

### 3.0 Affected Environment

#### 3.1 Location, Setting and Historical Use

The Poison Spider Field (PSF) Underground Access Oil Recovery Facility project (UAORF) project lies in the Wind River geologic basin west of Casper, Wyoming in Natrona County (see Map 1-1). Access to the project is from Poison Spider Road, Natrona County Road 201, at Oil Camp Road which accesses the existing field operating unit. Area topography is generally rolling, open prairie shrub and grasslands cut by Poison Spider Creek south of the project area. The elevation of the project area is approximately 5700 feet above sea level.

The PSF is located on the west flank of the Casper Arch which separates the Wind River structural basin from the Powder River structural basin. Drainages in the project area flow into Poison Spider Creek which is part of the North Platte River drainage system. The area proposed for underground development is mainly used for crude oil production, livestock grazing, wildlife habitat and recreational hunting. The surface of the project area is federally owned and is managed by the BLM CFO. The federal oil and gas lease, WYC-037870, was granted in 1935. The leased area and the subsurface field structure are illustrated in Figure 3-1.

The PSF area has been the site of oil exploration and production since the discovery well was drilled in October 1917, in NW¼NW¼, Section 12, T. 33 N., R. 83 W., Natrona County. The field comprises a greater area than the RWP lease and has produced from the Crow Mountain, Tensleep, Sundance and Muddy formations. Seventy-six federal wells have been drilled in the PSF area, 34 of which have been plugged and abandoned. Only two fee (privately owned lease) wells have been drilled in the area, both have been plugged (WOGCC web site). Fourteen Sundance wells are currently completed in the PSF operated by RWP, some of which have been producing since 1923. Two additional wells are producing from the Sundance in Sections 1 and 2 in the northern portion of the field operated by Arnell Oil Company. To date the field has produced 4,405,819 barrels of oil, 65000 mcf of gas and 21,929,298 barrels of water. Wells drilled in the PSF are shown on Figure 3-1.

Other oil fields in the general area include (BLM 1981 and WOGCC web page):

Burnt Wagon	Sec 19-T32N-R84W	discovered 1976
South Casper Creek	T33N-R83W	discovered 1919
Iron Creek	Sec 11-T32N-R82W	discovered 1917
Oil Mountain	Sec 35-T32N-R85W	discovered 1945
West Poison Spider	T33-R84W	discovered 1948
Poison Spider Creek	T31-R84W	discovered 1958

#### 3.2 Critical Elements of the Human Environment

Critical elements of the human environment as defined by the BLM (1988, 1999), their status in the PSF area, and their potential to be affected by the Proposed Action are presented in Table 3-1. A review of the Proposed Action has determined that seven of the 14 critical elements of the human environment are not present in the project area, are not affected by the Proposed Action or alternatives and therefore are not discussed further. Seven of the critical elements are present in the proposed area, may potentially be affected by the Proposed Action or alternatives, and are discussed in detail in this EA.

Since the purpose of the Proposed Action is to enhance production from an existing oil field



**Table 3-1 Critical Elements of the Human Environment<sup>1</sup>**

<b>Critical Element</b>	<b>Status</b>	<b>Analyzed in Detail in this EA</b>
Air quality	Potentially affected	Yes
Areas of critical environmental concern	Not present	No
Cultural resources	Potentially affected	Yes
Environmental justice related concerns	Not present	No
Farmlands (prime or unique)	Not present	No
Floodplains	Not present	No
Invasive, no-native species (noxious weeds)	Potentially affected	Yes
Native American religious concerns	Potentially affected	Yes
Threatened and endangered species	Potentially affected	Yes
Wastes (hazardous and solid)	Potentially affected	Yes
Water quality	Potentially affected	Yes
Wetlands/riparian areas	Not present	No
Wild and scenic rivers	Not present	No
Wilderness (wilderness study areas and wilderness areas)	Not present	No

<sup>1</sup> From the BLM NEPA Handbook H-1790-1 (BLM 1988, 1999)

**Table 3-2 Non-Critical Elements**

Non-Critical Element	NA or Not Present	Applicable or Present, No Impact	Applicable & Present and Brought Forward for Analysis
Access and transportation		X	X
Cadastral survey	X		
Fire management	X		
Forest management	X		
Geology and minerals		X	X
Hydrology/water rights		X	X
Law enforcement	X		
Noise		X	X
Paleontology		X	
Rangeland management		X	
Realty authorizations		X	
Recreation		X	X
Socio-economics		X	X
Visual resources		X	X
Wild horses	X		

### 3.3 Physical Resources

#### 3.3.1 Air Quality

Wyoming Ambient Air Quality Standards (WAAQS) and National Ambient Air Quality Standards (NAAQS) are health-based criteria for the maximum acceptable concentrations of specific air pollutants at locations to which the public has access. Although specific air quality monitoring data is not available for the project area, air quality in the project area is considered good and designated as attainment for all criteria pollutants. Air pollutants for which ambient air quality standards exist include carbon monoxide (CO), nitrogen dioxide (NO<sub>2</sub>), ozone (O<sub>3</sub>), particulate matter less than 10 microns in effective diameter (PM<sub>10</sub>), particulate matter less than 2.5 microns in effective diameter (PM<sub>2.5</sub>), and sulfur dioxide (SO<sub>2</sub>). The WAAQS, NAAQS, and Prevention of Significant Deterioration (PSD) Class I and II Increments are shown in Table 3-3 below.

**Table 3-3 Wyoming and National Air Quality Standards and PSD Increments**

Air Pollutant	Averaging Time Period	WAAQS S ( $\mu\text{g}/\text{m}^3$ ) <sup>1</sup>	NAAQS ( $\mu\text{g}/\text{m}^3$ ) <sup>2</sup>	PSD Class I Increment	PSD Class II Increment
PM <sub>10</sub>	24-hour	150	150	8	30
	Annual	50	50	4	17
PM <sub>2.5</sub>	24-hour	65	65	ns	ns
	Annual	15	15	ns	ns
Ozone	1-hour	235	235	ns	ns
NO <sub>2</sub>	Annual	100	100	2.5	25
SO <sub>2</sub>	3-hour	1,300	1,300	25	512
	24-hour	260	365	5	91
	Annual	60	80	2	20
CO	1-hour	40,000	40,000	ns	ns
	8-hour	10,000	10,000	ns	ns

<sup>1</sup> WAAQS = Wyoming Ambient Air Quality Standards (adapted from WDEQ/AQD [2000b])

<sup>2</sup> NAAQS = National Ambient Air Quality Standard (adapted from 40 CFR 50.4-50.12).

