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## 5.0 JONAH INFILL DRILLING PROJECT ECONOMIC IMPACT ANALYSIS

EnCana Oil and Gas (USA), Inc. [EnCana], BP America Production Company, and other companies (collectively referred to as "Operators") propose to expand existing Jonah Field natural gas drilling and development operations in south-central Sublette County approximately 32 mi southeast of Pinedale, 28 mi northwest of Farson, and 1.5 to 11 mi west of U.S. Highway 191. Expanded development is proposed in portions of Townships (T) 28 and 29 North (N), Range (R) 107, 108, and 109 West (W). The proposed project is described in detail in BLM (2004c).

### 5.1 PROPOSED ACTION AND ALTERNATIVE DESCRIPTIONS

The Proposed Action, No Action, and seven alternative actions are evaluated in this document:

- the No Action Alternative (assumes production only from 533 existing wells on 497 well pads),
- the Proposed Action (assumes up to 3,100 new wells [2,825 conventional, 275 directional] on up to 16,200 acres new disturbance);
- Alternative A (maximum recovery) (assumes up to 3,100 new [all conventional] from 3,100 new well pads);
- Alternative B (assumes up to 3,100 new wells [all directional] from the existing 497 well pads);
- Alternative C (assumes up to 1,250 new [975 conventional, 275 directional] wells from a maximum of 1,250 new well pads);
- Alternative D (assumes up to 2,200 new [1,925 conventional, 275 directional] wells from a maximum of 2,200 new well pads, respectively);
- Alternative E (assumes up to 3,100 new [266 conventional, 2,834 directional] wells on up to 266 new well pads);
- Alternative F (assumes up to 3,100 new [1,028 conventional, 2,072 directional] wells on up to 1,028 new well pads);

- Alternative G (assumes up to 3,100 new [2,553 conventional, 547 directional] wells on up to 2,553 new well pads); and
- Preferred Alternative (approximately the same as Alternative G).

A detailed description of the Proposed Action and alternatives is provided in BLM (2004c).

The PFO and RSFO RMP RODs (BLM 1988b, 1997, 2004a) and land use plans for both the state (WSLUC 1979) and local areas (SCBC and SCPC 2003) identify the following management objectives associated with socioeconomics:

- to coordinate land use decisions with economic factors and needs;
- to mitigate economic, social, and environmental impacts on communities caused by rapid or large-scale growth and development;
- to plan for the provision of public facilities and services, including safe and efficient transportation and utility systems, in coordination with local land use policies, goals, and objectives; and
- to provide adequate, suitable land to meet housing needs of all residents.

BLM (2004a) criteria stipulate that impacts to socioeconomic resources would be considered potentially significant if any of the following were to occur:

- changes in total employment in Lincoln, Sublette, and Sweetwater Counties exceed an increase or decrease of 1% of the trend or
- changes in local tax revenues exceed an increase or decrease of 15% of the trend.

The SCBC and SCPC (2003) emphasize the following values specific to the social traditions and socioeconomic base of Sublette County.

- Sublette County's unique local culture should be preserved and enriched, a culture characterized by a rural Wyoming flavor, a thriving private business community, an atmosphere friendly to working families, and the security of friendly crime-free communities.
- There should be an abundance of economic freedom and diverse opportunities for residents old and new to pursue prosperity and happiness--complemented and

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sustained by a business-friendly atmosphere, reasonable taxation, a low cost of living, limited regulation, wise development of its natural resources, and a strong tradition of a good work ethic.

BLM defines a significant change as any change that would result in a 15% or greater change of any affected factor. The following analyses show that the Proposed Action and alternatives are compatible with BLM management objectives. Socioeconomic impacts are anticipated as a result of increased local taxes and revenues. Under the No Action Alternative, the effects of increased employment, economic activity, and substantial federal, state, local, and county revenues would not occur; therefore, this alternative would not be in accord with BLM, state, and local land use plans. Cumulative impacts are likely to have some economic and social in the CIAA.

Depending upon the number of wells authorized (1,250, 2,200, or 3,100) and the number of wells developed per year (75, 150, or 250), project construction, drilling, completion, and production would require from 43 to 82 years to complete (the LOP). The fewer the number of wells and/or the faster the pace of development, the shorter the LOP. The estimated number of years to complete the project under each alternative is shown in Table 5.1. Production for the LOP could range from 3,366 billion cubic feet (BCF) under the No Action Alternative (no new development) to 8,191 BCF under the Alternative A (3,100 new wells and new well pads). The anticipated gas and condensate recovery volumes are shown in Table 5.2.

The economic impact of the Proposed Action, alternatives, and cumulative actions on the study-area economy were analyzed in two phases using the methods developed for the SWREE (UWAED 1997) and JMHCAP (UWAED 2003; BLM 2003a). Phase I was the development phase, which considered the economic impacts associated with drilling and completion of infill wells. Due to the large price fluctuations in natural gas, the economic impacts of production were estimated based on cost of production rather than total output. Phase II considered the economic impact of natural gas and condensate production as a result of the production from the wells completed under Phase I.

Table 5.1 Estimated Years to Complete Project, All Alternatives.<sup>1</sup>

Wells Completed/Year	No Action Alternative	Proposed Action 3,100 Wells/2,825 Pads	Alternative A (Maximum Recovery) 3,100 Wells/3,100 Pads	Alternative B 3,100 Wells/No New Pads	Alternative C 1,250 Wells	Alternative D 2,200 Wells	Alternative E 3,100 Wells/266 Pads	Alternative F 3,100 Wells/1,028 Pads	Alternative G 3,100 Wells/2,553 Pads
75	NA	42.0 <sup>2</sup>	42.0	42.0	17.0	30.0	42.0	42.0	42.0
150	NA	21.0 <sup>2</sup>	21.0	21.0	9.0	15.0	21.0	21.0	21.0
250	NA	12.5	12.5	12.5	5.0	9.0	12.5	12.5	12.5

<sup>1</sup> Well production operations will continue for an estimate of 40 years post-development; therefore, the estimated LOP is from 43 to 85 years (includes final reclamation).

