



United States Department of the Interior
Bureau of Land Management



Environmental Assessment CO-110-2006-120-EA

**Finding of No Significant Impact and Decision of Record
COC-69165**

Chevron U.S.A.
Oil Shale Research, Development and Demonstration

Sixth Principal Meridian T3S, R97W, Section 5 NE/4, Lots 5, 6, 11, 12

Chevron U.S.A., Houston, Texas

U.S. Department of the Interior
Bureau of Land Management
White River Field Office
73544 Highway 64
Meeker, Colorado 81641

Finding of No Significant Impact and Decision Record

CO-110-2006-120-EA

REFERENCE

Environmental Assessment Record CO-110-2006-120-EA, Chevron Oil Shale Research, Development, and Demonstration (COC-69165), Department of the Interior, Bureau of Land Management, White River Field Office.

INTRODUCTION

The Bureau of Land Management (BLM), White River Field Office, has conducted an environmental analysis (EA) for a Proposed Action and Alternatives related to the leasing of 160-acre tracts of land administered by the Bureau of Land Management for the purpose of exploring the economic viability of shale oil extraction, and to conduct research on modern technologies as a means to extract the liquid fuels from oil shale in an environmentally responsible manner. BLM has determined that the proposed Chevron Oil Shale Research, Development and Demonstration project will have no significant impact on health or the human environment. As provided for by Federal Register notice 70 FR 33753-33759 (June 9, 2005), the BLM has solicited the nomination of parcels to be leased for research, development, and demonstration of shale oil recovery technologies as authorized in section 21 of the Minerals Leasing Act (30 USC 241). The initiative was further endorsed by Congress through section 369(b) and (c) of the Energy Policy Act of 2005, Public Law 109-58 (H.R. 6).

Chevron U.S.A., Inc. has applied to the White River Field Office (WRFO) of the Bureau of Land Management for a Research, Development, and Demonstration (RD&D) Oil Shale Lease together with any supporting rights-of-way pursuant to the BLM's authority to lease Federal lands for oil shale development under section 21 of the Mineral Leasing Act, 30 U.S.C. 241. The Proposed Action includes the construction, operation, and maintenance of an oil shale research facility located in the Piceance Creek Basin approximately 45 miles southwest of Meeker, Colorado.

Chevron has proposed a research project to evaluate the feasibility and commercial viability of in-situ oil shale development. The intent of this proposal is to achieve a "proof of concept." That is, while laboratory experiments and theoretical calculations indicate that various in-situ methodologies are viable commercial options, none have been thoroughly field tested to evaluate their practical application. The Proposed Action provides the opportunity to apply those specific technologies under field conditions. The project results will advance our knowledge of these methodologies regardless of whether or not they prove commercially viable.

Chevron's research will gather additional data on oil shale recovery using conventional drilling methods and controlled fracturing and heating technologies to convert kerogen to oil and gas. The intent of the Chevron proposal is to prove an in-situ development and production method that utilizes controlled fracture technologies to develop relative uniformity in the fractured material to facilitate more efficient shale oil recovery.

This methodology utilizes CO₂ injections to promote control of the fracture network, and to contain the process within a vertically and horizontally limited production interval. The BLM has concluded that analyzing Chevron's proposed recovery process is warranted and may advance knowledge regarding the commercial viability of in-situ technologies for hydrocarbon recovery from oil shale.

In addition to the Proposed Action, the BLM has analyzed the environmental impacts of the Proposed Action with appropriate subalternative mitigation measures applied to the project design. The analysis assesses the environmental consequences of the Proposed Action, enumerates alternative mitigation actions, and evaluates the consequences of the mitigation. The subalternative mitigation measures, in addition to the project design features of the Proposed Action, are intended to reduce the impacts to human health and environment and to minimize surface use conflicts. A summary of the mitigations associated with the Proposed Action, and additional mitigations associated with the alternative mitigation actions, is provided in table form in **Appendix A** of the EA.

The BLM proposes leasing a 160-acre tract located approximately 45 miles southwest of Meeker, Colorado, and requiring the applicant to submit, as a standard lease term, a Plan of Development for an oil shale research, development, and demonstration project. The Chevron tract is situated on a ridge between Hunter Creek and Dry Gulch at elevations ranging from 6,560 to 6,660 feet.

The EA, if not attached, is available at the White River Field Office and incorporated by reference in this Finding of No Significant Impact (FONSI) determination. A mitigated alternative and a no action alternative were analyzed in the EA.

PLAN CONFORMANCE AND CONSISTENCY

The Proposed Action and alternatives have been reviewed, and have been found to be in conformance with one or more of the following BLM Land Use Plans and associated decision(s):

The proposed project is subject to, and has been reviewed for, conformance with the WRRRA Resource Management Plan (RMP) (43 Code of Federal Regulations (CFR) 1610.5, BLM 1617.3).

Name of Plan: White River Record of Decision and Approved Resource Management Plan (ROD/RMP).

Date Approved: July 1, 1997

Decision Number/Page: 2-6

Decision Language: "...At the discretion of the Secretary of the Interior, research scale lease tracts would be considered within lands available for oil shale leasing. Approval of research tracts would be based on the merits of the technology proposed."

The Proposed Action with Mitigation has been found to be in conformance with the WRRRA RMP and with the intent of the Energy Policy Act of 2005.

FINDING OF NO SIGNIFICANT IMPACT DETERMINATION (FONSI)

Based upon a review of the EA and the supporting documents, I have determined that the project will not significantly affect the quality of the human environment, individually, or cumulatively with other actions in the general area. No environmental effects meet the definition of significance in context or intensity as defined at 40 CFR 1508.27 and do not exceed those effects described in the White River Resource Area RMP/FEIS. Therefore, an environmental impact statement is not required for this proposed RD&D project. This finding is based on the context and intensity of the project as described.