### 3.3.2 Geology and Minerals

#### 3.3.2.1 Geology

The proposed area of development is located on the west flank of the Casper Arch and on the northeast thrust-faulted rim of the Wind River structural basin. The rock outcrops in the project area are Cretaceous in age and range from about 110 to 125 million years old. As the Wind River Basin was formed by compression during continental drift, the basin center was down warped and the edges were uplifted. This compression formed a northwest to southeast anticlinal fold on which PSF is located. The Lower Cretaceous Frontier basal shale is exposed in the center of the anticline and the Frontier Sandstones form a topographic rim around the field.

**Table 3-4 Geologic Surface Formations within the PSF Area (from youngest to oldest in age)**

Formation	Thickness	Rock Type
Cody Shale	5350 feet	Gray soft shale
Frontier Formation	750 feet	Gray to white sandstones and gray shales

In the project area, the primary geological formations of interest are the Lower Cretaceous Muddy Sandstone, the Jurassic Sundance (locally known as the “Crow Mountain Sand” or more properly known as the Canyon Springs Sand) and the Pennsylvanian Tensleep Sandstone. The

Muddy Sandstone averages 10 feet in thickness. The Muddy Sandstone produces from one well in the field area but is productive in other wells in adjacent leasehold. The Sundance averages 65 feet in thickness and has produced over 24 million barrels of oil from the entire field. The Tensleep Sandstone pay zone ranges in thickness from 10 to 60 feet. Currently the Tensleep does not produce in the PSF and has had relatively little production in the field.

The tunnel beneath the Jurassic Sundance will be located in the Popo Agie Shale of the Triassic Chugwater Group. Holes will be drilled upward from the tunnel through the Popo Agie into the Sundance reservoir to drain the oil by gravity flow.

Sandstones in the Cody Shale and the Frontier Formation are not prospective in the project area but may be traversed or intersected by the surface and tunnel activity.

### 3.3.2.2 Minerals

The oil and gas resources in the project unit area are approximately 100% Federal. There are no gravel pits in the project area. Waste shale from tunnel development will be stockpiled and used for field reclamation.

### **3.3.3 Soils**

In general there are two soil types in the lease area of the Proposed Action, specifically soil types 132 (Bowbac-Hiland) and 301 (Vonalee-Hiland), (NRCS 1997).

The Bowbac-Hiland, a fine sandy loam, is found on slopes from 3 to 10 percent supporting areas of native vegetation comprised mainly of grasses, forbs, and shrubs. The annual precipitation is 10 to 14 inches. This unit is 40 percent Bowbac fine sandy loam and 40 percent Hiland fine sandy loam. The Bowbac soils are on hill crests and hillsides with 3 to 20 percent slopes, and the Hiland soils are on alluvial fans and foot slopes with 3 to 6 percent slopes. Included in this unit is Forkwood loam on nearly level alluvial fans and in swales. Also included is Terro sandy loam on hillsides and small areas of rock outcrop. The Bowbac soils are moderately deep and well drained. They form in slopewash alluvium and residuum derived dominantly from sandstone. Soft sandstone is at a depth of 37 inches. In some areas the surface layer is loam. Permeability of the Bowbac soils is moderate. Available water capacity is low. The effective rooting depth is 20 to 40 inches. Runoff is medium and the hazard of water erosion is moderate. The hazard of wind erosion is severe.

The Hiland soils are very deep and well drained. They formed in slopewash alluvium derived dominantly from sandstone and are up to 60 inches deep. In some areas the surface layer is loam. Permeability of the Hiland soils is moderate. Available water capacity is high. The effective rooting depth is 60 inches or more. Runoff is slow and the hazard of water erosion is slight. The hazard of wind erosion is severe.

This soil map unit is used mainly for livestock grazing and wildlife habitat. A few areas are used for irrigated hay and pasture. The potential plant community for this unit is mainly western wheatgrass, needleandthread, bluebunch wheatgrass, and big sagebrush. As the range condition deteriorates, big sage brush and blue grama increase in abundance. As the range condition further deteriorates annuals invade. The Bowbac soils are poorly suited for livestock watering ponds because of the depth to bed rock and the seepage potential. The Hiland soils are poorly suited to livestock watering pond because of the seepage potential.

The Vonalee-Hiland complex occurs on 3 to 15 percent slopes on stable dunes and supports

native vegetation comprised of mainly grasses, forbs, and shrubs. This unit is 45 percent Vonalee loamy sand and 40 percent Hiland sandy loam. The Vonalee soils are found on convex slopes of 6 to 15 percent, and the Hiland soils are on concave slopes of 3 to 6 percent. Included in this unit are Orpha loamy sand and on stable dunes and Forkwood sandy loam in valleys and narrow drainageways. Also included are some small areas of Bowbac sandy loam.

The Vonalee soils are very deep and well drained. They formed in eolian deposits derived dominantly from sandstone to a depth of 60 inches or more. Permeability of the Vonalee soils is moderately rapid. Available water capacity is moderate. The effective rooting depth is 60 inches or more. Runoff is medium and the hazard of water erosion is moderate. The hazard of wind erosion is severe.

The Hiland soils are very deep and well drained. They formed in alluvium and eolian deposits derived dominantly from sandstone to a depth of 60 inches or more. Permeability of the Hiland soils is moderate. Available water capacity is high. The effective rooting depth is 60 inches or more. Runoff is slow and the hazard of water erosion is slight. The hazard of wind erosion is severe.

This soil map unit is used mainly for livestock grazing and habitat. The potential plant community on the Vonalee soils is mainly needleandthread, thickspike wheatgrass, threadleaf sedge, Indian ricegrass, and silver sagebrush. As the range condition deteriorates silver sagebrush and rabbitbrush increase in abundance. As the range condition further deteriorates annual forbs and cheatgrass invade. The potential plant community on the Hiland soil is mainly western wheatgrass, needlandthread, blubunch wheatgrass, mutton bluegrass, and big sagebrush. As the range condition deteriorates, big sagebrush and blue grama increase in abundance. As the range condition further deteriorates, annuals invade. This unit is poorly suited to livestock watering ponds because of the seepage potential.

### **3.3.4 Water Resources**

Poison Spider Oil Field boundary lies 1800 feet north of Poison Spider Creek. Poison Spider Creek is a tributary of the North Platte River and a class 3B water of the state (WDEQ 2001). There are no natural tributaries to Poison Spider Creek from the project area. Historically, produced water was discharged from the tank battery in the north central portion of the lease via a man-made canal and a discharge pond located just north of Poison Spider Road. This pond was designed to overflow or discharge water through a culvert under the road and down to Poison Spider Creek. The canal system carried produced water from the treater discharge directly through the culvert for discharge to Poison Spider Creek. The WDEQ issued discharge permit (Permit Number WY0001694) remains in effect but is no longer used. The canal, pond and culvert remain in place. The pond has re-vegetated but probably acts as a detention basin following significant precipitation events. Produced water is now managed by injection back into the Sundance formation from a single WOGCC and BLM permitted injection well (Well #8).