<sup>2</sup> Operators propose a 250 well/year development rate; however, BLM may require alternate development rates of 75 or 150 wells/year.

Table 5.2 Anticipated Gas and Condensate Recovery Volumes for Each Alternative, Jonah Infill Drilling Project, Sublette County, Wyoming, 2005.<sup>1</sup>

Alternative	Approximate Natural Gas Recovered (billion cubic feet [BCF]) <sup>2</sup>	Approximate Condensate (Oil) Recovered <sup>2</sup> (millions of barrels)
No Action	3,366	31.98
Proposed Action <sup>3</sup>	7,947	75.50
Alternative A (Maximum Recovery)	8,191	77.81
Alternative B <sup>3</sup>	6,124	58.18
Alternative C	6,657	63.24
Alternative D	7,554	71.76
Alternative E <sup>3</sup>	6,302	59.87
Alternative F <sup>3</sup>	7,186	68.27
Alternative G <sup>3</sup>	7,876	74.82

<sup>1</sup> Data provided by EnCana.

<sup>2</sup> Assumes 10,500 BCF of gas in place; 1 BCF corresponds to the annual use by approximately 13,700 residences (EIA 2004). Typical gas field recoveries range from 75%-85% of gas in place.

<sup>3</sup> Assumes 10% of directional wells do not reach total depth and 1,000 ft of formation cannot be developed. Does not fully account for losses/unrecovered resources associated with undeveloped wells (assumed uneconomic).

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In the long-term, all alternatives would likely result in economic impacts; however, population is not likely to be affected over the life of project (LOP), although there may be short-term (development phase) population impacts as a result of cumulative impacts from in-migration associated with this project in combination with other regional projects (e.g., Pinedale Anticline). Secondary employment AJEs may occur locally [i.e., within the study area], but would be distributed across the state, region, and nation, depending on the patterns of production and distribution associated with the secondary activity.

## **5.2 ASSUMPTIONS**

### **5.2.1 Labor**

The estimated direct-hire labor force is presented in Table 5.3. An estimated 7,011-16,863 worker-years of direct employment would be provided by the proposed project during the LOP.

### **5.2.2 Natural Gas Drilling and Completion Assumptions**

For this analysis, it was assumed that all wells would be drilled and completed and there would be no dry holes.

The cost of drilling, completing, and setting production equipment is shown in Table 5.4. The total estimated cost to drill and complete a conventional well in the JIDPA is \$2,186,684. Directional drilling adds an estimated \$243,610 to the cost of drilling and completion; thus, the total estimated cost to drill and complete a directionally drilled well in the JIDPA is \$2,430,294.

### **5.2.3 Natural Gas Production Assumptions**

Natural gas economic activity will depend upon three primary authorizations: 1) total number of wells authorized, 2) total number of pads on which wells can be placed, and 3) rate of development.

Table 5.3 Estimated Work Force Requirements, All Alternatives, Jonah Infill Drilling Project, Sublette County, Wyoming, 2005.<sup>1</sup>

Employment Category	Worker-Days per Well	Worker-Years for 1,250 Wells <sup>2</sup>	Worker-Years for 2,200 Wells <sup>2</sup>	Worker-Years for 3,100 Wells <sup>2</sup>
<b>Well Construction and Development</b>				
Well pad and Access Road Construction (4 days x 4 workers)	16	77	136	191
Rig Transportation/Setup (5 days x 15 workers)	75	361	635	895
Drilling <sup>3</sup> (Straight Hole) (22 days x 11 workers x 2 shifts)	528	2,539	4,468	6,296
Completion Testing (17 days x 11 workers)	187	900	1,583	2,230
Pipeline Construction (4 days x 6 workers)	24	116	203	287
<b>Total Well Construction and Development</b>	<b>830</b>	<b>3,984</b>	<b>7,025</b>	<b>9,899</b>
<b>Production and Maintenance Activities</b>				
Production <sup>4,5</sup>	305	1,767	2,881	3,863
Workovers <sup>6</sup> (every 10 to 20 years) (10 days x 7 workers)	210	1,010	1,777	2,504
<b>Total Production and Maintenance Activities</b>	<b>515</b>	<b>2,767</b>	<b>4,658</b>	<b>6,367</b>
<b>Abandonment and Reclamation (5 days x 10 workers)</b>	<b>50</b>	<b>241</b>	<b>423</b>	<b>597</b>
<b>Total</b>	<b>1,395</b>	<b>7,011</b>	<b>12,106</b>	<b>16,863</b>

<sup>1</sup> Assumes all wells are drilled and completed as producers.

<sup>2</sup> 260 worker-days = 1 worker-year.

<sup>3</sup> Assumes all vertical (straight) wells.

<sup>4</sup> Assumes 1 pumper can visit 20 wells/day, all pads are visited every 3 days, and a productive well life of 40 years.

<sup>5</sup> Assumes six full-time production foremen and six full-time field clerks in addition to pumpers.

<sup>6</sup> Assumes three workovers per well.

Table 5.4 Average Per Well Drilling and Completion Costs of Natural Gas Development, Jonah Infill Drilling Project, Sublette County, Wyoming.<sup>1,2</sup>

Cost Item	Cost to Drill (Dry Hole Without Pipe) (\$)	Cost to Complete Well <sup>3</sup> (\$)
<b>INTANGIBLE DRILLING COSTS</b>		
Surveys, permits, and fees	\$ 5,000	--
Location and roads	42,620	--
Drilling contractor services	260,834	--
Drilling rig, mob/demob	59,250	--
Drill bits	43,100	--
Surface cementing service and equipment	16,000	--
BOP testing	1,500	--
Open hole logging	18,000	--
Contract supervision	18,900	--
Company supervision	6,000	--
Mud logging and geology	10,500	--
Drilling mud and chemicals	43,290	--
Surface rentals	19,660	--
Downhole rentals	31,500	--
Casing crews	4,500	--
Drilling water	20,000	--
Contract labor	5,000	--
Drilling admin overhead	7,500	--
Transportation and hauling	7,000	--
<b>Total drilling intangible costs</b>	<b>\$620,154</b>	<b>--</b>
<b>INTANGIBLE COMPLETION COSTS</b>		
Completion rig and auxiliary services	--	\$ 16,225
Snubbing unit	--	18,000
Contract supervision	--	12,500
Professional services	--	12,000
Cased hole slick line service	--	3,000
Casing crews	--	17,010
Cementing service and equip	--	50,000
Cased hole e-line services	--	82,000
Pumping services	--	36,000
Stimulation	--	860,048
Transportation and hauling	--	5,000
Location and roads	--	4,500
Completion water	--	106,752
Installation labor (battery construction)	--	8,500
Surface rentals	--	43,525
Downhole rentals	--	32,800
Frac flowback	--	30,000
Miscellaneous	--	1,000
<b>Total intangible completion costs</b>	<b>--</b>	<b>\$1,338,860</b>

