to the confluence with the San Miguel River in Case No. W-1346-75, District Court Water Division 7. This ISF is for a 121-mile reach of the river. EFRC has raised an issue as to whether the ISF was properly adjudicated for the portion located in Division 4. However, for the purposes of this proposal, EFRC has assumed that the ISF was properly adjudicated for its entire reach.

1.3 WATER RIGHTS FOR PROJECT

EFRC filed an application (Application) for surface and underground water rights for the Project in Case No. 09CW144, District Court Water Division 4. This Application included the following wells (see Figure 2 for locations):

1. Wells PW-1 and PW-2. Well Permit Nos. 74661-F (expired Permit No. 67230-F) and 74659-F (expired Permit No. 67229-F) were issued for PW-1 and PW-2, respectively. These wells have been constructed in the Chinle and Moenkopi formations, tributary to the Dolores River, and have been tested for production (Golder, September 2008).

2. Well Field. Up to five wells in the Chinle and Moenkopi formations, including Well PW-3 which was constructed under Permit No. 74660-F (expired Permit No. 67228-F).

The maximum combined pumping rate for PW-1, PW-2, and the well field is 175 gallons per minute (gpm) (0.39 cfs). The maximum total combined withdrawal from PW-1, PW-2, and the well field is 282 acre-feet per year (AF/yr). These amounts are based on Project needs and the maximum sustainable pumping rates for the wells as determined by Golder (September 2008 and October 2009).

EFRC also filed for surface water rights in Case No. 09CW144 to use precipitation falling on the 240-acre Facility proposed for the Project. The amount claimed is the maximum amount of precipitation that may fall on the Facility, which equals 428 AF/yr. An evaluation of the reduction

in flow to the Dolores River from retention of precipitation on the Facility was completed by BWC, the results of which are presented in a subsequent section of this report.

The water rights claimed by EFRC in the Application are junior to the CWCB ISF right. The CWCB filed a statement of opposition to the Application. This report is submitted by EFRC to CWCB in order to settle the issues raised by CWCB in its statement of opposition and is subject to Rule 408, Colorado Rules of Evidence.

2.0 LOCATION OF INJURY

The EFRC wells and Facility are located in the East Paradox Creek basin, one to two miles from the creek channel (see Figure 2). East Paradox Creek is tributary to the Dolores River. Any depletions from the Project would be reflected in the Dolores River downstream of the location of groundwater discharge to the Dolores River, which is where the Chinle and Moenkopi formations are adjacent to the river. Approximately 12 miles of the Dolores River would be affected (see Figure 3).

3.0 QUANTIFICATION OF INJURY

Depletions from use of water for the Project may result from:

1. Pumping and use of groundwater, and

2. Interception and use of precipitation falling on the Facility, a small portion of which may currently reach the Dolores River.

3.1 PUMPING OF GROUNDWATER

Review of published information and work by Golder and Kleinfelder, including construction of boreholes, test pits, and completion of well pumping tests, indicates that the only water-bearing formations in the Project area are the Chinle and Moenkopi formations. The presence of water in these formations is highly influenced by the northwest-trending faults that exist parallel to Davis Mesa and likely act as conduits for groundwater flow. The boreholes and test pits found that these formations do not exist in the northern portion of the Project site that is located away from Davis Mesa (see Figures 4 and 5), as they are truncated by the Hermosa Formation. Also,

these formations are not continuous at the surface on the southwest side of the valley so groundwater likely flows from them into the alluvium and then to the river.

The Navajo and Kayenta Formations, which are known to be productive aquifers in the area, either are absent at the Project site or did not contain water in wells and boreholes completed for the Project (Golder, November 2008 and October 2009). Alluvium exists along the valley bottom including in the reach from the Project site to the Dolores River. Its extent is constricted by the Paradox Member of the Hermosa Formation (salt anticline) between the Project site and the Dolores River, and only limited water of poor quality has been observed in the alluvium. However, it is believed that the alluvium is capable of transmitting groundwater to the Dolores River. Calculations by Golder suggest that groundwater velocities in the Project area are relatively slow and that it would take more than 300 years for groundwater to travel from the Project area to the river under existing conditions (i.e., the existing groundwater gradient).

Because of the findings with regards to the occurrence of groundwater at the Project site, all of the wells included in the Application (see Figure 2) have been or will be constructed in the Chinle and Moenkopi formations.

An evaluation of potential impacts from pumping of the proposed wells on the Dolores River was completed by Golder in May 2010. This evaluation relied on a basin-wide study by the U. S. Geological Survey (USGS) (1983) which found that 68 percent of the outflow from the upper groundwater system occurred as flow to the Dolores River. Using this 68 percent factor, a pumping rate of 0.39 cfs would result in a depletion of 0.27 cfs (191.8 AF/yr).

It is noted that the depletion to the Dolores River from EFRC wells may be less than 68 percent because of the operations of the Paradox Valley Unit (PVU) of the U.S. Bureau of Reclamation Colorado River Basin Salinity Control Program. This unit is located adjacent to the Dolores River, down gradient of the Project. The unit has wells that extract high-salinity shallow groundwater and inject it into a deep formation. The EFRC wells likely will produce some water that is currently intercepted by the PVU. Therefore, the depletions from the EFRC wells to the Dolores River will be reduced by the amount of water intercepted by the PVU, resulting in a depletion rate of less than 68 percent.

The timing of depletions from pumping of groundwater was not assessed by Golder. Golder's estimated travel time of more than 300 years for groundwater to reach the river from the site was

based on calculations using the Darcy equation with parameter values derived from EFRC well data under ambient porous media flow conditions in the Chinle and Moenkopi formations in which the wells in the Application will be constructed.

As requested during initial consultations with the CWCB, BWC used the Glover method to analyze the effects of pumping on the aquifers and the Dolores River. While some of the assumptions of the Glover method are not met by the conditions at the Project site, including the transmittal of groundwater along faults, this method has been widely used in Colorado and can provide a general indication of the effects of the proposed pumping. The average saturated thickness of the aquifer was taken from borehole and well data reported by Golder (November 2008). Average values for hydraulic conductivity and storativity were taken from the 48-hour pumping tests conducted on wells PW-1, PW-2, and PW-3. Data from the shorter duration pumping tests were not used since these are not representative of longer-term aquifer behavior. Based on the work by Golder, groundwater was assumed to flow to the northwest (this is the direction of the surface topography; faults also trend to the northwest; and data on the piezometric surface indicate a gradient to the northwest). A distance of seven miles from the centroid of the wells to the Dolores River was used.

The results of the Glover analysis are included in Appendix A. Figure 6 shows the depletion rate for the wells over time. This figure indicates that depletions from pumping are not felt in the Dolores River for a period of time. For example, depletions constitute 21 percent of pumping after ten years. The maximum annual depletion rate for the 40-year life of the Project is 53 percent, which occurs in year 42. Using this rate, the maximum annual depletion to the Dolores River during the life of the Project would be 0.21 cfs or 149.5 AF/yr. The USGS (USGS 1983) found that only 68 percent of the groundwater would reach the Dolores River, so that the actual, maximum depletion rate would be 0.14 cfs or 101.7 AF/yr.

Depletions will continue for a period after cessation of pumping. Aquifer recovery may be more rapid than indicated on Figure 6 due to recharge from Davis Mesa to the south (see Figure 4) and the relatively high storativity of the fault system, neither of which are fully reflected in the Glover analysis. This means that post-pumping depletions from Project wells would cease sooner than shown on Figure 6. The results of the Glover analysis were used to estimate the total depletions that would occur while the Project is in operation (for 40 years), and after operation ceases. Appendix A shows that the cumulative depletion after 40 years of pumping is 3,709 AF. Assuming that only 68 percent of this is groundwater that would have reached the

Dolores River (per USGS 1983), the Glover analysis shows the groundwater depletion to the Dolores River for the life of the mill is 2,522 AF. The lifetime groundwater depletion[1] is equal to 68 percent of the total amount of groundwater pumped (282 AF/yr for 40 years), or 7,670 AF.

Injury to the ISF would only occur when the flow in the Dolores River was less than the ISF (78 cfs). BWC calculated the percent of the time that the flow in the Dolores River is less than the ISF using average daily flows for the Dolores River gages "at Bedrock" (Bedrock) (USGS No. 9169500) and "near Bedrock" (Near Bedrock) (USGS No. 9171100) for the post-McPhee Reservoir period (1985 through 2010). The results of this analysis (see Table 1) found that the flow in the river is less than the ISF 58 and 55 percent of the time for the Bedrock and Near Bedrock gages, respectively. To be conservative, it was assumed that replacement water would be needed 58 percent of the time. Therefore, the amount of water needed to replace depletions from pumping to prevent injury to the ISF is 1,463 AF for the 40-year life of the mill (58 percent of 2,522 AF), and 4,449 AF for the Project lifetime (58 percent of 7,670 AF).

While the Project is projected to have a life of 40 years, it is possible that it could be longer, depending on future economic conditions. A longer Project life would increase the amount of depletions that would occur during the life of the mill, and for the Project lifetime. To assess the changes in depletions, the Glover analysis was run for a 50-year Project life, which represents a 25 percent increase. The results of this modeling found that the depletion rate schedule is the same for the first 40 years, since the same amount of water is pumped, but that the peak depletion rate is slightly higher (57 percent versus 53 percent for the 40-year pumping) and occurs in year 52. The lifetime depletion increases to 9,588 AF (68 percent of 50 years of pumping at 282 AF/yr) from 7,670 AF.

3.2 Reduction in Flow from Proposed Zero-Discharge Facility

BWC completed a separate evaluation of the effects of retention of runoff in the proposed Facility on the flow in the Dolores River, a copy of which is included in Appendix B. Two methods were used to assess the effects of the Facility. The average reduction in water reaching the Dolores River from the two methods is 10.7 AF/yr. The majority of the runoff from the Facility flows to two off-site ponds with a total capacity of approximately 8.5 AF. Considering

[1] As used in this report, "lifetime depletions" means the depletions occurring while the Project is operating, plus delayed depletions after the mill ceases operation

these ponds, the amount of runoff which would be retained on the Facility and not reach the Dolores River is 2.5 AF/yr (average of the two methods - see Table 3 in Appendix B). The total amount of reduction in flow for the 40-year life of the mill and entire Project lifetime is 100 AF, assuming the Facility will be decommissioned and reclaimed.

An analysis of the timing of this water was not completed but it is reasonable to assume that most of it would occur during the wettest months, which are September and October based on precipitation records at the Uravan and Paradox weather stations. Existing data and work by Golder indicates that the Project area has low runoff generation potential, and runoff would only occur from relatively large storm events, which are most likely during the wettest months, and during periods when the ISF is likely met.

3.3 TOTAL DEPLETIONS AND REPLACEMENT REQUIREMENT

The total, potential depletion from the Project is the sum of the depletions from pumping of the wells and the reduction in runoff to the river from the Facility. The total depletion from pumping of the wells for the 40-year life of the mill is 2,522 AF. While the evaluation by BWC found that only a very small portion of the precipitation falling on the Facility would reach the Dolores River (2.5 AF per year—See Appendix B), the CWCB believes that Colorado law requires replacement of all the precipitation retained by EFRC on the Facility, which precipitation is, on average, 12.6 inches per year. A more detailed analysis of the size of the zero-discharge area of the Facility at any time was completed for the purpose of reaching agreement with the CWCB.

As mentioned previously, the Facility will include approximately 240 acres in which zero-discharge areas will be located. These areas include lined tailings cells, lined evaporation ponds, lined stormwater ponds, and other areas in which precipitation will be retained (collectively referred to in this report as “zero-discharge areas”). Precipitation falling on the zero-discharge areas will be retained and will not leave the Facility. Current Project plans are to have a maximum of 83 acres of zero-discharge areas in operation at any one time during the majority of the Facility’s life. During the lifetime of the Project, new zero-discharge tailings cells will be constructed to replace existing cells that are nearing capacity. During times of transition from an existing zero-discharge tailings cell to a new one, an additional 30.5 acres of zero-discharge area will exist, for a total of 113.5 acres of zero-discharge area during transition periods. These transition periods will exist approximately 25 percent of the time during the Project lifetime. Once tailings cells reach their full capacity, they will be taken out of service and

reclaimed with a vegetated soil cover. The other areas within the Facility that are not covered by the zero-discharge area will be maintained with natural vegetation. Berms will be constructed around the perimeter of the mill and waste disposal facilities to prevent surface runoff due to precipitation from leaving these areas. The precipitation falling on these vegetated areas within the berms will soak into the ground where it will support the evapotranspiration process. Ancillary areas outside of the berms will continue to transport surface water runoff from the property during large snowmelt or storm events. Thus, the zero-discharge areas of the Facility are summarized as follows:

- Maximum area of zero-discharge - 83 acres.
- Additional area during transition periods from an existing tailings cell to a new cell - 30.5 acres.
- Total zero-discharge area during transition periods - 113.5 acres.

Since the 113.5 acres would only exist 25 percent of the time, and the remaining time there would be 83 acres of zero-discharge area, the time-weighted area is 90.6 acres. Using 12.6 inches per year of precipitation results in a depletion of 95 AF per year for the Facility. Therefore, the total depletion from the Facility over 40 years is 6,322 AF (with 3,800 AF of this from the Facility); and 11,470 AF for the Project lifetime.

The amount of the depletion that would have to be replaced is 58 percent (i.e., the amount of time that the flow is less than the ISF) which equals 3,667 AF and 6,653 AF for the 40-year life of the mill and lifetime, respectively (Table 2).

4.0 WATER USE CAUSING INJURY

Injury to the Dolores River would potentially occur from: 1) pumping and use of groundwater for the proposed mill and associated uses, including dust suppression, truck and equipment washing, fire protection and maintenance, and 2) retention of the portion of the precipitation falling on the Facility which flowed to the Dolores River historically and use of this water for the mill and associated uses. The water rights and proposed uses of these sources are described in the Application.

