

U.S. Department of the Interior  
Bureau of Land Management  
White River Field Office  
220 E Market St  
Meeker, CO 81641

## ENVIRONMENTAL ASSESSMENT

**NUMBER:** DOI-BLM-CO-110-2011-0151-EA

**CASEFILE/PROJECT NUMBER(S):**

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COD032678	COD052265	COD052241
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COD032675	COD052538	COD051174

**PROJECT NAME:** Chevron's Weber Sand Unit Field-Wide Environmental Assessment

**LEGAL DESCRIPTION:** T. 2 N., R. 103 W., Sec. 13-15, 22-26, 36, 6<sup>th</sup> Principle Meridian  
T. 2 N., R. 102 W., Sec. 16-22, 25-36 6<sup>th</sup> Principle Meridian  
T. 1 N., R. 102 W., Sec. 1-5 6<sup>th</sup> Principle Meridian

**APPLICANT:** Chevron USA, Inc.

**PURPOSE & NEED FOR THE ACTION:** The purpose of the Proposed Action is to manage the exploration and development of mineral resources on Public Lands in a manner that avoids, minimizes, reduces, or mitigates potential impacts to other resource values.

The purpose of the action is to develop oil and gas resources within the Weber Sand Unit consistent with existing Federal Lease rights. The need for the action is established by the BLM's responsibility under the authority of the Mineral Leasing Act of 1920 as amended by the Federal Land Policy and Management Act of 1976 (FLPMA) to respond to the request to develop the Federal Leases.

**Decision to be Made:** The BLM will decide whether to approve Chevron's Plan of Development as the plan for future management of the federal surface and mineral estate in the Weber Sand Unit through year 2016, and if so, under what conditions. This decision will not be the final review or approval for the majority of the actions associated with the Weber Sand Unit development. The Authorized Officer will review and consider each component of the project that involves federal lands or minerals on a site-specific basis. Other reviews or decision points include, but are not limited to, the review of Applications for Permit to Drill (APDs), right-of-way (ROW) grants, and Sundry Notices. The only specific actions where the BLM will make a

final decision at this time are the nine replacement flowlines detailed in the Proposed Action as pending Sundry Notices.

### **SCOPING, PUBLIC INVOLVEMENT, AND ISSUES:**

**Scoping:** Scoping was the primary mechanism used by the BLM to initially identify issues. Internal scoping was initiated when the project was presented to the White River Field Office (WRFO) interdisciplinary team on 7/23/2011. External scoping was conducted by posting this project on the WRFO's on-line National Environmental Policy Act (NEPA) register on 7/26/2011.

**Issues:** None.

### **DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES:**

**Background/Introduction:** The analysis area (hereafter project area or Weber Sand Unit (WSU) is approximately 19,264 acres in size, and includes approximately 7,545 (39 percent of the project area) federal surface acres and 11,709 (61 percent of the project area) private (or fee) surface acres. Within the project area, all federal surface acres also include 100 percent federal subsurface mineral estate, and 100 percent of the fee surface estate is fee mineral estate. There is also approximately 10 acres (<1 percent) of State-owned property in the project area (Figure 1).

The project area has been impacted by oil and gas extraction for the past 107 years. Natural gas and oil extraction infrastructure is the dominant man-made feature within the project area, and well density and road density values are among the highest density values in the White River Field Office (WRFO) Resource Area.

To date, well pad and pipeline infrastructure development within the Weber Sand Unit has been confined generally to fee surface acres. This pattern is best illustrated by plotting well and road density (Figures 2 and 3). The distribution of areas where well density is high appears to be confined to clusters that are relatively evenly distributed and positioned in the southern half of the unit on fee surface. Moreover, the distribution of producing wells appears to be evenly distributed and follows lines that are oriented in a northwest to southeast direction.

Since 2004, approximately 122 NEPA documents have been prepared for actions that fall within the geographic extent of the project area. There are approximately 435 producing wells and approximately 1,118 known well locations in the project area in abandoned, shut-in, or unknown status. The average number of wells per square mile in the project area was estimated at 56 wells per square mile. When considering well and road density values within the project area, the highest values occur on fee surface. The primary operator for this unit is Chevron USA, Inc.

Regarding the information that was submitted by the applicant that pertains to calculating disturbance estimates, the following assumptions apply:

1. The proposed and anticipated features apply only to 'normal' or routine projects

within the WSU boundary. The applicant did not include the possible seismic shoot that could have implications outside of the WSU.

2. The applicant assumed that replacement pipelines will use a 40 foot right-of-way (ROW), with a 10 foot offset to the existing pipeline corridor.
3. Pipelines for new wells or projects were considered as 'new disturbance', though many could likely be routed along roads or existing pipelines to minimize new disturbance. Similarly, access roads for new wells would likely be constructed within the 40 foot ROW for the associated pipeline.
4. The analysis of the Proposed Action also does not include upgrades to Collection Stations (batteries) that would occur within the existing disturbed area.
5. In case of general pipeline replacements, the applicant assumed that they would be distributed across the field with a 60/40 split of private to BLM surface (representative of the WSU surface distribution as a whole).

The operator anticipates starting construction and pipeline installation activities in mid-November, and the operator has confirmed that construction-related activities for 2011 should be completed by 2/15/12.

**Proposed Action:**

For the remainder of 2011 and extending out to year 2016, the operator proposes to drill 159 additional wells, construct 94 new well pads, and install 146 new pipelines within the project area. In addition, the operator proposes to install approximately 294 replacement pipelines in the project area. Total acres disturbed for these features within the project area would equal approximately 1,060 acres.

When considering only federal surface/federal mineral estate, for the remainder of this year and extending out to year 2016, the operator proposes to drill 64 additional wells, construct 42 new well pads, and install 58 new pipelines, and approximately 118 replacement pipelines. Total acres disturbed for these features within the project area on federal surface would equal approximately 417 acres.

For a summary of disturbance estimates by year, see Tables 1, 10, and 11.

**Table 1.** Proposed disturbance summary for the analysis area.

Project Type		Unit	R2011 <sup>1</sup>	2012	2013	2014	2015	2016	Total
<b>FEE/BLM COMBINED</b>	Well Pad Disturbance	Acres		11	16	16	19	18	80
	Unreclaimed Area of Well Pad	Acres		9	15	15	16	16	71
	Total Pipeline Disturbance <sup>2</sup>	Acres	65	165	197	215	184	154	980
	New Disturbance	Acres	16	81	80	97	95	77	446
<b>BLM ONLY</b>	Well Pad disturbance	Acres		4	6	7	8	7	32
	Unreclaimed Area of Well Pad	Acres		3	4	4	5	4	20
	Total Pipeline Disturbance	Acres	26	55	76	92	79	57	385
	New Disturbance	Acres	6	18	24	34	32	20	134

<sup>1</sup> For the remainder of 2011

<sup>2</sup> Total line disturbance includes both new and replacement pipelines.

**Pending Sundry Notices (SNs) to be included in this EA:**

During the development of this document, Chevron submitted Sundry Notices (SNs) requesting the installation of nine replacement water injection pipelines in existing injection pipeline corridors (Figure 4). In addition to the injection lines that will be installed in 2012 through 2016, for which SNs have not been submitted, it was decided that these additional pipelines would be included in the analysis for this document, and below is a detailed summary of each proposed injection pipeline. All replacement lines would be installed within the Weber Sand Unit and would result in approximately 17 acres of surface disturbance. The existing buried injection lines will be flushed with fresh water, capped on both ends and abandoned in place, and reclamation of the right-of-ways will be per BLM specifications and as described in Attachment 1.

Replacement Line 1 (05-103-09207): This replacement line will run from the AC McLaughlin 3AX well and the LN Hagood A16X well north to a tie in point at an existing valve. The line will be approximately 1,731 feet in length and will consist of a 3 inch, high pressure fiberglass pipe rated for 2,500 psi (Figure 6). If the installation of this replacement line is approved and implemented, it will result in the disturbance of approximately two acres.

Replacement Line 2 (05-103-06420): This replacement line will run from the AC McLaughlin 56X well south to a tie in point at an existing valve. The line will be approximately 1,404 feet in length and will consist of a 3 inch, high pressure fiberglass pipe rated for 2,500 psi (Figure 7). If the installation of this replacement line is approved and implemented, it will result in the disturbance of approximately one acre.

Replacement Line 3 (05-103-05809): This replacement line will run from the AC McLaughlin 7 well north to a tie in point at an existing valve. The line will be approximately 1,265 feet in length and will consist of a 3 inch, high pressure fiberglass pipe rated for 2,500 psi (Figure 6). If

the installation of this replacement line is approved and implemented, it will result in the disturbance of approximately one acre.

Replacement Line 4 (05-103-05798): This replacement line will run from the AC McLaughlin 12 well northwest to a tie in point at an existing valve. The line will be approximately 1,004 feet in length and will consist of a 3 inch, high pressure fiberglass pipe rated for 2,500 psi (Figure 6). If the installation of this replacement line is approved and implemented, it will result in the disturbance of approximately one acre.

Replacement Line 5: (LN Hagood A1, A8, A13X, A17X, and Emerald 64X): Chevron proposes to install a replacement water injection line that will support five well locations; LN Hagood A1, LN Hagood A8, LN Hagood A13X, LN Hagood A17X and fee surface location Emerald 64X (Figure 5). The total length of the line will be approximately 6,147 ft, and the injection line will parallel the existing injection line right-of-way. Approximate duration of the pipeline installation will be 5 months. If the installation of the proposed replacement pipelines are approved and implemented, this action will result in the disturbance of approximately five acres.

Replacement Line 6 and 7: (Weyrauch 7x36 and Weyrauch 6x36): Chevron proposes to install two replacement flowlines. The lines will start at well locations Weyracuch 7x36 and Weyrauch 6x36 and run in individual trenches approximately 1,134 ft and 554 ft, respectively (Figure 8). The lines will then converge into one combined trench that will run an additional approximately 2,025 ft for a total of 5,738 ft of pipeline disturbance. The flowlines will parallel the existing pipeline rights-of-ways. The line will consist of 4 inch fiberglass pipe rated at 1,000 psi. Approximate duration of the pipeline installation will be 6 months. If the installation of the proposed replacement pipelines are approved and implemented, this action will result in the disturbance of approximately five acres.

Replacement Line 8: Flowline 1: Chevron proposes to install one replacement flowline from AC McLaughlin 78X to CS # 4 (header) (Figure 9):. The line will start at the AC McLaughlin 78X well and run in an individual trench approximately 1,498 feet to the CS # 4 header. The flowline will parallel the existing pipeline corridor. The line will consist of 4 inch fiberglass pipe rated at 1,000 psi. Approximate duration of the pipeline installation will be 6 months. If the installation of this replacement line is approved and implemented, it will result in the disturbance of approximately one acre.

Replacement Line 9: Flowline 2: Chevron proposes to install one replacement flowline from AC McLaughlin 79X to tie in (Satellite Header # 3) (Figure 10). The line will start at the AC McLaughlin 79X well and run in an individual trench approximately 572 feet to Satellite Header # 3. The flowline will parallel the existing pipeline corridor. The line will consist of 4 inch fiberglass pipe rated at 1,000 psi. Approximate duration of the pipeline installation will be 4 months. If the installation of this replacement line is approved and implemented, it will result in the disturbance of approximately one acre.

Design Features: See Attachment 1 (Plan for Surface Reclamation of Pipeline ROWs, Access Roads, and Well Pads).

**No Action Alternative:** Under the No Action Alternative, Chevron's Plan of Development (POD) for the Weber Sand Unit would not be approved, and the nine site-specific pipeline replacement requests would be denied. Site-specific review of individual components of the POD would continue but would most likely require the preparation of an Environmental Assessment (EA), rather than a Determination of NEPA Adequacy (DNA) document or Categorical Exclusion (CX) document. The preparation of an EA for each action would result in an increase in processing time for individual proposals and would also not allow for as thorough an assessment of cumulative impacts.

**ALTERNATIVES CONSIDERED BUT NOT CARRIED FORWARD:** None.

**PLAN CONFORMANCE REVIEW:** The Proposed Action is subject to and has been reviewed for conformance with the following plan (43 CFR 1610.5, BLM 1617.3):

Name of Plan: White River Record of Decision and Approved Resource Management Plan (White River ROD/RMP) (BLM 1997)

Date Approved: July 1, 1997

Decision Number/Page: Page 2-5

Decision Language: "Make federal oil and gas resources available for leasing and development in a manner that provides reasonable protection for other resource values."

## **AFFECTED ENVIRONMENT & ENVIRONMENTAL CONSEQUENCES**

**Standards for Public Land Health:** In January 1997, the Colorado BLM approved the Standards for Public Land Health. These standards cover upland soils, riparian systems, plant and animal communities, special status species, and water quality. Standards describe conditions needed to sustain public land health and relate to all uses of the public lands. Because a standard exists for these five categories, a finding must be made for each of them in an environmental analysis (EA). These findings are located in specific elements listed below.

**Cumulative Effects Analysis Assumptions:** Cumulative effects are defined in the Council on Environmental Quality (CEQ) regulations (40 CFR 1508.7) as "...the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions." Table 2 lists the past, present, and reasonably foreseeable future actions within the area that might be affected by the Proposed Action; for this project the area considered was Chevron's Weber Sand Unit. However, the geographic scope used for analysis may vary for each cumulative effects issue and is described in the Affected Environment section for each resource.

**Table 2.** Past, Present, and Reasonably Foreseeable Actions.

Action Description	STATUS		
	Past	Present	Future
Livestock Grazing	X	X	X
Recreation	X	X	X
Invasive Weed Inventory and Treatments	X	X	X
Range Improvement Projects : Water Developments Fences & Cattleguards	X	X	X
Wildfire and Emergency Stabilization and Rehabilitation	X	X	X
Oil and Gas Development: Well Pads Access Roads Pipelines Gas Plants Facilities	X	X	X
Power Lines	X	X	X
Oil Shale	X	X	X
Seismic	X	X	X
Vegetation Treatments	X	X	X

**Affected Resources:**

The CEQ Regulations state that NEPA documents “must concentrate on the issues that are truly significant to the action in question, rather than amassing needless detail” (40 CFR 1500.1(b)). While many issues may arise during scoping, not all of the issues raised warrant analysis in an environmental assessment (EA). Issues will be analyzed if: 1) an analysis of the issue is necessary to make a reasoned choice between alternatives, or 2) if the issue is associated with a significant direct, indirect, or cumulative impact, or where analysis is necessary to determine the significance of the impacts. Table 3 lists the resources considered and the determination as to whether they require additional analysis.

**Table 3.** Resources and Determination of Need for Further Analysis.

Determination <sup>1</sup>	Resource	Rationale for Determination
<b>Physical Resources</b>		
PI	Air Quality	See discussion below.
PI	Geology and Minerals	See discussion below.
PI	Soil Resources*	See discussion below.
PI	Surface and Ground Water Quality*	See discussion below.
<b>Biological Resources</b>		

<b>Determination<sup>1</sup></b>	<b>Resource</b>	<b>Rationale for Determination</b>
NI	Wetlands and Riparian Zones*	The only system which may have potential to support riparian vegetation is Stinking Water Creek, all of which is privately owned within the Weber Sand Unit. BLM administered reaches further upstream and outside of the project area have limited riparian resources due to low water flow. It is unlikely that these downstream reaches within the project area are capable of supporting a strong riparian component.
PI	Vegetation*	See discussion below.
PI	Invasive, Non-native Species	See discussion below.
PI	Special Status Animal Species*	See discussion below.
PI	Special Status Plant Species*	See discussion below.
PI	Migratory Birds	See discussion below.
PI	Aquatic Wildlife*	See discussion below.
PI	Terrestrial Wildlife*	See discussion below.
NP	Wild Horses	The project area is not within the Piceance-East Douglas Herd Management Area or either Herd Area.
<b>Heritage Resources and the Human Environment</b>		
NI	Cultural Resources	See discussion below.
PI	Paleontological Resources	See discussion below.
NI	Native American Religious Concerns	No Native American Religious Concerns are known in the area, and none have been noted by Northern Ute tribal authorities. Should recommended inventories or future consultations with Tribal authorities reveal the existence of such sensitive properties, appropriate mitigation and/or protection measures may be undertaken.
PI	Visual Resources	See discussion below.
PI	Hazardous or Solid Wastes	See discussion below.
NI	Fire Management	Proposed Action takes place in B3 and B10 polygons. Aggressive fire suppression is predetermined.
NI	Social and Economic Conditions	There would not be any substantial changes to local social or economic conditions.
NP	Environmental Justice	According to the most recent Census Bureau statistics (2000), there are no minority or low income populations within the WRFO.
<b>Resource Uses</b>		
NP	Forest Management	There are no woodlands present within the project area.
PI	Rangeland Management	See discussion below.

Determination <sup>1</sup>	Resource	Rationale for Determination
PI	Floodplains, Hydrology, and Water Rights	See discussion below.
PI	Realty Authorizations	See discussion below.
NI	Recreation	Due to the level of oil and gas development, very little, if any, dispersed recreation occurs in the area. As such, no impacts on recreation are anticipated.
PI	Access and Transportation	See discussion below.
NP	Prime and Unique Farmlands	There are no Prime and Unique Farmlands within the project area.
<b>Special Designations</b>		
P	Areas of Critical Environmental Concern	See discussion below.
NP	Wilderness	There are no WSAs in the project area.
NP	Wild and Scenic Rivers	There are no Wild and Scenic Rivers in the WRFO.
NP	Scenic Byways	There are no Scenic Byways within the project area.

<sup>1</sup> NP = Not present in the area impacted by the Proposed Action or Alternatives. NI = Present, but not affected to a degree that detailed analysis is required. PI = Present with potential for impact analyzed in detail in the EA.

\* Public Land Health Standard

## AIR QUALITY

*Affected Environment:* The Proposed Action is an attainment area for national and state air quality standards, based on a review of designated non-attainment areas for criteria pollutants, published by the Environmental Protection Agency (EPA 2011), The Proposed Action is located more than 10-miles from any special designation airsheds or non-attainment areas. Non-attainment areas are areas designated by U.S. Environmental Protection Agency (EPA) as having air pollution levels that persistently exceed the national ambient air quality (NAAQ) standards. Projects that could impact special designation areas and non-attainment areas may require special consideration from the air quality regulatory agencies of Colorado Department of Public Health and Environment (CDPHE) and the EPA. The closest special designation areas are Dinosaur National Monument which is located north of the project area (designated Class II airshed with Prevention of Significant Deterioration (PSD) with thresholds for sulfur oxides and visibility), and the Mount Zirkel and Flat Tops Wilderness Areas located to east and the north of the Proposed Action (designated Class I areas). General conformity regulations require that federal activities do not cause or contribute to a new violation of NAAQ standards; that actions do not cause additional or worsen existing violations of the NAAQ standards; and that attainment of these standards is not delayed by federal actions in non-attainment areas.

The Proposed Action is located near Rangely in the Western Counties Monitoring Region and the two Counties area (Rio Blanco and Garfield Counties). The 2010 CDPHE monitoring assessment for this area showed there were 11 particulate monitors in the western Counties

region (APCD 2010). This regional assessment did not include two BLM sponsored sites established in 2010 in Rio Blanco County; one within 10 miles of the Proposed Action on the east side of Rangely. Local air quality parameters including particulates are being measured at monitoring sites located at Meeker, Rangely, Dinosaur, and Ripple Creek Pass near the Flat Tops Wilderness Area. Ozone data have been collected in Meeker and Rangely since 2010 and at Colorado National Monument in Mesa County since 2007. To a limited extent ozone is also measured at Dinosaur National Monument. The closest location for wet deposition is the cooperative National Atmospheric Deposition Program (NADP) near the Flat Tops Wilderness, northeast of the project area.

*Environmental Consequences of the Proposed Action:*

Direct and Indirect Effects: Construction of the proposed facilities would result in short-term impacts on air quality during construction, drilling, completion and, to a lesser extent, from vehicles, and oil and gas processing and gas compression facilities during the production phase. Increases in the following criteria pollutants are expected to occur due to combustion of fossil fuels during construction and drilling activities: carbon monoxide, ozone (secondary pollutant formed photochemically from volatile organic compounds (VOCs) and nitrogen oxides (NO<sub>x</sub>)), nitrogen dioxide, and sulfur dioxide. NAAQ standards have not been set for non-criteria pollutants that would experience slight, temporary increases as a result of the Proposed Action. Non-criteria pollutants include nitric oxide, air toxics (e.g., benzene), and total suspended particulates, among others.

Additional low, short-term impacts to air quality may occur due to venting or flaring of gas from wells and VOCs from equipment, pits, and tanks during completion activities. VOCs including hazardous air pollutants (HAPs) commonly associated with oil and gas production (benzene, toluene, ethylbenzene, xylene, and n-hexane) will be released during production activities from tanks and separation equipment and due to transportation of natural gas, oil, produced water, and condensate by pipeline or trucks.

According to CDPHE, the majority of dust pollution in Colorado is from miscellaneous fugitive dust sources (CAQCC 2010). Soil disturbance resulting from construction, heavy equipment, and drill rigs is expected to cause increases in fugitive dust and inhalable particulate matter, specifically for particulate matter (PM) 10 microns ( $\mu\text{m}$ ) or less in diameter (PM<sub>10</sub>) and particles 2.5  $\mu\text{m}$  or less in diameter (PM<sub>2.5</sub>). During construction and drilling phases, dust production is likely, especially when conditions are dry and/or windy. Fugitive dust emissions due to construction and drilling would cause low, short-term impacts to local air quality, specifically visibility. Since this project is in soils derived from Mancos shale and are made up of fine particles and with sparse vegetation, dust production is likely in these areas. Dust particles are the major contributors to visibility problems because of their ability to scatter or absorb light and can have human health effects. The increase in airborne particulate matter from this project and the other wells previously approved is not expected to exceed CAAQ or NAAQ standards on an hourly, 8-hour average, or daily basis.

Even with increases in criteria and non-criteria pollutants, other than dust, the project would be unlikely to result in an exceedance of NAAQ standards and Colorado ambient air quality CAAQ standards for air quality, with the exception of ozone. There is the potential in the next three to

five years to have violation of the ozone standards at the Rangely or Dinosaur monitoring sites, due to more persistent high ozone levels measured at these sites. Ozone levels are influenced by emissions in the White River Basin and from the nearby Unita and Yampa River basins. This project could contribute to ozone formation in Rangely were winter inversions have led to several exceedances of 1 hour and 8 hour ozone levels measured at the Rangely air quality monitoring site. These exceedances occurred in February 2011, during the first year of monitoring at the Rangely site. Since inversions and high ozone events were not persistent, these exceedances have not led to a violation of NAAQ standards for 2011.

Due to existing and proposed development in the Weber Sand Unit emissions are likely to contribute to increases in winter ozone events that occur with inversions. It is difficult to estimate how much of a factor development in the Weber Sand Unit will contribute to high ozone levels or how the Proposed Action would increase these ozone levels. Monitoring throughout the life of the project is expected at the Rangely Air Quality Monitoring Site and therefore violations would likely be measured and dealt with through CDPHE and EPA, as described in the Affected Environment.

In summary, soil disturbance resulting from construction of pads and roads, pipeline construction, and drilling is expected to cause increases in fugitive dust and inhalable particulate matter (specifically PM<sub>10</sub> and PM<sub>2.5</sub>) in the project area and immediate vicinity and may contribute to reductions in visibility. Increased impacts to visibility and atmospheric deposition may also increase due to carbon monoxide, VOCs, ozone, nitrogen dioxide, and sulfur dioxide would also occur due to combustion of fossil fuels during exploration, drilling, and production activities. Non-criteria pollutants such as carbon dioxide, methane and nitrous oxide (GHGs), air toxics (e.g., benzene), total suspended particulates (TSP). Even with these increased pollutants the Proposed Action is likely to comply with applicable PSD increments and other significant impact thresholds. Due to multiple sources of VOCs and NO<sub>x</sub> and winter inversions in the Rangely area, there are likely to be exceedances of ozone standards, but ozone is not likely to contribute to a new violation of NAAQ standards, although this is a potential in the future.

Cumulative Effects: The Proposed Action is in Rio Blanco County. Principal air pollution sources include emissions from motor vehicles, oil and gas development, coal-fired power plants, coal mines, sand and gravel operations, windblown dust, and wildfires and prescribed burns (CAQCC 2010). Facility emissions in the two-county area are dominated by emissions related to oil and gas exploration, processing, or transportation. Due to these emission sources in the White River and in the nearby Unita and Yampa River Basins, VOCs, nitrogen oxides, and dust (particulate matter) are likely to increase into the future. However, with the exception of ozone, overall air quality conditions in the White River Basin are likely to continue to be in attainment of NAAQ standards as a result of effective atmospheric dispersion and limited transport of air pollutants from outside the area. Data collected in Dinosaur and Rangely have measured exceedances in standards for 1-hour and 8-hour values for ozone (120 ppb and 75 ppb, respectively). To date, these exceedances have not been persistent enough to result in a violation of NAAQ standards.

*Environmental Consequences of the No Action Alternative:*

Direct and Indirect Effects: No impacts to air quality would result from the No Action Alternative.

Cumulative Effects: Impacts from past oil and gas development activities and the need for maintenance of existing wells and infrastructure would continue.

*Mitigation:* 1. The operator shall employ dust suppression techniques (i.e., freshwater use) whenever there is a visible dust trail behind service vehicles. Any technique other than the use of freshwater as a dust suppressant on BLM lands will require prior written approval from BLM.

