

## ENVIRONMENTAL ASSESSMENT RECORD

1. **NUMBER** CO-110-2004-014-EA
2. **CASEFILE/PROJECT NUMBER:** COC67323
3. **PROJECT NAME:** Columbine Springs 8-11-4-104 Salt Water Disposal Well
4. **LEGAL DESCRIPTION:** Sixth Principal Meridian, Colorado  
T. 4 S., R. 104 W.,  
Sec. 11, NE¼SE¼.
5. **APPLICANT:** Carbon Energy Corporation USA
6. **NEED FOR PROPOSED ACTION:** Carbon Energy has requested permission to convert the subject well to a salt water injection well.
7. **DESCRIPTION OF PROPOSED ACTION:**

**a. Proposed Action:** Carbon Energy has applied for a right-of-way in order to use the Columbine Springs 8-11-4-104 well as a salt-water injection well. The well currently produces sub-economic gas from the Dakota formation. Carbon proposes to inject produced water from off set wells into the Castlegate formation at an approximate depth of 2,570 feet. The wellbore already exists, having been drilled 1982. In order that produced water from nearby wells could be injected into the subject well, remedial work to re-configure the existing wellbore will be required. Water will be trucked from nearby wells to the injection facility. Five 500 bbl water tanks will be erected on location for storage. An injection pump and generator will also be required on location. No other surface equipment is anticipated at this time.

Access to the existing well site will be along an existing access which intersects with County Road 25 (East Evacuation Creek). The existing access road is 200 foot long. The well pad is 210 by 350. No further surface disturbance will be required to install the necessary surface equipment.

The injection facility will be used year round. At this time it is expected that approximately 1,000 barrels of water per day from nearby wells would be trucked to and disposed of at this facility. A term of 20 years has been requested.

**b. No Action Alternative:** Columbine Springs 8-11-4-104 well would not be used for salt water disposal.

### 8. **PLAN CONFORMANCE REVIEW:**

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

**b. Date Approved:** July 1, 1997

**c. Page/Decision:** Pages 2-49 thru 2-52 “To make public lands available for the siting of public and private facilities through the issuance of applicable land use authorizations, in a manner that provides for reasonable protection of other resource values.”

**d.** The proposed action has been reviewed for conformance with this plan (43 CFR 1610.5, BLM 1617.3) The action conforms to the decisions/pages of the plan listed above.

**9. RELATIONSHIP TO OTHER NEPA DOCUMENTS:** This environmental assessment is tiered to, and incorporates by reference the White River Resource Area Resource Management Plan (PRMP) and Final Environmental Impact Statement (FEIS) approved May 29, 1996.

**10. AFFECTED ENVIRONMENT/ENVIRONMENTAL IMPACTS/MITIGATION MEASURES:**

**CRITICAL ELEMENTS**

An X in the “Not Affected” column in the table below indicates that the critical element has been analyzed and will not be affected by the proposed action or the no action alternative. Affected elements are addressed in the paragraphs following the table.

<b>Not Affected</b>	<b>Critical Element</b>	<b>Specialist Signature</b>	<b>Date</b>
	Air Quality		
	Cultural Resources		
<b>X</b>	Floodplains, Wetlands, Riparian Zones, and Alluvial Valleys	Glenn Klingler	12-16-03
<b>X</b>	Native American Concerns	Scott Pavey	12/16/03
<b>X</b>	Prime and Unique Farmlands	Scott Pavey	12/16/03
<b>X</b>	Threatened and Endangered Animals	Glenn Klingler	12-15-03
<b>X</b>	Threatened and Endangered Plants	T. Meagley	
<b>X</b>	Wastes, Hazardous or Solid	Marty O’Mara	12-15-03
	Water quality, Surface or Ground		
<b>X</b>	Wilderness Area, Wild and Scenic Rivers	Chris Ham	12/15/03
<b>X</b>	Areas of Critical Environmental Concern	T. Meagley	12-15-03
	Environmental Justice		
<b>X</b>	Invasive, Non-Native Species/Reclamation	R. Fowler	12-10-03
<b>X</b>	Noxious Weeds	R. Fowler	12-10-03

## AIR QUALITY:

***Affected Environment:*** There are no special designation air sheds or non-attainment areas nearby that would be affected by the proposed action. During periods of low precipitation, air quality in the area of the proposed action is often diminished by dust caused by human disturbance.