5.0 ANALYSIS OF INJURY TO INSTREAM FLOW

As discussed in Section 3.0, the full amount of pumping from EFRC's wells will not be felt at the Dolores River. Also, reduction of runoff from the Facility will occur during larger precipitation events when the flow in the Dolores River may be greater than the ISF. However, for the purpose of calculating potential injury and reaching an agreement with the CWCB, the full amount of the potential depletion (see Table 2) was used. The average rate of depletion from the 6,322 AF of depletions over the 40-year Project life is 0.22 cfs. This depletion rate represents a depletive effect of 0.28 percent of the subject ISF (78 cfs). This effect is much less than 1 percent, could not be measured in the river, and should not result in deleterious effects on the natural environmental due to its small magnitude. Depletions from the Project should also not increase the number of days that the ISF is not met. BWC found that the ISF is not met 58 percent of the time based on analysis of stream flow data (see Table 1).

It is not possible to completely avoid depletive effects from the Project since water will be used consumptively for the beneficial uses included in the Application. It is also problematic to replace delayed depletions that result after cessation of mill operation. Therefore, as described in the following section of this report, replacement water will be provided as mitigation in amounts that exceed the Project depletions while the mill is operating, and EFRC is willing to provide this water for the maximum benefit to the natural environment.

6.0 DESCRIPTION OF PROPOSED MITIGATION

EFRC proposes to provide to CWCB water stored in McPhee Reservoir to mitigate the effects of water diverted, retained, and used in connection with the Project ("mitigation water"). As described below, EFRC will purchase and have available for release the amount of mitigation water that it proposes to supply under this mitigation plan, plus transit losses. The amount of mitigation water to be provided will be up to 259 AF per year. This equals 58 percent of the full pumping of 282 AF (or 164 AF), plus 95 AF for precipitation retained on the zero-discharge areas of the Facility. Another 23 AF will be provided each year to replace transit losses, which includes a 20 percent contingency (see Section 6.1 for the basis of this transit loss). Thus, the total amount of water provided for mitigation and transit loss purposes will be up to 282 AF per year, which is the maximum annual amount of pumping that will occur from the EFRC wells. Over the 40-year life of the mill, a total of 11,280 AF will be provided if the wells are pumped at

their maximum rate. This amount equals 1.7 times the amount of out-of-priority depletions for the lifetime of the project. The depletions and mitigation water provided are shown in Table 2.

The proposed mitigation water provided represents the maximum annual pumping amount (282 AF/yr) and the full amount of precipitation retained on the zero-discharge areas of the Facility. While this report has shown the actual effect of surface runoff from the 240-acre zero-discharge Facility on flow in the Dolores River is much less (about 2.5 AF/yr , see Appendix B), EFRC is willing to replace the entire amount of precipitation retained on the zero-discharge areas (95 AF/yr) for purposes of this mitigation plan.

EFRC proposes that the mitigation water stored in McPhee Reservoir be released as determined by CWCB to maximize the beneficial use of the water. For example, it may be beneficial to provide water at a higher rate during shorter time periods, to modify releases based on time of year, or to combine releases with other releases for fishery and aquatic life protection.

The 95 AF of mitigation water to replace precipitation falling on the zero-discharge areas of the Facility will be provided every year from the year in which the Project commences operations until the Project permanently ceases to operate and thereafter while the Project site is being reclaimed. After reclamation is complete, this water will no longer be provided.

The amount of mitigation water provided to offset the water pumped from the EFRC wells will be based on amounts actually pumped from the wells (diversions, not depletions). The 164 AF used to calculate the maximum amount of mitigation water is based on the maximum claimed diversions from the wells (282 AF per year) times 58 percent (the average amount of time that the ISF in the Dolores River is not being met). The actual amount of this mitigation water that will be made available to CWCB will be 58 percent of the amounts actually pumped by the EFRC wells each year after the Project commences operations, which actual amounts could be less than 282 AF per year. Releases of this mitigation water will be made every year in which EFRC pumps water from its wells. If no water is pumped from the wells during a year, no water would be released from this component of the mitigation water (although, as mentioned above, the 95 AF of mitigation water to replace precipitation falling on the zero-discharge areas of the Facility would still be provided).

Water for transit losses will be available whenever mitigation water is being provided to replace precipitation on the zero-discharge areas and/or to offset water pumped from the EFRC wells.

This transit loss water can be released as required by the Division Engineer to ensure that the maximum amount of mitigation water reaches the lower portion of the Dolores River where the depletions from EFRC's operations will occur.

The water released from McPhee Reservoir will benefit the entire 121-mile reach of the ISF and make "new water" available to the Dolores River in the approximately 109-mile reach upstream of where depletions from the Project will occur. The water released will also more than fully replace total lifetime Project out-of-priority depletions in the 12-mile affected reach (Figure 3).

EFRC will commence provision of the mitigation water and transit loss water at the onset of pumping from its wells, and continue to provide mitigation and transit loss water throughout the period of operation of the Project. EFRC will cease providing mitigation and transit loss water after the Project permanently ceases operations and after reclamation of the Project site has been completed. Delayed out-of-priority depletions will not be replaced after Project operations cease.

EFRC has made initial contact with the Dolores Water Conservancy District (DWCD), the operator of McPhee Reservoir, regarding use of water stored in the Reservoir for the purposes described above. The DWCD has responded that use of water for these purposes appears feasible. EFRC will enter into an agreement with DWCD for storage in McPhee Reservoir of up to 282 AF/yr for the life of the Project and during the reclamation period. The contract amount may be reduced during subsequent years after actual water needs are confirmed. EFRC is committed to provide in storage the water needed to replace 58 percent of its groundwater diversions throughout operation of the Project, and not just the amount of depletions, together with water to replace precipitation falling on the zero-discharge areas of the Facility and transit loss water.

6.1 TRANSIT LOSS

The reach of the Dolores River from the outlet of McPhee Reservoir to the point of the depletions from the Mill is approximately 109 miles. The river flows through a canyon with few tributaries for the first approximately 50 miles of this reach (see Figure 3). Several tributaries flow into the river in the last approximately 60 miles, the largest of which are Disappointment Creek, Big Gypsum Creek, Coyote Wash, and La Sal Creek. Existing data and past studies indicate that the Dolores River gains flow from McPhee Reservoir to Bedrock in the vicinity of

the Mill. The gain in flow under baseflow conditions, including when the flow is less than the ISF, results from groundwater inflow.

Several diversions exist in the reach of the Dolores River from McPhee Reservoir to the Bedrock gage. The locations of the diversions are shown on Figure 3 and the diversions are listed in Table 3. The total decreed amount of these water rights is 12.183 cfs (absolute). Diversion records for the structures are not continuous. Records indicate that an average of 2,219 AF is diverted each year. This amount of diversion is considerably higher than the value of 1,000 AF/yr reported in a telephone call with Ken Curtis, engineer for the DWCD.

The U.S. Bureau of Reclamation (USBR) entered into an agreement in 2006 with the CWCB to replace depletions caused by its Paradox Valley Unit salinity control project. The USBR applied for and obtained a decree for a change of water rights for augmentation in Case No. 83CW45. In this case, several water rights decreed for irrigation in the West Paradox Creek valley were changed to use for storage and augmentation. The final agreement called for the release of 700 AF/year from McPhee Reservoir to replace depletions. A transit loss of 55 percent was applied to the released water. The basis of this transit loss is not specified in the Agreement or letters from the CWCB and CDOW that supported the Agreement. The Agreement states that "The Division Engineer for Water Division 4 currently assesses transit losses on the Dolores River from McPhee Reservoir to the Paradox Unit at a rate of 55 percent, with such assessment rate subject to change at any time if necessary under the Division Engineer's statutory authority." It is believed that the 55 percent loss was calculated as a 0.5 percent loss per mile for 110 miles.

6.1.1 Existing Studies

The USGS basin-wide study of the hydrology of the Dolores River (Weir, et al 1983) analyzed surface and groundwater data available at the time before construction of McPhee Reservoir. The study found that groundwater in the upper system moved toward the river and that the river gains throughout its length. Stream flow data indicated that the river gained between 3 to 16 liters per second per kilometer (0.17-0.91 cfs per mile). The average gain in flow from Dolores to Cisco, Utah, which is a relatively long reach, was 0.17 cfs per mile.

The USGS study also discusses the occurrence of springs in the Dolores basin. A total of 202 springs were identified. This includes springs at formation contacts along canyon walls.

Table 4 compares the average monthly flow below McPhee to the flow at Bedrock for the same period (October 1, 1990, through September 21, 2010). As this table shows, the average monthly flow is greater at the Bedrock gage than below McPhee for every month. The average annual gain in flow is 42 cfs, which equates to an average gain of 0.38 cfs per mile for this reach.

When average daily flows are analyzed for the same period (365 values), the flow is greater at Bedrock 89 percent of the time. However, the flow at Bedrock is less only 4.1 percent of the time when the flow at Bedrock is less than 78 cfs. This is when EFRC would be required to release water to replace depletions.

Evaporation varies throughout the Dolores basin, being lower at high altitudes and relatively high in the lower portion of the basin. For example, NOAA Technical Report NWS 33 shows the annual free water surface evaporation in the reach from McPhee Reservoir to the Mill site to be 45 inches per year. The estimated annual evaporation (gross) from the surface of the Dolores River in this reach, assuming an average width of 60 feet and length of 110 miles is 3,000 AF/yr.

6.1.2 Evaluation

Past and current data and the USGS study show that the Dolores River generally gains flow in the reach from McPhee Reservoir to the Project. A gaining river would be expected where the river flows through a relatively steep canyon, such as the first approximately 50 miles of the Dolores River downstream of McPhee.

Daily flows were analyzed for periods when the flow in the river was less downstream at Bedrock. In particular, records for the diversions (see Table 3) were analyzed to determine if diversions were responsible for the reduction in flow. Diversion records are not complete. The records indicate that instantaneous diversions may total 4 to 5 cfs. This amount of diversion is not sufficient to account for the difference in flow, which can be as much as 20 to 30 cfs. Further analysis of gaging records show that there is a two- to four-day lag between when relatively sudden changes in flows from the dam reach Bedrock. During these periods, there can be very large differences in flow at the gage below the McPhee Reservoir and at Bedrock until the increased or decreased flows are felt 110 miles downstream. However, even accounting for these periods, it appears that there are times when the river loses water to groundwater or evapotranspiration so that the flow is less at Bedrock.

Table 5 summarizes the flow in the river during periods when the flow is less at Bedrock and, arguably, a transit loss could be appropriate. This table shows that there is an average of 15 days per year when the river loses water when the flow at Bedrock is less than 78 cfs. These days occur during July through October. The average loss, weighted by number of days, is 5.6 cfs, which represents a weighted transit loss of 7.4 percent.

6.1.3 Conclusion on Transit Loss

This evaluation shows that most of the time the Dolores River from McPhee Reservoir to Bedrock (the approximate location of depletions from the EFRC project) gains flow. This evaluation also shows that there are some periods when the river loses flow downstream of the reservoir. The 55 percent transit loss used in the 2006 Agreement with the USBR is not supported by this evaluation. Rather, a transit loss of 7.4 percent is justified when the flow in the river is less than the ISF (see Table 5). It is recommended that during these times, real-time data from the stream gages be used to determine if a transit loss is needed. If the flow is less at the Bedrock gage, considering cumulative water rights diversions in between, then a transit loss of 7.4 percent is supported by this assessment. BWC discussed this transit loss assessment with the Division 4 Engineer and he concurred with the methodology. To be conservative, EFRC proposes to add a 20 percent contingency to the transit losses, thereby increasing the transit loss to 8.9 percent. Based on the maximum of 259 AF/yr of water to be released as mitigation water (Section 6.0) and a transit loss of 8.9 percent, an additional 23 AF would be needed for transit losses.

6.2 Measures to Reduce and Minimize Injury

Injury will be prevented through the release of water stored in McPhee Reservoir, as described in Section 6.0.

7.0 HOW MITIGATION WILL PRESERVE THE NATURAL ENVIRONMENT

Release of mitigation water from McPhee Reservoir will result in an increase in the amount of flow in the entire ISF reach (approximately 121 miles of the Dolores River) compared to present conditions. The increased flow will benefit the natural environment by increasing the usable habitat available to aquatic life in the river, along with the amount of water available to the

adjacent riparian zone. The flow will help to maintain enough water in the river to meet the ISF in this reach.

The release of mitigation water will also over-replace depletions to prevent injury to the ISF in the 12-mile reach of the river from the point of injury to the confluence with the San Miguel River (see Figure 3).

8.0 ALTERNATIVES ANALYSIS

8.1 WATER SUPPLY ALTERNATIVES CONSIDERED

The Project is located in a relatively arid part of the state; the mean annual precipitation for the area is 12.6 inches per year. Fieldwork completed for the Project found only limited groundwater. This is confirmed by research which shows few wells in the area with relatively low yields. Testing has determined that wells constructed for the Project in the Chinle and Moenkopi formations can produce water for the operation of the Project on a sustained basis. Therefore, the primary source of water supply will be the wells included in the Application. Precipitation that falls on the zero-discharge areas of the Facility will also provide a supplemental, though limited, water supply. It is not feasible to expand this source of water to provide an additional, reliable supply.

The next closest potential source of water for the Project is from the Dolores River. However, construction of the facilities necessary to use this source would require permission to access properties not owned by EFRC. Obtaining permission for crossing of federal land would require compliance with National Environmental Policy Act (NEPA) and completion of an Environmental Assessment or Environmental Impact Statement. The ISF on the Dolores River, which would be senior to any water rights for the Project, limits water availability. During times that the flow in the river is less than the ISF, EFRC would injure the ISF unless replacement water was provided for diversions. The salinity of the river is also a concern and could require water treatment to allow for use for the mill. Accordingly, the Dolores River was not selected as the water supply for the Project.

The San Miguel River is also located relatively close to the Project and is a relatively large river. EFRC has applied for diversion and storage from this source in Case No. 2010CW176, District

Court Water Division 4. This source may be developed as a supplemental supply for the Project.