## **GEOLOGY AND MINERALS**

*Affected Environment:* Drilling attempts for oil in the project area occurred in the early 1900s with field development beginning in the 1940s. The field is located on Rangely Anticline on the northeastern flank of the Uinta Basin. Surficial geologic formation of the field is Mancos and Chevron's targeted zone is in the Weber sandstone. In 1957 the Weber Sand Oil and Gas Unit (COC47675X) was formed in order to implement secondary recovery of the oil resources by water flooding. Tertiary recovery operations involving the injection of carbon dioxide (CO<sub>2</sub>) began in late 1986 and are ongoing. Approximately 250 injection wells and 435 producing wells are currently being used in the tertiary recovery process. During drilling potential water, oil, and gas zones will be encountered from surface to the targeted zone. Over 98 percent of the total project area production is from the Weber sandstone. Hydrogen sulfide (H<sub>2</sub>S) gas exists in the Weber Formation within the project area. Concentrations vary across the field (+/- 100-700 ppm) due to a long history of production in conjunction with water and CO<sub>2</sub> injection.

### *Environmental Consequences of the Proposed Action:*

Direct and Indirect Effects: Drilling of injection and production wells could allow the migration of gas, water, and oil between formations. The casing cementing procedures utilized by Chevron would isolate formations and prevent the migration. H<sub>2</sub>S could be encountered during drilling and completion operations although adherence to Chevron's "H<sub>2</sub>S Contingency Plan" would minimize potential hazards associated with H<sub>2</sub>S. Development of additional wells would allow for higher tertiary recovery of the hydrocarbon resources in the Weber formation.

Cumulative Effects: Allowing the development of additional wells would help achieve maximum recovery of the oil resources in the Weber sandstone.

### *Environmental Consequences of the No Action Alternative:*

Direct and Indirect Effects: The potential for intermingling of resources between formations due to drilling and completion would not occur and tertiary recovery of the oil resources would not be complete.

Cumulative Effects: No development of additional wells would prevent the maximum recovery of the oil resources in the Weber sandstone and may render the remaining oil resource as unrecoverable in the future.

*Mitigation:* None.

## SOIL RESOURCES

*Affected Environment:* Historic and current oil and gas development in the Weber Sand Unit has and is occurring on saline soils that have formed from calcareous shales in Mancos shale outcrops. Calcareous shales have accumulations of calcium and magnesium carbonate and are difficult to reclaim due to reduced vitality of vegetation and physical properties of soils such as infiltration.

Soils in the Weber Sand Unit are likely to be naturally high in both salt and selenium and 64 percent are considered saline with conductivity values above 16 mmhos/cm. Salinity in soils and waters is approximated by measuring the electrical conductivity (EC) and is typically expressed in millimhos per centimeter (mmhos/cm) or decisiemens per meter (dS/m; the two measurements are numerically equivalent). Soil EC is measured by mixing soil samples with sufficient water to produce a saturated paste and then extracting the solution for the measurement of conductivity.

Over long periods of time soil minerals in the Mancos shale weather and release salts from these formations. These salts are then flushed or leached out of the soil by precipitation and surface runoff. In addition to mineral weathering, salts are also deposited in saline soils and waters via dust transported by wind. Due to the low productivity of saline soils, topsoils in these soils are typically thin and are not well developed. This makes stored topsoil more vulnerable to wind and water erosion and transport.

The goal of reclamation is to recover site structure, function, and value following oil development activities, to reestablish soil attributes lost during stripping, stockpiling, and to facilitate the germination and establishment of native plants. Areas that have inadequate stored topsoil or have accumulated salts beyond the ability to establish goals for vegetation establishment can be recognized by spotty plant growth and by the presence of white salt crusts on the surface. Plants in salt-affected soils often have the same appearance as plants growing under moisture stress (drought) conditions.

Not all salts effect soils in the same way. Sodium in particular tends to bind clay particles and moisture in soils and make the uptake of water and nutrients by plants more difficult. High sodium also increases the dispersion and swelling of clay, which reduces the infiltration rate and increases run off. The amount of sodium in waters and soil relative to other salts is measured using the sodium adsorption ratio (SAR). This is a ratio of the amount of cationic (positive) charge contributed to a soil by sodium to that contributed by calcium and magnesium. There are no values for SAR or selenium in these particular soils, but these parameters are typically high in Mancos shale.

The classifications of soils by the Natural Resources Conservation Service (NRCS) within the Weber Sand Unit are shown in Table 4. About 60 percent of the Weber Sand Unit is on privately owned lands. There are about 19 acres (0.1 percent of the project area) of fragile soils on Federal lands that could be impacted by this project. These fragile soils are along the edges of the project area in steep slopes and it is likely these areas could be avoided during facility siting.

**Table 4.** Soil Classifications in the Project Area\*

#	Soil Unit	Erosion Hazard	Runoff	Range Type	Approximate Acres
1	Chipeta silty clay loam, 3-25 percent slopes	High	Rapid	Clayey Saltdesert	9,129
2	Billings silty clay loam, 0-5 percent slopes	Moderate to High	Rapid	Alkaline Slopes	3,705
3	Chipeta silty clay loam, 3-25 percent slopes, eroded	Very High	Rapid	Clayey Saltdesert	1,673
4	Chipeta-Killpack silty clay loam, 3-15 percent slopes	High	Rapid	Clayey Saltdesert	1,328
5	Billings-Torrifluvents complex, gullied, 0-5 percent slopes	High	Rapid	Alkaline Slopes/None	1,131
6	Colorow sandy loam	Slight	Medium	Sandy Saltdesert	522
7	Cliffdown-Cliffdown Variant complex, 5-65 percent slopes	Slight to Moderate	Medium to Slow	Saltdesert Breaks	512
8	Turley fine sandy loam, 0-3 percent slopes	Slight	Medium	Alkaline Slopes	373
9	Uffens loam, 0-5 percent slopes	Moderate	Slow	Alkaline Slopes	254
10	Fluvaquents, frequently flooded	n/a	n/a	Riverbottom	180
11	Kinnear fine landy loam, 1-5 percent slopes	Slight	Medium	Loamy Saltdesert	181
12	Water	n/a	n/a	None	130
13	Badland	Very High	Rapid	None	123
14	Turley fine sandy loam, 3-8 percent slopes	Slight to Moderate	Medium	Alkaline Slopes	97
15	Barcus channery loamy sand, 2-8 percent slopes	Moderate	Slow	Foothills Swale	7

\*USDA-SCS (1982) Soil Survey of Rio Blanco County Area, Colorado

The majority of soils (88 percent, soil numbers 1 to 5 in Table 4), are Billings and Chipeta soils and are classified as Alkaline Slopes or Clayey Saltdesert for the range type. These soils all have rapid runoff characteristics, high to very high hazard for erosion and have fine-grained or clay characteristics. These soils mostly correspond to saline soils in the area and include gullies that drain into Stinking Water Creek.

*Environmental Consequences of the Proposed Action:*

**Direct and Indirect Effects:** The Proposed Action would disturb approximately 1,060 acres to drill 159 additional wells, construct 94 new well pads, install 146 new pipelines, and install approximately 294 replacement pipelines in the project area. About 40 percent of this disturbance would likely occur on Federal lands constituting about 6 percent disturbance of the Federal lands within the project area. Assuming that the disturbances would occur uniformly over soil types, 88 percent or 933 acres of the disturbance would be on soils with rapid runoff characteristics and a high to very high hazard for erosion. New disturbance will occur in an area of past and current oil and gas development (Table 5).

**Table 5.** Wells and Well Status in the Project area

<b>Well Status</b>	<b>Number of Wells in Project area</b>	<b>Number of Wells on BLM lands in Project area</b>
Producing	435	174
Injection	235	99
Temporarily Abandoned	95	24
Shut-in	68	33
Plugged and Abandoned	371	82
Abandoned	111	12
Dry and Abandoned	210	36
Misc.	28	6
<b>Total</b>	<b>1,553</b>	<b>466</b>

Some of the 1,060 acres of proposed surface disturbance would occur on old well pads, in disturbed right-of-ways, and use existing roads. Impacts from the Proposed Action will reduce in proportion to how much of the new development will occur on previously disturbed lands. Assuming the same acreage per well was disturbed in the past as compared to the Proposed Action, there could be as much as 10,387 acres of past disturbance within the project area. This is the majority of the lands in the project area (54 percent). In the past, new infrastructure has been built in previously disturbed areas, although there are no good estimates for how common this co-location of surface disturbance was in the past or how much it is likely to occur in the future.

Disturbance on saline, fine-grained soils in arid environments like the soils found in the majority of the project area can be expected to increase salinity and sediment loads, transport and concentration of salts on the soil surface, soil compaction, dust generation, loss of vegetation, formation of soil crusts, and to appreciably change soil properties for water retention, infiltration capacities, and subsequent vegetative growth and productivity. In general, saline soils are difficult to reclaim after surface disturbance and may be less stable than soils that are not saline. This is because saline soils have soluble salts that adversely affect the growth of most plants (including those planted for reclamation), and change soil cohesion and stability, thus making it more difficult for plants to absorb and use soil moisture.

BLM approved reclamation seed mixes typically take into account saline soil conditions and generally include more salt tolerant native species. Soils in the Weber Sand Unit are generally characterized as clayey. When precipitation or surface runoff leaches through saline soils it can result in low permeability to water and air at the soil surface, particularly when the soils are clayey. This soil crust can dramatically change the physical properties of soils for plant establishment and infiltration-runoff characteristics for soils. A reduction in permeability can increase surface runoff and can reduce plant growth, establishment, and vigor.

For locations that have white salt crusts on the soil surface or wilted/stressed vegetation, the addition of low-salt organic materials may be the best way to reduce saline conditions. In some cases positive responses have been reported for mycorrhizal, compost teas, and other types of inoculants. When soils with salt crusts are identified in reclaimed locations they should be identified for the administration of soil amendments, the reapplication of soil preparation,

seeding, and stabilization measures to achieve successful reclamation. Soil amendments should only be applied in type and rates to recover original soil nutrient conditions and not to achieve soil productivity levels that would be unsustainable.

Direct impacts from the construction of well pads, access roads, pipeline replacement, and pipeline installation include compaction of soils, removal of vegetation, exposure of subsoil, mixing of soil horizons, loss of topsoil productivity, and an increase in the susceptibility of soils to wind and water erosion. Compaction due to construction activities would reduce aeration, permeability, and water-holding capacities of soils in some locations. An increase in surface runoff could be expected from compacted soils and these soils are likely to be less resilient to erosion from surface runoff after disturbance based on the runoff and erosion hazard properties of these soils.

Removal of vegetation during construction exposes soils to erosion from rainfall, wind, and surface runoff. Exposure of subsoil and mixing of soil horizons can change the physical characteristics of subsoil and may reduce the productivity of these soils into the future. Loss of topsoil productivity can occur during storage due to nutrient leaching from percolation of precipitation through the soils, physical loss from wind and water, mixing of less productive soil layers during moving, and a loss of soil structure.

These direct soil impacts could result in increased indirect impacts to soils downstream and adjacent to areas of surface disturbance, such as increased runoff and erosion. Implementation of Best Management Practices (BMPs) for stormwater, mitigation and reclamation will reduce impacts from this project and should limit impacts to the disturbed areas. However, there is the potential for intense storm events and BMP failures resulting in erosion adjacent to disturbed areas. This is most likely to occur on the steep slopes along the gullies that feed into Stinking Water Creek.

This project could result in contamination of surface and subsurface soils due to unintentional leaks or spills from pipelines, construction equipment, storage tanks, and production equipment and if these spills occurred they would affect the productivity of soils. Unlined earthen berms are proposed for secondary containment of tank batteries. Without a liner, these secondary containments may fail resulting in releases of hydrocarbons into the soil.

Cumulative Effects: The cumulative effects analysis area for soils corresponds to the project area. According to Colorado Oil and Gas Commission records, there are over 1,553 wells that have been drilled in the project area. Types and status of wells are shown in Table 5. The Proposed Action will include 19 percent more wells than the active wells already approved. Well pads that have producing wells or wells used for injection can be considered active well pads. From the COGGC data it can be assumed that there are 833 active wells within the project area or approximately 54 percent of the wells well that have been drilled. The Proposed Action would add an additional 159 wells within the project area over the next five years for a total of 992 wells. Drilling of these new wells will include surface disturbance and reclamation of other well pads, pipelines, roads, and support facilities. Some of the new wells are on multi-well pads that may share pads with active or inactive wells.

Inactive wells represent a historical legacy and many of these well pads and roads are not fully reclaimed. The Proposed Action would continue to support infrastructure (pipelines and roads) for active wells, new wells to be drilled, and field-wide infrastructure for storing, transporting and processing oil and gas from the field.

The town of Rangely is mostly located within the project area and is on the south side of the White River, where most of the current and future oil and gas development is likely to occur on the north side of the White River. There are two landfill facilities and one impoundment that receive wastes from oil and gas development in the area. These facilities are permitted by the State of Colorado for oil and gas waste disposal. One of the landfill facilities is located on BLM administered land about five miles northwest of Rangely.

In general, soil disturbance in the Proposed Action and other activities have already and will continue to reduce soil productivity and may lead to increased erosion and instability of soils in the project area.

*Environmental Consequences of the No Action Alternative:*

Direct and Indirect Effects: Impacts from past oil and gas development activities and the need for maintenance on existing wells and infrastructure would continue. Development in the area would not increase by 19 percent over current levels in this area. Impacts from the production of this field will continue to occur and will result in a reduction in soil productivity, soil instability and erosion in some areas and increases in salt and selenium loading would continue to occur in this area.

Cumulative Effects: Impacts from past oil and gas development activities and the need for maintenance on existing wells and infrastructure would continue. The town of Rangely contributes to surface disturbance by installing pavement and concrete that increases surface runoff and reduces overall soil productivity. The landfill facilities for oil and gas activities would continue to operate although at slightly lower levels.

*Mitigation:*

1. All new infrastructure and well pads will be located on old disturbance to the maximum extent possible to avoid additional disturbances in the project area. Chevron will be requested to provide rationale for not co-locating wells or not using old drilling pads, whenever a new well pad is proposed.
2. Chevron will use the Master Surface Plan submitted with the Proposed Action for achieving interim reclamation on existing wells when any new disturbance or infrastructure is planned.
3. All new roads and existing access roads used for new drilling operations will be crowned and ditched according to BLM Manual section 9113 standards and surfaced for all-weather use. Surfacing must include at least six inches of compacted aggregate that can be composed of different gravel sizes and road base as appropriate for the soils and topography. Road design should allow for travel on the roads with service vehicles when soils are saturated.

4. Gully crossings will conform to BLM Manual 9112 standards and be stable without erosion for 10 year storm events and not fail with 25 year storm events.
5. All well pads that are disturbed for any reason, observed to have ruts more than three inches deep, or are accessed more than four times a month will have a vehicle path surfaced with not less than six inches of compressed aggregate to provide all weather surface on the pad surface for routine maintenance and reduce soil erosion from pad surfaces.
6. A liner will be required for any secondary containment structures installed for new facilities and if tanks are replaced on existing infrastructure.
7. If salt is observed on the surface of soils during or after reclamation activities Chevron will notify the Natural Resource Specialist and a plan will be developed with approval of the BLM, that may include the administration of soil amendments, the reapplication of soil preparation, seeding, and stabilization measures to achieve successful reclamation.

*Finding on the Public Land Health Standard #1 for Upland Soils:* Due to the historic, current, and future development of oil and gas resources in this area the overall soil productivity is diminished from the potential for this area.

## **SURFACE & GROUND WATER QUALITY**

*Affected Environment:* This project is located mostly in the headwaters of Stinking Water Creek which drains into the White River just below Rangely. In addition, portions of the project area are in ephemeral drainages carrying storm runoff to the White River. Table 6 describes water segments that may be impacted by this project.

**Table 6.** Water Quality Classification Table\*

Segment	Segment Name	Use Protected	Protected Beneficial Uses			
			Aquatic Life	Recreation	Agriculture	Water Supply
21	Mainstem of the White River from above Douglas Creek to the Colorado/Utah border.	No	Warm 1	Existing Primary Contact	Yes	Yes
22	All tributaries to the White River from above Douglas Creek to the border	No	Warm 2	Primary Contact Recreation	Yes	No

\* Colorado Department Of Public Health And Environment, Water Quality Control Commission, Regulation No. 37 Classifications and Numeric Standards For Lower Colorado River Basin, Effective June 30, 2011

Segment 21 is protected for warm water aquatic life (Warm 1). The warm designation means the classification standards would be protective of aquatic life normally found in waters where the

summer weekly average temperatures frequently exceed 20 °C. The Warm 2 designation means that it has been determined that these waters are not capable of sustaining a wide variety of warm water biota. These segments also have standards that are protective of recreation and agriculture, and in the case of Segment 21 water supply.

The salinity of water is measured in terms of total dissolved solids (TDS) in milligrams per liter (mg/L). In most surface waters in the west, TDS varies from as low as only a few hundred mg/L to as much as 2,500 to 3,000 mg/L during stormwater events. There is typically a linear relationship between TDS and electrical conductivity (EC) which is reported in micro Siemens per cm ( $\mu\text{S}/\text{cm}$ ). Conductivity data are typically temperature compensated to 25°C due to changes in the EC based on the temperature it is measured at (temperature compensated values are called specific EC). There are no water quality standards for TDS or salinity in the stream segments 21 and 22 that would be impacted by the project. There is some data available for this area on TDS from United State Geological Survey (USGS) streamflow site number 09306395 located on the White River near the Colorado state line in Utah. The average TDS value is 477 mg/L based on 81 samples and the maximum value measured was 948 mg/L, measured during the one of the lowest flow events on record, 40 cfs (cubic feet per second). There is no TDS data available for Stinking Water Creek.

Selenium standards for segment 21 and 22 are the standard table value, that are listed as an acute standard of 18.4  $\mu\text{g}/\text{L}$  and a chronic standard of 4.6  $\mu\text{g}/\text{L}$ ; however, selenium is a bioaccumulative metal and subject to a range of toxicity values depending upon numerous site-specific variables. In general, the acute standard is not to be exceeded for either a single sample or when calculated as an average of all samples collected during a one-day period. The chronic standard means the level is not to be exceeded by the concentration for either a single representative sample or calculated as an average of all samples collected during a thirty-day period. A limited amount of data is available for selenium from USGS streamflow site number 9306500 on the White River near Watson, Utah located about 20 miles down from the project area. Based on 69 samples the average is 1.0 mg/L and the maximum value measured was 4 mg/L.

Groundwater: An analysis of ground water was conducted in the Upper Colorado River Basin aquifers. The highest median concentration of measured major ions was in aquifers associated with Mancos Shale (Apodaca 1998). Many of the study sites in the Mancos Shale exceeded EPA drinking water standards for parameters such as TDS, sulfate, selenium, and nutrients. This study did not study Mancos Shales in the project area; however these results are similar to what could be expected from sampling in the project area.

The southern portion of the project is in contact with the alluvial aquifer associated with the White River. The channel of the White River through town is incised through Mancos shale and may reflect a lower water table due to a change in soils or impacts from the town of Rangely and/or Taylor Draw Dam, an in-channel structure just upstream from the town of Rangely. This low water table means that groundwaters derived from the Mancos Shale are likely to drain directly to the White River. Due to the rapid runoff characteristics of most soils in the project area and the ephemeral characteristics of the tributaries to the White River and Stinking Water Creek it is unlikely that extensive groundwater aquifers exist. Water does move through the

shallow groundwater and can pool or concentrate above areas of poor vertical transmissivity. Transmissivity is the rate of water transportation through a rock medium and is typically looked at both vertically and horizontally. These shallow groundwaters are likely to move into the White River fairly clearly and will certainly contribute dissolved constituents to the White River aquifer.

*Environmental Consequences of the Proposed Action:*

Direct and Indirect Effects, Surface Waters: Surface waters become saline by coming into contact with soil or geologic material that are high in salts or by receiving surface runoff from saline soils or salts concentrated on the soil surface. Soil disturbance from the construction of well pads, access roads and pipeline replacement can disturb the stability of soils resulting in erosion that can entrain saline soils in surface runoff. These practices can also increase surface runoff due to concentrating waters along roads and pads and may increase transportation rates of salts to surface waters.

Upon contact with saline soils or salts concentrated on the soil surface, salts can dissolve into surface waters and become available for transport to waterbodies downstream. Surface runoff often deposits salts along ephemeral drainages, low spots, and closed reservoirs or ponds. This concentration of salts at specific locations on the soil surface occurs naturally, but can be enhanced or initiated as a result of surface disturbance as described in the soil section. This process typically involves the concentration of salt by several physical processes. Evaporation near the soil surface and transpiration of vegetation can concentrate salts at the soil surface. Also, salts dissolved in groundwater can move to the surface by capillary action and make surface soils more saline in some locations. Capillary action occurs when soil pore space is small, such as in clayey soils. Surface runoff can then mobilize these salts during storm events and move them to low spots in the watershed or where infiltration is greater. Flood events typically re-dissolve salts from these areas and move them to perennial waters, in this case the White River.

Surface disturbance near surface waters is more likely to impact the water quality in these features by increasing salt and selenium loading from the disturbed soils. Allowing a buffer around perennial waters for the location of wells and facilities is likely to reduce the loading of sediment and salt into these features. According to COGCC records (Table 5) there are currently about 75 wells that have been drilled within 500 feet of perennial water features of the 1,553 wells that have been drilled in the project area (about five percent of the wells). Assuming the distribution of wells is the same into the future, there could be eight new wells drilled in these areas. These wells would also need pipelines and roads that could add to impacts due to soil disturbance. The Proposed Action could bring about 53 acres of new disturbance in buffers around perennial water features.

The USGS water data for the nation (<http://waterdata.usgs.gov/nwis>) was checked for relevant samples and there are no data available for selenium below Stinking Water Creek on the White River in Colorado, so the background value for this variable is not known for segment 21. There are also no values available for selenium on Stinking Water Creek. The closest streamflow site is number 09306500 located on the White River near Watson, Utah 20 miles downstream. Of 69 samples, the average value for dissolved selenium was 1 µg/L and the maximum value reported was 4 µg/L.

There are two segments of the White River above the confluence of Stinking Water Creek that are on the monitoring and evaluation list or the section 303(d) list for impairments for selenium. These segments are also where the Mancos shales outcrop. When the source of selenium is underlying native shale or other surface geological features it is still considered a pollutant by CDPHE, like many other naturally occurring metals on the Environmental Protection Agency's (EPA) list of priority toxic pollutants. If the source of impairment is natural, that is grounds for consideration of an ambient quality-based, site-specific standard. This process has not occurred for segment 21 or 22 of the White River. It is conceivable that the values for selenium in Stinking Water Creek and the White River below the confluence may be above or close to the acute and or chronic standards for selenium. Water quality sampling in the White River and Stinking Water Creek should be done to determine the concentration of selenium in surface waters downstream of this project since the Proposed Action could increase selenium loads based on the potential for erosion and runoff properties of soils in the Weber Sand Unit.

It is likely that the Proposed Action would increase salt and selenium loading in the White River because of the high to very high hazard for erosion, rapid runoff characteristics of soils in the project area since these soils are derived from Mancos shale, and since the project area comprises the majority of Stinking Water Creek and smaller ephemeral tributaries. Data available are not good enough to determine background conditions; it is also unknown if these increased loads could result in exceeding water quality standards on segments 21 or 22 of the White River.

Direct and Indirect Effects, Ground Waters: Saline water in surface runoff and the root zone not removed by plant uptake can seep below the root zone and concentrate in shallow groundwater. Additional salts can be dissolved in the water as it percolates through the soil. Once the ground water reaches a compacted layer or a preferential flow path, it can move laterally until it surfaces at a low spot in the watershed as saline seep sites. These seeps typically occur in these ephemeral tributaries to the White River.

Groundwater may increase in salts and selenium if it is mobilized on the soil surface. One study (Naftz 2005) was conducted to assess the effectiveness of flooding on the removal of selenium from dry surface sediments in a contaminated wetland in eastern Utah with measured elevated selenium levels that exceeded 5,500 ug/L in shallow groundwater samples. Groundwater was derived from the leaching of near-surface sediments. Groundwater samples collected 8 months after termination of the flood experiment contained selenium concentrations of less than 20 ug/L.

During drilling of surface casings drilling fluids can be lost to groundwater aquifers and aquifers may be contaminated. Using bentonite, freshwater, and other additives that cannot contaminate groundwater mitigates the loss of drilling fluids that can be common during drilling since the introduction of these substances would not impact the quality of these groundwater features.

Impacts to groundwater resources could occur due to failure of well integrity, failed cement, surface spills, and/or the loss of drilling, completion, and hydraulic fracturing fluids into groundwater. Types of chemical additives used in drilling activities may include acids, hydrocarbons, thickening agents, lubricants, and other additives that are operator and location specific. Concentrations of these additives also vary considerably and are not always known

since different mixtures can be used for different purposes in gas development and even in the same well bore. Loss of drilling fluids may occur at any time in the drilling process due to changes in porosity or other properties of the rock being drilled through for both the surface casing and the production hole. When this occurs, drilling fluids may be introduced into the surrounding formations which could include freshwater aquifers, if it occurs when drilling the surface casing.

This project is using injection wells to enhance the recovery of oil. Produced water from the producing wells is re-injected at the periphery of the formation to increase recovery. If injection wells are connected to faults there is the potential to contaminate shallower aquifers or even surface waters with injected fluids. Injection wells are typically given a pressure and/or volume limit to avoid this and are monitored for rapid pressure losses that would indicate a fracture and is regulated by the State of Colorado.

There are drinking water wells in the alluvium to the White River, especially downstream of Rangely. Any potential contaminants in shallow groundwaters would likely migrate into these drinking water wells if they were to occur. There is currently no information on the quality of groundwater in the alluvium of the White River below Rangely.