***Impact of Proposed Action:*** The proposed action would result in short term, local impacts to air quality during and after construction, due to dust being blown into the air. After adequate vegetation is reestablished, blowing dust should return to pre-construction levels.

***Impact of No Action Alternative:*** No increase in dust will occur.

***Mitigative Measures:*** The applicant will spread water on road surfaces to control fugitive dust.

***Signature of specialist:*** CHollowed 12/10/03

## CULTURAL RESOURCES:

### ***Affected Environment:***

The well pad location was inventoried at the Class III (100% pedestrian) level (Gordon and Kranzush 1981, Compliance Dated 10/1981) prior to construction of the well pad. There were no sites directly impacted by the well pad construction though two sites were in close proximity.

***Impact of Proposed Action:*** There is no new construction proposed for this action therefore the proposed action does not appear to present any new impacts to cultural resources provided all activity and personnel are restricted to the existing, disturbed well pad location.

***Impact of No Action Alternative:*** There would be no new impacts to cultural resources under the No Action Alternative

### ***Mitigative Measures:***

1. The operator is responsible for informing all persons who are associated with the project operations that they will be subject to prosecution for knowingly disturbing historic or archaeological sites, or for collecting artifacts. If historic or archaeological materials are uncovered during any project or construction activities, the operator is to immediately stop activities in the immediate area of the find that might further disturb such materials, and immediately contact the authorized officer (AO). Within five working days the AO will inform the operator as to:

- Whether the materials appear eligible for the National Register of Historic Places
- The mitigation measures the operator will likely have to undertake before the site can be used (assuming in situ preservation is not necessary)
- A timeframe for the AO to complete an expedited review under 36 CFR 800-11 to

confirm, through the State Historic Preservation Officer, that the findings of the AO are correct and that mitigation is appropriate.

If the operator wishes, at any time, to relocate activities to avoid the expense of mitigation and/or the delays associated with this process, the AO will assume responsibility for whatever recordation and stabilization of the exposed materials may be required. Otherwise, the operator will be responsible for mitigation cost. The AO will provide technical and procedural guidelines for the conduct of mitigation. Upon verification from the AO that the required mitigation has been completed, the operator will then be allowed to resume construction.

2. Pursuant to 43 CFR 10.4(g) the holder of this authorization must notify the AO, by telephone, with 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), you must stop activities in the vicinity of the discovery and protect it for 30 days or until notified to proceed by the authorized officer.

***Signature of specialist:*** Michael Selle 12/1/03

**WATER QUALITY, SURFACE OR GROUND:** (This includes all information related to Public Land Health Standard 5.)

***Affected Environment:*** Proposed action is within the Evacuation Creek drainage which is tributary to the White River in Utah. As required by the Clean Water Act, the state of Utah has designated the White River from the Colorado-Utah state line to its confluence with the Green River as fully supporting of all of its beneficial use classifications. This stream reach's beneficial use classifications are: Recreation and Aesthetics, 2B; and Aquatic Life Use Support, 3C. Four parameters have been listed on the Numeric Criteria for this reach. These are: dissolved oxygen, 5.5 mg/l; pH, 6.5-9.0; maximum Fecal Coliform, 2000/100mL; and maximum Total Coliform, 5000/100mL. For these parameters, a fully supporting rating indicated the criterion was not exceeded in more than 10% of the samples collected. While the highest level of water quality protection does not apply to these waters, they are protected for their existing uses and from further degradation as a result of non-point source (sediment) pollution.

***Impact of Proposed Action:*** Quite frequently, groundwater associated with Coal bed Methane wells is of good quality. The quality of the water in the proposed well and of the water that is being disposed of was not submitted. Disposing produced water into an existing well requires a permit from the Colorado Oil and Gas Commission, which is bound by the water quality standards set by the state Department of Public Health and Environment's Water Quality Control Division.