Context:

The study area for cumulative impacts is the White River Resource Area (WRRRA). The WRRRA is managed by the WRFO. Of the 2.6 million acres of land within the WRRRA, the surface of 1,455,900 million acres is managed by the BLM (BLM, 1997). The primary human influences on the project area are oil and gas development, historic oil shale and nahcolite mining, and livestock grazing. Existing environmental conditions in the project area reflect changes based on past projects and activities. The project area is rural and relatively undeveloped but is experiencing growth related to energy development.

The project is a site-specific action directly involving 160 acres of land administered by the BLM. While the technology advanced by the Chevron oil shale research, development and demonstration project could have national, regional, and state-wide importance for its contribution to unlocking significant shale oil resources that could help to supply the Nation's future domestic energy needs, the Chevron project, in and of itself, is not likely to produce oil in quantities that would contribute to domestic supplies.

Estimates of the total past, present, and foreseeable future surface disturbance from oil and gas development and oil shale and nahcolite mining equate to 2.4 percent of the total area of the WRRRA managed by the BLM. Five Oil Shale RD&D Proposed Actions are located in the northern portion of the Piceance Basin, primarily on undeveloped land, all within the WRRRA. The 800 acres associated with these five Proposed Actions equate to 2.3 percent of all past, present, and future Proposed Actions, and 0.06 percent of the WRRRA managed by BLM.

Intensity:

The following discussion is organized around the 10 Significance Criteria described at 40 CFR 1508.27 and incorporated in the BLM's Critical Elements of the Human Environment list (H-1790-1) and supplemental Instruction Memoranda, Acts, and Executive Orders. The following have been considered in evaluating intensity for this proposal:

1. Impacts that may be both beneficial and adverse:

The beneficial effects of the propose RD&D project include the advancement of innovative technologies to explore and develop the abundant oil shale resources within the Piceance Creek Basin to meet the needs of our nation's future energy requirements.

Opting for a small-scale, staged, approach to oil shale development provides an opportunity to prove the concept of the technologies involved so as to ensure operation at economic and environmentally acceptable levels before expansion of the RD&D leases to commercial operations can be authorized on public lands. The Chevron RD&D project could add to the collective knowledge regarding the viability of an un-tested technology for use in oil shale development on a commercial scale.

The in-situ (in-place) technology proposed would not permanently modify the land surface, and if the RD&D efforts prove to be sub-economic, the project would be more easily dismantled and lands could be more easily reclaimed with minimal adverse environmental impact.

Adverse effects include the potential for impacts to soils, vegetation, water resources, wildlife, recreation, and visual resources that would occur during construction and operation of the Proposed Action with mitigation.

2. Degree of effect on public health and safety:

The BLM has selected the Proposed Action with Mitigation, which is comprised of all of the design features, environmental commitments, permit requirements, and industry specifications and regulations included in the Proposed Action along with the mitigation measures provided in the subalternative for the construction, operation, and maintenance of an oil shale RD&D facility together with supporting access, utility rights-of-way, and lease issuance, as the environmentally preferred alternative. The Proposed Action with Mitigation achieves the balance of resource protection and beneficial uses of the human environment envisioned by the National Environmental Policy Act.

In contrast to previous oil shale development ventures, the small-scale RD&D program would have minimal impacts on the socio-economic infrastructure of local communities. Environmental commitments, and mitigation measures described in Terms/Conditions/Stipulations as part of this decision, would minimize any public safety effects during project construction and operation.

3. Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas:

There are no prime farmlands, wild and scenic rivers, wilderness areas, National Landscape Conservation Areas, National Monuments, National Parks, or Areas of Critical Environmental Concern (ACECs) in the project area.

As described in the EA, impacts to floodplains and wetlands resulting from the power, communications, and natural gas pipeline right-of-way (ROW) crossing at Hunter Creek would be temporary and minimal. The Proposed Action with Mitigation requires monitoring of water quality to determine if hydrologic interactions lead to potentially adverse impacts. No cultural or heritage resources were identified on the 160-acre parcel nor on the associated ROW, and a finding of "no subsurface potential" was indicated in the March and April, 2006 cultural surveys. The WRFO BLM extended an invitation to the Ute Indian Tribe to participate in the environmental assessment of the proposed oil shale RD&D project, but the Tribe declined the invitation as the parcel is neither within, or contiguous to, the Uintah and Ouray Reservation.

Monitoring and environmental commitments included in the Proposed Action with Mitigation will be developed prior to, and implemented during, project construction to minimize the potential for adverse impacts to scientifically significant paleontological resources, and will lessen adverse effects to public lands administered by the WRFO BLM.

4. Degree to which the possible effects on the quality of the human environment are likely to be highly controversial:

Public input regarding the Proposed Action has been solicited throughout the RD&D planning process. Representatives of the BLM, Rio Blanco County government, and the U.S. Fish and Wildlife Service, met or consulted informally at various times to discuss the potential impacts of oil shale development on the resources under their respective administration.

Public involvement included public scoping meetings held in local communities throughout the region, as well as in open house forums that provided opportunities for the public to view the technologies proposed and to interact with industry representatives. These open houses were held to inform the public of the interdisciplinary team approach to working with the third party contractors preparing the EAs for the RD&D proposals so as to provide consistency among the EAs and to allow shared impact analysis for regional resources. The open houses also provided additional public comment and Q&A opportunities. During the public comment periods, fifteen written comments were received: eight from members of the general public, two from educational institutions, two from environmental advocacy groups (one of which was a collaboration of comments from ten individual organizations), and the remainder were received from state and federal governmental entities. Many of the comments generally recognized that the Proposed Action offered an opportunity to better understand the oil shale resource without sacrificing important natural resources. Concerns were raised about impacts to surface and ground water resources, air quality, and wildlife resources. These impacts have been reduced or minimized to insignificance through the implementation of mitigation measures. Other comments were focused on multiple use management, suitable protective measures, and around concerns that the BLM environmental review be commensurate with the scope of the potential for commercial scale operations and incorporate statements on broad actions concerning the provision for conversion to commercial leasing and subsequent environmental and socio-economic impacts.