Cumulative Effects: The cumulative effects analysis area for ground and surface water quality corresponds to the project area. The town of Rangely is mostly located within the Project area and is on the south side of the White River, where most of the current and future oil and gas development is likely to occur on the north side of the White River. Rangely has a sewage treatment plant within the project area and their drinking water intake from the White River is just upstream of the eastern side of the project boundary. There are two landfill facilities and one impoundment that receive wastes from other oil and gas development in the area.

In general, the Proposed Action and other activities have already and will continue to impact ground and surface water quality by increasing salt and selenium loading due to surface disturbance in the project area.

*Environmental Consequences of the No Action Alternative:*

Direct and Indirect Effects: Impacts from past oil and gas development activities and the need for maintenance on existing wells and infrastructure would continue. Development in the area would not increase by 19 percent over current levels under the No-Action Alternative. Impacts from the production of this field will continue to occur and will result in a reduction of salt and selenium loading to ground and surface waters as compared to the Proposed Action.

Cumulative Effects: Impacts from past oil and gas development activities and the need for maintenance on existing wells and infrastructure would continue.

*Mitigation:*

1. No new wells will be approved within 500 feet of the White River and perennial surface waters on BLM administered lands (95 acres and 71 acres, respectively for a total of 166

acres). Current facilities will be allowed, but additional mitigation will be applied for new surface disturbance in these areas on BLM administered lands.

2. Chevron will coordinate with the BLM on measuring water quality and streamflow in the White River below the confluence with Stinking Water Creek and flood flows in Stinking Water Creek. All water quality samples will be submitted to a public database that can be available to the State of Colorado for managing water quality. The details of this coordination will be worked out in sampling plan submitted by Chevron and approved by BLM before new wells are drilled as part of the Proposed Action. Field maintenance and replacement of field infrastructure, such as pipelines, are not affected by this requirement.
3. If surface sources are used for freshwater, water hauling trucks must use backflow preventers to avoid contamination of surface waters.
4. To protect surface waters below the project area, keep road inlet and outlet ditches, sediment retention basins, and culverts free of obstructions, particularly before and during spring run-off and summer convective storms. Provide adequate drainage spacing to avoid accumulation of water in ditches or road surfaces. Install culverts with adequate armoring of inlet and outlet. Patrol areas susceptible to road or watershed damage during periods of high runoff.
5. When drilling to set the surface casing, drilling fluid will be composed only of fresh water, bentonite, and/or a benign lost circulation material that does not pose a risk of harm to human health or the environment (e.g., cedar bark, shredded cane stalks, mineral fiber and hair, mica flakes, ground and sized limestone or marble, wood, nut hulls, corncobs, or cotton hulls).

*Finding on the Public Land Health Standard #5 for Water Quality:* It is possible that the past, current and the future development described in the Proposed Action may result in an exceedence of state water quality standards. Without good background data downstream from Stinking Water Creek on the White River it is difficult to determine if current water quality conditions are in compliance with numeric standards, specifically for selenium. Therefore, it is also difficult to ascertain the potential to exceed standards in the future. Monitoring described in the mitigation will be useful to better assess the water quality conditions of the White River.

## **VEGETATION**

*Affected Environment:* The Chevron field encompasses five different ecological sites. Table 7 outlines each of the ecological sites located within the project area. Vegetative communities within the project area are in areas highly degraded and dominated by invasive annual species such as cheatgrass, halogeton, and various mustards. Alkaline slopes and sandy salt-desert ecological sites are the most impacted, but clayey salt-desert and salt-desert breaks are also experiencing a certain level of degradation. These areas are currently not meeting public land health standards for vegetative communities, and have crossed a threshold that cannot be repaired without intensive management such as ripping, seeding and herbicide treatments.

Drought conditions are very prevalent within the Weber Sand Unit, which has hampered the successful establishment of reclaimed plant species of other projects in this area.

**Table 7.** Ecological Sites within the Weber Sand Unit.

Ecological Site	Plant Community Appearance	Predominant Plant Species in the Plant Community
Alkaline Slopes	Sagebrush/grass Shrubland	Wyoming big sagebrush, winterfat, low rabbitbrush, wheat grasses, Indian rice grass, squirreltail
Clayey Saltdesert	Salt Desert Shrubland	Gardner saltbush, shadscale, mat saltbush, galleta, Salina wildrye, squirreltail, Indian rice grass
Saltdesert Breaks	Salt Desert Shrubland	Galleta, Salina wildrye, squirreltail, Indian rice grass, needle-and-thread, shadscale, winterfat
Sandy Saltdesert	Grass/Salt Desert Shrubland	Needle-and-thread, Indian rice grass, sand dropseed, Sandberg bluegrass, squirreltail, galleta, shadscale, winterfat, horsebrush
Riverbottom	Riparian	Willows, water tolerant grasses, sedges, rushes, cattails, and cottonwood trees

*Environmental Consequences of the Proposed Action:*

Direct and Indirect Effects: The Proposed Action would disturb a mid to low seral class of desert shrub community for a total of 1,060 acres (417 acres BLM). These acres of disturbance can be broken down into long-term and short-term disturbances. The majority of the disturbance is pipelines and areas around the well pads that will have interim reclamation and would be considered short-term. Of the 1,060 acres, all but 70.5 acres fall into the short-term classification. Short-term soil and vegetation disturbances would be offset in the long-term by successfully reclaiming the disturbed area with a seed mix that is suited for this ecological site. As this area has a component of cheatgrass, mustards, and halogeton within the plant community, successful re-vegetation efforts would slightly increase desirable plant species within the rangelands.

The remaining 70.5 acres of disturbance would be considered long-term disturbance associated with access roads and the working surface of the well pad. These disturbances are expected to completely devoid of vegetation throughout the life of the project until final abandonment. Upon final reclamation, these areas may also experience an increase in desirable vegetative cover, however this would not be expected until well into the future.

Cumulative Effects: Previously this area has had considerable impacts from oil and gas activities from a network of well pads, pipeline corridors, and access roads, which have resulted in a fragmentation and reduction of available/productive ecological sites. This coupled with historic grazing practices has resulted in a vegetative communities lacking proper cover of desirable perennial grasses and forbs to meet public land health standards. It is expected that oil and gas development as well as livestock grazing in the area will continue into the future creating

the potential for further degradation of vegetative communities. However, improved reclamation techniques along with new management strategies associated with livestock also provides an opportunity to improve vegetative communities in the future through successful re-vegetation efforts.

*Environmental Consequences of the No Action Alternative:*

Direct and Indirect Effects: No new disturbance to vegetative communities will occur under the No Action Alternative.

Cumulative Effects: Cumulative effects are the same as those analyzed in the Proposed Action in terms of the type of disturbance. In terms of duration and extent, however, this alternative would most likely result in reduced cumulative impacts because of the existing development in the project area, rather than the new proposed well pads, access roads, and pipelines, which would disturb approximately 1,060 acres.

*Mitigation:*

1. An approved reclamation plan will be submitted and approved by the WRFO for each well pad, road, or any other surface disturbing activities within the Chevron field.
2. The current reclamation plan only has one seed mix attached for the multiple ecological sites described above. The WRFO recommends using one of the four seed mixes listed below for reclamation depending on the ecological site of the disturbance, and the level of difficulty for reclamation. The operator will submit proposed seed mixes to BLM via Sundry Notice for review and approval prior to applying the seed.

<b>SEED MIX #1 FROM THE RECLAMATION PROTOCOL</b>			
<b>Common Name</b>	<b>Scientific Name</b>	<b>Variety</b>	<b>Lbs PLS/Acre</b>
Western wheatgrass	Pascopyrum smithii	Rosana	4.5
Thickspike wheatgrass	Elymus lanceolatus	Critana	3.5
Bottlebrush squirreltail	Elymus elymoides	Toe Jam Creek	3
Scarlet Globemallow	Sphaeralcea coccinea		0.5
Sulphur flower	Eriogonum umbellatum		1.5
Winterfat	Krascheninnikovia lanata		0.5

<b>SEED MIX #3 FROM THE RECLAMATION PROTOCOL</b>			
<b>Common Name</b>	<b>Scientific Name</b>	<b>Variety</b>	<b>Lbs PLS/Acre</b>
Western wheatgrass	Pascopyrum smithii	Rosana	4
Bluebunch wheatgrass	Pseudoroegneria spicata	Whitmar	3.5
Indian ricegrass	Achnatherum hymenoides	Rimrock	3
Needle and Thread	Hesperostipa comata		2.5
Lewis Flax	Linum Lewisii	Maple grove	1
Scarlet Globemallow	Sphaeralcea coccinea		0.5

SEED MIX #8 FROM THE RECLAMATION PROTOCOL			
Common Name	Scientific Name	Variety	Lbs PLS/Acre
Galleta Grass	Pleuraphis jamesii	Viva florets	3
Indian Ricegrass	Achnatherum hymenoides	Rimrock	3
Bottlebrush squirreltail	Elymus elymoides	Toe Jam Creek	2.5
Western wheatgrass	Pascopyrum smithii	Rosana	4
Scarlet Globemallow	Sphaeralcea coccinea		0.25
Annual sunflower	Helianthus annuus		2.5
Mat saltbush	Atriplex confertifolia		2

SEED MIX #9 FROM THE RECLAMATION PROTOCOL			
Common Name	Scientific Name	Variety	Lbs PLS/Acre
Western wheatgrass	Pascopyrum smithii	Rosana	5
Russian wildrye	Psathyrostachys juncea	Bozoisky	3
Crested wheatgrass	Agropyrum cristatum	Hycrest	3
Annual sunflower	Helianthus annuus		5

- For the nine replacement lines specifically addressed in this EA, WRFO recommends seed mix #8 above for seeding.

*Finding on the Public Land Health Standard #3 for Plant and Animal Communities:* The project area is primarily composed of cheatgrass, halogeton, and annual mustards in the understory. This is especially the case within the alkaline slope and the sandy salt desert ecological sites. These areas are not meeting public land health standards for plant and animal communities due to a lack of perennial forbs and grasses. Successful reclamation of oil and gas activities in the area will improve vegetative communities within the project area.

## INVASIVE, NON-NATIVE SPECIES

*Affected Environment:* There are several species of Colorado listed noxious weeds within the Weber Sand Unit. The state of Colorado has three designations for noxious weeds that occur within the state. List A species are designated for the commissioner for eradication, List B noxious weeds have, or will have, a state noxious weed management plan developed to stop their spread, and List C species are species which parties will develop and implement state noxious weed management plans designed to support the efforts of local governing bodies to facilitate more effective integrated weed management on private and public lands. The goal of such plans will not be to stop the continued spread of these species but to provide additional education, research, and biological control resources to jurisdictions that choose to require management of List C species.

List B species present within the project area are hoary cress (*Cardaria draba*), perennial pepperweed (*Lepidium latifolium*), Russian olive (*Elaeagnus angustifolia*), salt cedar (*Tamarix ramosissima*), Canada thistle (*Cirsium arvense*), and bull thistle (*Cirsium vulgare*). Other list B

species near the project area but not known to occur within the chevron field are spotted knapweed (*Centaurea maculosa*), and Russian knapweed (*Acroptilon repens*).

List C species located in the proposed project area are cheatgrass (*Bromus tectorum*), and halogeton (*Halogeton glomeratus*). Cheatgrass is an undesirable, invasive, and alien plant species that is in areas the dominant vegetation within the understory. Its presence in these highly degraded areas is primarily as result of intense historical livestock grazing and past oil and gas development within the area.

*Environmental Consequences of the Proposed Action:*

Direct and Indirect Effects: Implementation of the Proposed Action would result in the complete removal of vegetation and soils on approximately 417 acres of federally administered lands. Disturbance of soil and the removal of vegetation that directly competes with noxious/invasive weed species will create an opportunity for weeds to establish, or become a more dominant part of the vegetative community from the existing seed bank. There is also the potential for new weeds to be transported onto the site on equipment used for construction activities.

Successful reclamation does provide opportunity to improve current conditions in the project area. Many areas have vegetative communities that are highly degraded and dominated by invasive annual species. Successful reclamation using a seed mix adapted to the site in conjunction with weed management using methods approved in the White River Field Office Integrated Weed Management Plan creates an opportunity to improve vegetative communities and reduce the amount of weedy species in the project area.

Cumulative Effects: The proposed project would disturb soils and associated vegetation on 417 acres of federally administered lands and 1,060 acres total. Past and present oil and gas activities in the area have already created disturbance on the project area, and oil and gas development is anticipated to continue in the area. Of the 417 acres proposed on federally listed lands, only 20 acres are anticipated to be long-term disturbance throughout the life of the project. All pipeline disturbance is considered short-term, and once interim reclamation is complete on well pads, only 20 acres will be long-term. Successful reclamation of the 397 acres does provide an opportunity to improve vegetative communities within the project area.

*Environmental Consequences of the No Action Alternative:*

Direct and Indirect Effects: The No Action Alternative would result in no additional disturbance from what is currently present in the future. This will result in no change from the current management situation.

Cumulative Effects: Cumulative effects are the same as those analyzed in the Proposed Action in terms of the type of disturbance. In terms of duration and extent, however, this alternative would most likely result in reduced cumulative impacts because of the existing development in the project area, rather than the new proposed well pads, access roads, and pipelines, which would disturb approximately 1,060 acres.

*Mitigation:* None.

## SPECIAL STATUS ANIMAL SPECIES

*Affected Environment:* The project area is broadly encompassed by white-tailed prairie dog habitat. White-tailed prairie dogs, a BLM sensitive species, and their burrow systems are important components of burrowing owl habitat, as well as potential habitat for reintroduced populations of black-footed ferret. Burrowing owls, also a BLM sensitive species, are relatively uncommon in this Resource Area. These birds return to occupy a maintained burrow system in early April and begin nesting soon after. Most birds have left the area by September. There are several known burrowing owl nest locations within the project area.

Under the auspices of a non-essential, experimental population rule, black-footed ferrets have been released annually in Coyote Basin (eight miles southwest) and Wolf Creek (13 miles northeast) of Rangely Oil Field since 1999 and 2001, respectively. The rule applies to any ferrets that may occupy or eventually be released in northwest Colorado and northeast Utah. Although there is no direct continuity between Coyote Basin or Wolf Creek and the project site (i.e., lesser physical barriers and habitats unoccupied by prairie dog), there is potential for ferrets to colonize and successfully breed in the Rangely Oil Field. Ferrets are wholly reliant on prairie dogs for food and shelter. Ferret breeding activities begin in early March, with birthing beginning in early May. Young ferrets generally begin to emerge by mid-July. There have been no verified sightings of ferrets, nor any known reproduction occurring in the project area.

Brewer's sparrow, a BLM sensitive species, is relatively common and widely distributed throughout the oil field where appropriate habitat exists (i.e., sagebrush communities). This species typically returns in late-April and May and begins nesting the latter part of May. Young are fledged by mid to late July.

Ferruginous hawks are relatively rare in the WRFO Resource Area. Typically returning in late-February these birds begin nesting in earnest by mid-April with young generally fledged by late-July. Aerial surveys conducted in 2009 and 2011 showed no evidence of recent nesting attempts in or around the project area.

See discussion on endangered Colorado River fish and bald eagle in the Aquatic Wildlife section.

### *Environmental Consequences of the Proposed Action:*

Direct and Indirect Effects: The Proposed Action would directly remove approximately 400 BLM-administered acres (~5 percent of available public land) of predominately salt desert communities, much of which is moderately to, in places, heavily degraded (strong cheatgrass and halogeton component). Of the 400 acres, approximately 20 acres (associated with well pad development) would remain disturbed for the life of the project. Reclamation associated with pipeline replacements may potentially improve vegetative conditions on roughly 250 acres of public lands which, although difficult to measure, may benefit special status species in the long term. Indirectly, local wildlife populations will likely be displaced during construction activities, although, most species that inhabit the field are accustomed to some level of disturbance (vehicle traffic, drilling, construction, etc.) as this area has experienced considerable development since the 1930's. Once activities have ceased, wildlife are expected to return to the area.

White-tailed prairie dog/black-footed ferret: Involvement with prairie dog colonies will depend on the location of forthcoming activities therefore, field visits by BLM wildlife staff will be necessary to determine the degree of involvement with occupied habitats. Based on information in Tables 10 and 11, much of the work is scheduled to occur in the northeast and northwest portions of the field. Historically, prairie dog distribution in the Weber Sand Unit has been discontinuous (small, isolated colonies), but extensive. Based on mapping conducted in the 1980's, prairie dog colonies within the Weber Sand Unit totaled 6,102 acres (2,721 on public lands; 3,381 on private lands). Within the last 20-30 years, many of the colonies, particularly in the northeastern part of the field, have been impacted by plague, resulting in a considerable decrease in numbers and distribution. Current prairie dog distribution in the northeast portion of the field is sparse and at a lower density than much of the remaining field, although numbers and distribution have decreased overall.

Some of the replacement pipelines (as described in sundries 1 – 7) have potential to influence prairie dogs and their burrow systems as prairie dogs commonly burrow along existing disturbances associated with prior pipeline installation. Offsetting adjacent pipeline trenches (~15 feet) and avoiding the prairie dog reproductive season (April 15 – July 15) would minimize impacts to prairie dogs in those areas where occupied habitat is present. Similarly, new construction (both pad and pipeline) may potentially impact prairie dogs and prairie dog habitat depending on location of the proposed activity. Construction activities would be expected to temporarily displace prairie dogs; however, as mentioned above, improvements in ground cover associated with reclamation may potentially benefit prairie dogs and their associates in the long term.

Burrowing owl: Construction activities associated with the Proposed Action are projected to occur in the northeast and northwest portions of the field, with isolated areas in the southwest and central portions. There are two known nest locations (last occupied in 2009) that occur just outside the northeast boundary, although occupied territories may occur within the project boundary. Similarly, Replacement Line 4 is approximately 0.45 miles from a nest last known to be active in 2009. Earthwork and activities associated with drilling and pipeline installation may impact burrowing owls if conducted during the nesting season, potentially resulting in nest abandonment and possible mortality of nestlings. Therefore, if construction activities are anticipated to occur during the nesting season, a survey will be necessary to ensure no involvement with active nests. If construction activities occur outside the breeding season there would be virtually no direct impacts to nesting activities.

Brewer's sparrow: Discussion in the Migratory Birds section is directly relevant to Brewer's sparrow (i.e., degraded habitats, proximity to disturbance, timing of activities). Involvement with sagebrush habitats will depend on the location of upcoming activities however it is suspected that sagebrush communities will be involved to some degree.

Cumulative Effects: The Proposed Action (new well pads, pipelines and pipeline replacements) would initially disturb 1,060 acres of both public and private lands over a five-year period. Following reclamation approximately 70 acres would remain disturbed throughout the life of the project. As mitigated, this project is not anticipated to add substantially to current

or proposed disturbances nor would it be expected to have any measureable influence on special status species populations. Prompt and effective reclamation would likely improve current vegetation conditions in the long term (1-3 years). Improvements in vegetative cover (i.e., increases in perennial grass cover) may enhance forage and cover resources available for special status species over time.

*Environmental Consequences of the No Action Alternative:*

Direct and Indirect Effects: Both direct and indirect effects would be the same as those discussed under the Proposed Action.

Cumulative Effects: Cumulative effects would be the same as those discussed under the Proposed Action.

*Mitigation:*

1. There will be no earthwork or activities allowed from April 15 – July 15 (prairie dog reproductive period) in those instances involving occupied prairie dog habitat. Occupation will be determined through surveys conducted by BLM wildlife staff.
2. Burrowing owl surveys will be required prior to construction initiation if work is planned to take place during the breeding season (April 15 – August 15). Should an active nest be located, no earthwork or activities will be allowed from April 15 – August 15 (or until young have fledged) within ½ mile of any occupied burrowing owl nest location. There will be no surface occupancy allowed within ¼ mile of known nest locations.

*Finding on the Public Land Health Standard #4 for Special Status Species:* Public Land Health Standards for those special status species associated with white-tailed prairie dogs, including black-footed ferret and burrowing owl, in the Rangely Oil Field are currently met. As conditioned, this project would have no adverse influence on populations, available extent of suitable habitat, or the reproductive activities of these three species. Thus, there would be no influence on meeting the land health standard. Small incremental gains in perennial grass cover associated with successful reclamation and subsurface tillage associated with flowline installation may be expected to bolster local populations of prairie dogs and potentially benefit individual burrowing owl and black-footed ferret—effects consistent with continued meeting of the Land Health Standards.

## **SPECIAL STATUS PLANT SPECIES**

*Affected Environment:* Raven Ridge Area of Critical Environmental Concern (ACEC) is located approximately 1.5 miles to the west of the Proposed Action and is designated as an ACEC for its candidate threatened and endangered plants, BLM sensitive plants, and remnant vegetation areas. Special-status plant species include: 1) threatened, endangered, proposed, and candidate plants identified for protection by the US Fish and Wildlife Service (FWS) under the *Endangered Species Act* (ESA) of 1973, as amended, and 2) sensitive species identified by the BLM Colorado State Sensitive Species List (USDI-BLM 2000). Public lands in Colorado are

managed for Endangered, Threatened and Candidate plant species; eight of the 13 plant species in Colorado that are protected by the Endangered Species Act are found on BLM lands.

Candidate species do not receive protection under ESA unless they are the subject of a published rule determining endangered or threatened status (e.g., Graham's beardtongue). However, FWS monitors the status of all candidates, especially those for which available information indicates an imminent threat, and FWS encourages consideration of these during long-range environmental planning. BLM policy does not allow actions that would change the status of candidate species under the ESA. One federal candidate plant species occurs within Rio Blanco County and has the potential to occur in suitable habitats within 200 m of the Project area.

Candidate Species: White River penstemon (*Penstemon scariosus* var. *albifluvis*) is a federal candidate for listing as threatened or endangered and is found along the White River that flows westward from the Flat Tops area of Western Colorado until it joins the Green River in Utah. The species is only known in Colorado at Raven Ridge ACEC and two small populations in the Park Canyon and White Faced Butte area. Both the common and scientific names of this species refer to its location (*albus*, meaning white, and *fluvis* meaning river). Habitat is located on sparsely vegetated shale slopes of the Green River Formation at elevations ranging from 5,000 to 7,200 feet. This perennial herb grows from 15 to 30 centimeters tall, producing lavender to pale-blue flowers from late May through June (Spackman *et al.* 1997, State of Utah 2002).

BLM Sensitive Plants: Graham's beardtongue (*Penstemon grahamii*) is endemic to the Uinta Basin in Carbon County, Duchesne County, and Uinta County, Utah, and in immediately adjacent Rio Blanco County, Colorado. A member of the figwort family, this perennial herb is five to 20 centimeters tall with thick, leathery leaves, and large, tubular, light- to deep-lavender flowers that bloom from late May to early June. Graham's beardtongue grows on semi-barren knolls, ridges, and steep slopes in a mix of fragmented white shale and silty clay soils of the Green River Formation. It is found in sparsely vegetated communities of pinyon/juniper, desert shrub, and Salina wildrye, at elevations ranging from 5,000 to 7,200 feet in elevation (<http://www.centerforplantconservation>).

Debris milkvetch (*Astragalus detritalis*) is a perennial herb that occurs in pinyon/juniper and mixed desert shrub communities. Preferred soils are often rocky, ranging from sandy clays to sandy loams. This species is known to occur on alluvial terraces with cobbles at elevations ranging from 5,400 to 7,200 feet. Known distribution includes Duchesne and Uinta Counties in Utah, and Moffat and Rio Blanco Counties in Colorado. The flowering/fruitlet period begins in late April through early June and extends from late May to June (Spackman *et al.* 1997).

Ephedra buckwheat (*Eriogonum epedroides*) is a perennial herb found on the white shales of the Green River Formation and soils derived from them. It is most likely to occur on sparsely vegetated slopes. Elevations of preferred habitat range from 5,600 to 6,030 feet. Current known distribution is confined to several sites in Utah and in Rio Blanco County, Colorado. The flowering/fruitlet period begins in July and ends in late July to September (Spackman *et al.* 1997).

The Coal Oil Rim ACEC is located less than a mile to the east of the Proposed Action and is designated as an ACEC for its small quaking aspen (*Populus tremuloides*) clones and other diverse vegetation characteristics. These small aspen clones are located within the cliffs in Dead Dog Draw.

*Environmental Consequences of the Proposed Action:*

Direct and Indirect Effects: The Proposed Action would not directly affect any area within the ACEC or suitable habitat of the special status plant species. Because of the distance and topographic barriers there are little to no indirect impacts as well.

Cumulative Effects: There are no cumulative impacts anticipated from the Proposed Action on special status plant species.

*Environmental Consequences of the No Action Alternative:*

Direct and Indirect Effects: Both direct and indirect effects would be the same as those discussed in the Proposed Action.

Cumulative Effects: Cumulative effects are the same as those analyzed in the Proposed Action in terms of the type of disturbance. In terms of duration and extent, however, this alternative would most likely result in reduced cumulative impacts because of the existing development in the project area, rather than the new proposed well pads, access roads, and pipelines, which would disturb approximately 1,060 acres.

*Mitigation:* 1. For each new project, plant surveys may be requested by the BLM. If special status plant species or habitat is identified in a survey, possible mitigation could involve moving the proposed disturbance feature to include no less than a 100 meter buffer from known plant occurrences or known plant habitat.

*Finding on the Public Land Health Standard #4 for Special Status Species:* The Proposed Action and the No Action Alternative should have no influence on populations or habitats of plants associated with the Endangered Species Act or BLM sensitive species and, as such, should have no influence on the status of applicable Land Health Standards.