8.2 ALTERNATIVES EVALUATED TO PROTECT ISF AND MITIGATE INJURY

As described in Section 5.0, the amount of potential injury is very small and would affect a relatively short reach of the Dolores River (12 miles). Alternatives to protect the ISF and mitigate for the proposed uses of water in the Application are limited. The option of ceasing or curtailing operations during times when injury could occur is not viable economically. A dependable and constant water supply is needed to support the substantial investment for the Project.

Existing water rights which could be purchased and changed for use for the Project are limited. Senior irrigation rights could only be used during the irrigation season, and it would be necessary to store consumptive use credits for use during the non-irrigation season. Few if any reservoirs exist in the Project area which could be used for this purpose, and construction of a new reservoir would be expensive and likely complicated by necessary approvals and environmental permits.

Another potential source of both water supply and replacement water is non-tributary groundwater. However, there are no known sources of non-tributary groundwater in the Project area, and proving the existence of such water would be difficult and not guaranteed.

By far, the best and most cost-effective source of replacement water for the Project is from McPhee Reservoir. This reservoir represents an available, reliable, and flexible supply. The amount of water needed for the Project can be easily accommodated by the reservoir. The water can be released year-round at the rates required. Releases from the reservoir have the benefit of providing water that would otherwise not be in the approximately 109-mile reach of the Dolores River between the dam and location of Project depletions. Lastly, lease of water in the reservoir will provide a financial benefit to the DWCD.

9.0 REASONABLENESS OF ALTERNATIVES

9.1 WATER SUPPLY ALTERNATIVES

The most reasonable alternative for water supply is the San Miguel River. This source is being pursued as a supplemental supply for the Project.

9.2 ALTERNATIVES TO PROTECT ISF

There are no reasonable alternatives for protecting the ISF. The depletive effect from the Project is much less than one percent and should not have a deleterious impact on the ISF and the natural environment.

9.3 ALTERNATIVES FOR MITIGATION

No viable alternatives for mitigation exist. Use of McPhee Reservoir, as proposed, will result in replacement of more than the Project depletions, and a gain in flow in the Dolores River (approximately 121 miles) from the reservoir to the confluence with the San Miguel River.

10.0 REFERENCES

Golder Associates, Inc. "Hydrogeologic Report, Piñon Ridge Project, Montrose County, Colorado". October 2009.

Golder Associates, Inc. "Potential Impacts to the Dolores River from the Piñon Ridge Project, Montrose County, Colorado". Lakewood, CO. May 2010.

Golder Associates, Inc. "Phase 3 Long-Term Pumping test Data Report, Piñon Ridge Project, Montrose County, Colorado". September 2008.

Golder Associates, Inc. "Water Supply Evaluation Piñon Ridge Project Montrose County, Colorado". Lakewood, CO. November 2008.

Kleinfelder. "Geologic Report in Support of the Application for a License for Source Material Milling". June 2009.

U.S. Geologic Survey. "Regional Hydrology of the Dolores River Basin, Eastern Paradox Basin, Colorado and Utah" . *Water-Resources Investigations Report83-4217*. 1983.

U.S. Geologic Survey. "Regional Hydrology of the Blanding-Durango Area, Southern Paradox Basin, Utah, and Colorado". Water-Resources Investigations Report 83-4218. 1983.

Tables

Table 1. Dolores River ISF Summary*
Energy Fuels Resources Corporation

Year	Dolores River at Bedrock (Upstream)				Dolores River near Bedrock (Downstream)			
	Days Above ISF	Days Below ISF	Days of Record	% Below ISF	Days Above ISF	Days Below ISF	Days of Record	% Below ISF
1985	235	130	365	36%	294	71	365	19%
1986	313	52	365	14%	350	15	365	4%
1987	337	28	365	8%	351	14	365	4%
1988	256	110	366	30%	303	63	366	17%
1989	192	173	365	47%	208	157	365	43%
1990	41	324	365	89%	74	291	365	80%
1991	86	279	365	76%	83	282	365	77%
1992	129	237	366	65%	137	229	366	63%
1993	213	152	365	42%	228	137	365	38%
1994	133	232	365	64%	138	227	365	62%
1995	196	169	365	46%	203	162	365	44%
1996	37	329	366	90%	47	319	366	87%
1997	234	131	365	36%	268	97	365	27%
1998	204	161	365	44%	201	164	365	45%
1999	185	180	365	49%	224	141	365	39%
2000	86	280	366	77%	98	268	366	73%
2001	82	283	365	78%	78	287	365	79%
2002	8	357	365	98%	6	359	365	98%
2003	38	327	365	90%	30	335	365	92%
2004	64	302	366	83%	62	304	366	83%
2005	217	148	365	41%	216	149	365	41%
2006	103	262	365	72%	111	254	365	70%
2007	132	233	365	64%	140	225	365	62%
2008	191	175	366	48%	190	176	366	48%
2009	97	268	365	73%	95	270	365	74%
2010	105	159	264	60%	103	161	264	61%
Average	**151**	**211**	**361**	**58%**	**163**	**198**	**361**	**55%**

Sources:
Stream gage data from the U. S. Geological Survey (USGS) for the Dolores River at Bedrock gage (USGS Station ID# 9169500) and the Dolores River near Bedrock gage (USGS Station ID# 9171100).

Notes:
* The Colorado Water Conservation Board was decreed a year round instream flow (ISF) water right for 78 cubic feet per second on the Lower Dolores River in Case No. 75W1346, District Court Water Division 7. The reach of ISF water right is on the Dolores River from the McPhee Reservoir Dam to the confluence with the San Miguel River.

Table 2. Injury with Mitigation Comparison

Energy Fuels Resources Corporation

(All values in acre-feet.)

Injury and Mitigation	0 - 40 years	Greater Than 40 Years	Total
Mitigation water provided[(1)]	11,280	0	11,280
Depletions[(2)]	6,322	5,148	11,470
Out-of-priority depletions[(3)]	3,667	2,986	6,653

Footnotes:

1) Based on full pumping (0.39 cubic feet per second (cfs) for 40 years multiplied by 0.58 (percent of the time flow for the Dolores River at Bedrock gage (U. S. Geological Survey (USGS) Station ID# 9169500)) is less than the CWCB ISF of 78 cfs). Also includes 95 acre-feet (AF) per year depletion from the zero-discharge facility per opinion of CWCB that all precipitation has to be replaced, plus a transit loss of up to 23 AF/yr. The actual depletions and amount of water provided will be based on measured pumping volumes. Energy Fuels Resources Corporation will work with the Colorado Water Conservation Board (CWCB) and/or the Colorado Division of Wildlife to optimize releases to provide the maximum benefit to the natural environment.

2) Equals 68% of cumulative depletions (USGS 1983) from Glover Analysis (Appendix A). Also includes 95 acre-feet per year depletion from the zero-discharge facility per opinion of CWCB that all precipitation has to be replaced. Actual depletions will depend on the amount of groundwater pumped for the project.

3) This is the amount of water needed to be provided when flow in the Dolores River is less than the CWCB ISF. Assumes pumping is out-of-priority 58% of the time for the 78 cfs CWCB ISF. Based on gage data for the Dolores River at Bedrock gage (USGS Station ID# 9169500).

Table 3. Summary of Water Rights on the Dolores River Downstream of McPhee Reservoir and Upstream of Bedrock
Energy Fuels Resources Corporation

ID	Water Right Name	Adj Date	Appr Date	Admin No	Priority/Case No.	Use Type	Structure Type	Rate Absolute (cfs)	Rate Conditional (cfs)	Rate Apex (AF)	Average Annual Diversions (AF)	Years of Record	July 2000 Rate	July 2002 Rate	July 2004 Rate
521	D D Williams Ditch	1892-02-01	1881-05-01	11444.00000	D-8	1	1	1	0	0	421	9	ND	ND	ND
670	Eagle One Pump	1990-12-31	1990-05-16	51270.00000	90CW0040	4	8	0	0.67	0	ND	0	ND	ND	ND
539	Geo P Moore Ditch	1892-02-01	1881-04-30	11443.00000	D-7	1	1	0.35	0	0	245	13	ND	ND	0.35
664	Guthrie Pump	2001-12-31	2001-12-04	55490.00000	01CW0225	1	8	0.033	0	0	ND	0	ND	ND	ND
637	Gyp Valley Pump	1989-12-31	1963-09-30	50769.41545	89CW0041	79	8	0.25	0	0	4	15	ND	ND	ND
634	Gyp Valley Pump Alt Pt	1989-12-31	1963-09-30	50769.41545	89CW0041	79	8	0	0	0.25	ND	0	ND	ND	ND
561	Lawrence E Rogers Ditch	1937-03-08	1919-04-01	25292.00000	37-37	1	1	1.5	0	0	24	1	ND	ND	ND
564	Lone Dome Ditch	1892-02-01	1881-04-30	11443.00000	D-7	1W	1	0.35	0	0	1054	33	4.6	4.1	2.57
648	San Miguel Pmpg Plt No 2	1979-12-31	1979-09-18	47377.00000	79CW0068	1348Q	8	0	5	0	ND	0	ND	ND	ND
607	Suckla Pump Site	1978-12-31	1935-06-03	46751.31199	W1840	1	8	3.5	0	0	309	23	1	ND	ND
616	Troy Rose Diversion	1968-06-11	1908-06-01	31843.21336	68-48	19	8	2	0	0	146	22	1.2	1.2	
708	Troy Rose Divr Ap Pt 2	1968-06-11	1908-06-01	31843.21336	68-48	19	8	0	0	1	ND	0	ND	ND	ND
709	Troy Rose Divr Ap Pt 4	1968-06-11	1908-06-01	31843.21336	68-48	19	8	0	0	2	ND	0	ND	ND	ND
668	Umtra Pump	1987-12-31	1987-08-31	50281.00000	87CW0089	4	7	0	1	0	20	1	ND	ND	ND
							Total	**12.183**	**6.67**	**5.25**	2219		6.8	5.3	2.92

Source: Colorado Decision Support System, March 2011

Notes:
AF = acre-feet
Cfs = cubic feet per second
ND = no data
Structure Type: 0 - other, 1 - ditch, 2 - well, 3 - reservoir, 4 - spring, 5 - seep, 6 - mine, 7 - pipeline, 8 - pump, 9 - power plant
Use Type: 0 - Storage, 1 - irrigation, 2 - municipal, 3 - commercial, 4 - industrial, 5 - recreation, 6 - fishery, 7 - fire, 8 - domestic, 9 - stock, A - augmentation, B - export from basin, C - cumulative accretion to river, D - cumulative depletion from river, E - evaporation, F - federal reserve, G - geothermal, H - household use only, K - snow making, M - minimum streamflow, N - net effect of river, P - power generation, Q - other, R - recharge, S - export from state, T - transmountain export, W - wildlife, X - all beneficial use

Table 4. Dolores River Average Monthly Flow Comparison

Energy Fuels Resources Corporation

(All values in cubic feet per second.)

Month	Dolores River		
	Below McPhee	At Bedrock	Gain/Loss
	(1)	(2)	(3)
January	30	47	17
February	32	55	23
March	59	150	91
April	343	575	232
May	1008	1046	39
June	450	475	26
July	107	111	4
August	76	95	18
September	73	85	12
October	46	70	24
November	35	46	12
December	32	43	11
Average	191	233	42

Column Notes:

1) Average monthly flow in the Dolores River Below McPhee Reservoir (CDWR Station ID DOLBMCCO, period of record 10/01/1990 through 9/21/2010).

2) Average monthly flow in the Dolores River at Bedrock (USGS Station ID 9169500, period of record 10/1/1990 through 9/21/2010).

3) Equals column (2) minus column (1).

Table 5. Dolores River Transit Loss Summary
Energy Fuels Resources Corporation

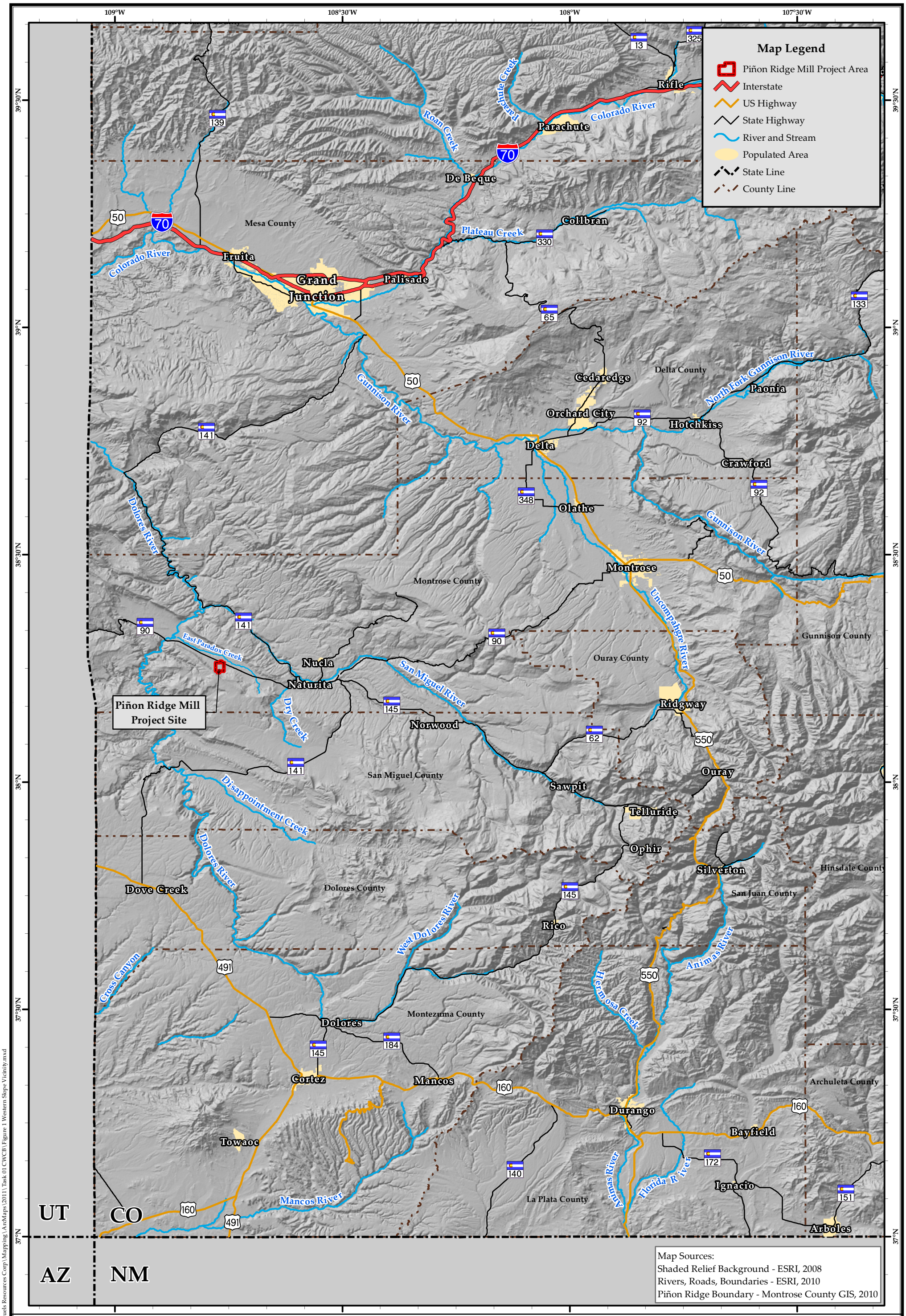
Month	Flow in Dolores at Bedrock Less Than 78 cfs		
	Average Number of Days Stream Losing[(1)]	Average Transit Loss (cfs)	Percent Transit Loss
January	-	-	-
February	-	-	-
March	-	-	-
April	-	-	-
May	-	-	-
June	-	-	-
July	7	5.6	6.9%
August	3	3.0	4.0%
September	4	8.4	11.6%
October	1	2.4	4.0%
November	-	-	-
December	-	-	-
Average	15 per year	5.6	7.4%

Source: USGS and CDSS, Period of record October 1990 through September 2010.