During the 30 day review period allowed for the Chevron RD&D EA, a total of 15 comment letters were received from individuals, federal, state, and local agencies, and various interest groups. In the analysis of these comments, 217 separate comments were identified. Many of the comments were of a technical nature requesting clarification on operations or suggesting parameters to be included in the subsequent mitigation and response plans. The BLM has addressed concerns, modified the EA for clarification when appropriate, and is committed to developing mitigation and response plans that incorporate appropriate suggestions submitted as part of the review process.

Based on the number and content of the comments received from the public, the effects of the RD&D program on the quality of the human environment are not considered highly controversial. However, the past oil shale boom and bust cycles, most recently the bust of May 2, 1983 which resulted in significant adverse impacts to the social and economic stability in Western Colorado, will increase the likelihood that a high level of public interest in the implementation, monitoring, and demonstration of feasibility associated with the RD&D leases can be expected.

5. Degree to which the possible effects on the quality of the human environment are highly uncertain or involve unique or unknown risk.

The Chevron proposal utilizes conventional drilling techniques and modified fracturing and heating technologies to convert kerogen to oil and gas. Anticipated effects on the quality of the human environment as a result of the proposed technology have been thoroughly identified, analyzed, and mitigated to an insignificant level.

Due to the nature of the RD&D program, some degree of uncertainty is to be expected. The small-scale approach of initiating research on 160 acre parcels reduces risk by providing an opportunity to field test operations at environmentally acceptable levels of risk. The technology proposed by Chevron would disturb a total of 108 surface acres. Chevron will develop various response and mitigation plans as part of their approved Plan of Development. When uncertainty about impacts to the human environment was identified in the analysis of the Proposed Action, comprehensive mitigation measures were identified and analyzed in the Proposed Action with Mitigation. In addition to project design criteria, BLM-required mitigation, and required monitoring and response plans, the permitting required for operations will also include requirements from regulatory agencies that further mitigate uncertain aspects of implementing the project. The result is a series of built-in checks to address uncertainties associated with implementing the un-tested technology and incorporates adaptive measures to implement in the event that unknown risks are identified.

6. Degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration:

The Proposed Action with Mitigation is a site-specific action directly involving 160 acres of land administered by the BLM. Chevron U.S.A., Inc. has applied for a lease to be issued for a term of ten years with the option for an extension not to exceed five years upon demonstration to the satisfaction of the Authorized Officer that a process leading to production in commercial quantities is being diligently pursued. The lease is subject to conversion to a twenty-year lease upon documenting to the satisfaction of the Authorized Officer that it has produced commercial quantities of shale oil from the lease. The Lessee has the exclusive right to convert the research and development lease acreage to a commercial lease and acquire any or all portions of the remaining preference lease area up to a total of 5,120 contiguous acres. Additional NEPA analysis, in the form of an Environmental Impact Statement (EIS), would be required prior to commercial development of the preference lease acreage.

If implementation of the Proposed Action with Mitigation results in proving Chevron's proposed technology for in-situ hydrocarbon extraction from oil shale, this could affect future BLM actions with regard to future leasing of public oil shale lands, based on the outcome of the PEIS. The demonstration of the feasibility of Chevron's proposed technology could result in increased interest in using BLM-administered lands for energy production. However, this action does not represent a decision in principle about a future consideration.

The Energy Policy Act of 2005, Public Law 109-58 (H.R. 6), directs the Secretary of the Interior (the Secretary) to complete a programmatic environmental impact statement (PEIS) for a commercial leasing program for oil shale and tar sands resources on public lands with an emphasis on the most geologically prospective lands within each of the states of Colorado, Utah, and Wyoming. The BLM will base future decisions with respect to land use planning in three states and regulations for commercial oil shale leasing on that analysis. Those decisions will be made independently of this action, except insofar as results of Chevron's project may add to our information about in-situ technology.

7. Whether the action is related to other actions with individually insignificant but cumulatively significant impacts:

The study area for cumulative impacts is the WRRRA. Of the 2.6 million acres of land within the WRRRA, the surface of 1,455,900 million acres is managed by the BLM. Estimates of the total past, present, and foreseeable future surface disturbance from oil and gas development and oil shale and nahcolite mining are estimated to equate to 2.4 percent of the WRRRA.

A total of five Oil Shale RD&D Proposed Actions are located in the northern portion of the Piceance Basin, primarily on undeveloped land and all within the WRRRA boundary. The percentage of the five proposed tracts currently developed with pipelines, wells, research tracts, or roads were estimated by each of the consultants preparing the EA using aerial photography and site visits. The 800 acres associated with these five proposed actions equate to 2.3 percent of all past, present, and future proposed actions, and 0.06 percent of the WRRRA managed by BLM.

The Proposed Action with Mitigation would not individually have a significant impact on any natural resource within the Piceance Creek Basin or within the communities of the region. However, cumulative impacts to natural resources could occur as the Proposed Action with Mitigation operates in conjunction with other past, present, or reasonably foreseeable future actions, such as the expanding oil and gas production operations in northwestern Colorado. These impacts would be long-term, but not permanent, would occur over a relatively small percentage of land when compared to the overall size of the WRRRA and would not result in significant impact to any areas of historic, cultural, or biological importance.

Extensive monitoring, pollution prevention and permitting requirements further alleviate the possibility of any significant cumulative impacts associated with the RD&D projects.

8. Degree to which the action may adversely affect district, sites, highways, structures, or objects listed on the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources:

No districts, sites, or other properties eligible for listing to, or included on, the National Register of Historic Places was identified for the Proposed Action with Mitigation. Cultural investigations have satisfied the Secretary of the Interior's Standards and Guidelines for the identification of historic properties. No eligible historic properties were identified within the area of potential direct or indirect effects. On-site monitoring of excavation activities by qualified archeologists provided by the BLM will minimize the potential for adverse effects to heritage resources. The Proposed Action with Mitigation contains requirements and contingencies in the event that previously unknown cultural resources are identified.

9. Degree to which the action may adversely affect an endangered or threatened species or its critical habitat:

Field surveys were conducted on the 160-acre lease parcel and surrounding areas by qualified biologists in March of 2006 and found that no known federally listed animal or plant species and no critical habitat for such species is present at that location.