## **MIGRATORY BIRDS**

*Affected Environment:* Dominant vegetation within this heavily developed basin (well pads, facilities, roads pipelines, etc.) includes shadscale, mat and Gardner saltbush, greasewood and Wyoming and basin big sagebrush. Much of the understory is heavily degraded with invasive annuals such as cheatgrass, mustard, and halogeton. Perennial grasses are dominated by seeded species such as crested wheatgrass, western wheatgrass, and Russian wild rye however small inclusions of needle and thread, squirreltail, and Indian ricegrass are found throughout the field.

The arid salt desert and low elevation Wyoming big sagebrush and greasewood communities provide nesting habitat for a wide variety of migratory birds during the breeding season (generally May 15 – July 15). Based on bird surveys conducted in 2010 and 2011 the project area

appears to support the full contingent of salt-desert obligates although numbers are likely suppressed to a certain degree. Species that are commonly found throughout the Weber Sand Unit include vesper sparrow, sage thrasher, horned lark, meadowlark, northern mockingbird, mountain bluebird, rock wren, lark sparrow, Brewer's sparrow and western kingbird. Brewer's sparrow, burrowing owl, and ferruginous hawk are discussed in the *Special Status Animal Species* section.

*Environmental Consequences of the Proposed Action:*

Direct and Indirect Effects: The Proposed Action would directly remove/impact approximately 417 acres of federally-administered lands over a five-year period (see Table 11 for acreage breakdown per year). Proposed construction activities occurring on BLM administered land are mainly confined to the northeast and northwest portions of the project area, with small inclusions along in the central portion. Construction activities that occur during the breeding season (typically mid-May through mid-July) would have the greatest potential to directly influence nesting success, likely resulting in displacement or abandonment of nests and possible mortality of nestlings. Scheduling construction activities outside of the migratory bird nesting season (late-summer through early-spring) would have virtually no direct impacts on nesting activities, but may result, depending on the location, in the loss of functional nesting and/or forage habitat.

As mentioned above, direct and indirect effects would vary depending on the location of the proposed activity. For example, impacts to migratory birds would be substantially reduced in those instances when proposed activities are adjacent or in close proximity to existing disturbances (e.g., well pads, roads, or pipelines), as many bird species tend to avoid nesting immediately adjacent to disturbed areas or well-traveled roadways. Similarly, many of the existing pipeline rights-of-way (ROW) are degraded (understories with strong cheatgrass, mustard, or halogeton component) and do not provide adequate cover or forage resources for migratory birds. Proposed activities involving or lying adjacent (i.e., pipeline replacements) to these types of habitats are less likely to impact migratory bird nesting activities. Proposed activities involving new disturbances (e.g., construction of a new well pad or new cross-country pipeline routes) would likely have greater influence on nesting outcomes - if work is done during the breeding season - and may result in the loss of more functional habitat. Prompt and effective reclamation will be important to offset initial habitat loss.

Currently many of the pipeline ROWs contain a strong cheatgrass and/or halogeton component which typically does not provide adequate forage or cover resources for nongame birds. Pipeline reclamation, if effective, could potentially improve vegetative cover (stronger perennial component) on roughly 250 acres of BLM-administered lands which, although likely not measureable, may benefit nongame species in the long term.

Cumulative Effects: The project area has been heavily impacted with oil and gas development since the 1930's and the Proposed Action is not expected to add substantially to current or future disturbances, nor would it be expected to have any measureable influence on local bird populations. Initially this project will remove approximately 1,060 acres of public and private lands; however, following reclamation, 70 acres (< 1 percent) will remain disturbed for the life of the project. Roughly half of the acreage would involve areas that have been previously disturbed (e.g., existing pipeline ROWs) and currently exhibit less than optimal vegetative

conditions (i.e., dominated by annual invasive species). Improvements in vegetative cover along these corridors may enhance forage and cover resources available for migratory bird species over time.

*Environmental Consequences of the No Action Alternative:*

Direct and Indirect Effects: Both direct and indirect effects would be the same as those discussed in the Proposed Action since it is assumed that individual components of the Plan of Development would be continue to be considered, albeit as separate projects, in the future.

Cumulative Effects: Cumulative effects are the same as those analyzed in the Proposed Action in terms of the type of disturbance. In terms of duration and extent, however, this alternative would most likely result in reduced cumulative impacts because of the existing development in the project area, rather than the new proposed well pads, access roads, and pipelines, which would disturb approximately 1,060 acres.

*Mitigation:* 1. There will be no earthwork or vegetation removal allowed from May 15 – July 15 in those instances involving new construction (i.e., new well pads or new cross-country pipelines). All sundries will be analyzed on a case-by-case basis. At that time it will be determined by BLM wildlife staff if it is necessary to impose the above timing limitation based on the degree of impact the action presents to migratory birds.

## **AQUATIC WILDLIFE**

*Affected Environment:* The nearest system which supports higher order aquatic vertebrate species is the White River. The Weber Sand Unit encompasses approximately 6.5 river miles (0.60 miles BLM administered), which flow through the southeast portion of the project area. The White River between Rio Blanco Lake and the Utah State line is designated critical habitat for the endangered Colorado pikeminnow, although present occupation is confined to the reach below Taylor Draw Dam (which is located upstream from the project area). The White River also supports populations of native fish including speckled dace, flannelmouth sucker, and bluehead sucker in addition to chorus and northern leopard frogs.

The White River corridor is the hub for seasonal bald eagle use of the lower White River Valley. Particularly during the later fall and winter months, up to several dozen bald eagles make regular foraging use of open upland communities south of the river, but these forays in search of primarily big game and livestock carrion and small game (e.g., rabbit and hare) are dispersed and opportunistic. There are no known bald eagle nests or roosts within the project area. The nearest known active nest is located at a minimum 10 to 12 river miles downstream (near the Utah border).

*Environmental Consequences of the Proposed Action:*

Direct and Indirect Effects: Cumulative water depletions from the Colorado River Basin are considered likely to jeopardize the continued existence of the Colorado pikeminnow, as well as downstream populations of humpback chub, bonytail, and razorback sucker and result in the destruction or adverse modification of their critical habitat. In 2008, BLM prepared a

Programmatic Biological Assessment (PBA) that addressed water depleting activities associated with BLM's fluid minerals program in the Colorado River Basin in Colorado, including water used for well drilling, hydrostatic testing of pipelines, and dust abatement on roads. In response, the U.S. Fish and Wildlife Service (FWS) prepared a Programmatic Biological Opinion (PBO) that addressed water depletions associated with fluid minerals development on BLM lands. The PBO included reasonable and prudent alternatives which allowed BLM to authorize oil and gas wells that result in water depletion while avoiding the likelihood of jeopardy to the endangered fishes and avoiding destruction or adverse modification of their critical habitat. The reasonable and prudent alternative authorized BLM to solicit a one-time funding contribution to the Recovery Implementation Program for Endangered Fish Species in the Upper Colorado River Basin (Recovery Program) in an amount based on the average annual acre-feet depleted by fluid minerals activities on BLM lands. This contribution was ultimately provided to the Recovery Program through an oil and natural gas development trade association. The Proposed Action is covered by this agreement and water-use figures associated with this project (see *Hydrology and Water Rights* section) would be entered into the White River Field Office fluid minerals water depletion log that will be submitted to the Colorado State Office at the end of the Fiscal Year.

Construction activities associated with the Proposed Action are not anticipated to have any substantive influence on Colorado pikeminnow populations, other aquatic wildlife species or associated habitat. With the exception of Replacement Line 6, which is separated from the White River by 200 meters of ephemeral channel, all BLM approved pipeline replacement projects are located in the northwest portion of the field and separated from the White River by, at a minimum, 3.5 miles. The project area involves approximately 0.60 miles of river channel administered by BLM and although unlikely, it is unknown at this time whether future projects would occur adjacent to the White River channel. Forthcoming project will need to be analyzed on a case-by-case basis, and if found to impact aquatic resources, may need to be relocated. It should be noted that with the application of BMPs associated with soil erosion, there is no reasonable likelihood that fugitive sediments would have any influence on the function or condition of the White River, its aquatic wildlife, or associated habitats. Improvements in vegetative cover associated with reclamation (i.e., stronger perennial grass component) may reduce run-off and soil erosion.

Cumulative Effects: The project area has been heavily impacted by oil and gas development for the past eight decades and this project is not anticipated to add substantially to current and future development, nor is it expected to have any measurable influence on aquatic resources. Based on BLM assessments conducted in 2011, BLM-administered reaches of the White River located immediately downstream from the project area are functioning properly with no evidence of influence (e.g., sedimentation, etc.) from on-going oil and gas activities immediately upstream.

*Environmental Consequences of the No Action Alternative:*

Direct and Indirect Effects: Both direct and indirect effects would essentially be the same as those discussed under the Proposed Action, however the No Action Alternative may impede timely pipeline maintenance as it would be necessary to analyze each action individually. This

could result in pipeline damage and potential leaks which, depending on proximity to the White River channel could impact aquatic communities.

Cumulative Effects: Cumulative effects would be essentially the same as those discussed under the Proposed Action. See discussion under Direct and Indirect Effects of the No Action Alternative above.

*Mitigation:* None.

*Finding on the Public Land Health Standard #3 for Plant and Animal Communities:* BLM-administered reaches of the White River are currently meeting the land health standards for aquatic communities. The Proposed Action is not expected to detract from continued meeting of these standards. As stated above (Environmental Consequences of the No Action Alternative), delays in timely pipeline maintenance may lead to pipeline damage and potential leaks. Depending on the pipelines proximity to aquatic systems, there could be potential for fluids to come into contact with aquatic wildlife and habitat.

## **TERRESTRIAL WILDLIFE**

*Affected Environment:* This heavily developed portion of the basin is inhabited year-round by a small resident herd of pronghorn which are acclimated to routine oil and gas production activities. The lower elevation salt desert shrublands which encompass the project area are categorized by Colorado Parks and Wildlife as big game (both elk and mule deer) general winter range. These ranges typically receive the heaviest use from October through January. A small, privately-owned section in the southeast corner is located in mule deer severe winter range; however, no activities are planned in this area through 2016.

The project area itself provides limited habitat for nesting raptors, although adjacent cliffs and rock outcrops likely support species such as golden eagle and red-tailed hawk. Much of the nesting habitat is well removed from the basin, however it is likely that raptors (mainly golden eagle and red-tailed) opportunistically forage throughout the project area. See discussion on burrowing owl and ferruginous hawk in *Special Status Animal Species* section.

The distribution and abundance of small mammal populations are poorly documented within the project area; however, those species that may occur in this area display broad ecological tolerance and are widely distributed throughout the Resource Area. The degraded understory, which has a strong annual component, and extensive infrastructure that is present throughout the project area, likely suppress small mammal populations to a certain degree. Trapping efforts undertaken outside of the project area, primarily in Piceance Basin, indicate a high tendency in both sagebrush and pinyon-juniper communities for more generalized species such as deer mouse and least chipmunk, and it is suspected that this would hold true for the project area. No narrowly distributed or highly specialized species or subspecific populations are known to occur in the project area.

*Environmental Consequences of the Proposed Action:*

Direct and Indirect Effects: The incremental loss of roughly 400 acres of habitat (two percent of available habitat within entire field, five percent of available BLM-administered habitat) over a five-year period is not anticipated to have substantial adverse consequences on big game distribution or habitat quality, particularly if reclamation is prompt and effective. It is suspected that small mammal and nongame bird populations (see *Migratory Bird* section) would be most influenced, both positively and negatively, by the Proposed Action. Removal of herbaceous ground cover would, in the short term result in loss of habitat and temporary displacement, however improvements in herbaceous understory associated with reclamation would, in the long term, enhance forage and cover resources available for these species. Right-of-way reclamation normally provides herbaceous forage opportunity in excess of that previously existing and in many cases will replace cheatgrass and halogeton-dominated understories almost immediately after construction is complete. While surface disturbance would cause a longer-term reduction in woody forage supply, the incremental shrub reductions are wholly insignificant with respect to the available forage base. Standard reclamation procedures would provide the opportunity to increase the perennial grass component on these corridors in the longer term, increasing ground cover and seed production and prolonging the availability of green herbaceous forage for resident big and non-game animals.

Based on Tables 10 and 11, much of the activity on BLM-administered lands will be confined to the northeast and northwest portions of the field. During this time, temporary displacement of big game would be expected; however, once construction activities are complete, resident wildlife would be expected to return. It should be noted that oil and gas activity (e.g., drilling, construction, vehicle traffic, etc.) has been widespread in this field since the 1930's, and local wildlife have likely either acclimated or learned to avoid the area. Proposed activities that involve pipeline replacements that lie adjacent to roadways and/or existing disturbances would be expected to have less of an impact on local wildlife than those activities that involve new disturbance. As proposed, approximately 166 acres of BLM-administered lands (~2 percent of BLM lands within the project area) would involve new disturbance for well pad and pipeline construction (over the life of the project). Of this, only 20 acres (<1 percent of public lands) associated with well pad development will remain unreclaimed. The remaining 250 acres would involve replacement pipelines which typically involve more degraded habitats. Reclamation of these replacement lines would be expected to enhance vegetative cover which would benefit resident wildlife within one to three years.

Cumulative Effects: Cumulatively the Proposed Action is not expected to add substantially to existing or proposed disturbances in the area nor would it be expected to have any measurable influence on local wildlife populations. The Proposed Action would initially remove ~1,060 acres (about 6 percent of total available habitat within the project area) of both private and public lands. About 526 (roughly three percent of available habitat) would involve new disturbances, all of which, with the exception of 71 acres, would be reclaimed within one to three years. The remaining 534 acres would be associated with areas of existing disturbance (pipeline replacements) which typically involve degraded understories. As stated above, this is a heavily developed field that has been in existence since the 1930's. Much of the understory is dominated by invasive annuals which provide little benefit to resident wildlife. Improvements in

ground cover associated with reclamation of the pipelines and well pads are expected to enhance forage and cover resources for local wildlife, particularly nongame birds and mammals.

*Environmental Consequences of the No Action Alternative:*

Direct and Indirect Effects: Both direct and indirect effects would be the same as those discussed in the Proposed Action since it is assumed that individual components of the Plan of Development would be continue to be considered, albeit as separate projects, in the future.

Cumulative Effects: Cumulative effects are the same as those analyzed in the Proposed Action in terms of the type of disturbance. In terms of duration and extent, however, this alternative would most likely result in reduced cumulative impacts because of the existing development in the project area, rather than the new proposed well pads, access roads, and pipelines, which would disturb approximately 1,060 acres.

*Mitigation:* See mitigation in Vegetation section regarding reclamation.

*Finding on the Public Land Health Standard #3 for Plant and Animal Communities:* Much of the ground cover within the Chevron Field is dominated by annual weeds. Although these sites in and of themselves cannot be considered meeting the definition of the land health standard, the majority of the shrubland communities comprising this landscape likely retain sufficient character to support viable populations of resident wildlife, although likely at populations reduced from potential. If properly mitigated, the Proposed Action allows for subsequent reclamation which offers an opportunity to reestablish herbaceous forage and cover conditions (i.e., redevelopment of a perennial bunchgrass component) more consistent with the proper functioning of these arid salt desert communities as wildlife habitat, thus providing better opportunity to meet the land health standard.

## **CULTURAL RESOURCES**

*Affected Environment:* Inventory in the project area began in the mid 1970's to comply with various historic preservation statutes as part of oil field development by Chevron.(c.f. Kvamme 1979 Compliance Dated 5/24/1979, Larralde 1980 Compliance Dated 12/16/1980, Spitzer 1979 Compliance Dated 11/6/1979). In the late 1970's and early 1980's in response to a proposal for a large power plant and mine in the Rangely area, in addition to Chevron's continued development in the project area, a number of large-scale projects, sometimes overlapping in area, were also undertaken (c.f. Larralde 1981 Compliance Dated 2/18/1981, Chandler and Nickens 1979 Compliance Dated 11/1/1979). The above projects did occasionally identify prehistoric and historic remains throughout the areas inventoried though large prehistoric sites were notably lacking, possibly due to development in the area that began at the beginning of the twentieth century (Athearn 1981, Pollard 1957).

In 1985 Chevron began a project of tertiary recovery which involves injecting carbon dioxide into the field to produce more oil from the formation. As a part of that program many miles of new pipelines to transport the gas from a compressor facility to the injection wells were constructed. The BLM required monitoring of much of the construction which resulted in identification of several buried sites. Radiocarbon dating of features from these sites detected

human activity in the area as early as 9,970 +/- 140 radiocarbon years before present or about 8,020 BC. Analysis of hearth fill from the sites also indicated that the vegetation community from that period was very similar to what is seen there today (Baker 1985). Baker's work does indicate that there is some potential for additional buried remains in the field.

Replacement Lines 1 through 5 in the current Proposed Action have been inventoried at the Class III (100 percent pedestrian) level (Davenport 2011, compliance dated 8/17/2011) with no cultural resources identified in the 200 foot wide inventory corridor for the pipelines.

Replacement lines 6 and 7: The proposed replacement lines appear to be in the existing disturbance for pipelines installed earlier, likely during the 1985 carbon dioxide injection line project. There is a small potential for undisturbed subsurface remains in the corridor.

Replacement Line 8: AC McLaughlin 78X: The proposed flow line is located in an area that appears be adjacent to a previous pipeline route for most of the northern extent of the line in Section 23. It is somewhat unlikely that undisturbed surface remains are present. However, there is a small potential for subsurface remains that could be impacted by construction.

Replacement Line 9: AC McLaughlin 79X: The proposed flow line is located in an area that appears relatively undisturbed by construction. There is a possibility, though likely very small, that undisturbed and unrecorded surface remains might be present.

*Environmental Consequences of the Proposed Action:*

Direct and Indirect Effects: Continued development and construction in the project area has the potential to impact both prehistoric and historic remains. The prehistoric remains provide information about human adaptation and occupation in the area prior to the arrival of European Settlers. The historic materials provide information as to how the area was originally settled and how some of the earliest energy development in the region took place. The historical remains provide information that is not generally available from written records of the period. Any loss of archaeological or historical data from development could be considered serious.

Cumulative Effects: Continued development in the project area, without any measures to identify the resources that might be present and impacted by development, could result in a serious and important irreversible and irretrievable loss of archaeological and historical data from the regional cultural database. Lack of an overall cultural context for the field could result in resources being evaluated on an individual basis without the ability to place the sites in a larger more meaningful context of understanding the human use of the basin. Mitigation measures could reduce the level of data loss to some degree but, there would still be some net loss of scientific and cultural data.

*Environmental Consequences of the No Action Alternative:*

Direct and Indirect Effects: Under the No Action Alternative individual pipeline replacement or new construction or new well locations and other development related activities would be handled on a piece meal, case by case basis increasing the potential to overlook unrecorded resources that may be present in individual project areas. Lack of an overall cultural context for the field could result in resources being evaluated on an individual basis without the

ability to place the sites in a larger more meaningful context of understanding the human use of the field area.

Cumulative Effects: Continued development in the project area on a project by project piecemeal basis, without any measures to identify the resources that might be present and impacted by development, could result in a serious and important irreversible and irretrievable loss of archaeological and historical data from the regional cultural database. Lack of an overall cultural context for the field could result in resources being evaluated on an individual basis without the ability to place the sites in a larger more meaningful context of understanding the human use of the basin. Mitigation measures could reduce the level of data loss to some degree but, there would still be some net loss of scientific and cultural data.

*Mitigation:*

1. If any archaeological materials are discovered as a result of operations under this authorization, activity in the vicinity of the discovery will cease, and the BLM WRFO Archaeologist will be notified immediately. Work may not resume at that location until approved by the Authorized Officer (AO). Chevron will make every effort to protect the site from further impacts including looting, erosion, or other human or natural damage until BLM determines a treatment approach, and the treatment is completed. Unless previously determined in treatment plans or agreements, BLM will evaluate the cultural resources and, in consultation with the State Historic Preservation Office (SHPO), select the appropriate mitigation option within 48 hours of the discovery. Chevron, under guidance of the BLM, will implement the mitigation in a timely manner. The process will be fully documented in reports, site forms, maps, drawings, and photographs. The BLM will forward documentation to the SHPO for review and concurrence.
2. Pursuant to 43 CFR 10.4(g), the Chevron must notify the AO, by telephone and written confirmation, immediately upon the discovery of human remains, funerary items, sacred objects, or objects of cultural patrimony. Further, pursuant to 43 CFR 10.4(c) and (d), the Chevron must stop activities in the vicinity of the discovery and protect it for 30 days or until notified to proceed by the AO.
3. Chevron is responsible for informing all persons who are associated with the projects that they will be subject to prosecution for knowingly disturbing archaeological sites or for collecting artifacts. If archaeological materials are discovered as a result of operations under this authorization, the Chevron must immediately contact the appropriate BLM representative.
4. Replacement Lines 6 and 7 appear to be in an existing pipeline corridor. They shall be monitored during all construction related activities by an archaeological monitor.
5. If an inventory for Replacement Lines 8 and 9 is not completed and approved prior to construction of the flow lines an archaeological monitor shall be present prior to and throughout the initial construction phase, (i.e., ground clearing and trenching) of the project.

## PALEONTOLOGICAL RESOURCES

*Affected Environment:* The majority of the project area is in an area generally mapped as the Mancos Shale Formation with areas of Aeolian deposits interspersed in some limited areas (Tweto 1979). Aeolian sands are not generally considered fossiliferous in northwestern Colorado (c.f. Armstrong and Wolny 1989) and the BLM, WRFO has classified the Aeolian deposits as a PFYC 1 formation as a result.

The Mancos shale formation is known to produce a variety of marine vertebrates such as mosasaurs, plesiosaurs, sharks, large fish, occasional Hadrosaurs (duck billed dinosaurs) that have been washed out to sea and a wide range of invertebrates including clams, oysters, and baculites (c.f. Armstrong and Wolny 1989, Baker 1986). To date, no vertebrate fossils have been reported from the Mancos Shale in the project area therefore the BLM.WRFO has classified the formation as a PFYC 3 formation meaning it is uncertain as to what significant fossils might potentially be found.

### *Environmental Consequences of the Proposed Action:*

Direct and Indirect Effects: There is an unknown potential to impact fossil resources in the Mancos Shale of the project area. To date, only invertebrate baculite fragments have been reported though the WRFO has no record of a systematic inventory of the basin to fossil resources. Any excavations have the potential to expose fossil resources, both vertebrate and invertebrate. Depending on the fossils exposed excavation of pipeline trenches, holes, and trenches for structure footers could have a serious impact on scientifically noteworthy fossil resources. If a paleontologist is not present to assess the value of the resources at the time of impact and perform some data recovery, the loss of data could be severe.

Cumulative Effects: Any loss of scientific data due to actions impacting fossil resources would represent an irreversible and irretrievable loss of scientific data for the regional paleontological database.

### *Environmental Consequences of the No Action Alternative:*

Direct and Indirect Effects: There would be no new construction related impacts to fossil resources under the No Action Alternative. Natural weathering and erosion would continue to occasionally expose some fossils which would likely go unrecorded as there is no continued observation of the field area for new fossils. Any erosional loss would be irreversible and irretrievable but does not represent any change from the natural state that has existed for many centuries.

Cumulative Effects: Loss of scientific data would continue at a slow, geologically time-based rate, as has been the case for centuries. There would be no increased loss as a result of human activity that could disturb fossils or increase the erosion rate of the area.

*Mitigation:*

1. If any paleontological resources are discovered as a result of operations under this authorization, Chevron or any of their agents must stop work immediately at that site, immediately contact the BLM Paleontology Coordinator, and make every effort to protect the site from further impacts, including looting, erosion, or other human or natural damage. Work may not resume at that location until approved by the AO. The BLM or designated paleontologist will evaluate the discovery and take action to protect or remove the resource within 10 working days. Within 10 working days, the operator will be allowed to continue construction through the site, or will be given the choice of either (a) following the Paleontology Coordinator's instructions for stabilizing the fossil resource in place and avoiding further disturbance to the fossil resource, or (b) following the Paleontology Coordinator's instructions for mitigating impacts to the fossil resource prior to continuing construction through the project area.
2. The applicant is responsible for informing all persons who are associated with the project operations that they will be subject to prosecution for disturbing or collecting vertebrate fossils, collecting large amounts of petrified wood (over 25lbs./day, up to 250lbs./year), or collecting fossils for commercial purposes on public lands. If any paleontological resources are discovered as a result of operations under this authorization, the permittee/applicant must immediately contact the appropriate BLM representative.
3. The AO may require occasional spot checking of trenching operations to inspect for possible presence of fossil resources.

## **VISUAL RESOURCES**

*Affected Environment:* The project area falls primarily within a VRM Class IV area, while a small portion in the northwestern corner of the project area falls within a VRM class III area. The objective of a VRM Class IV area is to provide for management activities which require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of the viewers' attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements of line, form, color, and texture. The objective of a VRM Class III area is to partially retain the existing character of the landscape. The level of change to the characteristic landscape could be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.

There is a heavy presence of industrial activity in the project area, primarily oil and gas development, and associated heavy truck and equipment traffic on the adjoining roadways. The landscape is characterized by large rock formations, and pinyon-juniper and sagebrush vegetation.

*Environmental Consequences of the Proposed Action:*

Direct and Indirect Effects: The Proposed Action will add industrial structures and ground disturbance to the area and contribute to the highly modified landscape that currently exists. However, relative to the highly developed surrounding oil and gas visual environment, the Proposed Action will not dramatically alter the visual landscape from its current state. As such, the Proposed Action is consistent with a VRM Class III and IV area and will meet the objectives of each.

Cumulative Effects: The Proposed Action will cumulatively add to the already highly modified, industrial appearing landscape. However these effects are consistent with the objectives of VRM Class III and IV areas.

*Environmental Consequences of the No Action Alternative:*

Direct and Indirect Effects: There would be no modifications on the existing landscape, therefore there would be no additional visual disturbances.