Notes:
Cfs = cubic feet per second.

Footnotes:
1) Based on daily average stream flow records from the Dolores River below McPhee Reservoir station and Dolores River at Bedrock station.

Figures



BIKIS Water Consultants LLC
555 RiverGate Lane, Suite B4-82
Durango, CO 81301
(970) 385-2340ph 385-2341fx
www.BikisWater.com

0 6.5 13 26 Miles

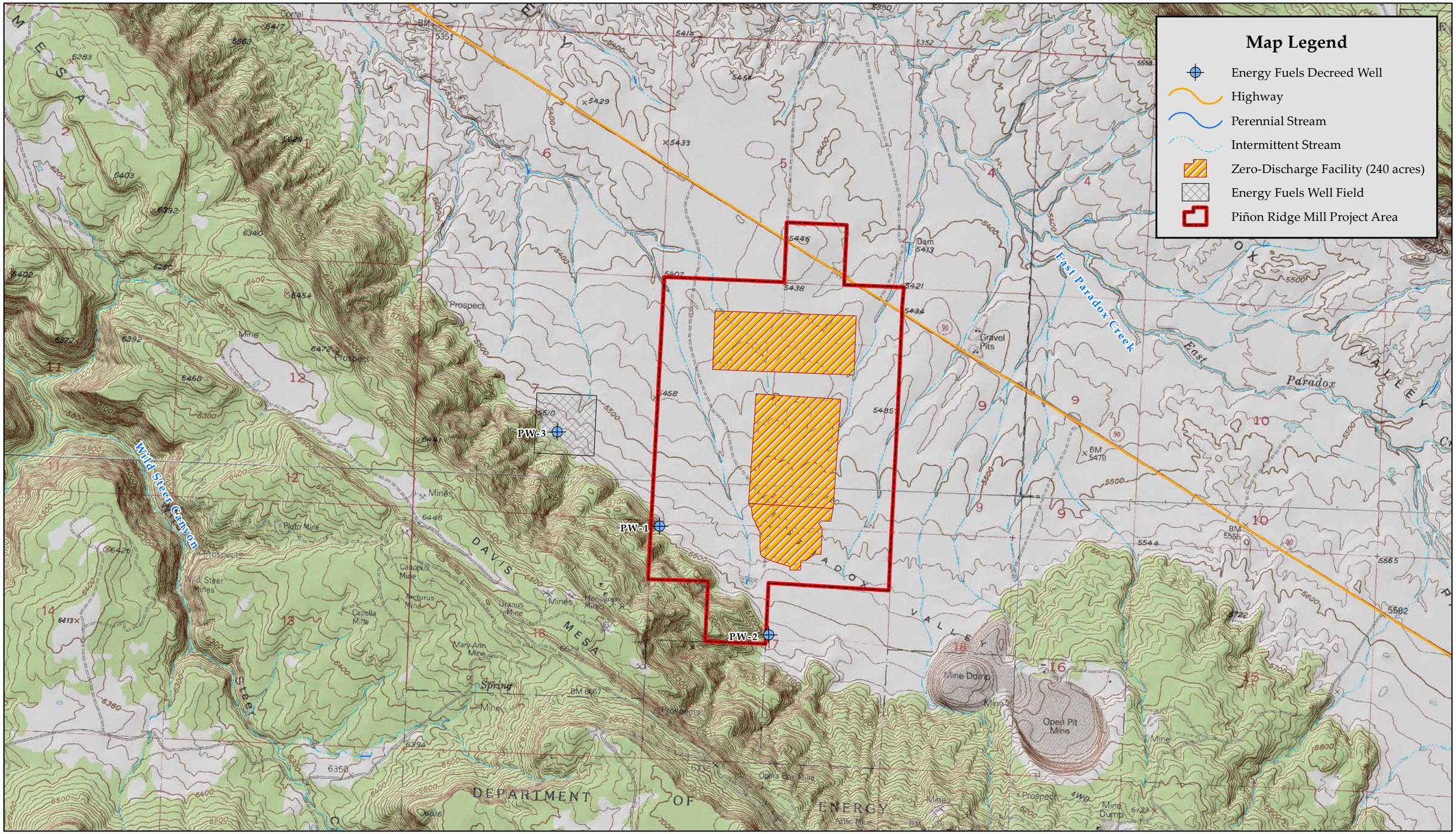
1 inch = 13 miles

Designed by: DSS
Checked by: DBM
Date: 4/20/2011
Scale: 1:823,680

Piñon Ridge Mill Project
Energy Fuels Resources Corporation
Vicinity Map

Figure 1

P:\Project Files\149-10 Energy Fuels Resources Corp\Mapping\ArcMaps\2011\Task 01 CWCB\Figure 1 Western Slope Vicinity.mxd



BIKIS Water Consultants LLC
555 RiverGate Lane, Suite B4-82
Durango, CO 81301
(970) 385-2340ph 385-2341fx
www.BikisWater.com

0 1,000 2,000 4,000 6,000 Feet

0 0.25 0.5 1 Mile

1 inch = 2,000 feet

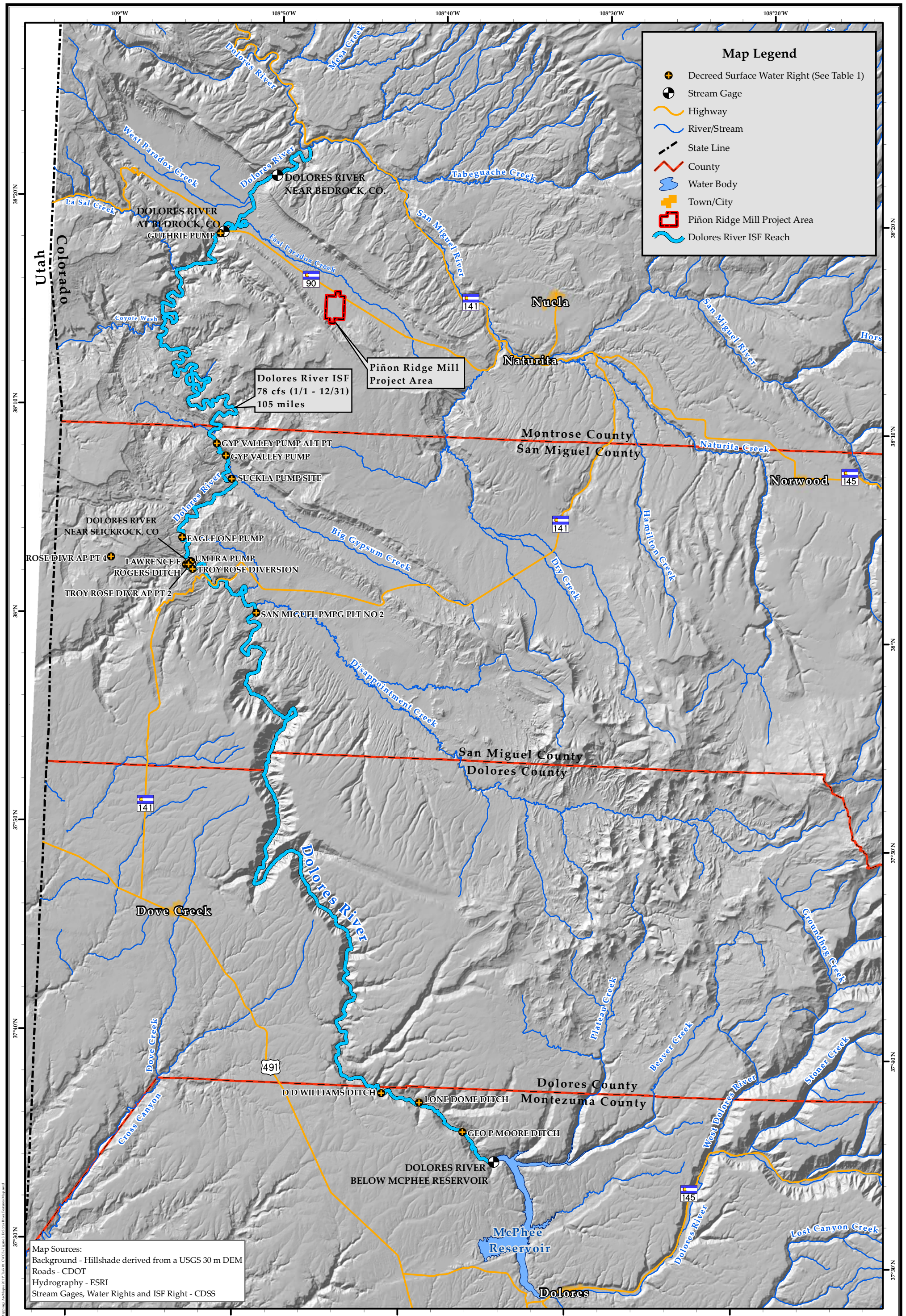
Map Sources:
Backgroud - USGS Topographic Map
Property Boundary - Montrose County GIS
Energy Fuels Wells - Case No. 2009CW144

Designed by:DSS
Checked by: EAB
Date: 4/20/2011
Scale: 1:24,000

Piñon Ridge Mill Project
Energy Fuels Resources Corporation
Project Site with Structures Included in Case No. 09CW144

Figure 2

P:\Project Files\149-10 Energy Fuels Resources Corp\Mapping\ArcMaps\2011\Task 01 CWCB\Figure 2 Project Site Map.mxd



BIKIS Water Consultants LLC
555 RiverGate Lane, Suite B4-82
Durango, CO 81301
(970) 385-2340ph 385-2341fx
www.BikisWater.com

0 12,500 25,000 50,000 Feet

0 2.5 5 10 Miles

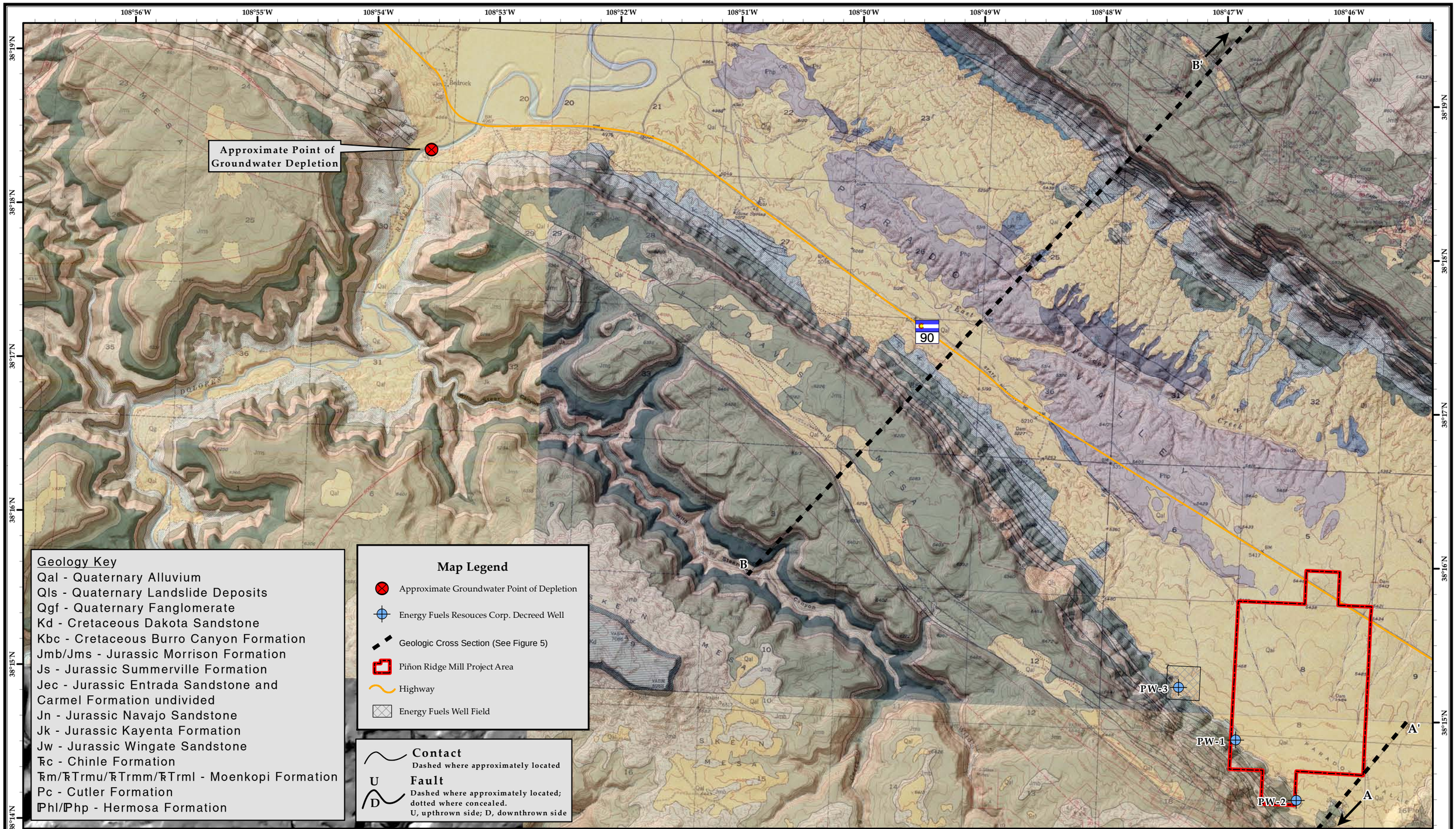
1 inch = 25,000 feet

Designed by: DSS
Checked by: DBM
Date: 4/20/2011
Scale: 1:300,000

Piñon Ridge Mill Project
Energy Fuels Resources Corporation
Dolores River Features Map