There is one water well identified in the Wyoming State Engineers Office Water Rights Inventory (WSEO 2006) in the four sections surrounding the project area. The information available on this well is provided below.

Name: USDI, BLM, Arnell Oil Company  
Priority #: P33913W  
Location: NWSE Sec 12-T33N-R83W  
Priority Date: 06/01/1976

Amount: 10 gpm  
Depth: 740 ft  
Static level: 730 ft.

A second water well is located in the NWNW Sec 18-T33N-R82W, near the Oil Camp houses. This well serves the PSF camp and is not registered with the Wyoming State Engineers Office. Information regarding the well is limited to file notes (S. Monninger, pers com. 2006). The well may date from the 1930's and was drilled to a depth of approximately 789 feet. The well is screened from 572 to 729 feet and produces an estimated 10 gpm. This water is not suitable for human consumption but is used for non-consumptive purposes at the camp houses and shops.

The oil producing formation in the field is the Lower Sundance Canyon Springs Sand (also known as the Crow Mountain Sand). This formation is a gravity drained geologic trap not a water drive formation therefore water from this geologic structure is not connected to the surface and North Platte drainage system. Removal of water from the Sundance or injection of water into the Sundance will not affect the North Platte River hydrology (G. George, pers com. 2006). Injection of water produced from the Sundance and injected into the Tensleep would possibly augment the water resource contributing to the North Platte River drainage system as the Tensleep is hydraulically connected to the surface within the basin.

### 3.3.5 Noise

No site specific noise data are available for the project area but BLM assumes ambient noise levels within the Platte River Resource area to be 30 to 40 dBA (BLM 1981). The common measure of noise in the United States is the A-weighted sound pressure level that measures noise in A-weighted decibels (dBA). Median noise levels for the proposed project area likely range from 20 to 40 dBA in the morning and evening and from 50 to 60 dBA in the afternoon when wind speeds are typically greatest. These levels correspond to noise levels of a soft whisper (30 dBA), a library (40 dBA), a quiet office (50 dBA), a small town (40 - 50 dBA), and a normal conversation (60 dBA). Traffic along the interstate typically averages noise levels greater than 70 dBA (Wyle Laboratories 1971).

Currently the most common noise sources within the project area would include traffic along Poison Spider Road, livestock grazing operations, the wind and occasional well workover operations. Noise sensitive areas would include private residences and occupied raptor nests. Natrona County does not have noise restriction regulations for commercial businesses.

Four occupied residences are located within 2 miles of the Proposed Action (see map 3-1).

- 1) Two occupied residences are located at the Poison Spider Camp (NWNW Sec 18),
- 2) One residence approximately  $\frac{3}{4}$  miles to the NW in SWNE of Sec 12, and
- 3) One residence approximately 2 miles NW in SE Sec 5

The residences in Sections 12 and 18 are located within and are affiliated with the north and south portions of the Poison Spider Oil Field. There are no other places of business or public buildings within one mile of the proposed area of activity that could be impacted by noise from the Proposed Action.

### 3.4 Biological Resources

#### 3.4.1 Vegetation including Invasive Non-native Species

The PSF underground development project area occurs in the Wyoming Big Sagebrush land cover type, according to the Wyoming Natural Diversity Data Base (WYNDD 2004) and the Wyoming Gap Analysis (Analysis, Wyoming Gap, 2006). The project area is at an elevation of approximately 5500 feet and receives 12 to 14 inches of precipitation per year (USDA, NRCS).

The Wyoming big sagebrush grasslands community consists of several grasses, including *Koeleria cristata* (June grass), *Agropyron smithii* (western wheat grass), and *Bouteloua gracilis* (blue grama) and shrubs such as Wyoming big sagebrush, skunkbrush and rabbitbrush.

The area is cut by Poison Spider Creek, to the south. Poison Spider Creek is perennial in the area as a result of oil field produced water discharges. Isolated areas of wetlands habitat have developed in association with these discharges. The creek is ephemeral above and below the areas influenced by the produced water. Further to the south and east Poison Spider becomes perennial prior to entering the North Platte River. While no formal wetlands inventories have been conducted in the area (National Wetlands Inventory, US Fish and Wildlife Service 1997) isolated pockets of wetlands habitat exist in association with the oil field discharges. No wetlands habitat exists within the project area.

No site specific surveys have been conducted for non-native or invasive species; however it is possible that the more common invasive species are present.

#### 3.4.2 Wildlife Resources

The project area provides habitat for a wide variety of wildlife. Discussions of these species are presented below.

##### 3.4.2.1 Big Game

Mule Deer (*Odocoileus hemionus*) are common in the project area which is classified as WGFD herd unit area 758 and hunt area 89. There are no critical seasonal habitats for mule deer identified in the PSF area. The nearest crucial habitat for mule deer is identified north and west of the Poison Spider Road. The RWP PSF lease comprises approximately 0.00066% of the mule deer herd unit area (Wyoming Game and Fish 2005a).

Mule deer hunting is popular in the areas west of Casper with a hunter success rate of approximately 64% in 2003. Prolonged drought has affected forage production and therefore the mule deer population in the herd area. The population is currently estimated at 3,862 animals or 70% of the herd objective (Wyoming Game and Fish 2005a).

Pronghorn (*Antilocapra americana*) are also a common species in the Poison Spider project area. The Proposed Action is located in WGFD herd unit 745 and hunt areas 71 and 72. The entire Poison Spider project area is in yearlong pronghorn habitat, no crucial seasonal habitats are identified in the project area. The RWP PSF lease comprises approximately 0.00088% of the antelope herd unit area (Wyoming Game and Fish 2005b).

Pronghorn hunt areas 71 and 72 are very popular with Casper residents. County Road 210, the boundary between the two hunt areas, cuts through the lease area. Hunter success in 2004 was 92%. Game and Fish Department production data indicates that the habitat is in very poor condition due to extended drought conditions. The population is currently estimated at 12,334 animals or 3% above the herd objective (Wyoming Game and Fish 2005b).

#### 3.4.2.2 Other Mammals

Other mammals in the project area include badger, bobcat, coyote, white tailed jack rabbit, deer mouse, desert cottontail, Wyoming ground squirrel, striped skunk, northern pocket gopher and numerous others. Game and Fish sensitive mammal species or BLM mammal species of concern that may exist in the project area include white tailed prairie dogs, Wyoming pocket gopher and swift fox (Wyoming Game and Fish 2002), but no white tailed prairie dogs have been identified in the project area.