Cumulative Effects: None.

*Mitigation:* 1. On all locations use low profile production equipment and paint all above ground facilities Desert Brown (Munsell Soil Color 10YR 6/3).

## **HAZARDOUS OR SOLID WASTES**

*Affected Environment:* Existing levels of hazardous materials that occur within the boundaries of the project area are unknown. However, there are no known hazardous or other solid wastes on the subject lands. Moreover, no hazardous materials are known to have been used, stored, or disposed of at sites included in the project area.

*Environmental Consequences of the Proposed Action:* The proposed activities will use regulated materials and will generate some solid and sanitary wastes. The potential for harm to human health or the environment includes risks associated with spills of fuel, oil and/or hazardous substances during oil and gas operations. Accidents and mechanical breakdown of machinery are also possible which may result in the release of hazardous materials into the environment.

Direct and Indirect Effects: The proposed activities may pose direct and indirect impacts to soil, water, air, and biological resources that occur in close proximity to individual disturbance features. Impacts to these resources may also occur at farther distances from individual disturbance features, though it is assumed that these impacts would be reduced because of proximity to the point source. Accidents and mechanical breakdown may also have direct and indirect effects to resources depending on the type of accidents or mechanical breakdown and when and where they occur temporally and spatially.

Cumulative Effects: Effects to soil, water, air, and biological resources as a result of cumulative release of hazardous materials into the environment are unknown. Because some

hazardous substances persist in the environment, it is reasonable to assume that multiple activities that may occur throughout the project area that result in the release of individual hazardous material spills or discharge events, may cumulatively result in impacts to soil, water, air, and biological resources.

*Environmental Consequences of the No Action Alternative:* No hazardous or other solid wastes would be generated under the No Action Alternative.

Direct and Indirect Effects: The regulated materials would not be used, the solid and sanitary wastes would not be generated and accidents and the potential of mechanical breakdown of machinery for the proposed wells would not be present thus decreasing the direct and indirect effects.

Cumulative Effects: Cumulative effects are the same as those analyzed in the Proposed Action in terms of the type of disturbance. In terms of duration and extent, however, this alternative would most likely result in reduced cumulative impacts because of the existing development in the project area, rather than the new proposed well pads, access roads, and pipelines, which would disturb approximately 1,060 acres.

*Mitigation:*

1. All lessees and/or operators and right-of-way holders shall comply with all federal, state and/or local laws, rules, and regulations, including but not limited to onshore orders and notices to lessees, addressing the emission of and/or the handling, use, and release of any substance that poses a risk of harm to human health or the environment.
2. Where required by law or regulation to develop a plan for the prevention of releases or the recovery of a release of any substance that poses a risk of harm to human health or the environment, provide a current copy of said plan to the BLM WRFO.
3. Through all phases of oil and gas exploration, development, and production, all lessees and/or operators and holders of rights-of-way shall employ, maintain, and periodically update to the best available technology(s) aimed at reducing: 1) emissions, 2) fresh water use, and 3) utilization, production, and release of hazardous material.
4. All substances that pose a risk of harm to human health or the environment shall be stored in appropriate containers. Fluids that pose a risk of harm to human health or the environment, including but not limited to produced water, shall be stored in appropriate containers and in secondary containment systems at 110 percent of the largest vessel's capacity. Secondary fluid containment systems, including but not limited to tank batteries shall be lined with a minimum 24 mil impermeable liner.
5. Construction sites and all facilities shall be maintained in a sanitary condition at all times; waste materials shall be disposed of promptly at an appropriate waste disposal site.

"Waste" means all discarded matter including, but not limited to, human waste, trash, garbage, refuse, oil drums, petroleum products, ashes, and equipment.

6. As a reasonable and prudent lessee/operator in the oil and gas industry, acting in good faith, all lessees/operators and right-of-way holders will report all emissions or releases that may pose a risk of harm to human health or the environment, regardless of a substance's status as exempt or nonexempt and regardless of fault, to the BLM WRFO (970) 878-3800.
7. As a reasonable and prudent lessees/operator and/or right-of-way holder in the oil and gas industry, acting in good faith, all lessees/operators and right-of-way holders will provide for the immediate clean-up and testing of air, water (surface and/or ground) and soils contaminated by the emission or release of any substance that may pose a risk of harm to human health or the environment, regardless of that substance's status as exempt or non-exempt. Where the lessee/operator or right-of-way holder fails, refuses or neglects to provide for the immediate clean-up and testing of air, water (surface and/or ground) and soils contaminated by the emission or release of any quantity of a substance that poses a risk of harm to human health or the environment, the BLM WRFO may take measures to clean-up and test air, water (surface and/or ground) and soils at the lessee/operator's expense. Such action will not relieve the lessee/operator of any liability or responsibility.
8. With the acceptance of this authorization, the commencement of operations under this authorization, or within thirty calendar days from the issuance of this authorization, whichever occurs first, and during the life of the pipeline, the right-of-way holder and the lessee/operator, and through the right-of-way holder and lessee/operator, its agents, employees, subcontractors, successors and assigns, stipulate and agree to indemnify, defend and hold harmless the United States Government, its agencies, and employees from all liability associated with the emission or release of substances that pose a risk of harm to human health or the environment.

## RANGELAND MANAGEMENT

*Affected Environment:* The area of the Proposed Action overlaps with three grazing allotments. The Raven Park (06314) and the Artesia (06308) allotments are permitted for sheep grazing to Morapos Sheep Company, and the Coal Oil (06313) allotment is permitted for sheep use to Sam Robinson. Grazing on the three allotments is outlined in the Tables 7 and 8 below.

**Table 8:** Permitted Sheep Use on the Raven Park and Artesia Allotments

ALLOTMENT		LIVESTOCK		GRAZING PERIOD				
Number	Name	Kind	Number	Begin	End	percent PL	Type Use	AUMs
06314	Raven Park	Sheep	1400	11/20	2/28	100	Active	930
06314	Raven Park	Sheep	1400	3/1	4/6	100	Active	341

06308	Artesia	Sheep	3990	12/1	2/28	100	Active	2,361
06308	Artesia	Sheep	3990	3/1	4/1	100	Active	840

**Table 9:** Permitted Sheep Use on the Coal Oil Allotment

ALLOTMENT		LIVESTOCK		GRAZING PERIOD				
Number	Name	Kind	Number	Begin	End	percentPL	Type Use	AUMs
06313	Coal Oil	Sheep	615	12/16	2/28	63	Active	191
06313	Coal Oil	Sheep	615	3/1	4/10	63	Active	104

The majority of the permitted use on all three allotments is winter use while vegetation is dormant, and impacts to perennial grasses and forbs are minimized. Some of the grazing use does occur in the early spring during the first part of the critical growing season. The critical growing season is the time which the majority of cool-season grasses and forbs put most of their energy into above ground biomass and seed-head production.

*Environmental Consequences of the Proposed Action:*

Direct and Indirect Effects: The impacts to grazing would be minimal because the 1,060 acres of proposed disturbance (417 acres BLM lands) is minimal compared to the total acreage of the three allotments (77,277 acres), and the majority of the disturbance is short-term disturbance (~990 acres of the 1,060 acres). Disturbance of 1,060 acres is the equivalent of about 62 animal unit months (AUMs) worth of grazing; however since only 70.5 acres would be long-term disturbance this would only result in a possible loss of 4 AUMs. An AUM is defined as the amount of forage required to sustain one cow-calf pair for a one month period.

As discussed in the *Vegetation* section, vegetation on large portion of the project area has been highly degraded from previous industrial development, and heavy historical grazing use. Successful reclamation of disturbed areas provides an opportunity to improve vegetative structures and improve grazing for wildlife and livestock.

If the Proposed Action was authorized during the grazing period, it would have some limited impacts while sheep are grazing. This is in part due to the increased activity associated with the development of the Proposed Action and decrease in rangelands available for grazing. Also, BLM grazing permit holders have experienced injury and losses of livestock due to inadequate fencing of disposal pits at the pads. Other impacts to livestock grazing may include such influences as a modification in sheep distribution, reduction in available forage, injury to livestock, and impediments to livestock grazing and movement. There are also multiple rangeland improvements located within the project area such as fences, ponds, and livestock control structures which aid in livestock management while grazing on public lands. It is likely that these improvements will be impacted during construction activities.

Cumulative Effects: Overall, this Proposed Action would have no significant direct impact on the authorized AUMs in the allotments. A slight positive benefit would be received

through successful re-vegetation efforts on pipelines and during interim reclamation, thus increasing preferred forage plants within this mid to low producing rangeland. However, the cumulative impacts from past, present, and possible future oil and gas activities may have a long-term effect on the native range's carrying capacity, thus influencing the authorized AUMs. This possible affect would be determined during the grazing permit renewal process which includes an evaluation of forage capacity available for livestock. It is foreseeable that the grazing permit holder could lose a portion of permitted active AUMs due to a loss of forage associated with oil and gas development within the authorized BLM grazing allotment.

*Environmental Consequences of the No Action Alternative:*

Direct and Indirect Effects: The No Action Alternative would result in no change from the current situation in terms of grazing. No new disturbance would occur within the three allotments, and there would be no potential for loss of AUMs or impacts to range improvements.

Cumulative Effects: Cumulative effects are the same as those analyzed in the Proposed Action in terms of the type of disturbance. In terms of duration and extent, however, this alternative would most likely result in reduced cumulative impacts because of the existing development in the project area, rather than the new proposed well pads, access roads, and pipelines, which would disturb approximately 1,060 acres.

*Mitigation:* 1. Any livestock control facilities and/or rangeland improvements impacted during this operation will be replaced or repaired to their prior condition.

## **FLOODPLAINS, HYDROLOGY, AND WATER RIGHTS**

*Affected Environment:* The project includes the floodplain for the White River. Kenny Reservoir upstream from the project area was not designed for flood control and does not maintain any ability for water storage in the event of a flood. The channel through Rangely is incised and does not have full access to its floodplain. The upper portion of the reach through the project area is BLM administered land in section 36 of T2N R102W. Parks and rural private land have Russian olives, tamarisk and some native cottonwoods and willows that would provide some flood protection by increasing surface roughness during a flood event and subsequently decreasing the velocity of flood flows and provide some storage. Below the BLM lands there are not as many cottonwood galleries or other lands that could be inundated without impacts to property and people.

*Environmental Consequences of the Proposed Action:*

Direct and Indirect Effects: The Proposed Action will impact floodplains and surface hydrology will be modified in the disturbed areas. Approving additional disturbance and infrastructure within 500 feet of the White River may increase the risk of flooding and would put facilities in danger of future flood flows. Mitigation described in the ground and surface water quality section should moderate this impact.

Fresh water required for boilers and other needs will be trucked from Chevron's Main Water Treatment Plant located in Section 32 of T2N R102W on Chevron owned land. The estimated amount of water to be used during construction (minimal – 100 bbls), drilling (3,000 bbls),

fracing (10,000 bbls) and dust abatement (1,500 bbls), for a total estimated amount of 14,600 barrels per well or 1.8 acre-ft. The BLM has a programmatic agreement with the U.S. Fish and Wildlife Service (FWS) concerning depletions from the Colorado River system. These wells will be part of annual reports to estimate depletions to the Colorado River system.

The proponent states that they have sufficient and valid water rights to meet freshwater needs for the project; therefore, other water rights are not likely to be impacted by this project.

Cumulative Effects: Development for the town of Rangely, oil and gas infrastructure, well pads and access roads in the area may be located within the floodplains of drainages. In these locations, limiting the access of flood flows to the full width of the floodplain may increase flood impacts downstream and could lead to flooding of facilities during extreme storm events. The operator will design facilities based on peak flow estimates and engineering practices to limit impacts. The US Army Corp of Engineers will be consulted as appropriate for any of these facilities that may impact waters of the United States.

*Environmental Consequences of the No Action Alternative:*

Direct and Indirect Effects: No additional impacts to floodplains, hydrology or water rights would occur.

Cumulative Effects: Cumulative effects are the same as those analyzed in the Proposed Action in terms of the type of disturbance. In terms of duration and extent, however, this alternative would most likely result in reduced cumulative impacts because of the existing development in the project area, rather than the new proposed well pads, access roads, and pipelines, which would disturb approximately 1,060 acres.

*Mitigation:* None.

## **REALTY AUTHORIZATIONS**

*Affected Environment:* The Proposed Action is located within the Rangely Weber Sand Unit, therefore no right-of-way is needed. Numerous existing rights-of-way exist throughout the Unit.

*Environmental Consequences of the Proposed Action:*

Direct and Indirect Effects: A realty right-of-way will not be issued for the Proposed Action due to being located on-unit. To avoid impacts to existing rights-of-way, Chevron would need to coordinate with right-of-way holders prior to construction activity.

Cumulative Effects: Combined with oil and gas and industrial development in the area, the Proposed Action will have minimal effect to the area.

*Environmental Consequences of the No Action Alternative:*

Direct and Indirect Effects: None.

Cumulative Effects: None.

*Mitigation:* 1. To avoid impacts to existing realty rights-of-way, Chevron would need to coordinate with right-of-way holders prior to any construction activity.

## **ACCESS AND TRANSPORTATION**

*Affected Environment:* The primary access to the Proposed Action is Colorado State Highway 64 which bisects the project area. This is the main thoroughfare through the Town of Rangely, connecting the Town of Meeker to the southeast, and the town of Dinosaur to the northwest. Another primary access road into the project area is Rio Blanco County (RBC) Road 1. Other routes used for access will be primarily BLM roads open to motorized use.

*Environmental Consequences of the Proposed Action:*

Direct and Indirect Effects: The Proposed Action is likely to result in added heavy truck traffic on State Highway 64 and RBC 1. This may present incidental traffic issues and concerns in the Town of Rangely since State Highway 64 is the main thoroughfare for the Town. However, heavy truck traffic will likely be spread out over a period of five years. Additionally, this traffic is consistent with other similar traffic for other surrounding oil and gas development activities.

Cumulative Effects: In conjunction with other oil and gas development activities in the area, the Proposed Action is likely to incrementally contribute to added traffic on local roadways, particularly State Highway 64.

*Environmental Consequences of the No Action Alternative:*

Direct and Indirect Effects: No additional traffic on local roadways would result from the No Action Alternative.

Cumulative Effects: None.

*Mitigation:* None.

## **AREAS OF CRITICAL ENVIRONMENTAL CONCERN**

*Affected Environment:* There are two Areas of Critical Environmental Concern (ACECs) located within two miles of the Proposed Action and one within the project area. Raven Ridge ACEC is located approximately 1.5 miles to the west of the Proposed Action and is designated as an ACEC for its candidate threatened and endangered plants, BLM sensitive plants, and remnant vegetation areas. The Coal Oil Rim ACEC is located less than a mile to the east of the Proposed Action and is designated as an ACEC for its small quaking aspen (*Populus tremuloides*) clones and other diverse vegetation characteristics. These small aspen clones are located within the cliffs in Dead Dog Draw. Portions of the White River ACEC are within the boundary of the Proposed Action. The White River ACEC is designated for biologically diverse plant communities, bald eagle roosts, and Colorado River Squawfish.

*Environmental Consequences of the Proposed Action:*

Direct and Indirect Effects: With the exception of the White River Riparian ACEC, the ACECs are separated by either distance or topographic barriers that prevent direct or indirect effects from impacting these areas. See the *Special Status Animal Species* section discussion on direct and indirect effects within the White River Riparian ACEC. Since the project area has been heavily developed since the 1930's any effects from the Proposed Action on the biological diverse plant communities will be minimal. The majority of the development will occur in the north western portion of the project area and will not affect the White River Riparian ACEC. The development near the ACEC will primarily follow previously disturbed areas. Development activities may increase the amount of exotic species invasion (see *Invasive, Non-Native Species* section), but successful reclamation may also restore communities previously affected by disturbance and poor recovery.

Cumulative Effects: The Proposed Action would disturb a mid to low seral class of desert shrub community for a total of 1,060 acres (417 acres BLM). With the exception of 71 acres, these areas would be reclaimed within 1 to 3 years. The White River Riparian ACEC could be cumulatively affected by the long-term development increasing exotic species in the area. The vegetation communities within and surrounding the White River Riparian ACEC currently contain areas dominated by exotic species such as cheatgrass and halogeton.

*Environmental Consequences of the No Action Alternative:*

Direct and Indirect Effects: There are no direct or indirect effects from the No Action Alternative.

Cumulative Effects: There are no cumulative effects from the No Action Alternative.

*Mitigation:* See the *Special Status Animal Species* section for the discussion and mitigation regarding the special status species in the White River ACEC.

1. There is a Controlled Surface Use stipulation (CSU-2) for any development occurring within the White River Riparian ACEC. A plant inventory will be conducted prior to approving any surface disturbing activities within the ACEC boundaries and surface disturbance will not be allowed within mapped locations of those plants. The timing required for conducting the plant inventories may require deferring activities for longer than 60 days.
2. Reclamation using native species near the White River Riparian ACEC will aid in maintaining biologically diverse plant communities. Furthermore, using non-native reclamation species could alter the plant community species composition and is not recommended.

## **REFERENCES CITED:**

- Armstrong, Harley J., and David G. Wolny  
1989 Paleontological Resources of Northwest Colorado: A Regional Analysis. Museum of Western Colorado, Grand Junction, Colorado.
- Apodaca, L.E.  
1998 Analysis of ground-water-quality data of the upper Colorado River Basin, water years 1972-92. US Geological Survey Water-Resources Investigations Report 97-4240.
- Athearn, Frederic J.  
1981 An Isolated Empire: A History of Northwestern Colorado. Bureau of Land Management, Colorado: Cultural Resources Series Number 2, third edition. Bureau of Land Management, Denver, Colorado
- Baker, Steven G.  
1986 Initial Archaeological Monitoring and Emergency mitigation Procedures at Chevron U.S.A.'S Project area CO<sub>2</sub> Injection Project, Rio Blanco County, Colorado. Centuries Research, Inc., Montrose, Colorado. (86-07-01: SHPO #RB.LM.R9)
- Chandler, Susan M., and Paul R. Nickens  
1979 Archaeological Investigations of the Coal Development Areas and Coal Transport Corridors for the Moon Lake Project, Rio Blanco County, Colorado and Uintah County, Utah. Nickens and Associates, Montrose, Colorado. (79-05-01: SHPO #RB.LM.R723)
- Colorado Dept. of Public Health and Environment Air Quality Control Commission (CAQCC).  
2010 Colorado Air Quality Control Commission Report to the Public 2009-2010, Colorado Dept. of Public Health and Environment, Denver, CO.
- Colorado Dept. of Public Health and Environment Air Pollution Control Division (APCD)  
2010 Colorado 5 Year Monitoring Network Assessment. Available online at: <http://www.colorado.gov/airquality/>. Accessed May 13, 2011.
- Davenport, Barbara  
2011 Class III Cultural Resources Inventory for the proposed AC McLaughlin 3AX, 7, 12, 20, 63X, 56X and L N Hagood 1, 8, 13X, A 16X, 17X, and the Emerald 64X Water Injection Pipelines in Rio Blanco County, Colorado for Chevron U.S.A., Inc. Grand River Institute, Grand Junction, Colorado. (11-11-25: SHPO # RB.LM.NR2270)
- Environmental Protection Agency (EPA).  
2011 Currently Designated Non-Attainment Areas for all Criteria Pollutants. Updated as of August 30, 2011. Available online at: <http://www.epa.gov/oaqps001/greenbk/ancl.html>. Accessed September 13, 2011.

Kvamme, Kenneth L.

- 1979 Archaeological Clearance Survey for Ten Proposed Chevron U.S.A, Inc., Well Sites in Rio blanco County, Colorado. Centuries Research Inc., Montrose, Colorado. (79-07-10: SHPO #RB.LM.NR1594)

Larralde, Signa L.

- 1980 Report of Examination for Cultural Resources: A.C McLaughlin 76-X well pad. Nickens and Associates, Montrose, Colorado. (80-05-12: SHPO #
- 1981 Cultural Resource Inventory of a Sample of BLM Lands in the Rangely Oil field, Rio Blanco County, Northwestern Colorado. Nickens and Associates Consulting Archaeologists, Montrose, Colorado. (81-05-01: SHPO #RB.LM.R857)

Pollard, Welton L.

- 1957 Development of the Western Frontier: Rangely Colorado. Unpublished Masters Thesis, university of Denver, Denver, Colorado. Manuscript on file in White River Field Office, Bureau of Land Management.

Spitzer, Michael G.

- 1979 Archaeological Clearance Survey of Four Proposed Well Sites in Rio Blanco County, Colorado for Chevron U.S.A. Centuries Research Inc., Montrose, Colorado. (79-07-27: SHPO # RB.LM.NR1597)

Tweto, Ogden

- 1979 Geologic Map of Colorado. United States Geologic Survey, Department of the Interior, Reston, Virginia.

**TRIBES, INDIVIDUALS, ORGANIZATIONS, OR AGENCIES CONSULTED:** None.

**INTERDISCIPLINARY REVIEW:**

Name	Title	Area of Responsibility	Date Signed
Bob Lange	Hydrologist	Air Quality; Surface and Ground Water Quality; Floodplains, Hydrology, and Water Rights; Soils	10/11/2011
Zoe Miller	Ecologist	Areas of Critical Environmental Concern; Special Status Plant Species	9/7/2011
Michael Selle	Archaeologist	Cultural Resources; Native American Religious Concerns; Paleontological Resources	8/31/2011
Matt Dupire	Rangeland Management Specialist	Invasive, Non-Native Species; Vegetation; Rangeland Management	10/12/2011
Lisa Belmonte	Wildlife Biologist	Migratory Birds; Special Status Animal Species; Terrestrial and Aquatic Wildlife; Wetlands and Riparian Zones	9/26/2011
Brett Smithers	Natural Resource Specialist	Hazardous or Solid Wastes	10/12/2011

<b>Name</b>	<b>Title</b>	<b>Area of Responsibility</b>	<b>Date Signed</b>
Chad Schneckenburger	Outdoor Recreation Planner	Wilderness; Visual Resources; Access and Transportation; Recreation,	9/2/2011
Jim Michels	Supervisory NRS	Forest Management	8/30/2011
Will Hutto	Fuels Specialist	Fire Management	9/6/2011
Paul Dagget	Mining Engineer	Geology and Minerals	10/12/2011
Janet Doll	Realty Specialist	Realty	9/1/2011
Melissa J. Kindall	Range Technician	Wild Horses	8/29/2011
Brett Smithers	Natural Resource Specialist	Project Lead	11/02/2011
Heather Sauls	Planning & Environmental Coordinator	NEPA Compliance	11/10/11

## **ATTACHMENTS:**

**Attachment 1:** SUP for surface reclamation pipeline ROWs for the Weber Sand Unit.

**Table 10.** Summary estimates for the number of features to be constructed, installed, and upgraded in the project area.

**Table 11.** Summary estimates for disturbance acres for features to be constructed, installed, and upgraded in the project area.

**Figure 1.** Existing wells, roads, surface ownership, and features that have been analyzed via NEPA in the project area.

**Figure 2.** Well density map.

**Figure 3.** Road density map.

**Figure 4.** Pending injection lines that were included in the analysis of the Proposed Action.

**Figure 5:** Proposed replacement water injection lines for the LN Hagood A1, LN Hagood A8, LN Hagood A13X, LN Hagood A17X wells, and the Emerald 64X fee surface well.

**Figure 6.** Proposed replacement water injection line for the AC McLaughlin 3AX, LN Hagood A16X, AC McLaughlin 7, and the AC McLaughlin 12 wells.

**Figure 7.** Proposed replacement water injection line for the AC McLaughlin 56X well.

**Figure 8.** Proposed replacement water injection line for the Weyrauch 7x36 and Weyrauch 6x36 wells.

**Figure 9.** Proposed replacement water injection line for the AC McLaughlin 78X wells.

**Figure 10:** Proposed replacement water injection line for the AC McLaughlin 79X well.

Attachment 1

**Surface Use Plan of Operations  
Plan for Surface Reclamation of**

**PIPELINE RIGHT-OF-WAYS, ACCESS ROADS, AND WELL PADS**

I. Reclamation Objectives:

The long-term objective of final reclamation is to return the land to a condition approximating that which existed prior to disturbance. This includes restoration of the landform, hydrologic systems, visual resources, wildlife habitats, and establishment of desired vegetative community. To ensure that the long-term objective will be reached through human and natural processes, actions will be taken to ensure standards are met for site stability, visual quality, hydrological functioning, and vegetative productivity.

II. Reclamation Performance Standards

The following reclamation performance standards will be met:

Reclamation – Includes disturbed areas where the original landform and a natural vegetative community have been restored and it is anticipated the site will not be redisturbed for future development.

- Reclamation will be judged successful when the BLM Authorized Officer determines that:
  - The original contour, or one which blends with the surrounding landform, has been restored for all disturbed areas including well pads, production facilities, roads, pipelines, and utility corridors.
  - A self-sustaining, vigorous, diverse, desired plant community is established on the site, with a density sufficient to control erosion and invasion by non-native plants and to reestablish wildlife habitat or forage production. At a minimum, the established plant community will consist of species included in the seed mix and/or desirable species occurring in the surrounding natural vegetation.
  - In agricultural areas, irrigation systems and soil conditions are reestablished in such a way as to ensure successful cultivation and harvesting of crops.
  - Erosion features are equal to or less than surrounding area and erosion control is sufficient so that water naturally infiltrates into the soil and gullying, headcutting, slumping, and deep or excessive rills (greater than 3 inches) are not observed.
  - The site is free of State- or county-listed noxious weeds, oil field debris and equipment, and contaminated soil. Invasive, non-native, and undesirable weeds are controlled.