A Biological Assessment (BA) was prepared in compliance with Section 7(c) of the Endangered Species Act (ESA) and submitted to the U.S. Fish and Wildlife Service (USFWS). The analysis, results, and conclusions presented in the BA are based on surveys and research conducted by biologists and botanists contracted by the preparer and the BLM. Based on the predicted impacts of the Proposed Action with Mitigation, the BA concluded there would be “no effect” on all but five federally listed endangered, threatened, proposed for listing and candidate species. For the bald eagle, the BA described that increased activity from implementation of the Proposed Action with Mitigation may increase the incidence of vehicle accidents or disrupted feeding, resulting in a conclusion of “may affect, not likely to adversely affect”.

For the four endangered Colorado River fish species, water depletions of up to 12 to 13 acre/feet per year from local water supply companies or wells “may affect, not likely to adversely affect” endangered Colorado River fish species. The water depletions constituting the 12 to 13 acre/feet per year are to be used during drilling and construction and for dust suppression and personnel use.

New projects involving a depletion of greater than 100 acre-feet per year are required to pay a one-time fee to cover the annual depletion. Projects involving less than 100 acre-feet per year of depletion have no cost to the water user. The estimated depletion for the proposed action with mitigation is significantly less than 100 acre-feet per year, and may not involve any depletion. The project would result in estimated maximum water use of 13 acre-feet per year. Water will be obtained from private local providers.

Based on the determination that implementing the Proposed Action with Mitigation Alternative “may affect, not likely to adversely affect” endangered Colorado River fish species, consultation between the BLM and USFWS would occur under the BLM minor depletions Programmatic Biological Opinion, which addresses water depletions of less than 125 acre-feet/year.

The USFWS reviewed the BA to assess the potential impacts of the Proposed Action with Mitigation on federally listed endangered, threatened, proposed for listing, and candidate species. In a letter, dated September 12, 2006, the USFWS responded to the BA for the five oil shale RD&D projects. In its biological opinion (ES/GJ-6-CO-94-F017), the USFWS concurred with the conclusions of the oil shale RD&D BAs for all federally listed endangered, threatened, proposed for listing, and candidate species. The USFWS additionally determined that the five RD&D projects fit under the umbrella of the programmatic biological opinion for small water depletions caused by BLM authorized activities. The three companies have been notified of their responsibility to make annual payments to the National Fish and Wildlife Foundation as specified in the USFWS biological opinion.

10. Whether the action threatens a violation of federal, state, or local environmental protection law:

The Proposed Action with Mitigation violates no federal, state, or local environmental protection laws.

Potential violations will be avoided through environmental commitments and monitoring stipulations defined in the Proposed Action with Mitigations.

These commitments and stipulations were developed during project planning involving all participants in the RD&D program and during ongoing consultations with the Colorado Department of Wildlife, US Fish and Wildlife Service and the Rio Blanco County government.

To continue to meet air quality standards the BLM would require the operator to continue to cooperate with existing atmospheric deposition and visibility impact monitoring programs. The need for, and the design of, additional monitoring could include the involvement of the EPA Region 8 Federal Leadership Forum (EPA, 2001) and applicable air quality regulatory agencies. In addition, extensive pollution prevention and permitting requirements alleviate the possibility of any significant air quality impacts associated with the RD&D projects.

To maintain water quality compliance the operator will install groundwater-monitoring wells and collect surface water data. Using this data, a detailed water monitoring and response program will be developed in cooperation with BLM, USGS, CDPHE, and industry. The monitoring and response plan will address monitor well locations, water-bearing units to be monitored, monitor well design, analytes, water level measurements, frequency of sampling and analysis, sampling techniques, analytical methods, QA/QC processes, and reporting requirements.

The water monitoring and response plan will not be restricted to groundwater, but will address surface water upstream and downstream from the RD&D sites, springs, seeps, and groundwater-surface water interactions.

Based on the above analysis of the context and intensity of potential impacts resulting from the Proposed Action with Mitigation, BLM has determined that the proposed Chevron Oil Shale Research, Development and Demonstration project will have no significant impact on health or the human environment.

Approved by:



C. Stephen Allred
Assistant Secretary
Land and Minerals Management

11/9/2006
Date

DECISION:

It is my decision to authorize an Oil Shale Research, Development, and Demonstration lease, along with any supporting rights-of-way, to Chevron U.S.A. for the demonstration of their shale oil extraction technology. This decision is contingent upon Chevron fulfilling all applicable environmental commitments, including certain monitoring commitments described in the Subalternative - Proposed Action with Mitigations of the Environmental Assessment (EA).

Rationale for Decision:

The EA considered the following: the No Action Alternative, the Proposed Action, and the sub-alternative, Proposed Action with Mitigation. The subalternative, Proposed Action with Mitigation is the preferred alternative and is recommended to ensure that impacts to health and human environment are reduced or minimized to insignificant levels. The Proposed Action with Mitigation incorporates all practicable means to avoid or minimize impacts to health and the human environment.

The No Action Alternative was not selected because it would not fulfill the purpose, need and requirements of the RD&D program, Congressional intent declared in the Energy Policy Act of 2005. The Proposed Action was not selected because BLM identified environmental impacts from the proposed action that may have been significant in both context and intensity.

Among other factors, the environmentally preferred alternative helps to:

- Preserve important historic, cultural, and natural aspects of our national heritage, and maintains, whenever possible, an environment that supports diversity and variety of individual choices.
- Attain the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences.

The decision to grant an Oil Shale Research, Development, and Demonstration lease to Chevron U.S.A. has been made in consideration of the factors described above. The preferred alternative represents an opportunity to develop domestic energy sources and to inform and advance knowledge of commercially viable production, development and recovery technologies consistent with sound environmental management.

Authorities:

Department of Interior, Bureau of Land Management

Monitoring and Enforcement:

Potential resource conflicts were resolved through environmental commitments and monitoring stipulations integral to the Proposed Action with Mitigations. These are fully described in the subject EA. These commitments and stipulations were developed during project planning involving all participants in the RD&D program and during ongoing consultations with the Colorado Department of Wildlife, US Fish and Wildlife Service and Rio Blanco County government.