#### 3.4.2.3 Raptors

The Poison Spider project area also contains potential nesting habitat for a variety of raptor species including the golden eagle, ferruginous hawk, Red Tailed Hawk and Merlin (WYNDD 2006, BLM 2006, Wyoming Game and Fish 2004). BLM maps indicate three raptor nests within the Project Area and another 6 in the surrounding area (BLM 2006). The three occupied nests within a one mile radius of the project including Golden Eagles and Red Tailed Hawk.

#### 3.4.2.4 Migratory and Non-Migratory Birds

Bird species distributions as listed in the Atlas of Birds, Mammals, Amphibians and Reptiles (Wyoming Game and Fish 2004) for lat/long 19 and as provided by Wyoming Natural Diversity Database for T33N-82W and T33N-R83W (WYNDD 2006) for are indicated in Table 3-10. Only those species that have been classified by WGFD (2004) as confirmed breeders, with circumstantial evidence of breeding or that have been observed at any time within the general area are included on the list. Most of these birds are ground or shrub nesters. Migratory water fowl and shore birds use the produced water discharge ponds west of the project area. No surveys have been conducted in the project area for migratory or non-migratory avian species.

#### 3.4.2.5 Upland Game Birds

Greater sage-grouse and possibly mourning doves are the only upland game birds known from the area. Greater sage-grouse is a BLM sensitive species and is discussed later in the document.

#### 3.4.2.6. Amphibians, Reptiles and Fish

No site specific surveys have been conducted for amphibians, reptiles or fish in the project area. Fish species have been identified in the perennial/wetland areas of Poison Spider Creek that are maintained by oil field discharges. There is a possibility of the occurrence of northern leopard frog, tiger salamander and Great Basin Spade foot toad in the isolated waters fed by oil field discharges in Poison Spider Creek. The PSF project area does not contain any areas of permanent water or wetlands, therefore fish species or water dependent amphibians are not expected to be present. Various reptiles are possible in the area including rattlesnakes, garter snakes, bull snakes, short horned lizards and others (BLM 2005c and WYNDD 2006).

### **3.4.3 Threatened, Endangered, Proposed and Candidate Species**

Threatened, endangered, proposed and candidate species that could occur in the project area include the black-footed ferret, the bald eagle and Ute ladies'-tresses; the five species found downstream in the North Platte River that could be impacted by water depletions are also listed. Table 3-5 provides information regarding the potential of occurrence for listed species in the project area. No threatened or endangered plant species occur in the project area (WYNDD 2004). The information provided below is compiled from a variety of sources including, the Wyoming Game and Fish Atlas of Mammals, Amphibians and Reptiles in Wyoming (2004) and the US Fish and Wildlife Service (USFWS 2006).

Black-footed ferret (*Mustela nigripes*)

The U.S. Fish and Wildlife Service listed black-footed ferrets as endangered in 1967 under a precursor to the Endangered Species Act of 1973. Black-footed ferrets were probably never abundant. Ferrets were once found throughout the Great Plains, from Texas to southern Saskatchewan, Canada. Their range extended from the Rocky Mountains east through the Dakotas and south through Nebraska, Kansas, Oklahoma, Texas, New Mexico, and Arizona. Where prairie dogs were found, so were black-footed ferrets. Typical wild ferret behavior revolves around prairie dog towns. The reintroduction of black-footed ferrets into the wild began in 1991 with releases of ferrets in the Shirley Basin, Wyoming. Reintroduced black-footed ferrets have been designated "non-essential experimental" populations under the Endangered Species Act (USFWS 2006).

The Shirley Basin Non-essential experimental population is the nearest black-footed ferret reintroduction site to the project area. No white-tailed or black-tailed prairie dogs are known in the PSF project area. Further, WYNDD records do not include any black footed ferret sightings in the area (WYNDD 2006). It is therefore considered unlikely that this species occurs in the project area.

**Table 3-5 Federally Listed Threatened (T) and Endangered (E) Species and Their Potential Occurrence within the Poison Spider Project Area**

Scientific Name	Common Name	Federal Status	Potential of Occurrence within Poison Spider area
<b>Mammals</b>			
<i>Mustela nigripes</i>	Black-footed ferret	E, EXPN	Not likely
<i>Zapus hudsonius preblei</i>	Preble's meadow jumping mouse	T	Not likely
<b>Birds</b>			
<i>Haliaeetus leucocephalus</i>	Bald Eagle	T	Occasional
<i>Numenius borealis</i>	Eskimo Curlew	E	Not likely
<i>Charadrius melodus</i>	Piping Plover	T	Not likely
<i>Sterna antillarum</i>	Interior Least Tern	E	Not likely
<b>Plants</b>			
<i>Gaura neomexicana</i> var. <i>coloradensis</i>	Colorado Butterfly plant	T	Not likely
<i>Spiranthes diluvialis</i>	Ute ladies'-tresses	T	Not likely
<i>Plantanthera praeclara</i>	Western prairie fringed orchid	T	Not likely
<i>Penstemon haydenii</i>	Blowout Penstemon	E	Not likely

Fish			
Scaphirhynchus albus	Pallid sturgeon	E	Not likely

Report generated by the USFWS, Division of Endangered Species on 01/06/2006 and WYNDD 2006

Preble's meadow jumping mouse (*Zapus hudsonius preblei*)

The Preble's meadow jumping mouse is a small rodent with large hind feet adapted for jumping, a long bi-colored tail, and a distinct dark stripe down the middle of its back and is bordered on either side by gray to orange-brown fur. In late summer, the mice gorge themselves on a diet of seeds, fruits, and insects to prepare for hibernation; they sleep in an underground burrow from September to May. This shy, largely nocturnal mouse lives primarily in heavily vegetated, shrub-dominated riparian (streamside) habitats and immediately adjacent upland habitats along the foothills of southeastern Wyoming south to Colorado Springs along the eastern edge of the Front Range of Colorado. The PMJM range includes Adams, Arapahoe, Boulder, Denver, Douglas, El Paso, Elbert, Jefferson, Larimer, and Weld counties in Colorado; and Albany, Laramie, Platte, Goshen, and Converse counties in Wyoming. This habitat loss and fragmentation led to Federal listing of the mouse as threatened on May 13, 1998 (USFWS 2006). In 2005 the USFSW issued a notice of intent to delist this subspecies. Suitable Preble's habitat may occur immediately adjacent to some sections of Poison Spider Creek but suitable habitat does not exist in the project area. WYNDD records do not include any sightings of the Preble's meadow jumping mouse in the project area (WYNDD 2006), therefore it is not considered likely that this species occurs in the project area.