### III. Reclamation Actions (Minimum)

The following minimum reclamation actions will be taken to ensure that the reclamation objectives and standards are met. It may be necessary to take additional reclamation actions beyond the minimum in order to achieve the Reclamation Standards.

#### Reclamation - General

##### Notification:

- The BLM WRFO *designated Natural Resource Specialist* be notified at least 24 hours prior to commencement of any reclamation operations.

##### Vegetation Clearing:

- Grass, forbs, and small woody vegetation, such as sagebrush will be excavated as the topsoil is removed.
- Large woody vegetation will be stripped and stored separately and respread evenly on the site following topsoil resreading.

##### Topsoil Management:

- Operations will disturb the minimum amount of surface area necessary to conduct safe and efficient operations.
- Topsoil depth is defined as the top layer of soil that contains 80 percent of the roots. In areas to be heavily disturbed, the top six inches of soil material, will be stripped and stockpiled. Topsoil will be clearly segregated and stored separately from subsoils.
- On sites where there is not at least an average of six inches of topsoil across the site available for stockpiling, soil amendments will be used to augment the available topsoil and improve plant germination and growth. Soil amendments will be determined as part of the reclamation pre-assessment, and agreed to by both the operator and the BLM prior to disturbing the site.
- Earthwork for reclamation will be completed within six months of surface work unless a delay is approved *in writing* by the BLM authorized officer.
- Salvaging and spreading topsoil will not be performed when the ground or topsoil is frozen or too wet to adequately support construction equipment or so dry that dust clouds greater than 30 feet tall are created. If such equipment creates ruts in excess of three inches deep, the soil will be deemed too wet.
- No major depressions will be left that would trap water and cause ponding unless the intended purpose is to trap runoff and sediment.

##### Seeding:

- Seedbed Preparation. Initial seedbed preparation will consist of recontouring to the appropriate interim or final reclamation standard. All compacted areas to be seeded will be ripped to a minimum depth of 18 inches with a minimum furrow spacing of 2 feet, followed by recontouring the surface and then evenly spreading the stockpiled topsoil. Prior to seeding, the seedbed will be scarified to a depth of no less than four to six inches. If the site is to be broadcast seeded, the surface will be left rough enough to trap seed and snow, control erosion, and increase water infiltration.

- If broadcast seeding is to be used and is delayed, final seedbed preparation will consist of contour cultivating to a depth of 4 to 6 inches within 24 hours prior to seeding, dozer tracking, or other imprinting in order to break the soil crust and create seed germination micro-sites.
- Seed Application. Seeding will be conducted no more than two weeks following completion of final seedbed preparation. A certified weed-free seed mix designed by the BLM (shown below) to meet reclamation standards will be used. The following seed mix and rates will be used on all disturbed surfaces, including pipelines and road cut & fill slopes:

Kind: ALKALINE SLOPES/CLAYEY SALTDESERT MIX			
Lot: 2139546			
Kind & Variety:	Pure%	Germ%	Origin:
WESTERN W/G, ARRIBA	23.87	95	WA
PUBESCENT W/G, LUNA	23.14	98	SD
CRESTED W/G, NORDAN	19.33	88	CAN
RUSSIAN WILD RYEGRASS, VINALL	17.72	96	CAN
ANNUAL SUNFLOWER	12.32	92	CO

Crop: .71% Inert: 2.83% Weed: .09% Net Wt: 35.3#(32PLS#) 2/AC

Noxious Weed: None Found Test Date: 11/08

REMARKS: WILLSON SUPPLY  
JOB CHEVRON RANGLEY  
ARKANSAS VALLEY SEED, 4333 HWY 66, LONGMONT CO 80504

- The application rate shown in the table is based on 50 pure live seeds (PLS) per square foot, drill-seeded to no greater a depth than 0.25 inch. {*However, shrub species will be seeded during the winter on the ground surface or preferably on top of snow*}. In areas that will not be drill-seeded, the seed mix will be drop seeded or broadcast-seeded on surface roughened sites at twice the application rate shown in the table. If the site is harrowed or dragged, seed will be covered by no more than 0.25 inch of soil.
- No seeding will occur from March 15 to September 1. Fall seeding is preferred and will be conducted after September 1 and prior to ground freezing. Shrub species will be seeded separately and will be seeded during the winter. Spring seeding is less desirable and will be conducted after the frost leaves the ground and no later than March 15.

#### Erosion Control and Mulching:

- Where applicable, the mitigation techniques such as surface roughening and mulching will be used to keep water on site, thereby enhancing re-vegetation of the site and controlling erosion and runoff.
- All erosion control devices and materials will be installed and maintained to be fully functional until revegetation is determined successful by the BLM.
- Silt fencing, wattles, hay bales, and other erosion control devices will be used on were necessary to prevent soil movement from water erosion.
- Mulch will be used if necessary to control wind and water erosion, create vegetation micro-sites, and retain soil moisture on site. Mulches may include native grass hay, small-grain straw, wood fiber, live mulch, cotton, jute, or synthetic netting. Mulch will be certified free of noxious or invasive weed seeds and free from mold and fungi.
- If loose straw or hay mulch is used, it will be crimped into the soil to prevent blowing.

#### Management of Invasive, Noxious, and Undesirable Species:

- All reclamation equipment will be cleaned prior to use to reduce the potential for introduction of noxious weeds or other undesirable non-native species.
- An intensive and documented weed monitoring and control program will be implemented prior to site preparation for planting and will continue until final reclamation is approved by the BLM.
- Each site where the BLM has not approved interim or final reclamation success will be monitored annually to determine the presence of any invasive, noxious, and undesirable species. Invasive, noxious, and undesirable species that have been identified during monitoring will be promptly treated and controlled, prior to the production of seed heads. A Pesticide Use Proposal (PUP) will be submitted to the BLM for approval prior to the use of herbicides.

#### Final Reclamation Procedures - Specific

- All disturbed areas, including roads and pipeline right-of-ways, will be recontoured to the contour existing prior to initial construction or a contour that blends indistinguishably with the surrounding landscape. Resalvaged topsoil will be respread evenly over the entire disturbed site to ensure successful revegetation. To help mitigate the contrast of recontoured slopes, reclamation will include measures to feather cleared lines of vegetation and to save and redistribute cleared trees, woody debris, and large rocks over recontoured cut and fill slopes.
- Stormwater management structures and drainage features (i.e., culverts and ditches) will only be installed when absolutely necessary to prevent erosion of fill material. Stormwater management structures and drainage features are not permanent features and will be removed and reseeded when the rest of the site is successfully revegetated and stabilized.
- To ensure timely revegetation, the pad will be fenced to the BLM's standards to exclude livestock grazing for the first two growing seasons or until seeded species become firmly

established, whichever comes later. Fencing will meet standards found on page 18 of the Gold Book, 4<sup>th</sup> Edition, or will be fenced with operational electric fencing.

- Final abandonment of pipelines and flowlines will involve flushing and properly disposing of any fluids in the lines. All surface lines and any lines that are buried close to the surface that may become exposed in the foreseeable future due to water or wind erosion, soil movement, or anticipated subsequent use, must be removed. Deeply buried lines may remain in place unless otherwise directed by the authorized officer.

#### Reclamation Monitoring and Final Abandonment Approval

- Reclaimed areas will be monitored annually. Actions will be taken to ensure that reclamation standards are met as quickly as reasonably practical and are maintained during the life of the permit.
- The designated WRFO Natural Resource Specialist will be notified via email or by phone 24 hours prior to beginning all reclamation activities associated with this project. Reclamation activities may include, but are not limited to, seed bed preparation that requires disturbance of surface soils, seeding, constructing exclosures (e.g., fences) to exclude livestock from reclaimed areas.
- All seed tags will be submitted via Sundry Notice to the designated Natural Resource Specialist within 14 calendar days from the time the seeding activities have ended. The sundry will include the purpose of the seeding activity (i.e., seeding well pad cut and fill slopes, seeding pipeline corridor, etc.). In addition, the SN will include the well or well pad number associated with the seeding activity, if applicable, the name of the contractor that performed the work, his or her phone number, the method used to apply the seed (e.g., broadcast, hydro-seeded, drilled), whether the seeding activity represents interim or final reclamation, an estimate of the total acres seeded, an attached map that clearly identifies all disturbed areas that were seeded, and the date the seed was applied.
- The operator will meet with the WRFO reclamation staff in March or April of each calendar year and present a comprehensive work plan. The purpose of the plan is to provide information pertaining to reclamation activities that are expected to occur during the current growing season. The operator will also provide a map that shows all reclamation sites where some form of reclamation activity is expected to occur during the current growing season.
- A Reclamation Status Report will be submitted electronically via email and as a hard-copy to WRFO Reclamation Coordinator. The hardcopy will be submitted to:  
BLM, White River Field Office  
220 East Market Street  
Meeker, Colorado 81641  
Attn: Reclamation Coordinator

The Reclamation Status Report will be submitted annually for all actions that require disturbance of surface soils on BLM-administered lands as a result of the Proposed Action. Actions may include, but are not limited to, well pad and road construction, construction of ancillary facilities, or power line and pipeline construction. The Reclamation Status Report will be submitted by September 30<sup>th</sup> of each calendar year, and will include the well number, API number, legal description, UTM coordinates

(using the NAD83 datum, Zone 13N coordinate system), project description (e.g., well pad, pipeline, etc.), reclamation status (e.g., Phase I Interim, Phase II Interim, or Final), whether the well pad or pipeline has been re-vegetated and/or re-contoured, percent of the disturbed area that has been reclaimed, method used to estimate percent area reclaimed (e.g., qualitative or quantitative), technique used to estimate percent area reclaimed (e.g., ocular, line-intercept, etc.), date seeded, photos of the reclaimed site, estimate of acres seeded, seeding method (e.g., broadcast, drilled, hydro-seeded, etc.), and contact information for the person(s) responsible for developing the report. The report will be accompanied with maps and GIS data showing each discrete point (i.e., well pad), polygon (i.e., area where seed was applied for Phase I and/or Phase II interim reclamation or area reclaimed for final reclamation), or polyline (i.e., pipeline) feature that was included in the report. Geospatial data shall be submitted: for each completed activity electronically to the designated BLM staff person responsible for the initial request and in accordance with WRFO geospatial data submittal standards (available from WRFO GIS Staff, or on the WRFO website). Internal and external review of the WRFO Reclamation Status Report, and the process used to acquire the necessary information will be conducted annually, and new information or changes in the reporting process will be incorporated into the report.

- In an attempt to track final reclamation of federal actions related to the development of federal mineral resources, the operator shall provide the *designated Natural Resource Specialist* with geospatial data in a format compatible with the WRFO's ESRI ArcGIS Geographic Information System (GIS). These data will be used to accurately locate and identify all geographic as-built (i.e., constructed) features associated with this project and included in the Application for Permit to Drill (APD) or Sundry Notice (SN), as appropriate. These data shall be submitted within 60 days of construction completion. If the operator is unable to submit the required information within the specified time period, the operator shall notify the designated Natural Resource Specialist via email or by phone, and provide justification supporting an extension of the required data submission time period. GIS polygon features may include, but are not limited to, constructed access roads, existing roads that were upgraded, pipeline corridors, and well pad footprints. Acceptable data formats are: (1) corrected global positioning system (GPS) files with sub-meter accuracy or better; (2) ESRI shapefiles or geodatabases; or, (3) AutoCAD .dwg or .dxf files. If possible, both (2) and (3) should be submitted for each as-build feature. Geospatial data must be submitted in UTM Zone 13N, NAD 83, in units of meters. Data may be submitted as: (1) an email attachment; or (2) on a standard compact disk (CD) in compressed (WinZip only), or uncompressed format. All data shall include metadata, for each submitted layer, that conforms to the *Content Standards for Digital Geospatial Metadata* from the Federal Geographic Data Committee standards. Questions shall be directed to WRFO BLM GIS staff at (970) 878-3800.

If the data is unable to be sent electronically, a compact disk(s) containing the data will be sent to:

BLM, White River Field Office  
Attn: NRS Staff  
220 East Market Street  
Meeker, Colorado 81641

If for any reason the location or orientation of the geographic feature associated with the Proposed Action changes, the operator will submit updated GIS data to designated BLM NRS staff person within 7 calendar days of the change. This information will be submitted via Sundry Notice.

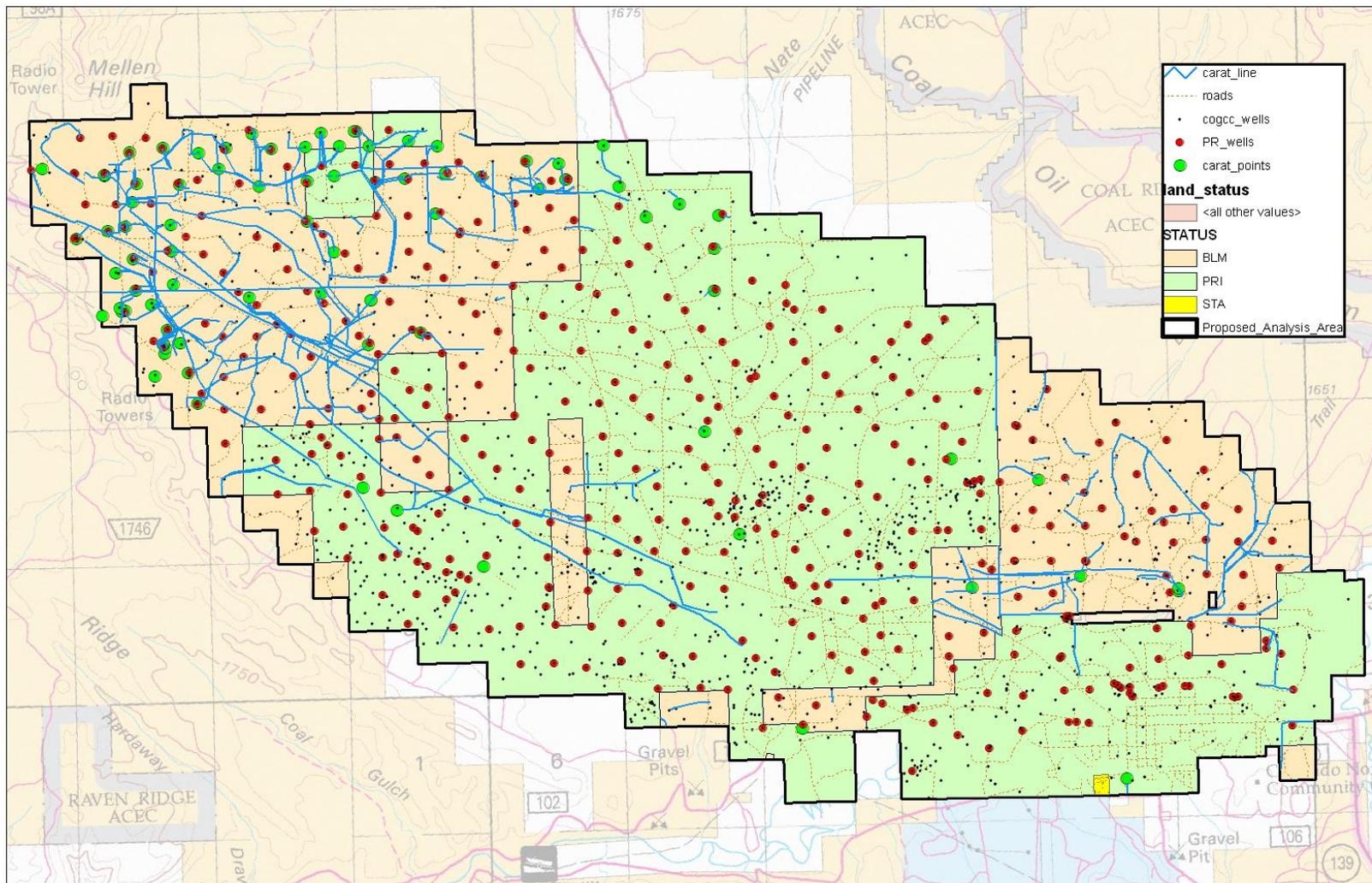
- The Authorized Officer will be notified when: 1) reclamation has been completed, 2) appears to be successful, and 3) the site is ready for final inspection.

**Table 10.** The table below includes summary estimates for the number of features to be constructed, installed, and upgraded in the analysis area. The temporal scope of the analysis extends out to year 2016, and the spatial extent of the analysis was confined to Chevron’s Weber Sand Unit, Rio Blanco, County, Colorado.

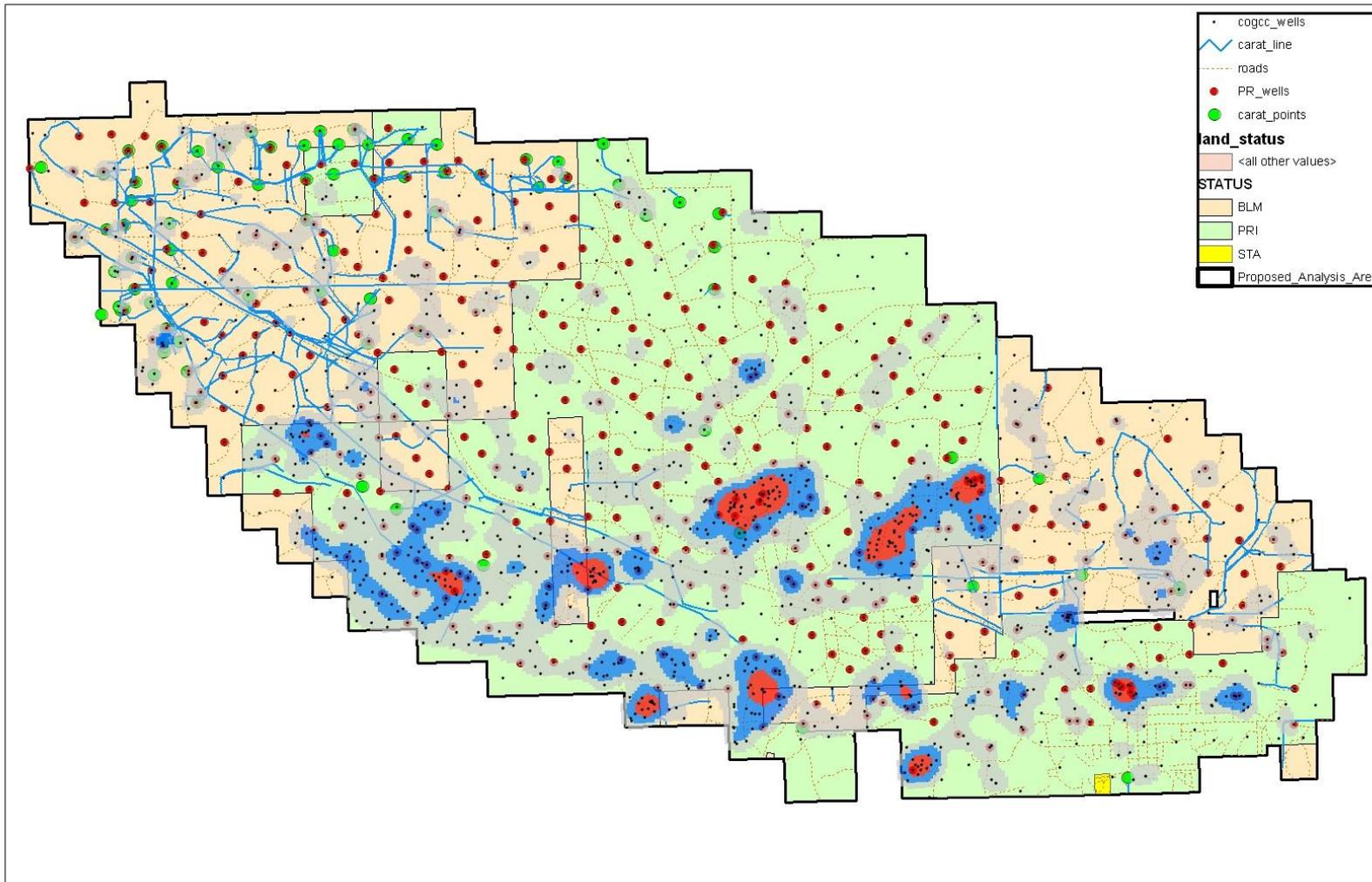
Development Projects				R 2011			2012			2013			2014			2015			2016		
Project	Unit	Field Area	% BLM	Wells	Pads	Lines	Wells	Pads	Lines	Wells	Pads	Lines	Wells	Pads	Lines	Wells	Pads	Lines	Wells	Pads	Lines
NorthEast Waterflood	#	S15,16,21,22 T2N, R102W	0%				4	1	12												
Edge Well Drilling	#	S10,26, T2N, R103W S16,17,22,25,26,30,31, T2N, R102W	40%				6	2	6	6	3	6	6	3	6	10	5	10	14	7	14
Remaining 20A Infill Locations	#	S4,5 T1N, R102W S16,21,22,26,28,32 T2N, R102W	25%				3	2	3	4	2	4	2	1	2	2	1	2			
East End High Angle	#	S34,35,36 T2N, R102W	100%				1	1	1	1	1	1	6	2	9	6	2	9			
10A Infill - Central	#		0%				2	0	2	4	1	4	6	1	6	6	1	6	6	1	6
10A Infill - East	#		80%							2	1	2	4	1	4	0		0	4	1	4
Sidetrack or re-entry of existing wells or P&A'd wells	#	Weber Sand Unit	40%				6	6	3	12	12	6	12	12	6	12	12	6	12	12	6
Flowline Replacements	#	Weber Sand Unit	40%			12			20			20			25			25			25
Injection Line Replacements	#	Weber Sand Unit	40%			10			25			25			20			15			15
Gathering Line Replacements (CUSA)	#	Weber Sand Unit	40%			2			4			5			5			4			4
Gathering Line Replacements (CPL)	#	Weber Sand Unit	40%			3			3			10			10			5			2
<b>Total Number of Project Components</b>				<b>0</b>	<b>27</b>		<b>22</b>	<b>12</b>	<b>79</b>	<b>29</b>	<b>20</b>	<b>83</b>	<b>36</b>	<b>20</b>	<b>93</b>	<b>36</b>	<b>21</b>	<b>82</b>	<b>36</b>	<b>21</b>	<b>76</b>

**Table 11.** The table below includes summary estimates for disturbance acres for features to be constructed, installed, and upgraded in the analysis area. The temporal scope of the analysis extends out to year 2016, and the spatial extent of the analysis was confined to Chevron’s Weber Sand Unit, Rio Blanco, County, Colorado.