Not properly completing a disposal well could cause contamination of existing groundwater if the water being disposed of is of poorer quality than what is in the formation. See the discussion in the Geology and Minerals Section.

**Impact of No Action Alternative:** Water disposal would still need to be addressed even if the proposed action were not permitted.

**Mitigative Measures:** The applicant will send the BLM White River Field Office a copy of the water quality analysis that is submitted to the Colorado Oil and Gas Commission.

**Signature of specialist:** CHollowed 12/10/03

**NON-CRITICAL ELEMENTS**

An X in the “Not Affected” column in the table below indicates that the non-critical element has been analyzed and will not be affected by the proposed action or the no action alternative. Affected elements are addressed in the paragraphs following the table.

<b>Not Affected</b>	<b>Non-Critical Element</b>	<b>Specialist Signature</b>	<b>Date</b>
X	Access and Transportation	Scott Pavey	11/19/03
X	Forest Management	R. Fowler	12-10-03
	Geology and Minerals		
X	Hydrology and Water Rights	CHollowed	12/10/03
	Land Status/Realty Authorizations		
X	Fire Management	Ken Holsinger	11/19/03
	Paleontology		
X	Rangeland Management	R. Fowler	12-10-03
	Recreation		
	Soils		
	Visual Resources		
X	Wildlife Aquatic	Glenn Klingler	12-16-03
	Wildlife Terrestrial		
X	Wild Horses	Valerie Dobrich	11-14-2003

**GEOLOGY AND MINERALS:**

**Affected Environment:** Proposed disposal well 8-11-4-104 was drilled and completed in 1982. Well completion report on record indicates the well was drilled to the Morrison formation and completed in the Dakota formation. The 9 5/8” surface casing is set at 329 feet with the 7” intermediate casing is set at 3,201 feet and 4” production casing to TD of 6,865. Production casing is perforated from 6,477 feet to 6,759 feet to access the Dakota

formation. According to available records, the cementing program did not isolate and protect coal zones and potential water zones located between the surface casing and the top of cement above the Castlegate formation. No information is available on the water quality of the Castlegate or Dakota formation at this location. Colorado Oil and Gas Conservation Commission (COGCC) has primacy on downhole requirements on water injection wells for oil and gas activities. The nearest well on record is the 4-12-4-104 located approximately 1,500 feet southeast of the proposed disposal well.

***Impact of Proposed Action:*** Injection of water will change the existing groundwater in the Castlegate formation at this location.

***Impact of No Action Alternative:*** None

***Mitigative Measures:*** The applicant must receive approval from, and comply with all requirements as directed by the Colorado Oil and Gas Conservation Commission (COGCC). Formation water quality analysis will be required by COGCC prior to injection to insure the injected water is of better water quality than existing formation groundwater. They will also require a cement bond log on the well to ensure a minimum of 200 feet of good cement above the targeted formation. Injection into the zone will be isolated in the well casing by placing of a packer to prevent the movement of fluids, in the casing, above the targeted formation.

***Signature of specialist:*** Paul Daggett 12/11/2003

#### **LAND STATUS/REALTY AUTHORIZATIONS:**

***Affected Environment:*** The proposed salt water injection well will be located on an existing well pad for the Columbine Springs 8-11-4-104 well.

***Impact of Proposed Action:*** There is a main utility corridor following the East Evacuation Road (County Road 25) with 6 pipelines of various sizes and one lateral pipeline that ends at this well location.

***Impact of No Action Alternative:*** None

***Mitigative Measures:*** None

***Signature of specialist:*** Penny Brown 11/14/03

#### **PALEONTOLOGY:**

***Affected Environment:*** The well location is in an area mapped as the Mesa Verde Formation which the BLM has classified as a Category I formation meaning it is a known producer of scientifically important vertebrate fossil resources.

**Impact of Proposed Action:** Since no new earth work construction is proposed there should be no new impacts to fossil resources for this proposed action.