Table 5.4 (Continued)

Cost Item	Cost to Drill (Dry Hole Without Pipe) (\$)	Cost to Complete Well <sup>3</sup> (\$)
<b>TANGIBLE COSTS (DRILLING AND COMPLETION)</b>		
Tubulars		
Surface <sup>4</sup>	\$ 29,500	--
Production <sup>5</sup>	--	63,180
Tubing <sup>6</sup>	--	19,320
Wellhead equipment	3,920	23,000
Flowline	--	6,500
Storage tanks	--	12,500
Treating equipment (gas dehydrator and separator)	--	62,750
Combustors - emission controls	--	7,000
<b>Total Tangible Costs</b>	<b>33,420</b>	<b>194,250</b>
Total drilling cost	\$653,574	--
Total completion cost	--	1,533,110
<b>Total Cost (Drilling + Completion) for Conventional Wells</b>	<b>--</b>	<b>\$2,186,684</b>
Directional Drilling (average additional cost per well)		\$243,610
<b>Total Cost (Drilling + Completion) for Directionally Drilled Wells</b>		<b>\$2,430,294</b>

<sup>1</sup> Source: Operators. Presented in year 2000 dollars, adjusted for inflation.

<sup>2</sup> Source: Operators. Enumerated costs are for conventional drilling. Directional drilling would increase the total by an average of \$243,610 per well.

<sup>3</sup> Average assumed depth of 9,000 ft.

<sup>4</sup> 2,500 ft of 9 5/8-inch pipe at \$11.80/ft.

<sup>5</sup> 11,700 ft of 4 1/2-inch pipe at \$5.40/ft.

<sup>6</sup> 8,000 ft of 2 3/8-inch pipe at \$2.30/ft.

Total recovery will depend upon the number of wells authorized (1,250, 2,200, or 3,100) and the number of pads they are placed on. Some combinations of conventional/directional drilling may make full recovery uneconomical. The fewer the number of wells and the faster the pace of development, the shorter the LOP (Table 5.4). An estimated 10,500 billion cubic feet (BCF) of natural gas and 99.8 million barrels (MBO) of Jonah Field condensate (oil) are assumed to be present beneath the JIDPA (Table 5.2). No alternative anticipates total recovery of all natural gas or condensate resources present in the field. Total annual per well cost of operation is estimated to be \$229,548 (includes \$16,831 of direct labor costs), or approximately \$0.32/thousand cubic feet (MCF) of natural gas (Table 5.5).



Table 5.5 Annual Cost of Natural Gas Production, Jonah Infill Drilling Project, Sublette County, Wyoming, 2005.<sup>1</sup>

Annual Production Operating Costs	Annual Cost per Well
Annual Production (MCF)	717,232
<b>Direct Labor and Overhead</b>	16,831
<b>Nonlabor Annual Costs</b>	
Fuel, Chemicals, and Disposal	9,850
Surface Maintenance	5,847
Subsurface Maintenance	5,979
Electricity	--
Gas Compression Costs	--
Gas Transportation Costs	191,041
Total Annual Costs	229,548
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Nonlabor Annual Costs	212,717
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Total Annual Cost Per MCF	\$0.32
Nonlabor Cost Per MCF	\$0.30

<sup>1</sup> Source: EnCana. Assumes natural gas recovery costs include recovery of condensate.

### 5.3 NATURAL GAS DEVELOPMENT AND PRODUCTION ECONOMIC ACTIVITY

Estimates of the economic activity resulting from oil and gas development on the southwest Wyoming economy in terms of total direct expenditures, secondary (non-project-required) labor earnings, and secondary job creation were based on the updated calibrated county-specific model from the SWREE and JMHCAP reports. The employment estimates were expressed as AJEs, based on BEA methodology (personal communication, February 20, 2004, with David T. Taylor, Professor, UWAED) (see Section 2.1.1). Activity is described both in terms of nominal dollars and real dollars (i.e., present value calculated by discounting) (see Section 2.2).

#### 5.3.1 Drilling and Completion

As shown in Table 5.6, expenditures made to drill and complete one conventional well (\$2,186,684), would generate economic activity (direct and secondary) of \$2,719,091 (includes \$532,407 of

Table 5.6 Per Well Economic Activity from Natural Gas Development, Jonah Infill Drilling Project, Sublette County, Wyoming.

Estimated Activity	Conventional Well	Directionally Drilled Well
<b>Direct Expenditures<sup>1,2</sup></b>		
Drilling (\$)	\$653,574	\$897,184
Completion (\$)	\$1,533,110	\$1,533,110
Total Direct Expenditures (\$)	\$2,186,684	\$2,430,294
<b>Secondary Labor Earnings</b>		
Drilling (\$)	\$239,402	\$328,287
Completion (\$) <sup>2</sup>	\$293,005	\$293,005
Total Secondary Labor Earnings (\$)	\$532,407	\$621,292
<b>Total Economic Activity per Well</b>	<b>\$2,719,091</b>	<b>\$3,051,586</b>
<b>Annual Job Equivalentents (AJEs)</b>		
Drilling	7.3	3.3
Completion <sup>2</sup>	9.4	1.2
Total AJEs per Well <sup>3</sup>	16.7	19.4
Average Earnings Per Created Job <sup>4</sup> (\$)	\$31,881	\$32,025

<sup>1</sup> Includes project-required labor costs.