Bald Eagle (*Haliaeetus leucocephalus*)

The Bald eagle was once listed as endangered but was down listed to threatened in 1995; in 1999 it was proposed for de-listing. This large bird requires cliffs, large trees or sheltered canyons associated with a concentrated food source for nesting and roosting areas. The bald eagle is commonly seen in central Wyoming and is expected to be an occasional visitor to the project area using the area to forage for carrion in the winter and fall (USFWS 2006).

The project area does not contain habitat features conducive to nesting and roosting. No Bald Eagle nests were identified within a one mile radius of the project area. Known bald eagle winter concentration areas exist in the Platte River Resource Area at Pine Mountain, along the North Platte River and at the Jackson Canyon ACEC (BLM 1984).

Colorado Butterfly plant (*Gaura neomexicana* var. *coloradensis*)

The Colorado butterfly plant is a rare short-lived perennial herb and is listed as threatened. The only known populations of the Colorado Butterfly plant are primarily on private land within a small area in southeastern Wyoming, western Nebraska, and north-central Colorado where critical habitat has been designated. With less than 50,000 reproducing individuals, only 10 of the 14 current populations are considered stable or increasing. The plant is found in moist areas of floodplains and stands 2-3 feet tall with one or a few reddish, fuzzy stems and white flowers that turn pink or red with age. Only a few flowers are open at one time and these are located below the rounded buds and above the mature fruits. Non-flowering plants consist of a stemless, basal rosette of oblong, hairless leaves 1-7 inches long (USFWS 2006).

WYNDD records do not indicate that the species is known to be present in the project areas (WYNDD 2005). In addition, based on initial surveys for habitat suitable for the Colorado Butterfly plant does not exist, therefore it is not likely that the plant is present in the Poison Spider project area.

Ute ladies'-tresses (*Spiranthes diluvialis*)

Ute-ladies'-tresses orchid is a perennial, terrestrial orchid with stems 18 to 20 inches tall, arising from tuberously thickened roots. The flowering stalk consists of few to many small white or ivory flowers clustered into a spike arrangement at the top of the stem. It blooms, generally, from late July through August (Fertig 2000).

Populations of Ute ladies'-tresses orchids are known from three broad general areas of the interior western United States -- near the base of the eastern slope of the Rocky Mountains in southwestern Wyoming and adjacent Nebraska and north-central and central Colorado; in the upper Colorado River basin, particularly in the Uinta Basin; and in the Bonneville Basin along the Wasatch Front and westward in the eastern Great Basin, in north-central and western Utah, extreme eastern Nevada, and southeastern Idaho. The orchid also has been discovered in southwestern Montana and in the Okanogan area and along the Columbia River in north-central Washington. The orchid occurs along riparian edges, gravel bars, old oxbows, high flow channels, and moist to wet meadows along perennial streams. It typically occurs in stable wetland and seepy areas associated with old landscape features within historical floodplains of major rivers. It also is found in wetland and seepy areas near freshwater lakes or springs (USFWS 2006).

WYNDD records do not indicate that the species is known to be present in the project areas (WYNDD 2006). In addition, initial surveys located no suitable habitat for the Ute Ladies'-tresses orchid, it is therefore unlikely that the species exists in the project area.

Blowout Penstemon (*Penstemon haydenii*)

Blowout penstemon is a perennial herb with one to many upright stems. Stems are usually less than 12 inches tall and have greenish-blue, waxy, linear leaves. The flowers are leafy whorls of milky-blue to pale lavender flowers (rarely pink or white). The plant flowers from mid June - early July.

Blowout penstemon is restricted to sparsely vegetated, early successional, shifting sand with crater- like blowout depressions created by wind erosion. In Wyoming, blowout penstemon is found primarily on the rim and lee slopes of blowouts, or the rim and steep facies of inherently unstable slough slopes. The sand deposits are situated at the base of mountains or ridges as topographic barriers to wind-born sand deposits. Wyoming populations occur at elevations of 5860-7440 feet. The rims, gentle lee slopes, and the steep slough slope facies are zones of continuous sand deposition and erosion activity. Blowout penstemon is found in sparsely vegetated pioneer communities often with less than 5% vegetative cover.

The Blowout penstemon is a regional endemic of the Nebraska Sandhills, and the northeastern end of the Great Divide Basin in Carbon County, Wyoming. It is known from 3 occurrences in Wyoming including multiple dunes or dune complexes. This species was initially discovered in Wyoming by Frank Blomquist in 1996. The population is estimated at approximately 7800 plants, in 14 separate blowouts. Population trends appear to have been stable or increasing in the recent drought years. They may fluctuate in response to moisture conditions.

All known occurrences in Wyoming are on federal (BLM Rawlins Field Office) or state of Wyoming lands managed for multiple use. Threats are low under current management, but this species is potentially vulnerable to habitat loss from sand mining, water development, and ORV use, and to direct affects of over-collection (WYNDD 2005b). It is not likely that this species will

be impacted by the Proposed Action as there is no sand dune habitat within the project area.

#### North Platte River Species

The USFWS has identified five species that may exist in the various river habitats along the North Platte River as requiring protection under the endangered Species Act. These species include the threatened Piping plover, the endangered Interior least tern, endangered Eskimo curlew, the endangered Pallid sturgeon and the threatened Western prairie fringed orchid (USFWS 2006). These species could be impacted by surface water depletions to the North Platte River system. While the Poison Spider project is located in the North Platte River drainage the Sundance formation which is the target reservoir is not hydraulically connected to the North Platte River system as it is a contained gravity drive reservoir (G. George 2006 pers com.). Produced water withdrawn from the Sundance will not influence the North Platte River. Produced water injected into the Tensleep for disposal may positively enhance the North Platte River system. Therefore it is not likely that these species would be negatively affected by the Poison Spider project.

#### **3.4.4 BLM Sensitive Species**

BLM sensitive species are those species that may warrant future designation as proposed threatened or endangered species but available data are not sufficient for USFSW to make such a designation. Tables 3-6 to 3-9 are compiled from Wyoming Natural Diversity Data Base of the various species in T33N-R82W and T33N-R83W, Natrona County (WYNDD 2004, 2006). The tables reflect only those species that appear on the Wyoming Game and Fish and BLM sensitive species lists. The potential for these species to occur in the Poison Spider project area are noted in the column heading "Likely to Occur". The potential for occurrence is based on the WYNDD report and the habitat requirements of the species.

Of the BLM sensitive species identified in the following tables that could potentially occur in the project area, four species are more likely to occur than the others. These are species of management concern to the BLM.