Figure 3

P:\Project Files\149-10 Energy Fuels Resources Corp\Mapping\ArcMaps\2011\Task 03 CDCB\Figure 3 Dolores River Features Map.mxd



BIKIS Water Consultants LLC
555 RiverGate Lane, Suite B4-82
Durango, CO 81301
(970) 385-2340ph 385-2341fx
www.BikisWater.com

0 1,750 3,500 7,000 10,500 Feet

1 inch = 3,500 feet

Map Sources:
Geologic Maps - Davis Mesa Quad, USGS 1955
Bull Canyon Quad, USGS 1954
Paradox Quad, USGS 1955
Property Boundary - Montrose County GIS
Energy Fuels Wells - Case No. 2009CW144

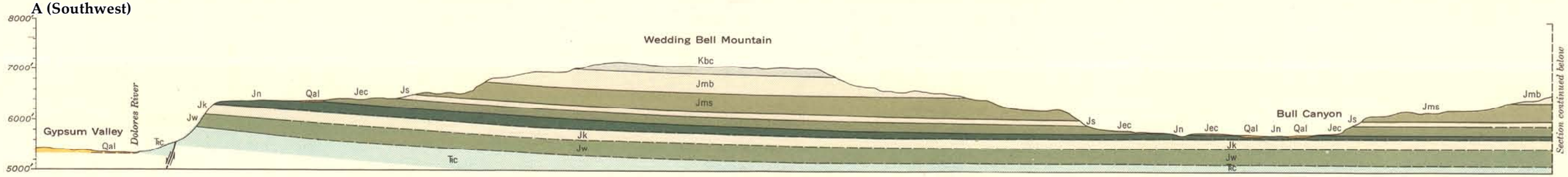
Designed by: DSS
Checked by: EAB
Date: 4/20/2011
Scale: 1:42,000

Piñon Ridge Mill Project
Energy Fuels Resources Corporation
Geologic Map

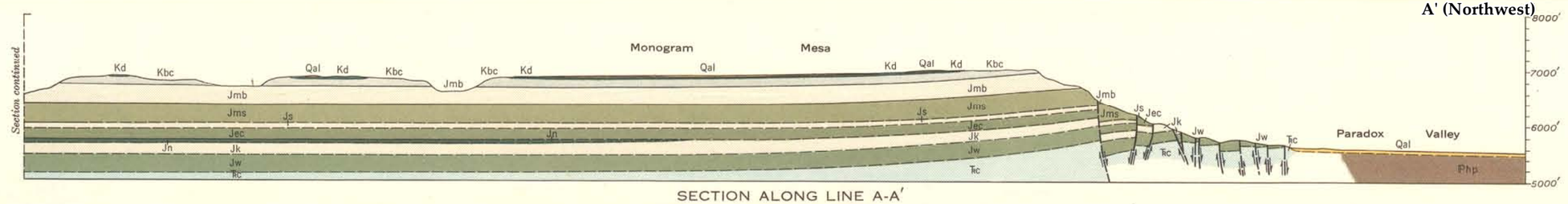
Figure 4

P:\Project Files\149-10 Energy Fuels Resources Corp\Mapping\ArcMaps\2011\Task 01 CWCB\Figure 4 Geology Landscape.mxd

A (Southwest)



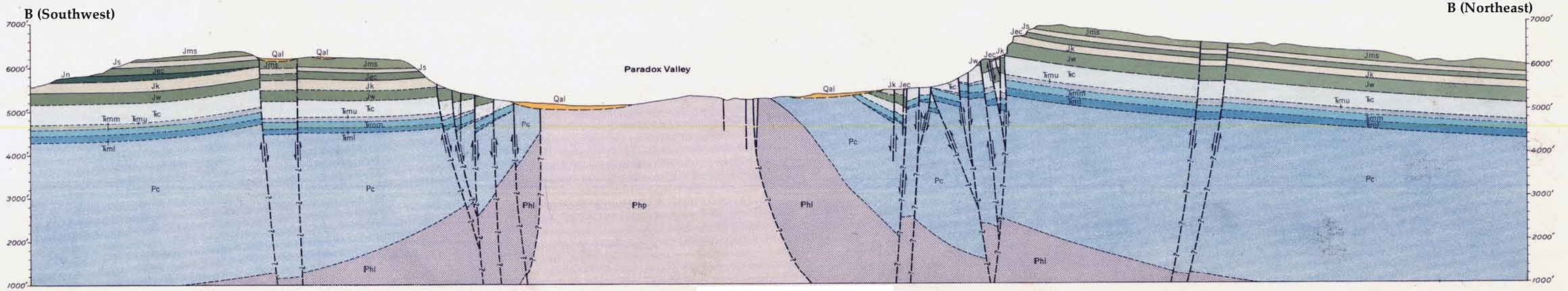
A' (Northwest)



SECTION ALONG LINE A-A'

Cross Section Taken from the
Geology of Bull Canyon Quadrangle, Colorado
By Fred W. Cater, Jr.

B (Southwest)



B (Northeast)

SECTION ALONG LINE B-B'

Cross Section Taken from the
Geology of Davis Mesa Quadrangle, Colorado
By Fred W. Cater, Jr.

Geology Key

Qal - Quaternary Alluvium
Kd - Cretaceous Dakota Sandstone
Kbc - Cretaceous Burro Canyon Formation
Jmb/Jms - Jurassic Morrison Formation
Js - Jurassic Summerville Formation
Jec - Jurassic Entrada Sandstone and Carmel Formation undivided
Jn - Jurassic Navajo Sandstone
Jk - Jurassic Kayenta Formation
Jw - Jurassic Wingate Sandstone
Trc - Chinle Formation
Trm/TrTrmu/TrTrmm/TrTrml - Moenkopi Formation
Pc - Cutler Formation
Phl/Php - Hermosa Formation

- Fault, Certain
- Contact, Certain
- Fault, Inferred
- Contact, Inferred

See Figure 4 for Cross Section Locations

BIKIS Water Consultants LLC
555 RiverGate Lane, Suite B4-82
Durango, CO 81301
(970) 385-2340ph 385-2341fx
www.BikisWater.com

Designed by: DSS
Checked by: DBM
Date: 4/20/2011
Scale: 1:NTS

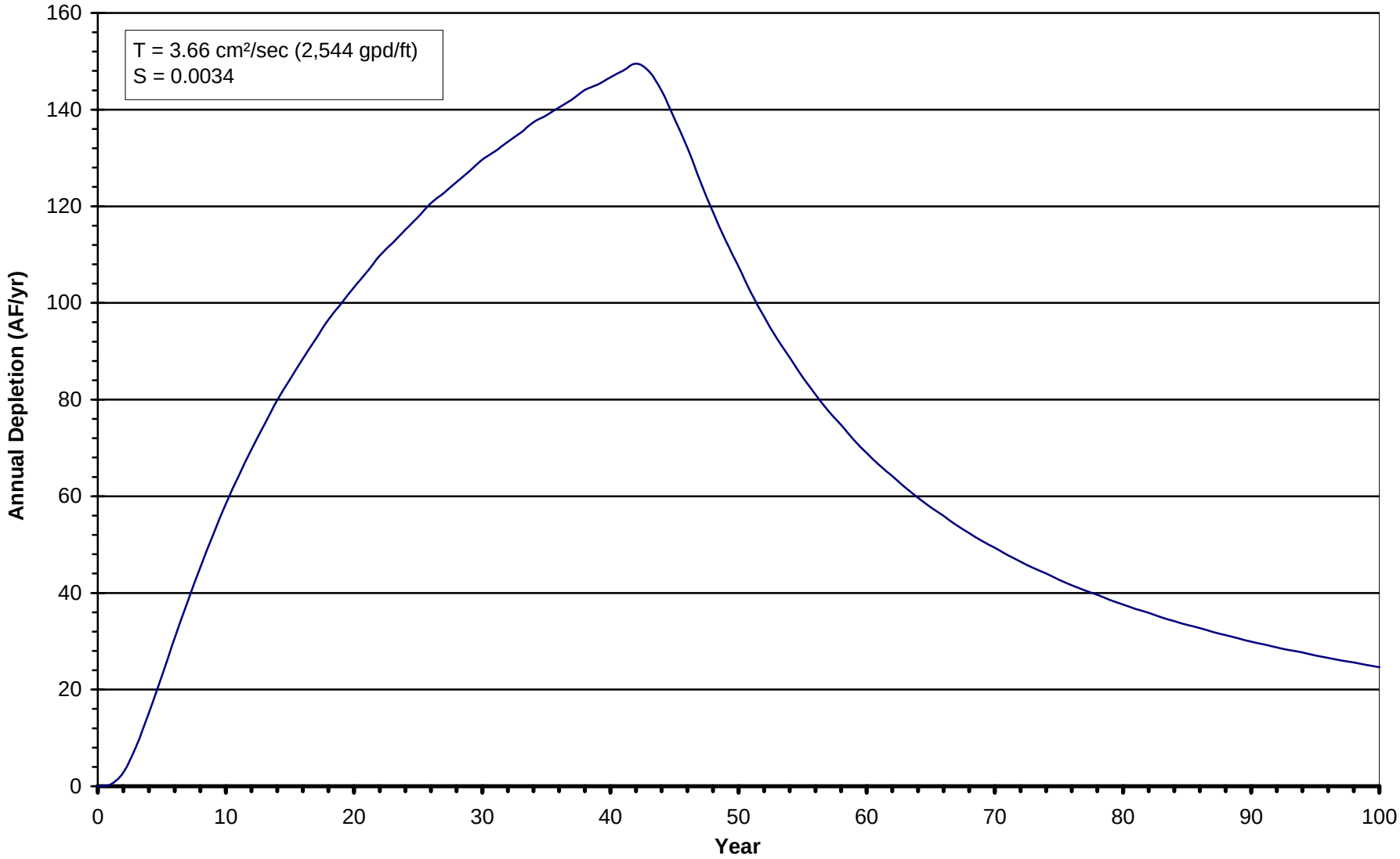
Piñon Ridge Mill Project - Energy Fuels Resources Corporation
Geologic Cross Sections

Figure 5

P:\Project Files\149-10 Energy Fuels Resources Corp\Mapping\ArcMaps\2011\Task 01 CWCB\Figure 5 Geologic Cross Sections.mxd

Figure 6. Potential Annual Depletions to the Dolores River from Groundwater Pumping

Energy Fuels Resources Corporation



Note: Data generated with IDS AWAS Modified Glover with a No Flow Boundary Condition, X = 34,960 ft, B = 2,460 ft, Pumped 282 AF a year for 40 years.

Appendix A:
Results of Glover Groundwater Analysis

Appendix A. Glover Analysis Results

Energy Fuels Resources Corporation

(All values are monthly depletions from the Dolores River in acre-feet.)