Monitoring and enforcement of these commitments will be incorporated as special lease stipulations that will ensure the right of the BLM to inspect the leased lands, including surface and underground improvements, equipment, books and records; and require the lessee to monitor environmental affects. Failure to comply with lease terms could result in suspension of operations or forfeiture and cancellation of the lease.

Terms/Conditions/Stipulations:

The following terms, conditions, stipulations, and other mitigation measures are incorporated in the Proposed Action with Mitigation as outlined in the subject EA, and are comprised of BLM specifications and guidelines, industry imposed measures, and environmental commitments put forth by Chevron U.S.A. These measures were designed for site-specific and regional mitigation so as to lessen the potential for adverse effects to public lands administered by the White River Field Office BLM.

1. The holder shall minimize construction impacts to air quality by acquiring Colorado Department of Public Health and Environment (CDPHE) Air Pollution Control Division (APCD) construction emissions permits, complying with permit stipulations, and implementing emission control measures.

The BLM would require the operator to continue to cooperate with existing atmospheric deposition and visibility impact monitoring programs. The need for, and the design of, additional monitoring could include the involvement of the EPA Region 8 Federal Leadership Forum (EPA, 2001) and applicable air quality regulatory agencies. Based upon future recommendations, operators could be required to cooperate in the implementation of a coordinated air quality-monitoring program.

In addition Chevron shall:

- Appropriately surface roads and well locations on soils susceptible to wind erosion to reduce the amount of fugitive dust generated by traffic or other activities.
- Use dust inhibitors (surfacing materials, non-saline dust suppressants, water, etc.) as necessary on unpaved collector, local and resource roads to prevent fugitive dust problems.
- Establish and enforce speed limits (15 to 30 mph) on all project-required roads in and adjacent to the project area.

2. The holder shall minimize impacts to cultural resources by implementing the following measures:

- Survey for and mitigate any cultural resources found on the project site prior to construction.
- Inform all persons associated with the project operations that they will be subject to prosecution for knowingly disturbing historic or archaeological sites, or for collecting artifacts.
- Stop all activity in the area if historic or archaeological materials are uncovered during any project or construction activities and immediately notify the BLM Authorized Officer.
- Notify the BLM Authorized Officer by telephone and with written confirmation, immediately upon discovery of human remains, funerary items, sacred objects, or objects of cultural patrimony. Stop activities in the immediate area of the find, and the discovery would be protected for 30 days or until notified to proceed in writing by the BLM Authorized Officer.

3. The holder shall minimize impacts to floodplains by implementing measures for the proper handling of topsoil and spoil, erosion control, and reclamation procedures. These measures include the following:

- Comply with the Army Corps of Engineers Nationwide Permit 12 conditions; Colorado Department of Public Health and Environment-Water Quality Control Commission (CDPHE-WQCC) permit requirements, and EPA NPDES storm water regulations.
- Apply BLM Gold Book guidelines for pipelines and flowlines.
- Limit construction equipment to that essential for clearing, installation, and restoration.
- Perform routine daily inspections to identify leaks and initiate corrective actions.
- Manage all soil materials such that erosion and sediment transport are minimized.
- Install erosion controls for bank stabilization and sediment runoff into surface waters.
- Monitor surface water quality and flow.
- Revegetate disturbed areas with BLM-approved seed mixes.
- Complete all construction activities at the stream crossing during no-flow period.
- Complete stream crossing within 24 hours if possible.
- Limit grading, topsoil segregation, and excavation along the stream banks to only that area required for installation.

4. The holder shall minimize impacts caused by invasive, non-native species by implementing measures to treat existing infestations, prevent introduction/expansion of infestations during construction, and monitor and treat infestations after construction is complete. Chevron will:

- Conduct surveys to identify any invasive, non-native species at the proposed lease site.
- Use certified weed-free erosion control and reclamation materials (e.g., straw bales and seed mixes).
- Monitor the distribution and density of noxious weeds on the tract. Control and/or eradicate new or expanded populations for the life of the RD&D project and throughout final reclamation.
- Revegetate disturbed areas with BLM-approved seed mixes.

- Keep all disturbed areas as free of noxious weeds and undesirable species.
 - Conduct pre-construction field surveys each spring.
 - Consult with BLM and local weed agencies to develop treatment strategies for any noxious weed infestations identified during spring surveys.
 - Require vehicles and equipment to arrive at the work site clean, and free of soil and vegetative debris capable.
 - Install wash stations at designated infestation areas if any are identified in spring 2007.
 - Conduct pre-construction field surveys each spring prior to construction, to identify existing noxious weed infestations within the project area.
 - Require vehicles and equipment to arrive at the work site clean, power-washed, and free of soil and vegetative debris capable of transporting weed seeds or other propagules.
 - Install wash stations at designated infestation areas if any are identified in spring 2007. Equipment would be power-washed to remove soil and propagules prior to leaving the infested areas. Wash station locations will be determined in conjunction with the BLM and local weed agencies after spring surveys have been completed. Wash water will be contained and grease traps will be added as required.
 - Seed disturbed areas as discussed in the Vegetation section.
5. The holder shall minimize impacts to migratory birds by implementing the following measures:
- Conduct follow-up surveys if construction activities do not begin prior to February 1, 2007;
 - Minimize, where possible, vegetation clearing while migratory birds are nesting (February 1 through August 15);
 - If reserve pits are deemed necessary on site, ensure that pits are lined, fenced on all four sides with net-wire, and covered with plastic barrier to exclude both large and small animals and netted to prevent birds from accessing these pits. Plastic flagging has proven to be ineffective at deterring migratory waterfowl from using reserve pits for foraging, resting or as a source of free water. The Operator will notify the BLM via Sundry Notice of the method that will be used to prevent impacts to migratory birds two weeks prior to the date when completion activities are expected to begin. The BLM-approved method will be applied within 24 hours after completion activities have begun.
 - All lethal and non-lethal events that adversely affect migratory birds will be reported to a WRFO Petroleum Engineer Technician and Wildlife Biologist immediately.