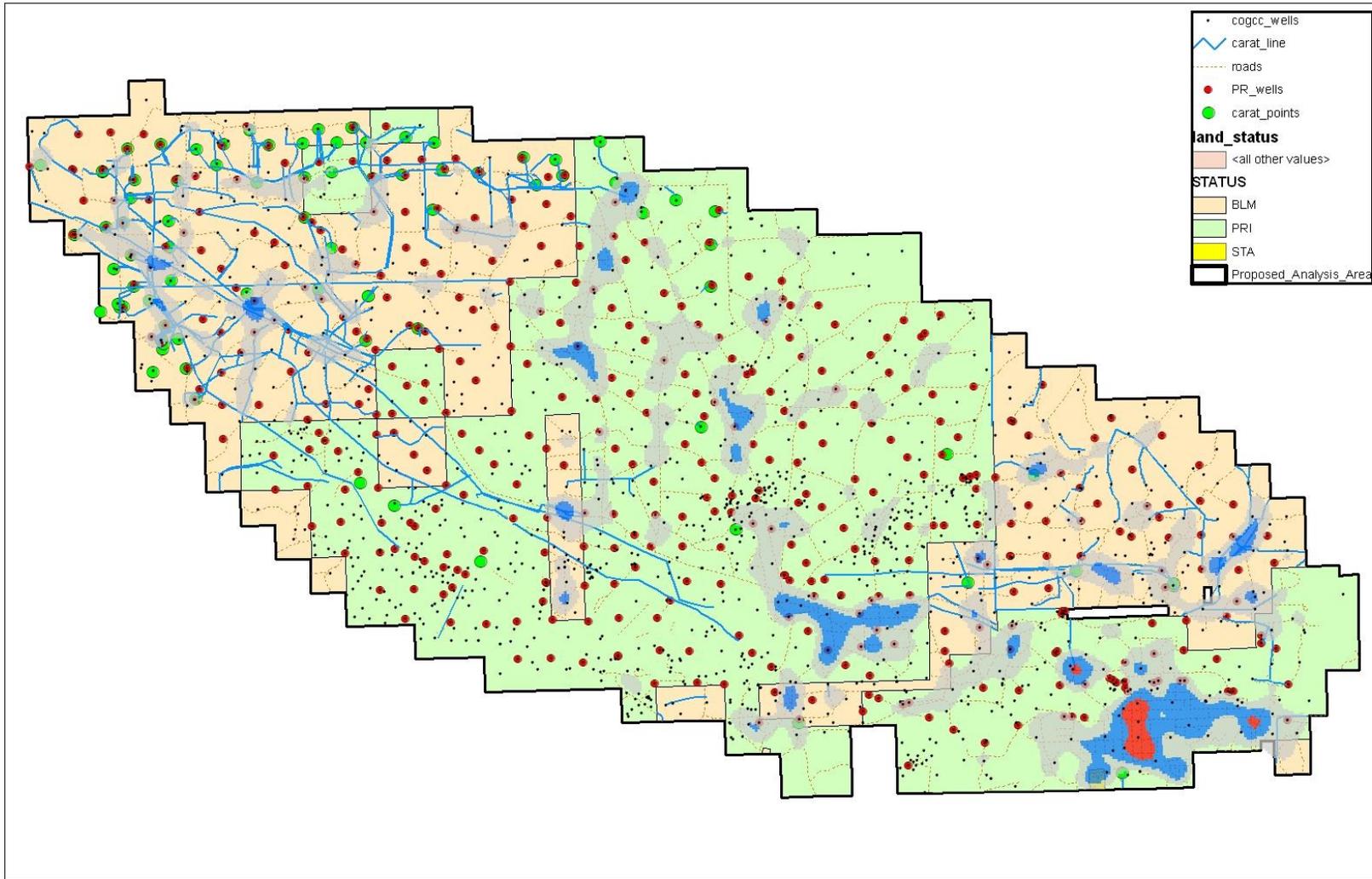
Development Projects				R 2011		2012		2013		2014			2015		2016	
Project	Unit	Field Area	% BLM	Pads	Lines	Pads	Lines	Pads	Lines	Wells	Pads	Lines	Pads	Lines	Pads	Lines
NorthEast Waterflood	Acres	S15,16,21,22 T2N, R102W	0%			1.3	23.7	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Edge Well Drilling	Acres	S10,26, T2N, R103W S16,17,22,25,26,30,31, T2N, R102W S4,5 T1N, R102W	40%			2.5	11.8	3.8	11.8		3.8	11.8	6.3	19.7	8.8	27.6
Remaining 20A Infill Locations	Acres	S16,21,22,26,28,32 T2N, R102W	25%			2.5	5.9	2.5	7.9		1.3	3.9	1.3	3.9	0.0	0.0
East End High Angle	Acres	S34,35,36 T2N, R102W	100%			1.3	2.0	1.3	2.0		2.5	17.8	2.5	17.8	0.0	0.0
10A Infill - Central	Acres		0%			0.0	3.9	1.3	7.9		1.3	11.8	1.3	11.8	1.3	11.8
10A Infill - East	Acres		80%													
Sidetrack or re-entry of existing wells or P&A'd wells	Acres	Weber Sand Unit	40%			3.8	5.9	7.5	11.8		7.5	11.8	7.5	11.8	7.5	11.8
Flowline Replacements	Acres	Weber Sand Unit	40%		23.7		39.5		39.5			49.4		49.4		49.4
Injection Line Replacements	Acres	Weber Sand Unit	40%		13.8		34.4		34.4			27.5		20.7		20.7
Gathering Line Replacements (CUSA)	Acres	Weber Sand Unit	40%		10.8		21.7		27.1			27.1		21.7		21.7
Gathering Line Replacements (CPL)	Acres	Weber Sand Unit	40%		16.3		16.3		54.2			54.2		27.1		10.8
<b>Total Disturbance</b>	<b>Acres</b>			<b>64.6</b>		<b>11.3</b>	<b>165.2</b>	<b>16.3</b>	<b>196.6</b>		<b>16.3</b>	<b>215.4</b>	<b>18.8</b>	<b>183.9</b>	<b>17.5</b>	<b>153.9</b>
<b>Total New Disturbance</b>	<b>Acres</b>			<b>16.1</b>		<b>11.3</b>	<b>81.3</b>	<b>16.3</b>	<b>80.3</b>		<b>16.3</b>	<b>96.8</b>	<b>18.8</b>	<b>94.8</b>	<b>17.5</b>	<b>77.0</b>
<b>Unreclaimed (Well Pad) Development Disturbance</b>	<b>Acres</b>					<b>9</b>		<b>15</b>			<b>15</b>		<b>15.75</b>		<b>15.75</b>	



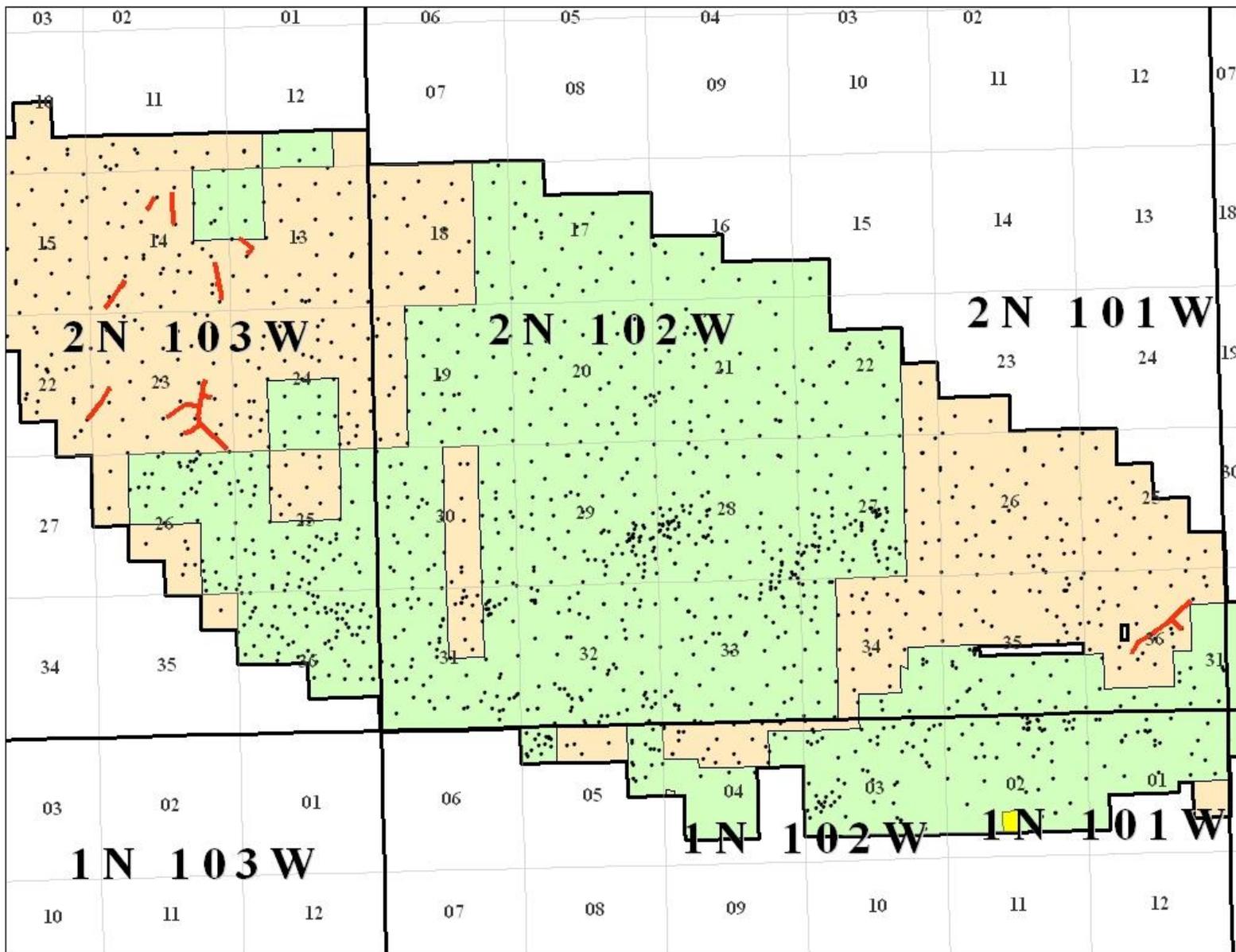
**Figure 1.** The figure above illustrates all existing wells, roads, surface ownership, in addition to features that have been analyzed via NEPA (e.g., “carat\_line” for roads and pipelines, and “carat\_points” for wells). In addition, Colorado Oil and Gas Conservation Commission (COGCC) data was used to plot all known well locations. This dataset was also symbolized to show all producing wells, and these wells are symbolized as red points.



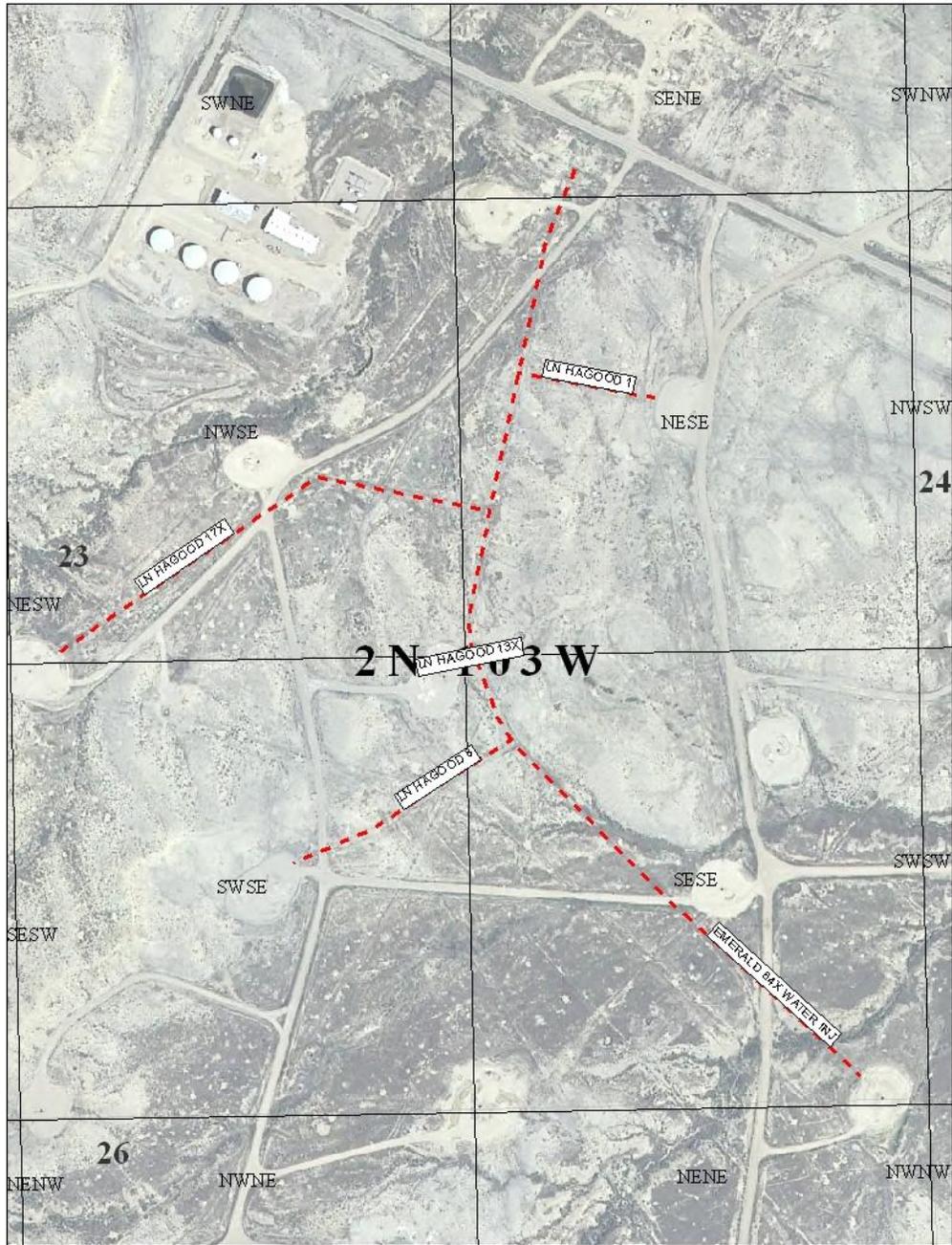
**Figure 2.** In order to illustrate past, current and future development in the project area, the above figure was developed. This figure illustrates areas where well density is high. COGCC well data was used to produce the density grids used in the figure above. Areas symbolized in red illustrate those areas where well density is highest.



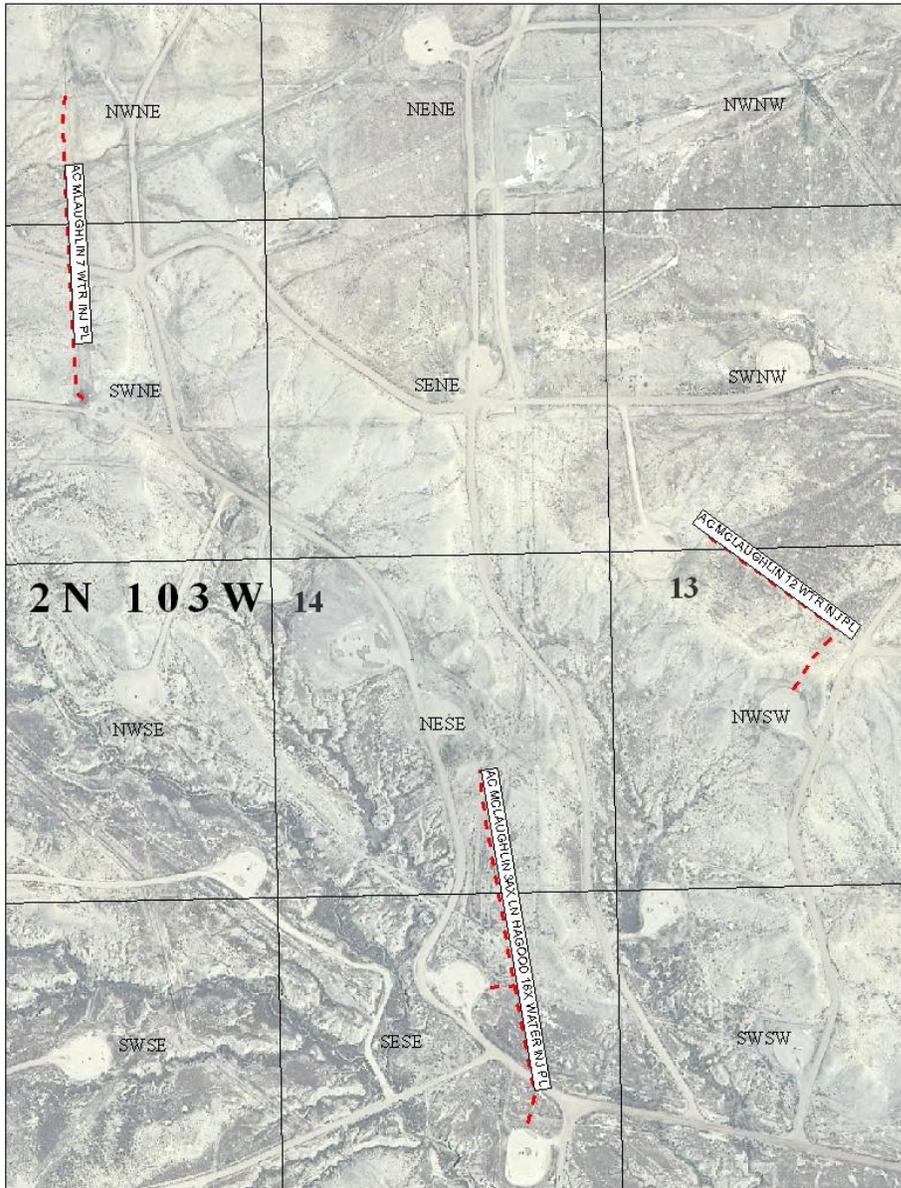
**Figure 3.** In order to illustrate past, current and future development in the project area, the above figure was developed. This figure illustrates existing road density. COGCC well data was used to produce the density grids used in the figure above. Areas symbolized in red illustrate those areas where road density is highest.



**Figure 4.** The figure above illustrates the geographic location of the pending injection lines that were submitted via Sundry Notice and analyzed in this document.



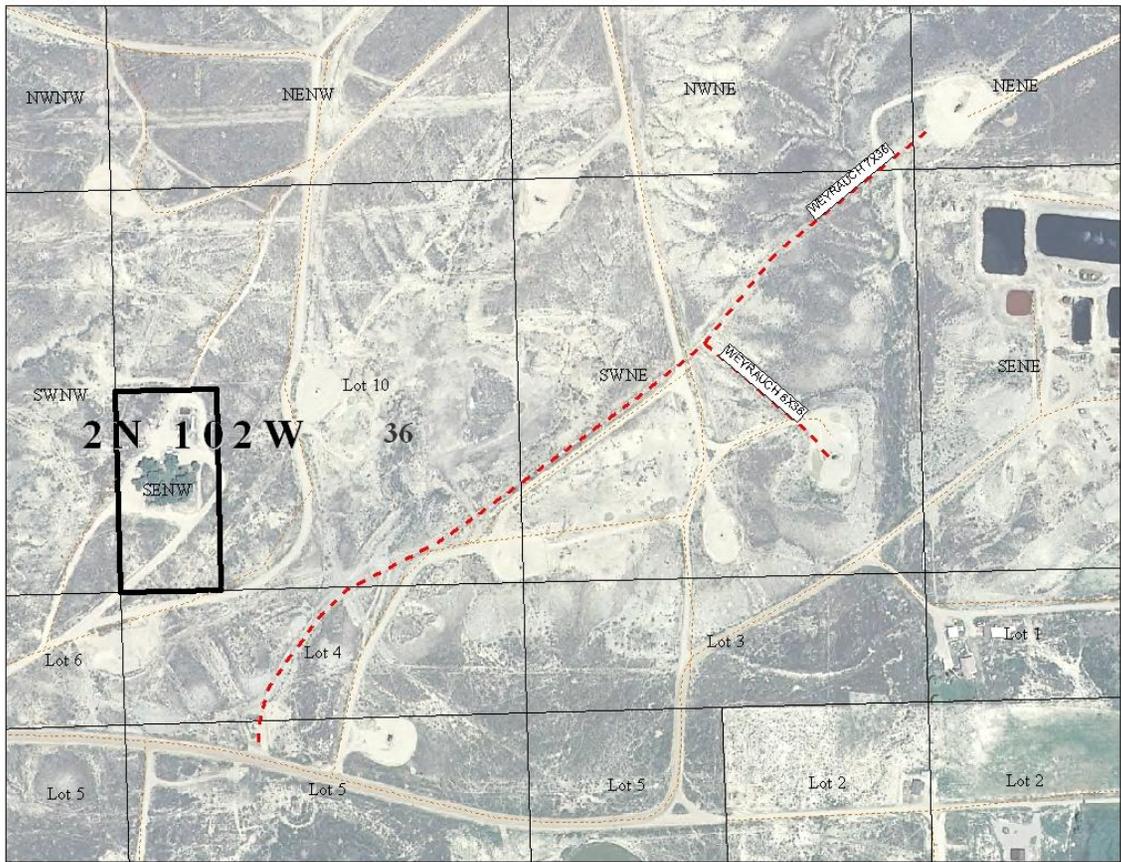
**Figure 5.** Chevron proposes to install a replacement water injection line that will support five well locations; LN Hagood A1, LN Hagood A8, LN Hagood A13X, LN Hagood A17X and fee surface location Emerald 64X. The total length of the line will be approximately 6,147 ft, and the injection line will parallel the existing injection line right of way. The existing buried injection line will be flushed with fresh water, capped on both ends and abandoned in place. Approximate duration of the pipeline installation will be 5 months, proposing to begin installation 11/15/2011.



**Figure 6. Replacement Line 1 (05-103-09207):** This replacement line will run from the **AC McLaughlin 3AX well** and the **LN Hagood A16Xwell** north to a tie in point at an existing valve. The line will be approximately 1,731 feet in length and will consist of a 3 inch, high pressure fiberglass pipe rated for 2,500 psi. **Replacement Line 3 (05-103-05809):** This replacement line will run from the **AC McLaughlin 7 well** north to a tie in point at an existing valve. The line will be approximately 1,265 feet in length and will consist of a 3 inch, high pressure fiberglass pipe rated for 2,500 psi. **Replacement Line 4 (05-103-05798):** This replacement line will run from the **AC McLaughlin 12 well** northwest to a tie in point at an existing valve. The line will be approximately 1,004 feet in length and will consist of a 3 inch, high pressure fiberglass pipe rated for 2,500 psi.

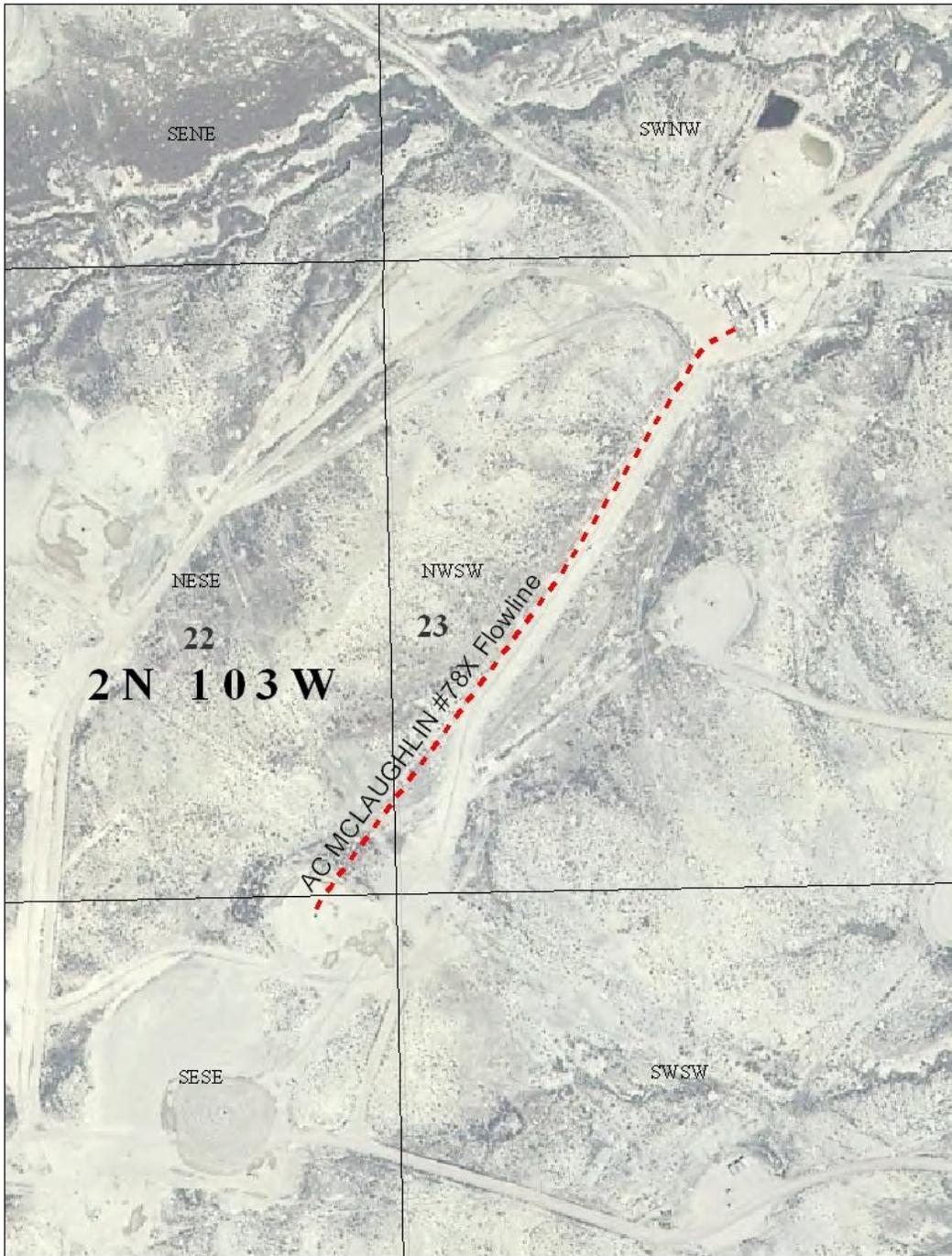


**Figure 7. Replacement Line 2 (05-103-06420):** This replacement line will run from the **AC McLaughlin 56X** well south to a tie in point at an existing valve. The line will be approximately 1,404 feet in length and will consist of a 3 inch, high pressure fiberglass pipe rated for 2,500 psi.