<sup>2</sup> Completion includes the cost of completion plus the setting of production equipment (see Table 5.2).

<sup>3</sup> AJEs are jobs indirectly created as a result of the activity. Project-required jobs are presented in Table 5.1.

<sup>4</sup> This estimated average annual starting wage per job would not necessarily be the actual wage paid for each created job. Actual wages are determined on an individual basis by employers as influenced by market forces.

secondary labor earnings) and would generate 16.7 AJEs (does not include project-required labor [see Table 5.1]). Expenditures made to drill and complete one directionally drilled well (\$2,430,294) would generate economic activity (direct and secondary) of \$3,051,586 (includes \$621,292 of secondary labor earnings) and would generate 19.4 AJEs (does not include project-required jobs). This activity is assumed to remain constant across all alternatives on a per well basis. The timing of economic activity would depend on the approved number of wells and the rate of development.

Tables 5.7-5.13 show both the nominal and present value of annual and LOP activity anticipated from each development rate scenario. Alternatives are summarized in Table 5.14.

Table 5.7 Economic Activity Resulting from Natural Gas Development Under the Proposed Action, Jonah Infill Drilling Project, Sublette County, Wyoming, 2005.

Development Rate	Years to Develop Field	Economic Activity Resulting from Proposed Action (3,100 New Wells on 2,825 New Pads)					
		2,825 Conventional Wells Drilled Annual	LOF <sup>1</sup>	275 Directional Wells Drilled Annual	LOF Total		
<b>NOMINAL VALUE OF ECONOMIC ACTIVITY</b>							
<b>75 Wells/Year (69 conventional/6 directional)<sup>2</sup></b>							
42.0							
Direct Economic Activity from Development <sup>3</sup> (millions of \$)							
		150.9	6,337.0	14.6	612.4	165.5	6,949.4
Secondary Labor Earnings <sup>4</sup> (millions of \$)							
		36.7	1,542.9	3.7	156.6	40.5	1,699.5
Total Economic Activity (millions of \$)							
		187.6	7,879.9	18.3	769.0	205.9	8,648.9
Annual Job Equivalents (AJEs) <sup>5</sup>							
		1,152.3	48,396.6	116.4	4,888.8	1,268.7	53,285.4
<b>150 Wells/Year (137 conventional/13 directional)<sup>2</sup></b>							
21.0							
Direct Economic Activity from Development <sup>3</sup> (millions of \$)							
		299.6	6,291.1	31.6	663.5	331.2	6,954.6
Secondary Labor Earnings <sup>4</sup> (millions of \$)							
		72.9	1,531.7	8.1	169.6	81.0	1,701.3
Total Economic Activity (millions of \$)							
		372.5	7,822.8	39.7	833.1	412.2	8,655.9
AJEs <sup>5</sup>							
		2,287.9	48,045.9	252.2	5,296.2	2,540.1	53,342.1
<b>250 Wells/Year (228 conventional/22 directional)<sup>2</sup></b>							
12.5							
Direct Economic Activity from Development <sup>3</sup> (millions of \$)							
		498.6	6,232.0	53.5	668.3	552.0	6,900.4
Secondary Labor Earnings <sup>4</sup> (millions of \$)							
		121.4	1,517.4	13.7	170.9	135.1	1,688.2
Total Economic Activity (millions of \$)							
		620.0	7,749.4	67.1	839.2	687.1	8,588.6
AJEs <sup>5</sup>							
		3,807.6	47,595.0	426.8	5,335.0	4,234.4	52,930.0
<b>PRESENT VALUE OF ECONOMIC ACTIVITY<sup>6</sup></b>							
Annual							
Activity							
Present Value							
Present Value							
75 Wells/Year (millions of \$)	42.0	187.6	4,096.6	18.3	399.8	205.9	4,496.4
150 Wells/Year (millions of \$)	21.0	372.5	5,475.2	39.7	583.1	412.2	6,058.3
250 Wells/Year (millions of \$)	12.5	620.0	5,983.8	67.1	648.0	687.1	6,631.8

<sup>1</sup> The total number of conventional and directional wells may not exactly match the number of wells/year under the different development rates due to rounding. Operators propose the 250 wells/year development rate; however, BLM may require an alternate development rate.

<sup>2</sup> Based on costs presented in Table 5.2.

<sup>3</sup> Nonproject labor earnings resulting from secondary economic activity induced by development. These earnings do not include actual development labor earnings. See Table 5.2 for development wages included in direct costs.

<sup>4</sup> Nonproject-required jobs resulting from secondary economic activity induced by development. These do not include project-required jobs. See Table 5.1 for estimated project workforce requirements. Average earnings per job would be approximately \$31,881 for conventional drilling-induced jobs and \$32,025 for directional drilling-induced jobs.

<sup>5</sup> See Section 2.2 for a discussion of discounting. The discount rate used for this analysis was 3.5%. Conservatively assumes revenues are received as a lump sum at year end.

Table 5.8 Economic Activity Resulting from Natural Gas Development Under Alternative A (Maximum Recovery) and Alternative B, Jonah Infill Drilling Project, Sublette County, Wyoming, 2005.