**Impact of No Action Alternative:** There would be no new impacts to fossil resources under the No Action Alternative.

**Mitigative Measures:** If paleontological materials (fossils) are uncovered during project activities, the operator is to immediately stop activities that might further disturb such materials, and contact the authorized officer (AO). The operator and the authorized officer will consult and determine the best option for avoiding or mitigating paleontological site damage.

**Signature of specialist:** Michael Selle 12/1/2003

## RECREATION:

**Affected Environment:** The proposed action occurs within the White River Extensive Recreation Management Area (ERMA). BLM custodially manages the ERMA to provide for unstructured recreation activities such as hunting, dispersed camping, hiking, horseback riding, wildlife viewing and off-highway vehicle use.

**Impact of Proposed Action:** The public will lose approximately two acres of dispersed recreation potential while wells are in operation. The public will most likely not recreate in the vicinity of these facilities and will be dispersed elsewhere.

**Impact of No Action Alternative:** No loss of dispersed recreation potential and no impact to hunting recreationists.

**Mitigative Measures:** None.

**Signature of specialist:** Chris Ham 12/15/03

**SOILS:** Baseline soils data have been collected for Rio Blanco County by the NRCS and are published in an order III Soil Survey. This survey is available for review from the White River Field Office. The table below identifies soil characteristics for this soil type.

Proposed action	Soil Number	Soil Name	Slope	Range site	Salinity	RunOff	Erosion Potential	Bedrock
Well & Road	95	Uffens loam	0-5%	Alkaline Slopes	4-8	Slow	Moderate	>60

Revegetation limitations for this soil type include an arid climate and droughty soil condition. Although there have not been any special designations assigned to this location such as fragile soil, excessive erosion, or steep slopes, the soil type indicates that it has high salt concentrations, which could make revegetation difficult.

**Impact of Proposed Action:** The proposed action is to enter an existing well with no new disturbance being required. Impacts to soils should be minimal.

**Impact of No Action Alternative:** Impacts are not anticipated from not permitting the proposed action.

**Mitigative Measures:** Use Standard Seed mix # 2 for range site Alkaline range site.

**Signature of specialist:** CHollowed 12/10/03

## VISUAL RESOURCES:

**Affected Environment:** This well is in an area classified as Visual Resource Management (VRM) Class 3. VRM Class 3 management allows for development as long as the development does not dominate the new landscape.

**Impact of Proposed Action:** There will be no new disturbance and there for this activity will comply with the guidelines for VRM Class 3 with mitigation as listed below.

**Impact of No Action Alternative:** No impacts.

**Mitigative Measures:** Production facilities shall be painted Desert Brown (Munsell Color Chart 10 YR 6/3) or equivalent, to match the surroundings. Areas not needed for injection/production shall be reclaimed in a timely manner.

**Signature of specialist:** Max McCoy 12-05-03

## WILDLIFE TERRESTRIAL:

**Affected Environment:** This project involves an existing well to be converted to a water injection well. The elevation is approximately 6079 feet with pinyon juniper woodlands adjacent to the stand. This site is located in Severe Winter Range for elk.

**Impact of Proposed Action:** This site is in a location requiring no new road construction on a pad in current production. As such it represents little new disturbance. An increase in road traffic can be expected as a result of trucks transporting water to the site that can have negative impacts to wintering elk and nesting raptors. This site is located in Severe Winter Range for elk. However, access to this site is via county roads and is located in an area of existing disturbance. Therefore, no conditions of approval related to elk severe winter range will be applied.

**Impact of No Action Alternative:** Failure to complete this project would reduce increased traffic levels in this immediate area. Longer term activity associated with this site would change little due to this site occurring in an area of active development. Avoiding the

minimal disturbance associated with converting this well would not be considered advantageous to wildlife resources since new locations, likely involving greater surface disturbance and more involved access, would likely be proposed to offset the loss.

***Mitigative Measures:*** If construction associated with this project is not completed by March 1, Carbon Energy must contact the BLM (970-878-3800) to have a current raptor survey conducted prior to commencement of work.