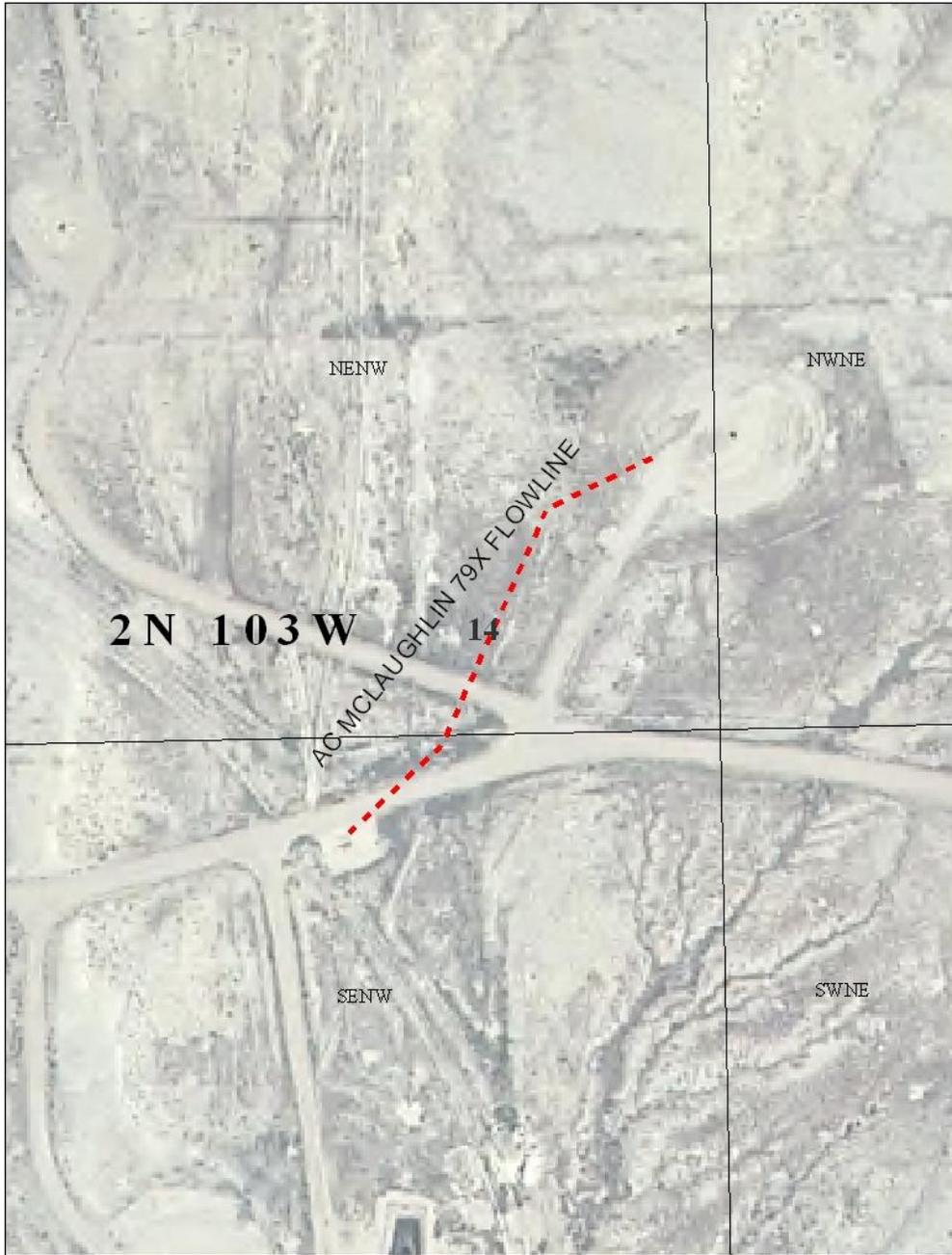


**Figure 8. Replacement Line 6 and 7: Sundry Notice #4 (Weyrauch 7x36 and Weyrauch 6x36):**

Chevron proposes to install two replacement flowlines. The lines will start at well locations Weyrauch 7x36 and Weyrauch 6x36 and run in individual trenches approximately 1,134 ft and 554 ft, respectively. The lines will then converge into one combined trench that will run an additional approximately 2,025 ft for a total of 5,738 ft of pipeline disturbance. The flowlines will parallel the existing pipeline rights-of-wayrights-of-way. The line will consist of 4 inch fiberglass pipe rated at 1,000 psi. The existing buried injection line will be flushed with fresh water, capped on both ends and abandoned in place. Approximate duration of the pipeline installation will be 6 months, proposing to begin installation 11/20/11. Reclamation of the rights-of-wayrights-of-way will be per BLM specifications.



**Figure 9. Replacement Line 8: Flowline 1:**from AC McLaughlin 78X to CS # 4 (header): Chevron proposes to install one replacement flowline. The line will start at the AC McLaughlin 78X well and run in an individual trench approximately 1,498 feet to the CS # 4 header. The flowline will parallel the existing pipeline corridor. The line will consist of 4 inch fiberglass pipe rated at 1,000 psi. Approximate duration of the pipeline installation will be 6 months, proposing to begin installation 11/15/11. Reclamation of the rights-of-way will be per BLM specifications.



**Figure 10. Replacement Line 9: Flowline 2:** from AC McLaughlin 79X to tie in (Satellite Header # 3): Chevron proposes to install one replacement flowline. The line will start at the AC McLaughlin 79X well and run in an individual trench approximately 572 feet to Satellite Header # 3. The flowline will parallel the existing pipeline corridor. The line will consist of 4 inch fiberglass pipe rated at 1,000 psi. Approximate duration of the pipeline installation will be 4 months, proposing to begin installation 11/15/11. Reclamation of the rights-of-wayrights-of-way will be per BLM specifications.

**U.S. Department of the Interior  
Bureau of Land Management  
White River Field Office  
220 E Market St  
Meeker, CO 81641**

**Finding of No Significant Impact (FONSI)  
DOI-BLM-CO-110-2011-0151-EA**

**BACKGROUND:**

For the remainder of 2011 and extending out to year 2016, the operator proposes to drill 159 additional wells, construct 94 new well pads, and install 146 new pipelines within the project area. In addition, the operator proposes to install approximately 294 replacement pipelines in the project area. Total acres disturbed for these features within the project area would equal approximately 1,060 acres.

When considering only federal surface, for the remainder of this year and extending out to year 2016, the operator proposes to drill 64 additional wells, construct 42 new well pads, and install 58 new pipelines, and approximately 118 replacement pipelines. Total acres disturbed for these features within the project area on federal surface would equal approximately 417 acres.

**FINDING OF NO SIGNIFICANT IMPACT:**

Based upon a review of the EA and the supporting documents, I have determined that the Proposed Action is not a major federal action and will not have a significant effect on 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 as described in the White River Record of Decision and Approved Resource Management Plan (1997). Therefore, an environmental impact statement is not required. This finding is based on the context and intensity of the project as described below.

**Context**

The project is a site-specific action directly involving BLM administered public lands that do not in and of itself have international, national, regional, or state-wide importance.

**Intensity**

The following discussion is organized around the 10 Significance Criteria described at 40 CFR 1508.27. The following have been considered in evaluating intensity for this Proposed Action:

**1. Impacts that may be both beneficial and adverse.** Water depletion activities associated with BLM's fluid minerals program in the Colorado River Basin in Colorado Water used for well drilling, hydrostatic testing of pipelines, and dust abatement on roads may result in cumulative water depletions from the Colorado River Basin. These depletions are considered likely to jeopardize the continued existence of the Colorado pikeminnow, as well as downstream

populations of humpback chub, bonytail, and razorback sucker and result in the destruction or adverse modification of their critical habitat.

**2. The degree to which the Proposed Action affects public health or safety.**

There would be no impact to public health and safety.

**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 would be no known impact to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers or ecologically critical areas. The White River Riparian ACEC does overlap a portion of the project area, however special status plant species habitats are protected via CSU-2 and the intent of that CSU will be implemented during site-specific project reviews as Conditions of Approval, if necessary.

**4. Degree to which the possible effects on the quality of the human environment are likely to be highly controversial.** There are no known effects to which the possible effects on the quality of the human environment are likely to be highly controversial. This project was listed on the WRFO's online NEPA register and the BLM received no comments or inquiries.

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

No highly uncertain or unknown risks to the human environment were identified during the analysis of the Proposed Action. This oil field has been in development for decades.

**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 neither establishes a precedent for future BLM actions with significant effects nor represents a decision in principle about a future consideration.

**7. Whether the action is related to other actions with individually insignificant but cumulatively significant impacts.** The Proposed Action is most likely not related to other actions with individually insignificant but cumulatively significant impacts. The purpose of preparing this EA is to ensure that BLM is addressing perceived and anticipated impacts at a larger scale rather than on a case-by-case basis.

**8. The degree to which the action may adversely affect districts, 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.** It is not known whether the Proposed Action may adversely affect districts, sites, highways, structures or objects listed on the National Register of Historic Places or that may cause loss or destruction of significant scientific, cultural or historical resources. However, the likelihood of finding any of the features listed above appears to be low (see *Cultural Resources*).

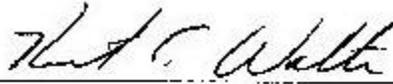
**9. The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act (ESA) of 1973.** Cumulative water depletions from the Colorado River Basin are considered

likely to jeopardize the continued existence of the Colorado pikeminnow, as well as downstream populations of humpback chub, bonytail, and razorback sucker and result in the destruction or adverse modification of their critical habitat. In 2008, BLM prepared a Programmatic Biological Assessment (PBA) that addressed water depleting activities associated with BLM's fluid minerals program in the Colorado River Basin in Colorado, including water used for well drilling, hydrostatic testing of pipelines, and dust abatement on roads. In response, FWS prepared a Programmatic Biological Opinion (PBO) that addressed water depletions associated with fluid minerals development on BLM lands. The PBO included reasonable and prudent alternatives which allowed BLM to authorize oil and gas wells that result in water depletion while avoiding the likelihood of jeopardy to the endangered fishes and avoiding destruction or adverse modification of their critical habitat.

**10. Whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment.**

Neither the Proposed Action nor impacts associated with it violate any laws or requirements imposed for the protection of the environment.

**SIGNATURE OF AUTHORIZED OFFICIAL:**



Field Manager

**DATE SIGNED:**

11/22/11

**U.S. Department of the Interior  
Bureau of Land Management  
White River Field Office  
220 E Market St  
Meeker, CO 81641**

**DECISION RECORD**

**PROJECT NAME:** Chevron's Weber Sand Unit Field-Wide Environmental Assessment

**ENVIRONMENTAL ASSESSMENT NUMBER:** DOI-BLM-CO-2011-0151-EA

**DECISION**

It is my decision to approve the project as described in the Proposed Action and mitigated in DOI-BLM-CO-2011-0151-EA. This decision specifically authorizes the construction, operation, and maintenance of Replacement Lines 1 through 9. This decision provides the plan for future management of the federal surface and mineral estate within the Weber Sand Unit but is not the final review or approval for actions associated with development of the Weber Sand Unit. The Authorized Officer will review and consider each component of the project that involves federal lands or minerals on a site-specific basis. Development of Federal wells or construction/replacement of pipelines and proposed access roads shall not commence until BLM approves site specific Applications for Permit to Drill or Sundry Notices.

**MITIGATION:**

1. The operator shall employ dust suppression techniques (i.e., freshwater use) whenever there is a visible dust trail behind service vehicles. Any technique other than the use of freshwater as a dust suppressant on BLM lands will require prior written approval from BLM.
2. All new infrastructure and well pads will be located on old disturbance to the maximum extent possible to avoid additional disturbances in the Project area. Chevron will be requested to provide rationale for not co-locating wells or not using old drilling pads, whenever a new well pad is proposed.
3. Chevron will use the Master Surface Plan submitted with the Proposed Action for achieving interim and final reclamation on existing wells when any new disturbance or infrastructure is planned.
4. All new roads and existing access roads used for new drilling operations will be crowned and ditched according to BLM Manual section 9113 standards and surfaced for all-weather use. Surfacing must include at least six inches of compacted aggregate that can be composed of different gravel sizes and road base as appropriate for the soils and topography. Road design should allow for travel on the roads with service vehicles when soils are saturated.
5. Gully crossings will conform to BLM Manual 9112 standards and be stable without erosion for 10 year storm events and not fail with 25 year storm events.

6. All well pads that are disturbed for any reason, observed to have ruts more than three inches deep or are accessed more than four times a month will have a vehicle path surfaced with not less than six inches of compressed aggregate to provide all weather surface on the pad surface for routine maintenance and reduce soil erosion from pad surfaces.
7. A liner will be required for any secondary containment structures installed for new facilities and if tanks are replaced on existing infrastructure.
8. If salt is observed on the surface of soils during or after reclamation activities Chevron will notify the Natural Resource Specialist and a plan will be developed with approval of the BLM, that may include the administration of soil amendments, the reapplication of soil preparation, seeding, and stabilization measures to achieve successful reclamation.
9. No new wells will be approved within 500 feet of the White River and perennial surface waters on BLM administered lands (95 acres and 71 acres, respectively for a total of 166 acres). Current facilities will be allowed, but additional mitigation will be applied for new surface disturbance in these areas on BLM administered lands.
10. Chevron will coordinate with the BLM on measuring water quality and streamflow in the White River below the confluence with Stinking Water Creek and flood flows in Stinking Water Creek. All water quality samples will be submitted to a public database that can be available to the State of Colorado for managing water quality. The details of this coordination will be worked out in sampling plan submitted by Chevron and approved by BLM before new wells are drilled as part of the Proposed Action. Field maintenance and replacement of field infrastructure, such as pipelines, are not affected by this requirement.
11. If surface sources are used for freshwater, water hauling trucks must use backflow preventers to avoid contamination of surface waters.
12. To protect surface waters below the project area, keep road inlet and outlet ditches, sediment retention basins, and culverts free of obstructions, particularly before and during spring run-off and summer convective storms. Provide adequate drainage spacing to avoid accumulation of water in ditches or road surfaces. Install culverts with adequate armoring of inlet and outlet. Patrol areas susceptible to road or watershed damage during periods of high runoff.
13. When drilling to set the surface casing, drilling fluid will be composed only of fresh water, bentonite, and/or a benign lost circulation material that does not pose a risk of harm to human health or the environment (e.g., cedar bark, shredded cane stalks, mineral fiber and hair, mica flakes, ground and sized limestone or marble, wood, nut hulls, corncobs, or cotton hulls).
14. An approved reclamation plan will be submitted and approved by the WRFO for each well pad, road, or any other surface disturbing activities within the Weber Sand Unit.

15. The current reclamation plan only has one seed mix attached for the multiple ecological sites described above. The WRFO recommends using one of the four seed mixes listed below for reclamation depending on the ecological site of the disturbance, and the level of difficulty for reclamation. The operator will submit proposed seed mixes to BLM via Sundry Notice for review and approval prior to applying the seed.

<b>SEED MIX #1 FROM THE RECLAMATION PROTOCOL</b>			
<b>Common Name</b>	<b>Scientific Name</b>	<b>Variety</b>	<b>Lbs PLS/Acre</b>
Western wheatgrass	<i>Pascopyrum smithii</i>	Rosana	4.5
Thickspike wheatgrass	<i>Elymus lanceolatus</i>	Critana	3.5
Bottlebrush squirreltail	<i>Elymus elymoides</i>	Toe Jam Creek	3
Scarlet Globemallow	<i>Sphaeralcea coccinea</i>		0.5
Sulphur flower	<i>Eriogonum umbellatum</i>		1.5
Winterfat	<i>Krascheninnikovia lanata</i>		0.5

<b>SEED MIX #3 FROM THE RECLAMATION PROTOCOL</b>			
<b>Common Name</b>	<b>Scientific Name</b>	<b>Variety</b>	<b>Lbs PLS/Acre</b>
Western wheatgrass	<i>Pascopyrum smithii</i>	Rosana	4
Bluebunch wheatgrass	<i>Pseudoroegneria spicata</i>	Whitmar	3.5
Indian ricegrass	<i>Achnatherum hymenoides</i>	Rimrock	3
Needle and Thread	<i>Hesperostipa comata</i>		2.5
Lewis Flax	<i>Linum Lewisii</i>	Maple grove	1
Scarlet Globemallow	<i>Sphaeralcea coccinea</i>		0.5

<b>SEED MIX #8 FROM THE RECLAMATION PROTOCOL</b>			
<b>Common Name</b>	<b>Scientific Name</b>	<b>Variety</b>	<b>Lbs PLS/Acre</b>
Galleta Grass	<i>Pleuraphis jamesii</i>	Viva florets	3
Indian Ricegrass	<i>Achnatherum hymenoides</i>	Rimrock	3
Bottlebrush squirreltail	<i>Elymus elymoides</i>	Toe Jam Creek	2.5
Western wheatgrass	<i>Pascopyrum smithii</i>	Rosana	4
Scarlet Globemallow	<i>Sphaeralcea coccinea</i>		0.25
Annual sunflower	<i>Helianthus annuus</i>		2.5
Mat saltbush	<i>Atriplex confertifolia</i>		2

<b>SEED MIX #9 FROM THE RECLAMATION PROTOCOL</b>			
<b>Common Name</b>	<b>Scientific Name</b>	<b>Variety</b>	<b>Lbs PLS/Acre</b>
Western wheatgrass	<i>Pascopyrum smithii</i>	Rosana	5
Russian wildrye	<i>Psathyrostachys juncea</i>	Bozoisky	3
Crested wheatgrass	<i>Agropyrum cristatum</i>	Hycrest	3
Annual sunflower	<i>Helianthus annuus</i>		5

16. For the nine replacement lines specifically addressed in this EA, WRFO recommends seed mix #8 above for seeding.
17. There will be no earthwork or activities allowed from April 15 – July 15 (prairie dog reproductive period) in those instances involving occupied prairie dog habitat. Occupation will be determined through surveys conducted by BLM wildlife staff.
18. Burrowing owl surveys will be required prior to construction initiation if work is planned to take place during the breeding season (April 15 – August 15). Should an active nest be located, no earthwork or activities will be allowed from April 15 – August 15 (or until young have fledged) within ½ mile of any occupied burrowing owl nest location. There will be no surface occupancy allowed within ¼ mile of known nest locations.
19. For each new project, plant surveys may be requested by the BLM. If special status plant species or habitat is identified in a survey, possible mitigation could involve moving the proposed disturbance feature to include no less than a 100 meter buffer from known plant occurrences or known plant habitat.
20. There will be no earthwork or vegetation removal allowed from May 15 – July 15 in those instances involving new construction (i.e., new well pads or new cross-country pipelines). All sundries will be analyzed on a case-by-case basis. At that time it will be determined by BLM wildlife staff if it is necessary to impose the above timing limitation based on the degree of impact the action presents to migratory birds.
21. If any archaeological materials are discovered as a result of operations under this authorization, activity in the vicinity of the discovery will cease, and the BLM WRFO Archaeologist will be notified immediately. Work may not resume at that location until approved by the Authorized Officer (AO). Chevron will make every effort to protect the site from further impacts including looting, erosion, or other human or natural damage until BLM determines a treatment approach, and the treatment is completed. Unless previously determined in treatment plans or agreements, BLM will evaluate the cultural resources and, in consultation with the State Historic Preservation Office (SHPO), select the appropriate mitigation option within 48 hours of the discovery. Chevron, under guidance of the BLM, will implement the mitigation in a timely manner. The process will be fully documented in reports, site forms, maps, drawings, and photographs. The BLM will forward documentation to the SHPO for review and concurrence.
22. Pursuant to 43 CFR 10.4(g), the Chevron must notify the AO, by telephone and written confirmation, immediately upon the discovery of human remains, funerary items, sacred objects, or objects of cultural patrimony. Further, pursuant to 43 CFR 10.4(c) and (d), the Chevron must stop activities in the vicinity of the discovery and protect it for 30 days or until notified to proceed by the AO.
23. Chevron is responsible for informing all persons who are associated with the projects that they will be subject to prosecution for knowingly disturbing archaeological sites or for collecting artifacts. If archaeological materials are discovered as a result of operations under this authorization, the Chevron must immediately contact the appropriate BLM representative.

24. If an inventory for Replacement Line 8 and Replacement Line 9 is not completed and approved prior to construction of the flow lines an archaeological monitor shall be present prior to and throughout the initial construction phase, (i.e., ground clearing and trenching) of the project.
25. If any paleontological resources are discovered as a result of operations under this authorization, Chevron or any of their agents must stop work immediately at that site, immediately contact the BLM Paleontology Coordinator, and make every effort to protect the site from further impacts, including looting, erosion, or other human or natural damage. Work may not resume at that location until approved by the AO. The BLM or designated paleontologist will evaluate the discovery and take action to protect or remove the resource within 10 working days. Within 10 working days, the operator will be allowed to continue construction through the site, or will be given the choice of either (a) following the Paleontology Coordinator's instructions for stabilizing the fossil resource in place and avoiding further disturbance to the fossil resource, or (b) following the Paleontology Coordinator's instructions for mitigating impacts to the fossil resource prior to continuing construction through the project area.
26. The permittee/applicant is responsible for informing all persons who are associated with the allotment/project operations that they will be subject to prosecution for disturbing or collecting vertebrate fossils, collecting large amounts of petrified wood (over 25lbs./day, up to 250lbs./year), or collecting fossils for commercial purposes on public lands. If any paleontological resources are discovered as a result of operations under this authorization, the permittee/applicant must immediately contact the appropriate BLM representative.
27. The AO may require occasional spot checking of trenching operations to inspect for possible presence of fossil resources.
28. On all locations use low profile production equipment and paint all above ground facilities Desert Brown (Munsell Soil Color 10YR 6/3).
29. All lessees and/or operators and right-of-way holders shall comply with all federal, state and/or local laws, rules, and regulations, including but not limited to onshore orders and notices to lessees, addressing the emission of and/or the handling, use, and release of any substance that poses a risk of harm to human health or the environment.
30. Where required by law or regulation to develop a plan for the prevention of releases or the recovery of a release of any substance that poses a risk of harm to human health or the environment, provide a current copy of said plan to the BLM WRFO.
31. Through all phases of oil and gas exploration, development, and production, all lessees and/or operators and holders of rights-of-way shall employ, maintain, and periodically update to the best available technology(s) aimed at reducing: 1) emissions, 2) fresh water use, and 3) utilization, production, and release of hazardous material.

32. All substances that pose a risk of harm to human health or the environment shall be stored in appropriate containers. Fluids that pose a risk of harm to human health or the environment, including but not limited to produced water, shall be stored in appropriate containers and in secondary containment systems at 110 percent of the largest vessel's capacity. Secondary fluid containment systems, including but not limited to tank batteries shall be lined with a minimum 24 mil impermeable liner.
33. Construction sites and all facilities shall be maintained in a sanitary condition at all times; waste materials shall be disposed of promptly at an appropriate waste disposal site. "Waste" means all discarded matter including, but not limited to, human waste, trash, garbage, refuse, oil drums, petroleum products, ashes, and equipment.
34. As a reasonable and prudent lessee/operator in the oil and gas industry, acting in good faith, all lessees/operators and right-of-way holders will report all emissions or releases that may pose a risk of harm to human health or the environment, regardless of a substance's status as exempt or nonexempt and regardless of fault, to the BLM WRFO (970) 878-3800.
35. As a reasonable and prudent lessees/operator and/or right-of-way holder in the oil and gas industry, acting in good faith, all lessees/operators and right-of-way holders will provide for the immediate clean-up and testing of air, water (surface and/or ground) and soils contaminated by the emission or release of any substance that may pose a risk of harm to human health or the environment, regardless of that substance's status as exempt or non-exempt. Where the lessee/operator or right-of-way holder fails, refuses or neglects to provide for the immediate clean-up and testing of air, water (surface and/or ground) and soils contaminated by the emission or release of any quantity of a substance that poses a risk of harm to human health or the environment, the BLM WRFO may take measures to clean-up and test air, water (surface and/or ground) and soils at the lessee/operator's expense. Such action will not relieve the lessee/operator of any liability or responsibility.
36. With the acceptance of this authorization, the commencement of operations under this authorization, or within thirty calendar days from the issuance of this authorization, whichever occurs first, and during the life of the pipeline, the right-of-way holder and the lessee/operator, and through the right-of-way holder and lessee/operator, its agents, employees, subcontractors, successors and assigns, stipulate and agree to indemnify, defend and hold harmless the United States Government, its agencies, and employees from all liability associated with the emission or release of substances that pose a risk of harm to human health or the environment.
37. Any livestock control facilities and/or rangeland improvements impacted during this operation will be replaced or repaired to their prior condition.
38. To avoid impacts to existing realty rights-of-way, Chevron would need to coordinate with right-of-way holders prior to any construction activity.
39. There is a Controlled Surface Use stipulation (CSU-2) for any development occurring within the White River Riparian ACEC. A plant inventory will be conducting prior to approving any surface disturbing activities within the ACEC boundaries and surface

disturbance will not be allowed within mapped locations of those plants. The timing required for conducting the plant inventories may require deferring activities for longer than 60 days.

40. Reclamation using native species near the White River Riparian ACEC will aid in maintaining biologically diverse plant communities. Furthermore, using non-native reclamation species could alter the plant community species composition and is not recommended.

### **COMPLIANCE WITH LAWS & CONFORMANCE WITH THE LAND USE PLAN**

This decision is in compliance with the Endangered Species Act and the National Historic Preservation Act. It is also in conformance with the 1997 White River Record of Decision/Approved Resource Management Plan.

### **ENVIRONMENTAL ANALYSIS AND FINDING OF NO SIGNIFICANT IMPACT**

The Proposed Action was analyzed in DOI-BLM-CO-2011-0151-EA and it was found to have no significant impacts, thus an EIS is not required.

### **PUBLIC INVOLVEMENT**

Scoping was the primary mechanism used by the BLM to initially identify issues. Internal scoping was initiated when the project was presented to the White River Field Office (WRFO) interdisciplinary team on 07/23/2011. External scoping was conducted by posting this project on the WRFO's on-line National Environmental Policy Act (NEPA) register on 7/26/2011. No comments or inquiries were received regarding this project from the public.

### **RATIONALE**

Analysis of the Proposed Action has concluded that there are no significant negative impacts and that it meets Colorado Standards for Public Land Health. The geographic extent and temporal scale that was used to address perceived and anticipated impacts associated with this project included the cumulative analysis of impacts to soil, air, wildlife, vegetation, cultural and paleontological resources that occur or that are expected to occur within the project area. This approach has resulted in a comprehensive review of perceived and anticipated impacts associated with oil and gas operations that will most likely occur in the project area in the next five years and beyond.

### **ADMINISTRATIVE REMEDIES**

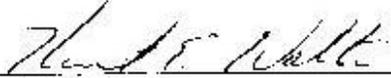
#### **State Director Review**

Under regulations addressed in 43 CFR 3165.3(b), any adversely affected party that contests a decision of the Authorized Officer may request an administrative review, before the State Director, either with or without oral presentation. Such request, including all supporting documentation, shall be filed in writing with the BLM Colorado State Office at 2850 Youngfield Street, Lakewood, Colorado 80215 within 20 business days of the date such decision was received or considered to have been received. Upon request and showing of good cause, an extension may be granted by the State Director. Such review shall include all factors or circumstances relevant to the particular case.

#### **Appeal**

Any party who is adversely affected by the decision of the State Director after State Director review, under 43 CFR 3165.3(b), of a decision may appeal that decision to the Interior Board of Land Appeals pursuant to the regulations set out in 43 CFR Part 4.

**SIGNATURE OF AUTHORIZED OFFICIAL:**

  
Field Manager

**DATE SIGNED:**

12/2/11