#### White-Tailed Prairie Dog (*Cynomys leucurus*)

White-tailed prairie dogs occur at elevations ranging from 4,265 feet to 7,546 feet in Wyoming. A majority of white-tailed prairie dog habitat occurs in semi-arid to arid areas with mixed stands of shrubs and grass. These habitats occur in areas that have high evaporation rates and low precipitation rates. White-tailed prairie dogs require well drained, deep soils for development of burrows. Soils commonly found on white-tailed prairie dog colonies are derived from sandstone or shale parent rocks and are described as clay-loam, silty clay or sandy loam. Topography of inhabited areas is flat to gently rolling with slopes of less than 30% (Seglund, et al. 2004). In July 2002, a coalition of conservation groups petitioned the FWS to list the white-tailed prairie dog as a threatened or endangered species under the ESA. The white-tailed prairie dog occurs in Colorado, Montana, Utah, and Wyoming. In November 2004, the FWS determined that the petition did not contain sufficient evidence to warrant a full status review for the white-tailed prairie dog (BLM 2005).

No white-tailed prairie dog towns are indicated on the Game and Fish and BLM maps for the project area; surveys of the area indicated they are not present in the project area.

#### Greater Sage Grouse (*Centrocercus urophasianus*)

Sage-grouse are a large upland game bird considered a "landscape species", annually using widespread areas of sagebrush habitats. Sage-grouse are common throughout Wyoming

because sage-grouse habitat remains relatively intact compared to other states. Sagebrush and sagebrush habitats are essential for sage-grouse survival. Suitable habitat consists of plant communities dominated by sagebrush and a diverse native grass and forb (flowering herbaceous plants) understory. The composition of shrubs, grass and forb varies with the subspecies of sagebrush, the condition of the habitat at any given location, and range site potential. Seasonal habitats must occur in a patchwork or mosaic across the landscape. Both quantity and quality of the sagebrush environment determines suitability for and productivity of sage-grouse (WGFD 2003).

There are no known sage-grouse leks in the project area. BLM (Jim Wright 2006b. pers com) and Wyoming Game and Fish (2006) maps indicate there are numerous sage-grouse leks in the general area; the following leks are identified in the townships surrounding the project area:

Iron Creek 1, 2 and 3	Sec 12, 13 and 14-T32N-R 83W
Oregon Trail 1	Sec 25-T32N-T83W
Austin Creek	Sec 4-T32N-R84W
Square Top Butte 1	Sec 18-T34N-R84W
Square Top Butte 3	Sec 25-T34N-R84W
South Fork 1	Sec 30-T34N-R84W
Emigrant 3	Sec 25-T34N-R83W
Emigrant 1 and 2	Sec 35 and 17-T34N-R82W

Game and Fish personnel have been checking the leks for status and level of activity have stated the sage grouse numbers are up substantially over previous years. BLM wildlife personnel believe appropriate habitat in the area is used for nesting and early brood rearing (Jim Wright, Pers com 2006b).

#### Mountain Plover (*Charadrius montanus*)

Mountain plover are known from shortgrass or mixed grass prairie, and are also found in short grass -sagebrush plains, great basin foothills grasslands and sagebrush grasslands. They are often associated with prairie dog towns, feeding on insects, especially grasshoppers. Mountain plover nests are on the ground and are somewhat exposed (WGFD 2004). The mountain plover was proposed for listing as a threatened species in 1999. In September 2003 the Service withdrew the listing, because new information indicated that the threats to the species included in the proposed listing were not as significant as earlier believed

Field visits to the area by BLM Wildlife Biologists have concluded that no suitable mountain plover nesting habitat is present within the project area.

#### Ferruginous hawk (*Buteo regalis*)

Ferruginous hawks reside in basin prairie shrublands, the eastern Great Plains, great basin-foothills and mountain foothills grasslands. They are found on rock outcrops and in cottonwood riparian areas. Nests are found in rock outcrops, on the ground or a bank, or in a cottonwood tree. They feed mostly on small mammals. Winter populations are generally smaller than those found during other seasons (WGFD 2004).

Nine raptor nests have been documented within the vicinity of the project area. Surveys conducted by the BLM during the 2006 nesting season indicate that two of these nests were occupied with ferruginous hawks. The project lies within ½ mile of these ferruginous hawk nests.

**Table 3-6 - Sensitive MAMMALS Documented or Potentially in Request Area**

<b>Common Name</b>	<b>Scientific Name</b>	<b>Habitat Notes</b>	<b>Likely to Occur</b>
Western small-footed myotis	<i>Myotis ciliolabrum</i> [ <i>Myotis leibii</i> ]	Found in montane forests, sage steppes, and shortgrass prairie. Roosts: caves, mines	Y
Long-legged myotis	<i>Myotis volans</i>	Found in conifer and deciduous forests. Roosts include tree and rock crevices, snages and buildings.	Y
Long-eared myotis	<i>Myotis evotis</i>	Found in conifer forests, especially ponderosa pine. Forage over water holes and possible openings in conifer forest. Roosts: caves, buildings, mines.	Y
Spotted bat	<i>Euderma maculatum</i>	Cliff roosting, generally near perennial water in a variety of habitats (including desert, shrub-steppe, and evergreen forest).	Y
Townsend's big-eared bat	<i>Corynorhinus townsendii</i> [ <i>Plecotus townsendii</i> ]	Hibernates and day-roosts in caves and mines and will use buildings as day roosts. Typical habitat includes desert shrublands, pinyon-juniper woodlands, and dry conifer forests, generally near riparian or wetland areas.	Y
White-tailed prairie dog (Large towns only)	<i>Cynomys leucurus</i>	Found in grassland and shrub-grass communities, often with loose, sandy soils. Colonies are usually not as large or dense as black-tailed prairie dog colonies.	N
Wyoming pocket gopher	<i>Thomomys clusius</i> [ <i>Thomomys talpoides</i> ]	Dry upland areas (ridgetops, etc.) characterized by loose, gravel-like soil. Endemic to Wyoming, they are often observed near Bidger's Pass.	Y
Olive-backed pocket mouse	<i>Perognathus fasciatus</i>	Dry habitats ranging from gravelly soils to sandy areas of short grass prairies to sand dunes.	Y
Swift fox	<i>Vulpes velox</i>	Swift foxes occupy shortgrass prairie, but can be found in sage-grasslands. They are particularly found in sparsely vegetated areas such as prairie dog towns.	Y