Development Rate	Economic Activity Resulting from Alternative A			Economic Activity Resulting from Alternative B		
	Years to Develop Field	Annual (3,100 Conventional Wells)	LOF	Annual (3,100 Directionally Drilled Wells)	LOF	Annual
<b>NOMINAL VALUE OF ECONOMIC ACTIVITY</b>						
<b>75 Wells/Year</b>	42.0					
Direct Economic Activity from Development <sup>2</sup> (millions of \$)		164.0	6,888.1	182.3		7,655.4
Secondary Labor Earnings <sup>3</sup> (millions of \$)		39.9	1,677.1	46.6		1,957.1
Total Economic Activity (millions of \$)		203.9	8,565.1	228.9		9,612.5
Annual Job Equivalents (AJEs) <sup>4</sup>		1,252.5	52,605.0	1,455.0		61,110.0
<b>150 Wells/Year</b>	21.0					
Direct Economic Activity from Development <sup>2</sup> (millions of \$)		328.0	6,888.1	364.5		7,655.4
Secondary Labor Earnings <sup>3</sup> (millions of \$)		79.9	1,677.1	93.2		1,957.1
Total Economic Activity (millions of \$)		407.9	8,565.1	457.7		9,612.5
AJEs <sup>4</sup>		2,505.0	52,605.0	2,910.0		61,110.0
<b>250 Wells/Year</b>	12.5					
Direct Economic Activity from Development <sup>2</sup> (millions of \$)		546.7	6,833.4	607.6		7,594.7
Secondary Labor Earnings <sup>3</sup> (millions of \$)		133.1	1,663.8	155.3		1,941.5
Total Economic Activity (millions of \$)		679.8	8,497.2	762.9		9,536.2
AJEs <sup>4</sup>		4,175.0	52,187.5	4,850.0		60,625.0
<b>PRESENT VALUE OF ECONOMIC ACTIVITY<sup>5</sup></b>						
75 Wells/Year (millions of \$)	42.0	203.9	4,452.8	228.9		4,997.3
150 Wells/Year (millions of \$)	21.0	407.9	5,994.8	457.7		6,727.8
250 Wells/Year (millions of \$)	12.5	679.8	6,561.2	762.9		7,363.5

<sup>1</sup> The total number of conventional and directional wells may not exactly match the number of wells/year under the different development rates due to rounding. Operators propose the 250 wells/year development rate; however, BLM may require an alternate development rate.

<sup>2</sup> Based on costs presented in Table 5.2.

<sup>3</sup> Nonproject labor earnings resulting from secondary economic activity induced by development. These earnings do not include actual development labor earnings. See Table 5.1 for development wages included in direct costs.

<sup>4</sup> Nonproject-required jobs resulting from secondary economic activity induced by development. These do not include project-required jobs. See Table 5.1 for estimated project workforce requirements. Average earnings per job would be approximately \$31,881 for conventional drilling-induced jobs and \$32,025 for directional drilling-induced jobs.

<sup>5</sup> See Section 2.2 for a discussion of discounting. The discount rate used for this analysis was 3.5%. Conservatively assumes revenues are received as a lump sum at year end.

Table 5.9 Economic Activity Resulting from Natural Gas Development Under Alternative C, Jonah Infill Drilling Project, Sublette County, Wyoming, 2005.

Development Rate	Years to Develop Field	Economic Activity Resulting from Alternative C (1,250 New Wells Scenario)					
		975 Conventional Wells Annual	LOF	275 Directionally Drilled Wells Annual	LOF	Annual	LOF
<b>NOMINAL VALUE OF ECONOMIC ACTIVITY</b>							
<b>75 Wells/Year (57 conventional/18 directional)<sup>1</sup></b>							
Direct Economic Activity from Development <sup>2</sup> (millions of \$)		124.6	2,118.9	43.7	743.7	168.4	2,862.6
Secondary Labor Earnings <sup>3</sup> (millions of \$)		30.3	515.9	11.2	190.1	41.5	706.0
Total Economic Activity (millions of \$)		155.0	2,634.8	54.9	933.8	209.9	3,568.6
Annual Job Equivalents (AJEs) <sup>4</sup>		951.9	16,182.3	349.2	5,936.4	1,301.1	22,118.7
<b>150 Wells/Year (108 conventional/42 directional)<sup>1</sup></b>							
Direct Economic Activity from Development <sup>2</sup> (millions of \$)		236.2	2,125.5	102.1	918.7	338.2	3,044.1
Secondary Labor Earnings <sup>3</sup> (millions of \$)		57.5	517.5	26.1	234.8	83.6	752.3
Total Economic Activity (millions of \$)		293.7	2,643.0	128.2	1,153.5	421.8	3,796.5
AJEs <sup>4</sup>		1,803.6	16,232.4	814.8	7,333.2	2,618.4	23,565.6
<b>250 Wells/Year (195 conventional/55 directional)<sup>1</sup></b>							
Direct Economic Activity from Development <sup>2</sup> (millions of \$)		426.4	2,132.0	133.7	668.3	560.1	2,800.3
Secondary Labor Earnings <sup>3</sup> (millions of \$)		103.8	519.1	34.2	170.9	138.0	690.0
Total Economic Activity (millions of \$)		530.2	2,651.1	167.8	839.2	698.1	3,490.3
AJEs <sup>4</sup>		3,256.5	16,282.5	1,067.0	5,335.0	4,323.5	21,617.5
<b>PRESENT VALUE OF ECONOMIC ACTIVITY<sup>5</sup></b>							
75 Wells/Year (millions of \$)		17.0	1,960.8	54.9	694.9	209.9	2,655.7
150 Wells/Year (millions of \$)		9.0	2,234.1	128.2	975.1	421.8	3,209.1
250 Wells/Year (millions of \$)		5.0	2,394.0	167.8	757.8	698.1	3,151.8

<sup>1</sup> The total number of conventional and directional wells may not exactly match the number of wells/year under the different development rates due to rounding. Operators propose the 250 wells/year development rate; however, BLM may require an alternate development rate.

<sup>2</sup> Based on costs presented in Table 5.2.

<sup>3</sup> Nonproject labor earnings resulting from secondary economic activity induced by development. These earnings do not include actual development labor earnings. See Table 5.2 for development wages included in direct costs.

<sup>4</sup> Nonproject-required jobs resulting from secondary economic activity induced by development. These do not include project-required jobs. See Table 5.1 for estimated project workforce requirements. Average earnings per job would be approximately \$31,881 for conventional drilling-induced jobs and \$32,025 for directional drilling-induced jobs.

<sup>5</sup> See Section 2.2 for a discussion of discounting. The discount rate used for this analysis was 3.5%. Conservatively assumes revenues are received as a lump sum at year end.

Table 5.10 Economic Activity Resulting from Natural Gas Development Under Alternative D, Jonah Infill Drilling Project, Sublette County, Wyoming, 2005.