***Signature of specialist:*** Glenn Klingler 12-16-03

**CUMULATIVE IMPACTS:** No cumulative impacts were identified. The White River PRMP/FEIS analyzed cumulative impacts of resource-area-wide oil and gas development.

***Signature of specialist:*** Penny Brown 11/14/03

**11. PERSONS/AGENCIES CONSULTED:** BLM Resource Specialists

## **FINDING OF NO SIGNIFICANT IMPACT (FONSI)/DECISION RECORD**

**FONSI:** The environmental assessment, analyzing the environmental effects of the proposed action, has been reviewed. The approved mitigation measures (listed below) result in a finding of no significant impact on the human environment. Therefore, an environmental impact statement is not necessary to further analyze the environmental effects of the proposed action.

**DECISION AND RATIONALE:** It is my decision to approve the Columbine Springs 8-11-4-104 well as a salt-water injection well as described in the proposed action, with the mitigation measures listed below.

### **MITIGATION MEASURES:**

1. The applicant will spread water on road surfaces to control fugitive dust.
2. The operator is responsible for informing all persons who are associated with the project operations that they will be subject to prosecution for knowingly disturbing historic or archaeological sites, or for collecting artifacts. If historic or archaeological materials are uncovered during any project or construction activities, the operator is to immediately stop activities in the immediate area of the find that might further disturb such materials, and immediately contact the authorized officer (AO). Within five working days the AO will inform the operator as to:
  - Whether the materials appear eligible for the National Register of Historic Places
  - The mitigation measures the operator will likely have to undertake before the site can be used (assuming in situ preservation is not necessary)
  - A timeframe for the AO to complete an expedited review under 36 CFR 800-11 to confirm, through the State Historic Preservation Officer, that the findings of the AO are correct and that mitigation is appropriate.

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3. Pursuant to 43 CFR 10.4(g) the holder of this authorization must notify the AO, by telephone, with 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), you must stop activities in the vicinity of the discovery and protect it for 30 days or until notified to proceed by the authorized officer.
4. The applicant will send the BLM White River Field Office a copy of the water quality analysis that is submitted to the Colorado Oil and Gas Commission.

5. If paleontological materials (fossils) are uncovered during project activities, the operator is to immediately stop activities that might further disturb such materials, and contact the authorized officer (AO). The operator and the authorized officer will consult and determine the best option for avoiding or mitigating paleontological site damage.

6. Use Standard Seed mix # 2 for range site Alkaline range site.

7. Production facilities shall be painted Desert Brown (Munsell Color Chart 10 YR 6/3) or equivalent, to match the surroundings. Areas not needed for injection/production shall be reclaimed in a timely manner.

8. The applicant must receive approval from, and comply with all requirements as directed by the Colorado Oil and Gas Conservation Commission (COGCC). Formation water quality analysis will be required by COGCC prior to injection to insure the injected water is of better water quality than existing formation groundwater. They will also require a cement bond log on the well to ensure a minimum of 200 feet of good cement above the targeted formation. Injection into the zone will be isolated in the well casing by placing of a packer to prevent the movement of fluids, in the casing, above the targeted formation.

9. If construction associated with this project is not completed by March 1, Carbon Energy must contact the BLM (970-878-3800) to have a current raptor survey conducted prior to commencement of work.

**REMARKS:** This action will be authorized under Title V of the Federal Land Policy and Management Act of 1976.

**COMPLIANCE PLAN:** Compliance checks will be conducted by the realty staff every five years.

**SIGNATURE OF PREPARER:** Penny Brown

**DATE SIGNED:** 12-16-03

**SIGNATURE OF ENVIRONMENTAL COORDINATOR:** Scott Perry

**DATE SIGNED:** 12/16/03

**SIGNATURE OF AUTHORIZED OFFICIAL:** Kent C. Walter

**DATE SIGNED:** 12/16/03

**ATTACHMENTS:** Map of the Location of the Proposed Action.

# Location of Proposed Action CO-110-2004-014-EA