**Table 3-7 - Sensitive BIRDS Documented or Potentially in Request Area**

<b>Common Name</b>	<b>Scientific Name</b>	<b>Habitat Notes</b>	<b>Likely to Occur</b>
American bittern	<i>Botaurus lentiginosus</i>	Marshes and vegetated shorelines, esp. cattails and bulrushes	N
Black-crowned night-heron	<i>Nycticorax nycticorax</i>	Marshes and wooded streams	N
Northern goshawk	<i>Accipiter gentilis</i>	Open montane conifer forest or aspen	N
Ferruginous hawk	<i>Buteo regalis</i>	Open grasslands and shrublands	Y
Greater sage grouse	<i>Centrocercus urophasianus</i>	Sagebrush basins and foothills, generally close to water	Y
Mountain plover	<i>Charadrius montanus</i>	Sparse shortgrass or mixed grass prairie. Also in short-sagebrush plains. Often associated with prairie dog towns.	N
Long-billed curlew	<i>Numenius americanus</i>	Meadows, pastures, shorelines, and marshes	N
Burrowing owl	<i>Athene cunicularia</i> [ <i>Speotyto cunicularia</i> ]	Plains and basins, often associated with prairie dog towns	N
Lewis' woodpecker	<i>Melanerpes lewis</i>	Open, mature ponderosa pine forest and recently burned forest	N
Loggerhead shrike	<i>Lanius ludovicianus</i>	Open country with scattered trees and shrubs	Y
Sage thrasher	<i>Oreoscoptes montanus</i>	Tall sagebrush and greasewood	Y
Sage sparrow	<i>Amphispiza belli</i>	Medium to tall sagebrush shrubland	Y
Brewer's sparrow	<i>Spizella breweri</i>	Sagebrush foothills and medium-height sagebrush in basins. Also, mountain mahogany hills.	Y
McCown's longspur	<i>Calcarius mccownii</i>	Sparsely vegetated shortgrass prairie	Y

<b>Table 3-8 - Sensitive REPTILES Documented or Potentially in Request Area</b>			
<b>Common Name</b>	<b>Scientific Name</b>	<b>Habitat Notes</b>	<b>Likely to Occur</b>
Tiger salamander	<i>Ambystoma tigrinum</i>	Tiger salamanders can be found in fairly moist environments ranging from rodent burrows to window wells to burrows in sand dunes. Larvae found in intermittent streams, ponds, and lakes.	N
Great Basin spadefoot toad	<i>Spea intermontana</i> [ <i>Scaphiopus intermontanus</i> ]	Great Basin spadefoot toads inhabit sagebrush communities at lower elevations. Wyoming occurrences are mostly in the Wyoming Basin and the Green River Valley.	N
Northern leopard frog	<i>Rana pipiens</i>	Found near permanent water in areas up to about 9,000 feet. Lower elevation sites are usually swampy cattail marshes and higher ones tend to be beaver ponds.	N

<b>Table 3-9 - Sensitive FISH Documented or Potentially in Request Area</b>			
<b>Common Name</b>	<b>Scientific Name</b>	<b>Habitat Notes</b>	<b>Likely to Occur</b>
Western silvery minnow	<i>Hybognathus argyritis</i> [ <i>Hybognathus nuchalis</i> ]	The western silvery minnow generally inhabits larger rivers, perhaps slow-flowing and silty bottomed. In Wyoming it seems to occur in the Powder and Little Missouri River drainages, and has likely been extirpated from the Big Horn River by construction.	N
Hornyhead chub	<i>Nocomis biguttatus</i>	Found in clear, gravel-bottomed streams. It has been collected in the Sweetwater River and in the North Platte River drainage including the tributaries of the Laramie River, but is now very rare in Wyoming.	N
Suckermouth minnow	<i>Phenacobius mirabilis</i>	Found in clear water riffles with sand or gravel substrate, but sometimes in lakes. Occurs in Wyoming in the tributaries of the North Platte River and perhaps the South Platte River.	N
Flannelmouth sucker	<i>Catostomus latipinnis</i>	Found mostly in large rivers, but also in smaller streams and occasionally in lakes. It is common in Muddy Creek in Carbon County, in Burnt Lake near Pinedale and in Flaming Gorge Reservoir.	N
Yellowstone cutthroat trout (Native populations)	<i>Oncorhynchus clarki bouvieri</i>	Historically Yellowstone cutthroat trout lived in lakes, rivers and streams of the Yellowstone River drainage (including Yellowstone Lake). Also found in the Snake, Tongue, Bighorn, and Clarks Fork Drainages.	N

**Wyoming plant species of potential concern** (WYNDD 2006) in the project area are limited to *Cryptantha erecta* (erect cryptantha). *Cryptantha erecta* is a regional endemic of northeast Utah, five counties of southwest and southcentral Wyoming, and adjacent Colorado. In Wyoming, it is known from four main areas: (1) the Flaming Gorge-Rock Springs uplifts; (2) Green Mountain-Ferris Mountains; (3) Rattlesnake Mountains; and (4) foothills of the Uinta

Mountains. It occupies dry, open places, often on barren clay, typically in pinyon- juniper, but extending up to spruce-fir, at elevations of 5750-10,200 feet.

There is one **Wyoming plant species of concern** that may have habitat in the proposed project area, though not known from immediately adjoining townships, *Oxytropis besseyi* var. *obnapiformis* (Maybell locoweed).

*Oxytropis besseyi* var. *obnapiformis* is a regional endemic of northeastern Utah, southwestern Wyoming, and northwestern Colorado. In Wyoming, it is known from the Green River Basin, Sweetwater River Plateau, and North Platte River Valley in Fremont, Natrona, Sweetwater, and Uinta counties. Wyoming populations are found on dry sandy, silty, chalky, or redbed clay slopes, hills, and ridges in sparsely vegetated cushion plant communities at 5600-7100 feet.

In addition, there are two other **Wyoming plant species of potential concern** that may have habitat in the proposed project area: *Astragalus nelsonianus* (Nelson's milkvetch), and *Oonopsis wardii* (Ward's goldenweed).

*Astragalus nelsonianus* is a BLM sensitive species almost entirely restricted to three counties of Wyoming, with one occurrence in Colorado. It occupies alkaline, often seleniferous, clay flats, shale bluffs and gullies, pebbly slopes, and volcanic cinders. Known occurrences are found primarily in sparsely vegetated sagebrush and cushion plant communities at elevations of 5200-7600 feet.

*Oonopsis wardii* is almost entirely restricted to the Laramie and Shirley Basins and the Casper Arch region in Albany, Carbon, and Natrona counties, Wyoming; plus one occurrence in Colorado. It occupies selenium-rich shale-clay slopes, barren plains, and disturbed roadsides at elevations of 5460-7200 feet. Known occurrences are found primarily in areas with low vegetative cover (20-50%) and little competition from other plants in settings dominated by Gardner's saltbush, bluebunch wheatgrass and contracted Indian ricegrass or birdfoot sagebrush and Gardner's saltbush.