Development Rate	Years to Develop Field	Economic Activity Resulting from Alternative D (2,200 New Wells Scenario)			
		1,925 Conventional Wells	275 Directionally Drilled Wells	LOF	LOF
	Annual	Annual	Annual	Annual	LOF
<b>NOMINAL VALUE OF ECONOMIC ACTIVITY</b>					
<b>25 Wells/Year (64 conventional/11 directional)</b>	30.0				
Direct Economic Activity from Development <sup>2</sup> (millions of \$)	139.9	4,198.4	26.7	802.0	166.7
Secondary Labor Earnings <sup>3</sup> (millions of \$)	34.1	1,022.2	6.8	205.0	40.9
Total Economic Activity (millions of \$)	174.0	5,220.7	33.6	1,007.0	207.6
Annual Job Equivalents (AJEs) <sup>4</sup>	1,068.8	32,064.0	213.4	6,402.0	1,282.2
<b>150 Wells/Year (128 conventional/22 directional)</b>	15.0				
Direct Economic Activity from Development <sup>2</sup> (millions of \$)	279.9	4,198.4	53.5	802.0	333.4
Secondary Labor Earnings <sup>3</sup> (millions of \$)	68.1	1,022.2	13.7	205.0	81.8
Total Economic Activity (millions of \$)	348.0	5,220.7	67.1	1,007.0	415.2
AJEs <sup>4</sup>	2,137.6	32,064.0	426.8	6,402.0	2,564.4
<b>250 Wells/Year (213 conventional/37 directional)</b>	9.0				
Direct Economic Activity from Development <sup>2</sup> (millions of \$)	465.8	4,191.9	89.9	809.3	555.7
Secondary Labor Earnings <sup>3</sup> (millions of \$)	113.4	1,020.6	23.0	206.9	136.4
Total Economic Activity (millions of \$)	579.2	5,212.5	112.9	1,016.2	692.1
AJEs <sup>4</sup>	3,557.1	32,013.9	717.8	6,460.2	4,274.9
<b>PRESENT VALUE OF ECONOMIC ACTIVITY<sup>5</sup></b>					
75 Wells/Year (millions of \$)	30.0	174.0	33.6	617.4	207.6
150 Wells/Year (millions of \$)	15.0	348.0	67.1	773.2	415.2
250 Wells/Year (millions of \$)	9.0	579.2	112.9	859.0	692.1

<sup>1</sup> The total number of conventional and directional wells may not exactly match the number of wells/year under the different development rates due to rounding. Operators propose the 250 wells/year development rate; however, BLM may require an alternate development rate.

<sup>2</sup> Based on costs presented in Table 5.2.

<sup>3</sup> Nonproject labor earnings resulting from secondary economic activity induced by development. These earnings do not include actual development labor earnings. See Table 5.2 for development wages included in direct costs.

<sup>4</sup> Nonproject-required jobs resulting from secondary economic activity induced by development. These do not include project-required jobs. See Table 5.1 for estimated project workforce requirements. Average earnings per job would be approximately \$31,881 for conventional drilling-induced jobs and \$32,025 for directional drilling-induced jobs.

<sup>5</sup> See Section 2.2 for a discussion of discounting. The discount rate used for this analysis was 3.5%. Conservatively assumes revenues are received as a lump sum at year end.

Table 5.11 Economic Activity Resulting from Natural Gas Development Under Alternative E, Jonah Infill Drilling Project, Sublette County, Wyoming, 2005.

Development Rate <sup>1</sup>	Economic Activity Resulting from Alternative E (3,100 New Wells on 266 New Well Pads)					
	Years to Develop Field	266 Conventional Wells	2,834 Directionally Drilled Wells	Total		LOF
	Annual	LOF	Annual	LOF	Annual	LOF
<b>NOMINAL VALUE OF ECONOMIC ACTIVITY</b>						
<b>75 Wells/Year (7 conventional/68 directional)</b>						
Direct Economic Activity from Development <sup>2</sup> (millions of \$)	15.3	642.9	165.3	6,940.9	180.6	7,583.8
Secondary Labor Earnings <sup>3</sup> (millions of \$)	3.7	156.5	42.2	1,774.4	46.0	1,930.9
Total Economic Activity (millions of \$)	19.0	799.4	207.5	8,715.3	226.5	9,514.7
Annual Job Equivalents (AJEs) <sup>4</sup>	116.9	4,909.8	1,319.2	55,406.4	1,436.1	60,316.2
<b>150 Wells/Year (15 conventional/135 directional)</b>						
Direct Economic Activity from Development <sup>2</sup> (millions of \$)	32.8	688.8	328.1	6,889.9	360.9	7,578.7
Secondary Labor Earnings <sup>3</sup> (millions of \$)	8.0	167.7	83.9	1,761.4	91.9	1,929.1
Total Economic Activity (millions of \$)	40.8	856.5	412.0	8,651.2	452.8	9,507.8
AJEs <sup>4</sup>	250.5	5,260.5	2,619.0	54,999.0	2,869.5	60,259.5
<b>250 Wells/Year (23 conventional/227 directional)</b>						
Direct Economic Activity from Development <sup>2</sup> (millions of \$)	50.3	628.7	551.7	6,896.0	602.0	7,524.6
Secondary Labor Earnings <sup>3</sup> (millions of \$)	12.2	153.1	141.0	1,762.9	153.3	1,916.0
Total Economic Activity (millions of \$)	62.5	781.7	692.7	8,658.9	755.2	9,440.6
AJEs <sup>4</sup>	384.1	4,801.3	4,403.8	55,047.5	4,787.9	59,848.8
<b>PRESENT VALUE OF ECONOMIC ACTIVITY<sup>5</sup></b>						
75 Wells/Year (millions of \$)	42.0	415.6	207.5	4,530.9	226.5	4,946.5
150 Wells/Year (millions of \$)	21.0	599.5	412.0	6,055.0	452.8	6,654.5
250 Wells/Year (millions of \$)	12.5	603.6	692.7	6,686.1	755.2	7,289.7

<sup>1</sup> The total number of conventional and directional wells may not exactly match the number of wells/year under the different development rates due to rounding. Operators propose the 250 wells/year development rate; however, BLM may require an alternate development rate.

<sup>2</sup> Based on costs presented in Table 5.2.