No special status species are presently known to occur in the project area. If surveys reveal special status species to be present, Chevron must comply with the following measures detailed in Appendix A of the White River Resource Area RMP (1997):

- No development activities are allowed within 1/2 mile of identified nest sites of listed, candidate, or BLM sensitive raptor species (except Bald Eagle and Ferruginous Hawk) from February 1 through August 15, or until fledging and dispersal of young. Development activities are allowed from August 16 through January 31;
- No development activities allowed within 1/4 mile of identified nests of other special status raptor species from February 1 through August 15, or until fledging and dispersal of young. Development activities are allowed from August 16 through January 31;

- No development is allowed within one (1) mile of identified nests of Ferruginous Hawks from February 1 through August 15, or until fledging and dispersal of young. Development activities allowed from August 16 through January 31;
- No surface occupancy within 1/4 mile of an identified nest of an ESA listed, proposed, or candidate raptor species;
- No surface occupancy within 1/8 mile of an identified nest of other special status raptor species;

These mitigation measures can be exempted, modified, or waived by BLM if conditions warrant and the decision is documented through an environmental analysis. An exception would suspend the stipulation on a one-time basis. Modifications would temporarily or permanently change the language or provision of a stipulation. Waivers are utilized to permanently remove the stipulation due to changed circumstances. Conditions for granting an exception, modification, or waiver are described in the Appendix A of the White River Resource Area RMP (1997).

6. The holder shall minimize impacts to Special Status Plant Species by implementing the following measures:

In addition to the proposed action, the BLM would require mitigation measures to ensure impacts to special status plant species are reduced or minimized. Although there is little potential for special status plant species in the project area, pre-construction surveys would be conducted for special status plants during the flowering period. If threatened, endangered, or BLM sensitive plant species or habitat are identified during future field surveys, Chevron will coordinate with the BLM to determine conservation measures and the need for FWS consultation for threatened and endangered and BLM sensitive plant species.

Chevron will also implement the following BLM mitigation measures in the event sensitive plant species are identified:

- Coordinate with BLM to determine conservation measures and the need for FWS consultation for threatened and endangered and BLM sensitive plant species.
- Conduct follow-up raptor surveys if construction activities do not begin prior to the 2007 raptor nesting season.
- Conduct surveys prior to construction activities to determine which species would require clearance surveys in the project area if construction occurs in spring of 2007.
- Comply with No surface occupancy stipulations.
- Comply with Timing Limitation stipulations.
- Prevent vegetation clearing while migratory birds are nesting (February 1 through August 15).

7. The holder shall minimize impacts to Threatened, Endangered, and Sensitive Animal Species by implementing the following measures:

In addition to the proposed action, impacts to special status species would be further minimized by implementing the following mitigation measures:

- The Operator or Operator's proponent will conduct follow-up raptor surveys if construction activities do not begin prior to February 1, 2007;

- Conduct special status species surveys prior to construction activities to determine which species clearances may be needed if construction is planned to begin after April 1, 2007;
- If reserve pits are deemed necessary on site, ensure that pits are lined, fenced on all four sides with net-wire, and covered with plastic barrier to exclude both large and small animals and netted to prevent birds from accessing these pits;
- Reclaim reserve pits as soon as possible after use;
- Adhere to the requirements of USFWS Biological Opinion and the Colorado River Fish Species recovery program.

No special status species are presently known to occur in the project area. If surveys reveal special status species to be present, Chevron must comply with the following measures detailed in Appendix A of the White River Resource Area RMP (1997):

- No development activities are allowed within 1/2 mile of identified nest sites of listed, candidate, or BLM sensitive raptor species (except Bald Eagle and Ferruginous Hawk) from February 1 through August 15, or until fledging and dispersal of young. Development activities are allowed from August 16 through January 31;
- No development activities allowed within 1/4 mile of identified nests of other special status raptor species from February 1 through August 15, or until fledging and dispersal of young. Development activities are allowed from August 16 through January 31;
- No development is allowed within one (1) mile of identified nests of Ferruginous Hawks from February 1 through August 15, or until fledging and dispersal of young. Development activities allowed from August 16 through January 31;
- No surface occupancy within 1/4 mile of an identified nest of an ESA listed, proposed, or candidate raptor species;
- No surface occupancy within 1/8 mile of an identified nest of other special status raptor species;

These mitigation measures can be exempted, modified, or waived by BLM if conditions warrant and the decision is documented through an environmental analysis. An exception would suspend the stipulation on a one-time basis. Modifications would temporarily or permanently change the language or provision of a stipulation. Waivers are utilized to permanently remove the stipulation due to changed circumstances. Conditions for granting an exception, modification, or waiver are described in the White River Resource Area RMP.

8. The holder shall minimize solid and hazardous waste impacts by implementing the following measures. The holder shall:

- Implement measures to minimize solid and hazardous wastes.
- Maintain project area in sanitary condition at all times.
- Dispose of wastes at appropriate waste disposal facilities.
- Provide adequate number of trash containers on-site.
- Provide portable sanitation facilities on-site.
- Watch for signs of hazardous or solid wastes and take appropriate reporting and mitigative measures.
- Comply with applicable laws and regulations.