Year	January	February	March	April	May	June	July	August	September	October	November	December	Total	Cumulative Total
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	**0.00**
1	0.00	0.00	0.00	0.01	0.01	0.02	0.02	0.03	0.04	0.05	0.07	0.08	**0.34**	**0.34**
2	0.10	0.11	0.14	0.16	0.19	0.21	0.25	0.28	0.30	0.34	0.37	0.42	**2.87**	**3.21**
3	0.46	0.45	0.53	0.56	0.62	0.64	0.71	0.76	0.78	0.85	0.87	0.95	**8.19**	**11.40**
4	1.00	0.95	1.10	1.12	1.21	1.22	1.31	1.37	1.38	1.48	1.48	1.58	**15.20**	**26.60**
5	1.64	1.53	1.75	1.74	1.86	1.85	1.97	2.02	2.01	2.13	2.12	2.24	**22.87**	**49.47**
6	2.30	2.20	2.41	2.38	2.52	2.49	2.63	2.68	2.65	2.79	2.75	2.90	**30.70**	**80.16**
7	2.95	2.71	3.05	3.01	3.16	3.11	3.26	3.32	3.26	3.42	3.36	3.52	**38.13**	**118.29**
8	3.57	3.27	3.67	3.60	3.77	3.70	3.87	3.92	3.84	4.01	3.93	4.11	**45.26**	**163.55**
9	4.16	3.80	4.25	4.16	4.34	4.25	4.44	4.48	4.38	4.58	4.47	4.67	**51.98**	**215.53**
10	4.71	4.45	4.80	4.69	4.89	4.77	4.97	5.02	4.90	5.10	4.98	5.19	**58.44**	**273.97**
11	5.23	4.76	5.31	5.18	5.39	5.26	5.47	5.51	5.37	5.59	5.45	5.67	**64.19**	**338.16**
12	5.71	5.19	5.79	5.64	5.86	5.71	5.94	5.98	5.82	6.05	5.89	6.12	**69.69**	**407.85**
13	6.16	5.60	6.23	6.07	6.30	6.13	6.37	6.41	6.24	6.48	6.30	6.55	**74.84**	**482.69**
14	6.58	6.19	6.65	6.47	6.72	6.53	6.78	6.82	6.63	6.88	6.69	6.95	**79.90**	**562.59**
15	6.98	6.33	7.04	6.85	7.11	6.91	7.17	7.20	7.00	7.26	7.06	7.32	**84.22**	**646.81**
16	7.35	6.67	7.41	7.20	7.47	7.26	7.53	7.56	7.34	7.62	7.40	7.67	**88.48**	**735.29**
17	7.70	6.98	7.76	7.53	7.81	7.59	7.87	7.90	7.67	7.95	7.72	8.01	**92.49**	**827.77**
18	8.03	7.54	8.08	7.85	8.14	7.90	8.19	8.22	7.98	8.27	8.03	8.32	**96.54**	**924.31**
19	8.34	7.56	8.39	8.15	8.44	8.20	8.49	8.52	8.27	8.57	8.31	8.61	**99.86**	**1024.17**
20	8.64	7.82	8.69	8.43	8.73	8.47	8.78	8.80	8.54	8.85	8.59	8.89	**103.24**	**1127.41**
21	8.92	8.07	8.96	8.69	9.01	8.74	9.05	9.07	8.80	9.12	8.84	9.16	**106.44**	**1233.85**
22	9.18	8.61	9.23	8.95	9.27	8.99	9.31	9.33	9.05	9.37	9.09	9.41	**109.79**	**1343.64**
23	9.44	8.54	9.48	9.19	9.52	9.23	9.56	9.58	9.29	9.62	9.32	9.66	**112.40**	**1456.04**
24	9.67	8.76	9.71	9.42	9.75	9.46	9.79	9.81	9.51	9.85	9.55	9.88	**115.15**	**1571.19**
25	9.90	8.96	9.94	9.64	9.98	9.67	10.01	10.03	9.72	10.07	9.76	10.10	**117.78**	**1688.98**
26	10.12	9.48	10.16	9.85	10.19	9.88	10.23	10.24	9.93	10.28	9.96	10.31	**120.63**	**1809.61**
27	10.33	9.35	10.36	10.05	10.40	10.08	10.43	10.45	10.13	10.48	10.16	10.51	**122.71**	**1932.32**
28	10.53	9.52	10.56	10.24	10.59	10.27	10.62	10.64	10.31	10.67	10.34	10.70	**125.01**	**2057.33**
29	10.72	9.70	10.75	10.42	10.78	10.45	10.81	10.83	10.49	10.86	10.52	10.89	**127.21**	**2184.54**
30	10.90	10.21	10.93	10.59	10.96	10.62	10.99	11.01	10.67	11.04	10.69	11.07	**129.69**	**2314.23**
31	11.08	10.02	11.11	10.76	11.14	10.79	11.16	11.18	10.83	11.21	10.86	11.23	**131.37**	**2445.60**
32	11.25	10.17	11.28	10.92	11.30	10.95	11.33	11.34	10.99	11.37	11.02	11.40	**133.33**	**2578.93**
33	11.41	10.32	11.44	11.08	11.46	11.11	11.49	11.50	11.14	11.53	11.17	11.55	**135.21**	**2714.13**
34	11.57	10.83	11.59	11.23	11.62	11.26	11.64	11.66	11.29	11.68	11.32	11.71	**137.40**	**2851.53**
35	11.72	10.60	11.74	11.38	11.77	11.40	11.79	11.80	11.44	11.83	11.46	11.85	**138.77**	**2990.31**
36	11.86	10.73	11.89	11.52	11.91	11.54	11.93	11.95	11.57	11.97	11.60	11.99	**140.46**	**3130.77**
37	12.01	10.85	12.03	11.65	12.05	11.67	12.07	12.08	11.71	12.11	11.73	12.13	**142.09**	**3272.85**
38	12.14	11.37	12.16	11.78	12.19	11.80	12.21	12.22	11.83	12.24	11.86	12.26	**144.06**	**3416.91**
39	12.27	11.09	12.29	11.91	12.32	11.93	12.34	12.35	11.96	12.37	11.98	12.39	**145.19**	**3562.10**
40	12.40	11.21	12.42	12.03	12.44	12.05	12.46	12.47	12.08	12.49	12.10	12.51	**146.66**	**3708.76**
41	12.52	11.32	12.54	12.15	12.56	12.17	12.58	12.59	12.20	12.61	12.21	12.63	**148.09**	**3856.85**
42	12.64	11.83	12.66	12.25	12.67	12.26	12.68	12.68	12.27	12.68	12.26	12.66	**149.54**	**4006.39**
43	12.66	11.42	12.64	12.21	12.61	12.18	12.57	12.55	12.12	12.50	12.07	12.44	**147.96**	**4154.35**
44	12.41	11.19	12.35	11.92	12.29	11.86	12.21	12.18	11.75	12.10	11.67	12.02	**143.94**	**4298.29**
45	11.98	10.78	11.89	11.47	11.81	11.38	11.72	11.67	11.25	11.58	11.16	11.49	**138.19**	**4436.48**
46	11.44	10.66	11.35	10.94	11.26	10.85	11.17	11.12	10.72	11.03	10.63	10.93	**132.10**	**4568.58**
47	10.89	9.79	10.80	10.40	10.70	10.31	10.61	10.56	10.18	10.47	10.09	10.38	**125.19**	**4693.77**
48	10.34	9.30	10.25	9.88	10.16	9.79	10.07	10.03	9.66	9.94	9.58	9.86	**118.85**	**4812.63**
49	9.81	8.83	9.73	9.38	9.65	9.30	9.56	9.52	9.18	9.44	9.10	9.36	**112.85**	**4925.47**
50	9.32	8.68	9.24	8.91	9.16	8.83	9.09	9.05	8.72	8.97	8.65	8.90	**107.51**	**5032.98**
51	8.86	7.97	8.79	8.47	8.72	8.40	8.64	8.61	8.30	8.54	8.23	8.47	**101.99**	**5134.97**
52	8.43	7.59	8.37	8.06	8.30	8.00	8.23	8.20	7.90	8.14	7.84	8.07	**97.14**	**5232.11**
53	8.04	7.23	7.98	7.69	7.92	7.63	7.85	7.82	7.54	7.76	7.48	7.70	**92.65**	**5324.76**
54	7.67	7.15	7.61	7.34	7.56	7.29	7.50	7.47	7.20	7.42	7.15	7.36	**88.72**	**5413.48**
55	7.33	6.60	7.28	7.02	7.23	6.97	7.17	7.15	6.89	7.09	6.84	7.04	**84.61**	**5498.09**
56	7.02	6.32	6.97	6.72	6.92	6.67	6.87	6.84	6.60	6.80	6.55	6.75	**81.03**	**5579.12**
57	6.72	6.05	6.68	6.44	6.63	6.40	6.59	6.56	6.33	6.52	6.29	6.47	**77.69**	**5656.80**
58	6.45	6.02	6.41	6.18	6.37	6.14	6.32	6.30	6.08	6.26	6.04	6.22	**74.78**	**5731.58**
59	6.20	5.58	6.16	5.94	6.12	5.90	6.08	6.06	5.84	6.02	5.80	5.98	**71.67**	**5803.25**
60	5.96	5.37	5.92	5.71	5.88	5.68	5.85	5.83	5.62	5.79	5.59	5.76	**68.96**	**5872.21**
61	5.74	5.17	5.70	5.50	5.67	5.47	5.63	5.61	5.42	5.58	5.38	5.55	**66.41**	**5938.62**
62	5.53	5.16	5.50	5.30	5.46	5.27	5.43	5.41	5.22	5.38	5.19	5.35	**64.20**	**6002.82**
63	5.33	4.80	5.30	5.12	5.27	5.09	5.24	5.22	5.04	5.19	5.01	5.16	**61.78**	**6064.60**
64	5.15	4.64	5.12	4.94	5.09	4.91	5.06	5.05	4.87	5.02	4.84	4.99	**59.67**	**6124.27**
65	4.97	4.48	4.95	4.77	4.92	4.75	4.89	4.88	4.71	4.85	4.68	4.82	**57.68**	**6181.96**
66	4.81	4.49	4.79	4.62	4.76	4.59	4.73	4.72	4.56	4.69	4.53	4.67	**55.96**	**6237.92**
67	4.66	4.19	4.63	4.47	4.61	4.45	4.58	4.57	4.41	4.55	4.39	4.52	**54.03**	**6291.94**
68	4.51	4.06	4.49	4.33	4.46	4.31	4.44	4.43	4.27	4.41	4.25	4.38	**52.35**	**6344.29**
69	4.37	3.94	4.35	4.20	4.33	4.18	4.31	4.29	4.15	4.27	4.12	4.25	**50.76**	**6395.05**
70	4.24	3.96	4.22	4.07	4.20	4.05	4.18	4.17	4.02	4.15	4.00	4.13	**49.38**	**6444.44**
71	4.12	3.71	4.10	3.95	4.08	3.93	4.06	4.05	3.91	4.03	3.89	4.01	**47.81**	**6492.25**

Appendix A. Glover Analysis Results

Energy Fuels Resources Corporation

(All values are monthly depletions from the Dolores River in acre-feet.)

Year	January	February	March	April	May	June	July	August	September	October	November	December	Total	Cumulative Total
72	4.00	3.60	3.98	3.84	3.96	3.82	3.94	3.93	3.80	3.91	3.78	3.89	**46.45**	**6538.70**
73	3.88	3.50	3.87	3.73	3.85	3.72	3.83	3.82	3.69	3.80	3.67	3.79	**45.15**	**6583.85**
74	3.78	3.53	3.76	3.63	3.74	3.61	3.73	3.72	3.59	3.70	3.57	3.68	**44.03**	**6627.88**
75	3.67	3.31	3.66	3.53	3.64	3.52	3.63	3.62	3.49	3.60	3.48	3.58	**42.73**	**6670.61**
76	3.58	3.22	3.56	3.44	3.55	3.42	3.53	3.52	3.40	3.51	3.39	3.49	**41.60**	**6712.21**
77	3.48	3.14	3.47	3.35	3.45	3.33	3.44	3.43	3.31	3.42	3.30	3.40	**40.53**	**6752.74**
78	3.39	3.17	3.38	3.26	3.37	3.25	3.35	3.34	3.23	3.33	3.22	3.32	**39.60**	**6792.34**
79	3.31	2.98	3.29	3.18	3.28	3.17	3.27	3.26	3.15	3.25	3.14	3.23	**38.51**	**6830.85**
80	3.23	2.91	3.21	3.10	3.20	3.09	3.19	3.18	3.07	3.17	3.06	3.15	**37.57**	**6868.42**
81	3.15	2.84	3.14	3.03	3.12	3.02	3.11	3.10	3.00	3.09	2.99	3.08	**36.66**	**6905.08**
82	3.07	2.87	3.06	2.96	3.05	2.94	3.04	3.03	2.93	3.02	2.92	3.01	**35.89**	**6940.97**
83	3.00	2.71	2.99	2.89	2.98	2.88	2.97	2.96	2.86	2.95	2.85	2.94	**34.95**	**6975.92**
84	2.93	2.64	2.92	2.82	2.91	2.81	2.90	2.89	2.79	2.88	2.78	2.87	**34.15**	**7010.08**
85	2.86	2.58	2.85	2.76	2.84	2.75	2.83	2.83	2.73	2.82	2.72	2.81	**33.38**	**7043.46**
86	2.80	2.62	2.79	2.70	2.78	2.69	2.77	2.76	2.67	2.75	2.66	2.74	**32.73**	**7076.19**
87	2.74	2.47	2.73	2.64	2.72	2.63	2.71	2.70	2.61	2.69	2.60	2.68	**31.93**	**7108.11**
88	2.68	2.42	2.67	2.58	2.66	2.57	2.65	2.65	2.56	2.64	2.55	2.63	**31.24**	**7139.35**
89	2.62	2.36	2.61	2.52	2.60	2.52	2.59	2.59	2.50	2.58	2.49	2.57	**30.58**	**7169.93**
90	2.57	2.31	2.56	2.47	2.55	2.46	2.54	2.54	2.45	2.53	2.44	2.52	**29.94**	**7199.86**
91	2.51	2.27	2.51	2.42	2.50	2.41	2.49	2.48	2.40	2.48	2.39	2.47	**29.32**	**7229.18**
92	2.46	2.22	2.45	2.37	2.45	2.36	2.44	2.43	2.35	2.43	2.34	2.42	**28.72**	**7257.91**
93	2.41	2.18	2.40	2.32	2.40	2.32	2.39	2.38	2.30	2.38	2.30	2.37	**28.15**	**7286.06**
94	2.36	2.21	2.36	2.28	2.35	2.27	2.34	2.34	2.26	2.33	2.25	2.32	**27.67**	**7313.72**
95	2.32	2.09	2.31	2.23	2.30	2.23	2.30	2.29	2.21	2.28	2.21	2.28	**27.05**	**7340.78**
96	2.27	2.05	2.27	2.19	2.26	2.18	2.25	2.25	2.17	2.24	2.17	2.23	**26.53**	**7367.31**
97	2.23	2.01	2.22	2.15	2.22	2.14	2.21	2.21	2.13	2.20	2.12	2.19	**26.03**	**7393.34**
98	2.19	2.04	2.18	2.11	2.17	2.10	2.17	2.16	2.09	2.16	2.08	2.15	**25.61**	**7418.96**
99	2.15	1.94	2.14	2.07	2.13	2.06	2.13	2.12	2.05	2.12	2.05	2.11	**25.07**	**7444.03**
100	2.11	1.90	2.10	2.03	2.10	2.02	2.09	2.09	2.02	2.08	2.01	2.07	**24.61**	**7468.64**
Total	**632.95**	**576.86**	**633.28**	**613.02**	**633.63**	**613.36**	**633.98**	**634.15**	**613.86**	**634.50**	**614.20**	**634.84**	**7468.64**	

Assumptions:

Results based on a Modified Glover Analysis using the IDS AWAS program (version 1.5.67) assuming the following: No Flow Boundary Condition, X = 34,960 ft, B = 2,460 ft, T = 3.66 cm²/sec (2,544 GPD/ft), Specific Yield = 0.0034. Pumped 282 AF during each year for 40 years, and all the groundwater that was pumped would have otherwise made it to the Dolores River.