<sup>3</sup> Nonproject labor earnings resulting from secondary economic activity induced by development. These earnings do not include actual development labor earnings. See Table 5.2 for development wages included in direct costs.

<sup>4</sup> Nonproject-required jobs resulting from secondary economic activity induced by development. These do not include project-required jobs. See Table 5.1 for estimated project workforce requirements. Average earnings per job would be approximately \$31,881 for conventional drilling-induced jobs and \$32,025 for directional drilling-induced jobs.

<sup>5</sup> See Section 3.2 for a discussion of discounting. The discount rate used for this analysis was 3.5%. Conservatively assumes revenues are received as a lump sum at year end.



Table 5.12 Economic Activity Resulting from Natural Gas Development Under the Alternative F, Jonah Infill Drilling Project, Sublette County, Wyoming, 2005.

Development Rate <sup>1</sup>	Economic Activity Resulting from Alternative F (3,100 New Wells on 1,028 New Well Pads Scenario)						
	Years to Develop Field	1,028 Conventional Wells		2,072 Directionally Drilled Wells		Total	
		Annual	LOF	Annual	LOF		Annual
<b>NOMINAL VALUE OF ECONOMIC ACTIVITY</b>							
<b>75 Wells/Year (25 conventional/50 directional)</b>							
Direct Economic Activity from Development <sup>2</sup> (millions of \$)	42.0	54.7	2,296.0	121.5	5,103.6	176.2	7,399.6
Secondary Labor Earnings <sup>3</sup> (millions of \$)		13.3	559.0	31.1	1,304.7	44.4	1,863.7
Total Economic Activity (millions of \$)		68.0	2,855.0	152.6	6,408.3	220.6	9,263.4
Annual Job Equivalents (AJEs) <sup>4</sup>		417.5	17,535.0	970.0	40,740.0	1,387.5	58,275.0
<b>150 Wells/Year (49 conventional/201 directional)</b>							
Direct Economic Activity from Development <sup>2</sup> (millions of \$)	21.0	107.1	2,250.1	488.5	10,258.3	595.6	12,508.4
Secondary Labor Earnings <sup>3</sup> (millions of \$)		26.1	547.8	124.9	2,622.5	151.0	3,170.3
Total Economic Activity (millions of \$)		133.2	2,797.9	613.4	12,880.7	746.6	15,678.7
AJEs <sup>4</sup>		818.3	17,184.3	3,899.4	81,887.4	4,717.7	99,071.7
<b>250 Wells/Year (83 conventional/167 directional)</b>							
Direct Economic Activity from Development <sup>2</sup> (millions of \$)	12.5	181.5	2,268.7	405.9	5,073.2	587.4	7,341.9
Secondary Labor Earnings <sup>3</sup> (millions of \$)		44.2	552.4	103.8	1,296.9	147.9	1,849.3
Total Economic Activity (millions of \$)		225.7	2,821.1	509.6	6,370.2	735.3	9,191.2
AJEs <sup>4</sup>		1,386.1	17,326.3	3,239.8	40,497.5	4,625.9	57,823.8
<b>PRESENT VALUE OF ECONOMIC ACTIVITY<sup>5</sup></b>							
75 Wells/Year (millions of \$)	42.0	68.0	1,484.3	152.6	3,331.6	220.6	4,815.8
150 Wells/Year (millions of \$)	21.0	133.2	1,958.3	613.4	9,015.3	746.6	10,973.6
250 Wells/Year (millions of \$)	12.5	225.7	2,178.3	509.6	4,918.8	735.3	7,097.1

<sup>1</sup> The total number of conventional and directional wells may not exactly match the number of wells/year under the different development rates due to rounding. Operators propose the 250 wells/year development rate; however, BLM may require an alternate development rate.

<sup>2</sup> Based on costs presented in Table 5.2.

<sup>3</sup> Nonproject labor earnings resulting from secondary economic activity induced by development. These earnings do not include actual development labor earnings. See Table 5.2 for development wages included in direct costs.

<sup>4</sup> Nonproject-required jobs resulting from secondary economic activity induced by development. These do not include project-required jobs. See Table 5.1 for estimated project workforce requirements. Average earnings per job would be approximately \$31,881 for conventional drilling-induced jobs and \$32,025 for directional drilling-induced jobs.

<sup>5</sup> See Section 2.2 for a discussion of discounting. The discount rate used for this analysis was 3.5%. Conservatively assumes revenues are received as a lump sum at year end.



**Table 5.13 Economic Activity Resulting from Natural Gas Development Under the Alternative G and the Preferred Alternative, Jonah Infill Drilling Project, Sublette County, Wyoming, 2005.**

Economic Activity Resulting from Alternative G and Preferred Alternative (3,100 New Wells on 2,553 New Well Pads Scenario)									
Development Rate <sup>1</sup>	Years to Develop Field	2,553 Conventional Wells		547 Directionally Drilled Wells		Total		Annual	LOF
		Annual	LOF	Annual	LOF	Annual	LOF		
<b>NOMINAL VALUE OF ECONOMIC ACTIVITY</b>									
<b>75 Wells/Year (61 conventional/14 directional)</b>									
Direct Economic Activity from Development <sup>2</sup> (millions of \$)									
	42.0	133.4	5,602.3	34.0	1,429.0	167.4	7,031.3		
Secondary Labor Earnings <sup>3</sup> (millions of \$)									
		32.5	1,364.0	8.7	365.3	41.2	1,729.3		
Total Economic Activity (millions of \$)									
		165.9	6,966.3	42.7	1,794.3	208.6	8,760.6		
Annual Job Equivalents (AJEs) <sup>4</sup>									
		1,018.7	42,785.4	271.6	11,407.2	1,290.3	54,192.6		
<b>150 Wells/Year (122 conventional/28 directional)</b>									
Direct Economic Activity from Development <sup>2</sup> (millions of \$)									
	21.0	266.8	5,602.3	68.0	1,429.0	334.8	7,031.3		
Secondary Labor Earnings <sup>3</sup> (millions of \$)									
		65.0	1,364.0	17.4	365.3	82.3	1,729.3		
Total Economic Activity (millions of \$)									
		331.7	6,966.3	85.4	1,794.3	417.2	8,760.6		
AJEs <sup>4</sup>									
		2,037.4	42,785.4	543.2	11,407.2	2,580.6	54,192.6		
<b>250 Wells/Year (204 conventional/46 directional)</b>									
Direct Economic Activity from Development <sup>2</sup> (millions of \$)									
	12.5	446.1	5,576.0	111.8	1,397.4	557.9	6,973.5		
Secondary Labor Earnings <sup>3</sup> (millions of \$)									
		108.6	1,357.6	28.6	357.2	137.2	1,714.9		
Total Economic Activity (millions of \$)									
		554.7	6,933.7	140.4	1,754.7	695.1	8,688.3		
AJEs <sup>4</sup>									
		3,406.8	42,585.0	892.4	11,155.0	4,299.2	53,740.0		
<b>PRESENT VALUE OF ECONOMIC ACTIVITY<sup>5</sup></b>									
75 Wells/Year (millions of \$)									
	42.0	165.9	3,621.6	42.7	932.8	208.6	4,554.5		
150 Wells/Year (millions of \$)									
	21.0	331.7	4,875.7	85.4	1,255.9	417.2	6,131.6		
250 Wells/Year (millions of \$)									
	12.5	554.7	5,353.9	140.4	1,354.9	695.1	6,708.8		