- Use, store, transport, and/or dispose of hazardous materials in accordance with applicable federal and state laws.
 - Implement spill prevention measures, inspection and training requirements, and spill response and notification procedures to minimize the potential for accidental spills or leak.
9. The holder shall minimize impacts to water quality, surface and ground, by implementing the following measures:
- Install a comprehensive groundwater monitoring system in coordination with the BLM and other federal and state agencies.
 - Obtain all necessary federal and state permits, and comply with the Corps of Engineers Nationwide Permit 12 conditions.
 - CDPHE Water Quality Control Division (WQCD) Permit conditions.
 - Obtain a stormwater discharge permit and submit its stormwater management plan to the WRFO.
 - Prepare and implement a spill prevention, control and countermeasure (SPCC) plan for BLM approval.
 - Adhere to “Gold Book” fourth edition surface operating standards for oil and gas exploration and development for all surface disturbing activities.
 - Develop a groundwater monitoring plan that will be consistent with the groundwater monitoring programs undertaken at the other Colorado oil shale RD&D tracts in terms of plan design and parameters monitored.
 - Continue groundwater monitoring as long as needed to determine that the site is acceptable for abandonment.
 - Submit a water monitoring and response plan to the Authorized Officer prior to project implementation.
10. The holder shall minimize impacts to wetlands and riparian areas by obtaining and complying with the Corps of Engineers Nationwide Permit 12 conditions and by implementing measures to lessen the duration of disturbance, reduce the soil disturbance, and enhance restoration. The holder shall:
- Install monitoring wells on the tract and collect surface water data from Hunter Creek and Dry Gulch to determine hydrologic interactions from the Chevron site, if any.
11. The holder shall minimize impacts to soils by implementing measures for the proper handling of topsoil and spoil, erosion control, and reclamation procedures. The holder shall:
- Strip to a depth of 6 to 12 inches, depending on its depth.
 - Store any subsoil stripped during grading separately from topsoil to prevent mixing.
 - Seed soil stockpiles and cover.
 - Return soils to their pre-construction locations.
 - Install and maintain temporary erosion and sediment controls immediately following clearing and grading of the site to control erosion. Remove them during reclamation, as appropriate.
 - Loosen compacted soils using a tractor-pulled ripper or similar device. Return the site to its pre-construction contours.

- Seed all disturbed areas with BLM-recommended seed mixes.
- Install permanent erosion control measures where needed.
- Prepare and implement an SPCC plan for BLM approval.

12. The holder shall minimize impacts to vegetation by implementing the following measures:

- Minimize vegetation removal to only the extent necessary to allow for safe and efficient construction activities.
- Install and maintain erosion control measures until vegetation becomes established.
- Restore pre-construction contours, drainage patterns, and topsoil.
- Cut trees and cutting brush with as close to the ground as possible.
- Leave stumps and root balls in place except in areas requiring topsoiling, or as necessary to create a safe and level workspace.
- Shred or chip brush and salvage with topsoil.
- Salvage and replace topsoil, to preserve and replace existing seed banks and return organic matter needed for seed establishment to the soil.
- Prepare a seedbed (scarifying, tilling, harrowing, or roughening) prior to seeding where needed to improve revegetation potential.
- Control noxious weeds.
- Use drill or broadcast seed methods as appropriate.
- Redistribute large, woody material salvaged during clearing operations in order to meet fire management objectives, provide wildlife habitat and seedling protection.
- Use certified weed-free seed purchased from and blended by qualified producers and dealers, and meet requirements that are described in the BLM Instruction Memorandum No. 2006-073 entitled *Weed-Free Seed Use on Lands Administered by the BLM* and as listed in the table below:

Standard WRFO Seed Mixes

Standard WRFO Seed Mix (Native Seed Mix #2) Rolling Loam Ecological Site	Rates (lbs pure live seed/acre)
Western wheatgrass (Rosanna)	2.0
Indian ricegrass (Rimrock)	1.0
Bluebunch wheatgrass (Whitmar)	2.0
Thickspike wheatgrass (Critana)	2.0
Globemallow	0.5
Fourwing saltbush (Wytana)	1.0
Total	8.5

Standard WRFO Seed Mix (Native Seed Mix #3) Pinyon-Juniper Ecological Site	Rates (lbs pure live seed/acre)
Western wheatgrass (Rosanna)	2.0
Indian ricegrass (Rimrock)	1.0
Bluebunch wheatgrass (Whitmar)	2.0
Thickspike wheatgrass (Critana)	2.0
Fourwing saltbush (Wytana)	1.0
Utah sweetvetch	1.0
Total	9.0

13. The holder shall minimize impacts to aquatic wildlife by implementing the following mitigation measures:

- Monitor groundwater and surface water.
- Monitor stream flow and water quality in nearby streams and springs.
- Install erosion control measures.
- Maintain erosion and sediment control measures.
- Comply with USFWS Recovery Implementation Program requirements for water depletions, if necessary, although none are anticipated due to the project depleting far less than the 125 acre-feet criteria.
- Prohibit storage of hazardous materials, chemicals, fuels and lubricating oils, and prohibit concrete coating and refueling activities within 200 feet of any water body or wetland.
- Minimize erosion from upland areas by restoring and seeding disturbed areas.

14. The proposed action identifies potential impacts to terrestrial wildlife. In order to mitigate potential impacts, BLM would require alternative mitigation measures. Chevron would implement the following mitigation measures to minimize impacts:

- Redistribute large, woody material salvaged during clearing operations so as not to exceed 3 to 5 tons/acre, and mulch excess woody materials;
- Limit fencing on the tract to facilities that otherwise would present a hazard to humans and/or wildlife;
- Seed disturbed areas according to BLM recommendations;
- Support carpooling and establish a policy of reduced vehicular speed, especially at night and;
- If reserve pits are deemed necessary on site, ensure that pits are lined, fenced on all four sides with net-wire, and covered with plastic barrier to exclude both large and small animals and netted to prevent birds from accessing these pits.

15. The holder shall minimize impacts to transportation and roads by implementing the following mitigation measures:

- Encourage carpooling programs to minimize the number of vehicles traveling to the site and maintain access roads to the site.
- Consider providing temporary overnight accommodations at the site to reduce round-trip travel to Meeker or Rifle during certain periods of the project.
- Control dust along unsurfaced access roads and minimize tracking of soil onto paved roads.
- Comply with county weight and load restrictions.
- Maintaining unsurfaced roads during construction and operations of the project.
- Restore unsurfaced roads to equal or better condition than pre-construction condition.
- Consult with Rio Blanco County regarding potential impacts and mitigation measures.