Appendix B:
Memorandum to Hermundstad,
January 12, 2011

555 RiverGate Lane, Suite B4-82
Durango, Colorado 81301
Tele: 970.385.2340
Fax: 970.385.2341
www.BikisWater.com

BĪKIS Water Consultants LLC

MEMORANDUM

To: Mark Hermundstad, Esq.
Williams, Turner & Holmes, P.C.

From: Eric Bikis and Dave Mehan
Bikis Water Consultants, LLC

Date: January 12, 2011

Re: Quantification of the Effects of the Proposed Piñon Ridge Project on Flow in the Dolores River

Approximately 240 acres of the proposed Piñon Ridge Project will be contained within an area in which there will be no discharge of water to East Paradox Creek and the Dolores River (zero-discharge facility). Energy Fuels Resources Corp. (EFRC) has filed for water rights for the project including for up to 428 AF per year of precipitation retention from the zero-discharge facility, which represents retention of the maximum recorded precipitation of 21.4 inches within the zero-discharge area. Objectors to the application include the Colorado Water Conservation Board (CWCB), which objected on the grounds of injury to its decreed instream flow water right for the Dolores River. Therefore, this evaluation was completed to determine the amount of any potential change in flow in the river from the proposed zero-discharge facility.

PROJECT AREA DESCRIPTION

The Piñon Ridge Mill project is a uranium and vanadium processing facility proposed to be constructed in the relatively remote Paradox Valley, approximately 12 miles northwest of Naturita, Colorado. Figure 1 is a vicinity map.

The project will be located in the East Paradox Creek drainage basin, one to two miles from the main creek channel, and about seven miles from the Dolores River. The project site encompasses approximately 880 acres at elevations from 5,420 to 6,020 feet above mean sea level (AMSL). East Paradox Creek is a relatively small, ephemeral drainage that originates at relatively low elevations at the southeast end of Paradox Valley (i.e., its watershed does not include higher elevation, mountainous areas that receive more precipitation). The size of the watershed is 45.2 square miles (sq mi). Figure 2 shows the project site within the East Paradox Creek watershed.

According to work by Golder Associates (Golder) (2010), five basins drain the project site. Water from three of these basins, which total 87 percent of the total drainage area, flows into constructed impoundments off the site. Golder concludes that the only source of runoff from the site with the potential to reach the Dolores River is from the other two basins (13 percent of the area).

Soils in the project area are described in the Web Soil Survey (http://websoilsurvey.nrcs.usda.gov/app) and the 2010 Golder report. Four mapping units occur within the proposed zero-discharge facility: Barx fine sandy loam, Begay fine sandy loam, Mikim loam and Paradox fine sandy loam. All of these soils are Hydrologic Soil Group “B” soils with moderately high to high

saturated hydraulic conductivities (0.6 to 6.0 inches/hour). These soils would have a relatively low runoff generation potential.

The Dolores River originates in the San Juan Mountains to the southeast of the project site and has a much larger drainage area. The drainage area of the river at the U.S. Geological Survey (USGS) Dolores River Stream Gage near Bedrock, CO (ID No. 09171100) is 2,145 sq mi.

The amount of precipitation in the Dolores River Basin varies depending on elevation. Much of the precipitation occurs as snow in the higher elevations where average annual precipitation exceeds 27 inches. The lower portions of the basin, including the proposed project area, are semi-arid with hot summers and cold dry winters (USGS 1983). More intense precipitation events occur during the summer and these have greater potential for producing runoff than wintertime snowmelt events, though runoff from these latter events has been observed at the project site (Golder 2009). The average annual precipitation for the Uravan rain gage is 12.6 inches based on the record for the period 1960-2010.

STUDY METHODS

This analysis was based on review of existing reports and data related to the hydrology of the Piñon Ridge site, along with calculations of runoff amounts. The following documents were utilized:

- "2008-2009 Surface Water Monitoring Summary Report–Piñon Ridge Project Montrose County, Colorado" (Golder Associates, October 2009);
- "Potential Impacts to the Dolores River from the Piñon Ridge Project, Montrose County, Colorado" (Golder Associates, May 2010);
- "Regional Hydrology of the Dolores River Basin, Eastern Paradox Basin, Colorado and Utah" (USGS Water-Resources Investigation Report 83-4217, 1983).

The May 2010 Golder report includes relevant information on surface and groundwater hydrology, soils, and precipitation data. This report discusses the potential impacts from the retention of precipitation on the site and includes a water balance for facility design. Pre- and post-development runoff was estimated by Golder from the basins that include the proposed project using the TR-55 Method (U.S. Department of Agriculture 1986). The basis for runoff estimation in this method is the Curve Number (CN) method. According to this report, there are five separate basins tributary to East Paradox Creek that encompass the project area which total 1,566 acres currently, but will be reduced to 1,326 acres post-development. The difference of 240 acres represents the zero-discharge facility. Golder's calculations indicate that there would be a relatively small reduction of 0.5 AF per year (AF/yr) of runoff from the basins with construction of the project. However, the calculations were made for the 100-year, 24-hour storm event, which is not appropriate for determining potential impacts from a water rights perspective. A 100-year event is relatively rare while more frequent events, such as the mean daily flow, are relevant for water rights analyses.

Therefore, BWC focused on calculation of the change in average flows in the Dolores River due to the retention of precipitation on 240 acres of the zero-discharge facility. The results presented in this analysis are conservative because they assume that the zero-discharge facility will be 240 acres, while phasing will be such that it will never consist of 240 acres at any time. Potential impacts from the retention of precipitation could include: 1) reduction of groundwater recharge which would ultimately contribute flow in the river, and 2) reduction of surface water flow. The effects of

reduced groundwater recharge could potentially occur over several weeks, months, or even years, while the potential effects of reduced surface water flow would occur over hours or several days. Both the amount of runoff generated from the 240 acres and the amount of the water generated that would reach the river, considering channel losses, need to be assessed.

The TR-55 (CN) method was reviewed for suitability to determine the change in runoff generated from the project site. BWC concluded that this method, while widely used to estimate runoff from individual storms for various purposes, is not applicable to determine runoff for longer periods (e.g., annual runoff) (Branson et al. 1981). In addition, the values of the curve numbers used by Golder, which are based on soil and vegetation types from TR-55, indicate that no runoff would be generated from the site for precipitation events of less than 1.64 inches.

Alternatively, two other methods were used by BWC to determine the change in the amount of water generated from the zero-discharge facility. Both of these methods incorporate channel losses. The first method is the USGS web-based StreamStats (http://water.usgs.gov/osw/streamstats). This GIS-based website allows for prediction of various stream flow statistics (e.g., flood flows, low flows, or mean-annual flows) using regression equations that relate flow to certain basin parameters. The method specifies acceptable ranges of basin parameters for the equations, and provides the error on the prediction. Documentation of the equations used in StreamStats is contained in the report "Regional Regression Equations for Estimation of Natural Streamflow Statistics in Colorado" (USGS Scientific Investigations Report 2009-5136).

StreamStats was used to estimate average monthly and annual flows from the East Paradox Creek watershed (drainage area of 45.2 sq mi). Unit-area runoff in AF/acre was determined and used to calculate the runoff generated from the proposed 240-acre zero-discharge facility.

The other method used by BWC was an independent analysis using data from regional stream gages. Records were researched to locate gages with the following criteria:

- Relatively small watershed (less than 500 sq mi),
- Relatively low elevation (less than 8,000 feet AMSL),
- Located on the west slope of Colorado within 100 miles from the project site, and
- With at least three years of data.

A total of 11 stream gages were identified based on the above criteria (see Table 1).

The average annual flow in AF and AF/sq mi of watershed was determined for each gage. A regression analysis was then completed relating average watershed elevation with average annual yield in AF/sq mi. The resulting best-fit regression equation was used to predict the yield of the East Paradox Creek watershed, and this was used to determine the change in runoff from the zero-discharge facility.

RESULTS

The results from StreamStats are shown in Table 2. As this table shows, the estimated annual runoff for East Paradox Creek is 1,488 AF/yr. Using the annual unit-rate of 32.9 AF/sq mi, the average annual runoff from the zero-discharge facility is 12.35 AF/yr (average of 0.017 cubic feet per second (cfs)). This represents the maximum reduction in water in the Dolores River from retention of precipitation, if all the water flowed to the river prior to construction.

The results of the calculations for the gages used in the regional analysis are provided in Table 1. Figure 3 shows the regression equation between average watershed elevation and average annual yield. This figure shows a relatively strong relationship between watershed elevation and yield of the watershed. The coefficient of determination for the regression (R^2) equals 0.79 and is significant at the 95 percent level of confidence. Using Figure 3, the average annual yield for East Paradox Creek (average watershed elevation of 5,809 feet) is 25 AF/sq mi which equates to 1,141 AF/yr for the whole watershed. This results in 9 AF/yr (0.012 cfs) of runoff or potential reduction in flow in the Dolores River due to the zero-discharge facility.

The results from the two methods are relatively similar. Both indicate that the runoff generation potential of the retention site is relatively low, and this is consistent with the relationship between flow and elevation for western Colorado (Figure 3). It is also consistent with the information on the soils at the site that shows the soils have moderately high to high saturated hydraulic conductivity (0.6 to 6.0 inches/hour) and low surface runoff potential (http://websoilsurvey.nrcs.usda.gov/app).

It is noted that East Paradox Creek is an ephemeral drainage. The creek is dry during most of the year, and only flows for brief periods during and after storm events. The runoff estimated from this analysis would occur episodically after relatively large storms. Therefore, the average monthly flows in this analysis are approximations of the potential surface flow schedule. These storms may also increase the flow in the Dolores River and reduce water demands by others.

The analysis above did not consider capture of runoff from the zero-discharge facility in the two downstream impoundment ponds (see Figure 2). The two ponds have an estimated volume of 8.5 AF. Runoff from the zero-discharge facility would flow into the ponds and this will reduce the amount of water that could flow to the creek and Dolores River. It is estimated that capture by the ponds would leave 1.17 AF or 3.85 AF of potential flow to the river, depending on the method (see Table 3). The distance along the creek from the ponds to the Dolores River is approximately 10.8 miles. Most of the channel of East Paradox Creek is alluvium so that channel losses would be relatively high, and this would further reduce the amount of any surface flow reaching the river.

For illustrative purposes, Table 4 shows the percent reduction in the median flow in the Dolores River from the USGS StreamStats analysis due to the estimated reduction in runoff from the zero discharge facility. This table, which does not consider storage of runoff in the impoundment ponds or channel losses, shows that the amount of runoff from the zero-discharge facility is very small compared to the median flow in the river. The median flow would be reduced by 0.002 to 0.031 percent on a monthly basis, or 0.010 percent annually. These reductions in flow are much less than one-percent and could not be measured. The USGS standard for a stream flow measurement under “excellent” conditions is 2 percent (USGS 1945). The reductions in flow in Table 4 are two orders of magnitude less than this standard. The calculations in Table 4 are conservative since they assume all of the runoff reaches the river, and they do not consider storage in the ponds, channel losses, or partial development of the zero-drainage area, which could be significant, as previously discussed.

REFERENCES

Golder Associates. "2008-2009 Surface Water Monitoring Summary Report–Piñon Ridge Project Montrose County, Colorado". 2009.

Golder Associates. "Potential Impacts to the Dolores River from the Piñon Ridge Project, Montrose County, Colorado". 2010

Branson, F.A et al. Rangeland Hydrology. Society of Range Management. Kendall/Hunt Pub Company. 1981.

U.S. Geological Survey. "Regional Hydrology of the Dolores River Basin, Eastern Paradox Basin, Colorado and Utah" .USGS Water-Resources Investigation Report 83-4217. 1983.

U.S. Geological Survey. "Stream Gaging Procedure". USGS Water Supply Paper 888. 1945.

Attachments:
- Table 1. Summary of USGS Stream Gages Used
- Table 2. Summary of USGS StreamStats Analysis for the mouth of East Paradox Creek, CO
- Table 3. Estimation of the Potential Effects of Impoundment Ponds on Flow from the Zero-Discharge Facility to the Dolores River
- Table 4. Comparison of Changes in Flow from the Zero-Discharge Facility with Streamflow in the Dolores River
- Figure 1. Vicinity Map
- Figure 2. East Paradox Creek and Project Site
- Figure 3. Regional Stream Gage Analysis

P:\Project Files\149-10 Energy Fuels\2011\Task 01 CWCB Study\Dolores River Flow Memo - DRAFT\Memo-Impacts on Flow-DRAFT 01-12-11.doc

Table 1. Summary of USGS Stream Gages Used
Energy Fuels Resources Corp.

Stream Gage Station	Station ID	Elevation at Gage (ft AMSL)	Watershed Average Elevation (ft AMSL)	Drainage Area (sq mi)	Years of Record	Annual Average Runoff (AF/yr)	Annual Average Yield (AF/sq mi)
West Paradox Creek Near Paradox, CO	9170500	5590	7746	24.1	7	6232	259
West Paradox Creek Near Bedrock, CO	9171000	4940	6626	56.0	7	3193	57
Salt Creek Near Gateway, CO	9179200	5220	6524	32.4	6	1189	37
Tabeguache Creek Near Nucla, CO	9176500	8010	8958	18.3	7	8161	446
Dry Creek Near Naturita, CO	9175900	6270	7254	78.5	12	4867	62
Disappointment Creek Near Cedar, CO	9168500	5975	7804	168.0	14	12513	74
Disappointment Creek Near Dove Creek, CO	9168100	6420	7931	147.0	29	15637	106
McElmo Creek Below Cortez, CO	9371700	5430	6503	283.0	11	30146	107
McElmo Creek Near Colorado-Utah State Line	9372000	4890	6408	346.0	58	36876	107
Dirty George Creek Near Grand Mesa, CO	9137800	7260	9498	8.6	12	4779	554
Callow Creek at Whitewater, CO	9152520	4610	4830	4.1	3	52.27	13
East Paradox Creek at Dolores Confluence			5809	45.0	0	1141	25
Zero-Discharge Facility			5485	0.4	0	9	25

Sources: USGS and CDSS

Notes:
AF/yr = acre-feet per year.
All stream gages have water diversion upstream of the gaging station for irrigation and other uses.
Annual Average Runoff and yield are for a USGS water year.
Ft AMSL = feet above mean sea level.
Sq mi = square miles.