### **3.5 Human Resources**

#### **3.5.1 Cultural**

Cultural resources are the non-renewable physical remains of past human activity and are protected under Section 106 of the National Historic Preservation Act of 1966 (as amended) and the Archeological Resources Protection Act of 1979 (as amended). Archaeological investigations in the North Platte River Valley basin indicate that human activity has occurred across the landscape over the past 12,000 years, beginning during the Paleo-Indian period and continuing to the present (Frison 1991).

Two Class III intensive cultural resources surveys were conducted west of Casper on the 560 acres surrounding the RWP UAOR project. Twenty-two cultural localities are in the project area. Four previously recorded sites were investigated, six new sites were identified and 12 isolates were recorded. All but one of the sites were evaluated as not significant, and no further work or attention is recommended. Native American consultation was recommended for three stone circle sites and a rock cairn site.

#### **3.5.2 North American Religious Concerns**

In accordance with the *American Indian Religious Freedom Act* and BLM Manual 8160-1

Handbook (BLM 1979), numerous Native American groups including but not limited to Crow, Shoshone, Comanche, Arapaho, Cheyenne, and Sioux have utilized the PSF area. Tribes and/or individuals were sent certified letters requesting their comments concerning any religious or cultural areas within or near the project area.

Most of the cultural resources identified within the project area do not appear likely to have significance as Native American sacred sites or to qualify as traditional cultural properties (TCPs). However, seven stone circles and two rock cairns have been identified that could have religious or cultural significance to Native Americans. Only representatives of Native American tribes can determine the significance of Native American sacred sites or TCPs, and to this date no such determinations have been made.

### **3.5.3 Land Use**

#### **3.5.3.1 Landownership and General Use**

The Poison Spider project area of approximately 560 acres is 100% BLM managed surface. The project activity and surface disturbance is planned within the existing Poison Spider Oil Field. No project activity is proposed on lands that have not been previously impacted by development activity in the past. The area is leased for livestock grazing. Some areas of the producing field are fenced to preclude entry by livestock. Other land uses in the project area include wildlife habitat and limited recreation (big game and sage grouse hunting).

#### **3.5.3.2 Livestock Grazing**

The PSF project area has been used for livestock grazing (sheep and cattle) since at least 1907 when the area was homesteaded. The BLM grazing allotment averages approximately 7.5 acres per AUM (animal unit month) (BLM 1981) and is leased by Diamond Ring (F.L. Ranch).

#### **3.5.3.3 Recreation**

Non developed recreation in the area includes big game hunting for antelope, and mule deer and game bird hunting for greater sage-grouse. Access into the area is uncontrolled though it is unlikely that hunters actually hunt within the field area due to the proximity of the homes and field facilities. Poison Spider is a popular hunt area for Casper residents.

#### **3.5.3.4 Mineral Development**

Mineral ownership in the PSF project area is 100% federal and is managed by the BLM. The project area has been an active oil field since 1917 and has produced 4,405,819 barrels of oil, 65000 mcf of gas and 21,929,298 barrels of water from the Sundance formation. Figure 3-1 indicates the wells that have been drilled in the project area to date.

### **3.5.4 Visual Resources**

The Bureau of Land Management has mapped the Poison Spider project area as VRM Class III (BLM 1981). The objective of this classification is “changes in the basic elements (form, line, color or texture) may be evident in the characteristic landscape”. The project area is an existing oil field and man camp which has been in operations since 1917. Other established oil fields lie to the north and west of the site. The City of Casper is approximately 20 miles to the east and Poison Spider Road provides access to numerous ranches and residential housing areas in addition to Poison Spider School. Other evidence of mans activities in the area include electrical power along Poison Spider Road, pipeline corridors with markers, dry hole well markers and reclaimed well pads.



**Photo 3-1: View from the shaft area to the south and Poison Spider Road**



**Photo 3-2: Looking north from Poison Spider Road to the existing operational area**

### **3.5.5 Socioeconomics**

The population of Natrona County in 2004 was estimated at 69,010 a 3.7% increase from 2000, during the same period the state of Wyoming experienced an increase of 2.6% or an estimated population of 506,529. The 2005 Natrona County has a labor force was 40,355 with 39,064 persons employed full and part time, the unemployment rate is 3.2% (USDOC 2005). The median household income in Natrona County in 2000 was \$38,388 (Wyoming DOE 2005). The cost of living index for the second quarter of 2005 in Natrona county was 98 when compared with the Wyoming average of 100 (WEAD 2005).

The median value of owner occupied housing units in Natrona county was \$84,600 in 2000 (USDOC 2005), housing prices increased 9.4% from the second quarter of 2004 to the second quarter of 2005 (WEAD 2006). Housing for field personnel is currently provided in the existing man camp. Personnel for project development and field reclamation activities will likely reside in Casper which is located approximately 20 miles to the east.

Forty percent of the assessed property tax in Natrona County was paid by the oil and gas extraction industry. In Natrona County stripper oil accounted for 1,986,997 sales units in 2004, more than twice the crude oil production, with a taxable value of \$77,836, 420 (WDOR 2005).

### **3.5.6 Health, Safety, and Transportation**

Health and safety risks arising from the project that may affect the general public or those working on the project include oil and gas occupational hazards, occupational hazards associated with mining operations, the operation of vehicles on improved and unimproved roads, winter driving and working conditions, hunting related firearms accidents, collisions with livestock and big game, natural hazards associated with arid grasslands and wild fires.

The only direct access to the project area is via Poison Spider Road (County Road 201) from Casper or from the Waltman area to the northwest. CR 201 is commonly used by recreationalists, hunters and local land owners. Poison Spider is an improved paved road that is maintained by the Natrona County Road and Bridge Department. The pavement ends immediately to the west of the project area. Anticipated road usage is shown in Table 2-1. The main access roads into the field area are crowned and ditched dirt that have been coated/sealed with unsaleable crude oil over time. These roads are in passable condition.

There is one crude oil pipeline in the general area but no pipeline connection to the PSF. Crude oil is presently hauled by tanker truck to Casper.

### **3.5.7 Wastes (Solid and Hazardous)**

Due to the age of the field and the existence of the man camp it is expected that domestic and industrial wastes have been buried within the field area. At least one septic system is in operation, possibly two. Older abandoned systems may be present in the Camp area. Reserve pits from earlier oil exploration activities are likely buried adjacent to each well as is the industry standard. Reserve pit wastes are classified by the Environmental Protection Agency as exempt non-hazardous and are not regulated in the Resource Conservation and Recovery Act (40 CFR 261.4). The disposal of these materials is currently regulated by the Wyoming Oil and Gas Conservation Commission and the Bureau of Land Management.