

**APPENDIX A**  
**LIST OF PROPOSED FEDERAL WELL LOCATIONS**

<u>Name</u>	<u>Number</u>	<u>Legal Location</u>	<u>Lease Number</u>
Proposed Federal Wells:			
Long Federal	5-6W	T8S, R41E, S 6, Lot 5 (SWNW)	MTM88704
Long Federal	11-6F	T8S, R41E, S 6, NESW	MTM88704
Long Federal	11-6W	T8S, R41E, S 6, NESW	MTM88704
Long Federal	13-6F	T8S, R41E, S 6, Lot 7 (SWSW)	MTM88704
Long Federal	13-6W	T8S, R41E, S 6, Lot 7 (SWSW)	MTM88704
Long Federal	15-6F	T8S, R41E, S 6, SWSE	MTM88704
Long Federal	15-6W	T8S, R41E, S 6, SWSE	MTM88704
Long Federal	5-6F	T8S, R41E, S 6, Lot 5 (SWNW)	MTM88704
Proposed Private Wells:			
Paradox	1-7W	T8S, R41E, S 7, NENE	
Paradox	1-7F	T8S, R41E, S 7, NENE	
Paradox	3-7W	T8S, R41E, S 7, NENW	
Paradox	3-7F	T8S, R41E, S 7, NENW	
Paradox	7-7W	T8S, R41E, S 7, SWNE	
Paradox	7-7F	T8S, R41E, S 7, SWNE	
Paradox	11-7W	T8S, R41E, S 7, NESW	
Paradox	11-7F	T8S, R41E, S 7, NESW	

**APPENDIX B**  
**SPECIAL STATUS SPECIES AFFECTS DETERMINATIONS**  
**SUMMARY TABLES**

**Federally Listed Threatened and Endangered Species and Species Proposed for Listing**

Species	Status	In Range (yes/no)	Habitat Present (yes/no)	Affects Determination (brief rationale)
Bald Eagle	T	yes	yes	May affect (see discussion)
Least tern	E	yes	no	
Mountain Plover	P	yes	no	
Piping Plover	T	no		
Whooping Crane	E	no		
Black-footed ferret	E	yes	no	
Canada Lynx	T	no		
Gray wolf	E	no		
Grizzly Bear	T	no		
Bull Trout	T	no		
Pallid Sturgeon	E	no		
Spalding's Catchfly	P	no		
Ute Ladies'-tresses	T	no		
Water Howellia	T	no		
Western Prairie Fringed Orchid	T	no		

**SPECIAL STATUS SPECIES AFFECTS DETERMINATIONS  
SUMMARY TABLES**

**BLM (Montana and Dakotas) Designated Sensitive Species**

<b>BIRDS</b>			
Species	In Range (yes/no) 1	Habitat present (yes/no) 2	Effects Determination (brief rationale) 3
Bairds sparrow	yes	no	
Black-backed woodpecker	yes	no	
Black Tern	yes	no	
Boreal owl	no		
Burrowing owl	yes	no	
Canvasback duck	yes	no	
Columbian sharp-tailed grouse	no		
Common loon	no		
Dickcissel	yes	no	
Ferruginous hawk	yes	no	
Flammulated owl	no		
Great gray owl	no		
Hairy woodpecker	yes	yes	See discussion
Harlequin duck	no		
LeConte's sparrow	no		
Loggerhead shrike	yes	yes	See discussion
Long billed curlew	yes	no	
Northern goshawk	yes	no	Incidental observations on Ashland District of CNF
Peregrine falcon	yes	yes	Possible migrant
Pileated woodpecker	no		
Sage grouse	yes	yes	See discussion
Sage sparrow	no		
Swainson's hawk	yes	yes	See discussion

Three-toed woodpecker	yes	no	Documentation in counties west of project
Trumpeter swan	no		
White-faced ibis	no		