Table 2. Summary of USGS StreamStats Analysis
Energy Fuels Resources Corp.

Month	Average Runoff (AF)	Average (AF/sq mi)	Zero-Discharge Facility Average Runoff (AF)
	(1)	(2)	(3)
January	69	1.5	0.57
February	79	1.7	0.65
March	122	2.7	1.02
April	165	3.6	1.37
May	293	6.5	2.43
June	208	4.6	1.73
July	164	3.6	1.36
August	135	3.0	1.12
September	9	0.2	0.07
October	92	2.0	0.76
November	76	1.7	0.63
December	77	1.7	0.64
Annual	**1488**	**32.9**	**12.35**

Column Notes:

1) Average runoff in at the mouth of East Paradox Creek. Based on USGS StreamStats Analysis for a 45-square mile basin (see Figure 2).

2) Equals Column (1) divided by 45.18 square miles.

3) This represents the potential reduction in stream flow in the Dolores River downstream of the confluence with East Paradox Creek. Equals Column (2) multiplied by 0.375 square miles (240-acre Zero-Discharge Facility).

Table 3. Estimation of the Potential Effects of Impoundment Ponds

Energy Fuels Resources Corp.

(All values in acre-feet unless otherwise noted.)

Impoundment Pond Potential Effects		
Annual Runoff[1]	USGS StreamStat Analysis	12.35
	Regional Stream Gage Analysis	9.00
Impoundment Pond Volume[2]		8.50
Potential Flow to East Paradox Creek[3]	USGS StreamStat Analysis	3.85
	Regional Stream Gage Analysis	1.17

Footnotes:

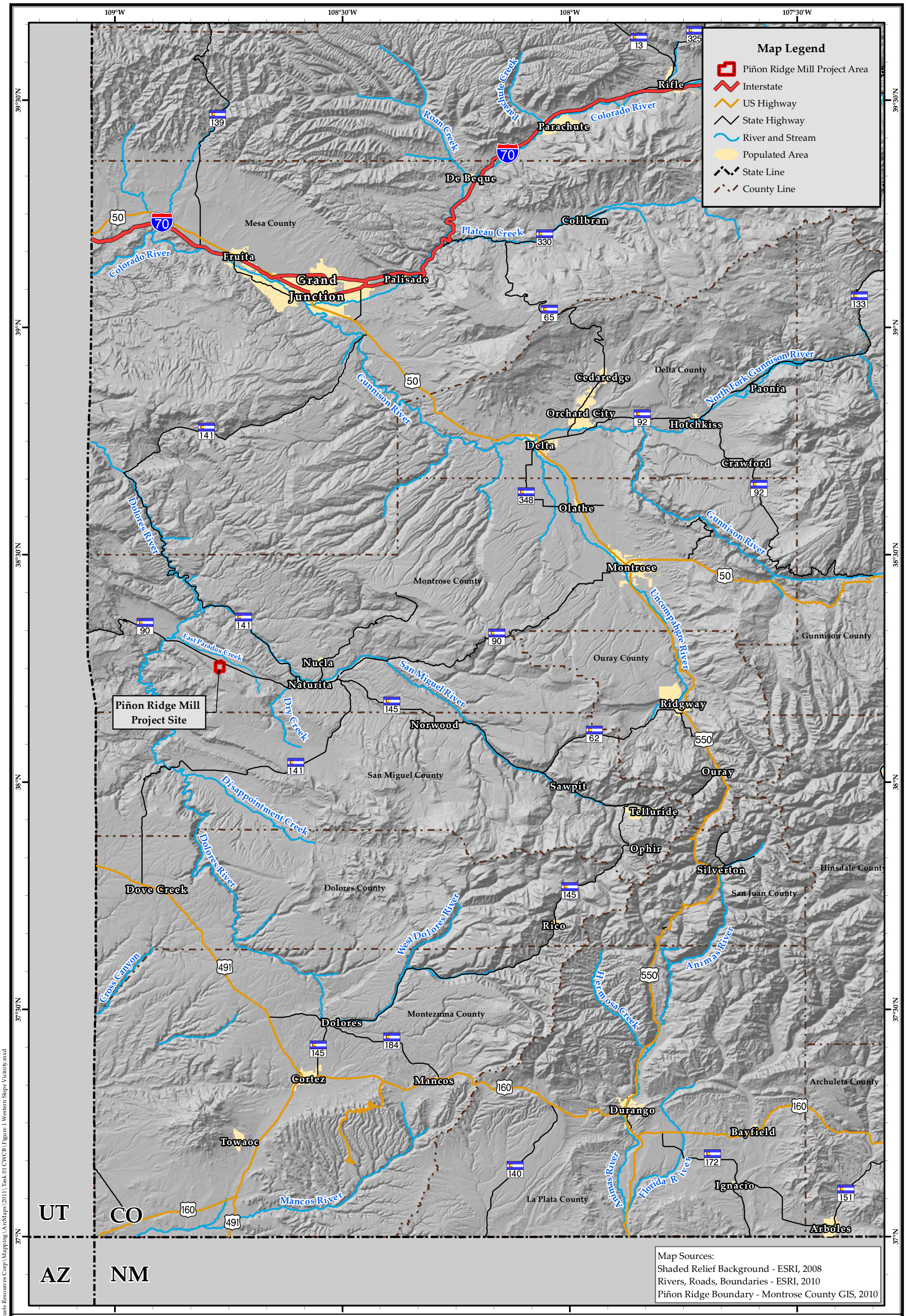
1) Annual runoff from the zero-discharge facility estimated in Tables 1 and 2.
2) Pond 1 volume is 5.5 acre-feet and Pond 2 volume is 3.0 acre-feet (approximate volumes from EFRC).
3) Equals the annual runoff minus the volume captured by the impoundment ponds.

Table 4. Potential Reduction in Flow from the Zero-Discharge Facility
Energy Fuels Resources Corp.

Month	Median Flow at Dolores River Near Bedrock (cfs)	Average Runoff from Zero-Discharge Facility (cfs)	Percent Change in Median Flow in Dolores River Near Bedrock
	(1)	(2)	(3)
January	58	0.009	-0.016%
February	64	0.012	-0.019%
March	101	0.017	-0.016%
April	378	0.023	-0.006%
May	796	0.040	-0.005%
June	287	0.029	-0.010%
July	71	0.022	-0.031%
August	74	0.018	-0.025%
September	63	0.001	-0.002%
October	62	0.012	-0.020%
November	54	0.011	-0.019%
December	48	0.010	-0.021%
Annual	**171**	**0.017**	**-0.010%**

Notes:
Cfs = cubic feet per second.
Rounding errors may occur.
This table does not consider impoundment of runoff in ponds or channel losses. The annual (minimum) percent change in flow considering the impoundment ponds (see Table 3) is -0.0009 to -0.003 percent.

Column Notes:
1) Median monthly streamflow from the USGS Dolores River Gage Near Bedrock, CO (ID No. 09171100) for the period 1984-10-01 through 2010-07-30 (period restricted by USGS due to construction of McPhee Reservoir).
2) From Table 2, Column (3) converted to cfs.
3) Equals Column (2) divided by Column (1) X 100.



BIKIS Water Consultants LLC
555 RiverGate Lane, Suite B4-82
Durango, CO 81301
(970) 385-2340ph 385-2341fx
www.BikisWater.com

0 6.5 13 26 Miles

1 inch = 13 miles

Designed by: DSS
Checked by: DBM
Date: 4/20/2011
Scale: 1:823,680

Piñon Ridge Mill Project
Energy Fuels Resources Corporation
Vicinity Map

Figure 1

P:\Project Files\149-10 Energy Fuels Resources Corp\Mapping\ArcMaps\2011\Task 01 CWCB\Figure 1 Western Slope Vicinity.mxd

R19W | R18W | R18W | R17W | R17W | R16W

T 47 N
T 46 N
T 45 N

Map Legend

- Highway
- Perennial Stream
- Intermittent Stream
- East Fork Paradox Creek Watershed (≈45.18 mi²)
- Impoundment Pond
- Zero-Discharge Facility (240 acres)
- Piñon Ridge Mill Project Area
- Township and Range Line
- Section Line

Dolores River
La Sal Creek
Wild Steer Canyon
East Paradox Creek
Hieroglyphic Canyon
San Miguel River
Turtle Draw
Calamity Draw
Dry Creek
Spring Canyon
Gregory Creek
Leach Creek
Coral Draw
Bull Canyon

90
141

Impoundment Pond 1
Impoundment Pond 2

BIKIS Water Consultants LLC
555 RiverGate Lane, Suite B4-82
Durango, CO 81301
(970) 385-2340ph 385-2341fx
www.BikisWater.com

0 3,300 6,600 13,200 19,800 Feet
0 0.5 1 2 3 Miles
1 inch = 6,600 feet

Map Sources:
USGS 24K Digital Topos - Uravan, Nucla, Naturita, Naturiata NW, Bull Canyon, Anderson Mesa, Davis Mesa, Paradox
Property Boundary - Montrose County GIS
PLSS - BLM and USGS, NMPM

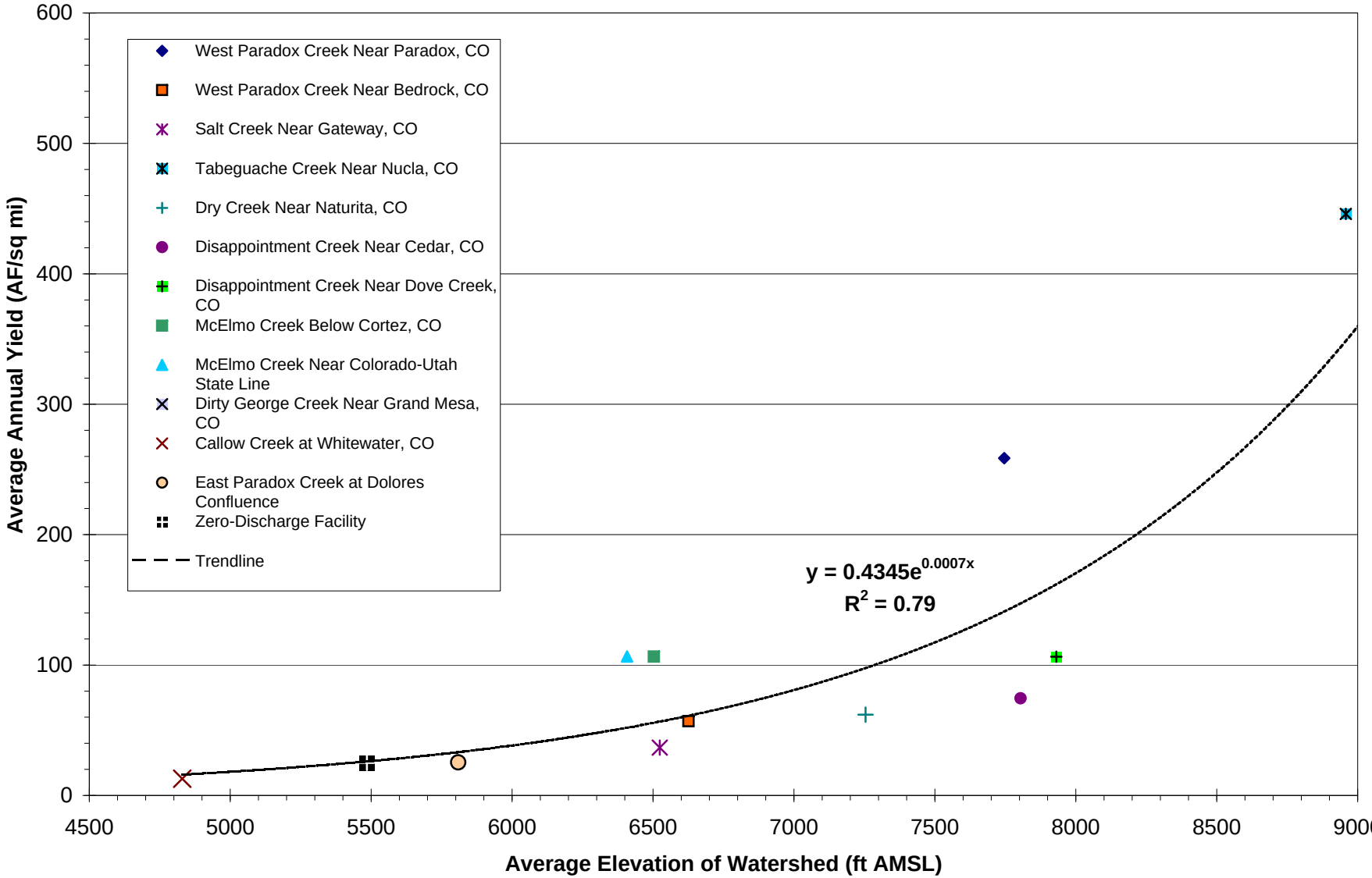
Designed by:DSS
Checked by: EAB
Date: 4/20/2011
Scale: 1:79,200

Piñon Ridge Mill Project
Energy Fuels Resources Corporation
East Paradox Creek and Project Site

Figure 2

P:\Project Files\149-10 Energy Fuels Resources Corp\Mapping\ArcMaps\2011\Task 01 CWCB\Apendix B Fig 2 East Paradox Creek and Project Site.mxd

Figure 3. Regional Stream Gage Analysis
Energy Fuels Resources Corp.



BIKIS
Water Consultants LLC

www.BikisWater.com