- 16.** The holder shall minimize the risk of accidental fires and achieve fire management objectives by implementing the following mitigation measures:
- Control noxious weeds and cheatgrass.
 - Seed disturbed areas.
 - Develop a fire management plan.
 - Inspect and maintain all equipment that might provide an ignition source.
 - Require all employees to strictly adhere to all of Chevron's hot-work procedures.
 - Coordinate with the BLM and Rio Blanco County emergency response teams in developing fire suppression priorities, identifying management restrictions, and determining appropriate fire suppression strategies.
 - Equip construction equipment operating with internal combustion engines with approved spark arresters.
 - Carry fire-fighting equipment on motor vehicles and equipment.
 - Take immediate action to suppress accidental fires.
 - Creating defensible space around the facilities in accordance with Colorado Firewise guidelines.
 - Test, construct and operate in accordance with BLM fire management requirements.
 - Redistribute large, woody material salvaged during clearing operations on WRFO-administered lands and disperse materials over the portion of the tract from which they were originally removed.
 - Refer to the BLM Fire Management Activity Plan (FMAP) for additional mitigation requirements.
 - Providing all employees on site, as well as county and BLM officials, with a developed evacuation plan.
- 17.** The holder shall minimize the impacts to forest management by implementing the following measures:
- Seed disturbed areas.
 - Control noxious weeds.
 - Cut trees with a maximum stump height of six inches and disposing of the trees.
 - Cut the trees into four-foot length, down to four inches in diameter, and placing the trees along the edge of the disturbance.
 - Remove the trees from federal land for resale or private use.
 - Chip and scattering the trees.
 - Acquire a fuel woods permit and compensate the BLM for trees removed.
- 18.** The holder shall minimize potential impacts from noise by implementing the following mitigation measures:
- Apply sound suppression devices on all noise generating equipment and facilities in accordance with COGCC rule 802 for Noise Abatement.
 - Install and maintain appropriate mufflers and silencers on construction equipment and facility machinery.
 - House or cover noise-producing sources with appropriate insulated facilities.
 - Comply with Rio Blanco County noise level standard of 65 dBA.

19. The holder shall minimize impacts to paleontological resources by implementing the following BLM mitigation measures:
 - Comply with BLM monitoring requirements.
 - Require a paleontologic monitor be on site prior to any ground-disturbing activities that may intercept underlying rock and also to spot check during surface clearing activities associated with the facility construction.
 - Train construction and operation personnel that collection of paleontological specimens is not allowed.

20. The holder shall minimize the impacts to rangelands by implementing the following measures:
 - Seed disturbed areas.
 - Control noxious weeds.
 - Maintain and/or relocate existing range controls.

21. The holder shall minimize damage to existing utilities or other impacts to realty authorizations by implementing the following measures:
 - Comply with all ROW grant stipulations contained within the conditions of approval.
 - Comply with all applicable state and county laws and regulations.
 - Work with other leaseholders in the area to minimize conflicts.
 - Use the "One Call" system to locate and stake the centerline and limits of all underground facilities in the area of the proposed excavation.
 - Provide 48-hour notification to the owner/operator of any foreign pipeline prior to performing any work within 10 feet of buried or aboveground pressurized gas piping.
 - Prohibit machine excavation within 5 feet from any known or proposed existing pipeline encountered in the ROW unless authorized by the pipeline owners/operators.

22. The holder will initiate discussions with Rio Blanco County to determine appropriate mitigation measures to offset the demands on local services. Chevron will:
 - Work with county governments and local communities to offset any impacts.
 - Provide emergency training to workers.
 - Encourage carpooling.
 - Obey weight restrictions on county roads.

23. The holder will minimize visual contrast impacts by implementing the following measures:
 - Water roads and construction areas.
 - Seed disturbed areas as soon as possible.
 - Encourage carpooling.
 - Paint all aboveground facilities in accordance with BLM-recommended color schemes.
 - Restore disturbed portions of the tract to original contours to the degree possible after monitoring well installation, facility construction, and finally upon site restoration to restore natural drainage and runoff patterns.
 - Site structures off ridge lines where feasible.
 - Use low-profile structures.

- Site slash/debris piles in low visibility areas.
- Feather and thin edges of cleared areas outside the site buffer zone, and inside the facility (where applicable and feasible).
- Co-locate utility services in combined right-of-way.
- Use directed lighting (where applicable and feasible).

Conclusion

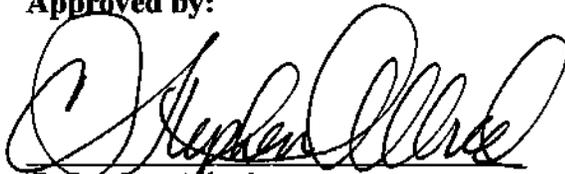
Based on the above analysis of the context and intensity of potential impacts resulting from the Proposed Action with Mitigation, the BLM has determined that the proposed Chevron Oil Shale Research, Development and Demonstration project will have no significant impact on health or the human environment.

To continue to meet air quality standards the BLM would require the operator to continue to cooperate with existing atmospheric deposition and visibility impact monitoring programs. The need for, and the design of, additional monitoring could include the involvement of the EPA Region 8 Federal Leadership Forum (EPA, 2001) and applicable air quality regulatory agencies. In addition, extensive pollution prevention and permitting requirements alleviate the possibility of any significant air quality impacts associated with the RD&D projects.

To maintain water quality compliance the operator will install groundwater-monitoring wells and collect surface water data. Using this data, a detailed water monitoring and response program will be developed in cooperation with BLM, USGS, CDPHE, and industry. The monitoring and response plan will address monitor well locations, water-bearing units to be monitored, monitor well design, analytes, water level measurements, frequency of sampling and analysis, sampling techniques, analytical methods, QA/QC processes, and reporting requirements. The water monitoring and response plan will not be restricted to groundwater, but will address surface water upstream and downstream from the RD&D sites, springs, seeps, and groundwater-surface water interactions.

The decision to grant an Oil Shale RD&D lease to Chevron has been made in consideration of the factors described above. The Proposed Action with Mitigation represents an opportunity to develop domestic energy sources and to inform and advance knowledge of commercially viable production, development and recovery technologies consistent with sound environmental management.

Approved by:



C. Stephen Allred
Assistant Secretary
Land and Minerals Management

11/9/2006
Date