<b>MAMMALS</b>			
Species	In Range (yes/no) 1	Habitat present (yes/no) 2	Effects Determination (brief rationale) 3
Black-tailed prairie dog	yes	no	
Fisher	no		
Meadow jumping mouse	no		
Merriam's shrew	yes	yes	Very little known of this species
North American wolverine	no		
Northern Bog Lemming	no		
Preble's Shrew	yes	yes	Very little known of this species
Pygmy rabbit	no		
Spotted bat	yes	yes	Very little known of this species
Spotted skunk (western)	no		
Swift fox	yes	no	
Townsend's big-eared bat	yes	yes	
White-tailed prairie dog	no		
Woodland caribou	no		

<b>REPTILES and AMPHIBIANS</b>			
Species	In Range (yes/no) 1	Habitat present (yes/no) 2	Effects Determination (brief rationale) 3
Snapping turtle	yes	yes	
Spiny softshell turtle	yes	yes	See discussion

Canadian toad	no		
Coeur d'Alene salamander	no		
Spotted frog	no		
Tailed frog	no		
Wood frog	no		

<b>FISH</b>			
Species	In Range (yes/no) 1	Habitat present (yes/no) 2	Effects Determination (brief rationale) 3
Arctic grayling	no		
Blue sucker	no		
Bull trout	no		
Northern redbelly X Finescale dace	no		
Paddlefish	no		
Pearl dace	no		
Sauger	yes	yes	See discussion
Shortnose gar	no		
Sicklefin chub	no		
Sturgeon chub	no		
Westslope cutthroat trout	no		
Yellowstone cutthroat trout	no		

- 1) If project is not within the range of the species no determination of habitat presence is needed.
- 2) If habitat is not present no effects determination is needed.
- 3) Detailed Effects Determination is provided in the narrative of Environmental Assessment

## **APPENDIX C**

### **SOCIAL AND ECONOMIC ASSUMPTIONS**

The following are the Social and Economic assumptions common to all alternatives:

The impact analysis is based on the assumptions used in the MT FEIS, 2003 at pages 4-8, 4-111, 4-112 and the ZurMehlen, 2001 and the Langhus, 2001 data for employment and income estimates. The Montana CBNG wells have an average life of 15 years and are expected to produce .3 BCF (MT FEIS Vol. II, MIN-16). Exploration wells do not produce income and ten percent are dry holes. A gas price of \$4.00 per thousand cubic feet is assumed for this analysis.

The employment and income created are related to the project phase. The number of jobs and the associated wages for each phase are estimated as follows (ZurMehlen, 2001): 7 jobs and payroll of \$365,000 per 160 wells for exploration and development plus \$6,600 per well for 42 contract well drillers and pipeline installers (Langhus, 2001); 9 jobs and payroll of \$345,000 per 160 wells for production; and 12 jobs and payroll of \$415,000 per 160 wells for abandonment. Typical drilling operations, whether exploration or production, would require 3 to 5 days with an additional 2 to 3 days for completion work. A maximum 7 to 8 people would be present at any one time during the construction phase.

All dollar amounts are reported in 2001 dollars with no adjustments for inflation for comparison with the MT FEIS analysis.

Royalty rates for all lease ownerships, Federal, State and private, are assumed at 12.5 percent of well head value. Montana receives 50 percent of the Federal royalties paid. Montana taxes all gas production at 9.3 percent of well head value, after the first year. Private royalties are taxed at 15.1 percent. On average, 50 percent of the production taxes are returned to the local governments.

Impacts to livestock operations could result from construction of the well pad sites, groundwater drawdown and produced water. However, the 80 acre density of the well pads and the temporary nature of the activities associated with CBNG drilling and testing, should not result in a reduction of AUM's to individual operators and suitable produced water can be used for livestock. (See Livestock section). Also, the MT-BOGC requires CBNG operators to offer water mitigation agreements to owners of water wells or natural springs adversely impacted by CBNG development. (See Hydrology section)

Direct economic impacts include changes in personal income and employment; lease royalties; income and production taxes. Indirect impacts would include induced economic activity from local purchases for supplies, equipment and services.

Social impacts could include changes to social well being due to changes in personal income and employment and possible effects to private surface owners whose land is underlain by federal minerals.