<sup>1</sup> The total number of conventional and directional wells may not exactly match the number of wells/year under the different development rates due to rounding. Operators propose the 250 wells/year development rate; however, BLM may require an alternate development rate.

<sup>2</sup> Based on costs presented in Table 5.2.

<sup>3</sup> Nonproject labor earnings resulting from secondary economic activity induced by development. These earnings do not include actual development labor earnings. See Table 5.2 for development wages included in direct costs.

<sup>4</sup> Nonproject-required jobs resulting from secondary economic activity induced by development. These do not include project-required jobs. See Table 5.1 for estimated project workforce requirements. Average earnings per job would be approximately \$31,881 for conventional drilling-induced jobs and \$32,025 for directional drilling-induced jobs.

<sup>5</sup> See Section 2.2 for a discussion of discounting. The discount rate used for this analysis was 3.5%. Conservatively assumes revenues are received as a lump sum at year end.

Table 5.14 Summary of Economic Activity Resulting from Natural Gas Development under Each Alternative over the Life of Field, Jonah Infill Drilling Project, Sublette County, Wyoming, 2005.

Development Rate <sup>2</sup>	Economic Activity Resulting from Development										
	No Action Alternative <sup>1</sup>	Proposed Action	Maximum Development	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F	Alternative G	Preferred Alternative
<b>NOMINAL VALUE OF ECONOMIC ACTIVITY</b>											
<b>75 Wells/Year</b>											
Direct Economic Activity from Development <sup>3</sup> (millions of \$)	--	6,949.4	6,888.1	7,655.4	2,862.6	5,000.4	7,583.8	7,399.6	7,031.3	--	--
Secondary Labor Earnings <sup>4</sup> (millions of \$)	--	1,699.5	1,677.1	1,957.1	706.0	1,227.2	1,930.9	1,863.7	1,729.3	--	--
Total Economic Activity (millions of \$)	--	8,648.9	8,565.1	9,612.5	3,568.6	6,227.7	9,514.7	9,263.4	8,760.6	--	--
Annual Job Equivalents (AJEs) <sup>5</sup>	--	53,285	52,605	61,110	22,119	38,466	60,316	58,275	54,193	--	--
<b>150 Wells/Year</b>											
Direct Economic Activity from Development <sup>3</sup> (millions of \$)	--	6,954.6	6,888.1	7,655.4	3,044.1	5,000.4	7,578.7	12,508.4	7,031.3	--	--
Secondary Labor Earnings <sup>4</sup> (millions of \$)	--	1,701.3	1,677.1	1,957.1	752.3	1,227.2	1,929.1	3,170.3	1,729.3	--	--
Total Economic Activity (millions of \$)	--	8,655.9	8,565.1	9,612.5	3,796.5	6,227.7	9,507.8	15,678.7	8,760.6	--	--
AJEs <sup>5</sup>	--	53,342.1	52,605.0	61,110.0	23,565.6	38,466.0	60,259.5	99,071.7	54,192.6	--	--
<b>250 Wells/Year</b>											
Direct Economic Activity from Development <sup>3</sup> (millions of \$)	--	6,900.4	6,833.4	7,594.7	2,800.3	5,001.2	7,524.6	7,341.9	6,973.5	--	--
Secondary Labor Earnings <sup>4</sup> (millions of \$)	--	1,688.2	1,663.8	1,941.5	690.0	1,227.5	1,916.0	1,849.3	1,714.9	Approximately the same as Alternative G	Approximately the same as Alternative G
Total Economic Activity (millions of \$)	--	8,588.6	8,497.2	9,536.2	3,490.3	6,228.7	9,440.6	9,191.2	8,688.3	Approximately the same as Alternative G	Approximately the same as Alternative G
AJEs <sup>5</sup>	--	52,930.0	52,187.5	60,625.0	21,617.5	38,474.1	59,848.8	57,823.8	53,740.0	Approximately the same as Alternative G	Approximately the same as Alternative G
<b>PRESENT VALUE OF ECONOMIC ACTIVITY<sup>6</sup></b>											
75 Wells/Year (millions of \$)	--	4,496.4	4,452.8	4,997.3	2,655.7	3,818.0	4,946.5	4,815.8	4,554.5	Approximately the same as Alternative G	Approximately the same as Alternative G
150 Wells/Year (millions of \$)	--	6,058.3	5,994.8	6,727.8	3,209.1	4,781.8	6,654.5	10,973.6	6,131.6	Approximately the same as Alternative G	Approximately the same as Alternative G
250 Wells/Year (millions of \$)	--	6,631.8	6,561.2	7,363.5	3,151.8	5,265.1	7,289.7	7,097.1	6,708.8	Approximately the same as Alternative G	Approximately the same as Alternative G

<sup>1</sup> Operator propose the 250 well/year development rate; however, BLM may require an alternate development rate.

<sup>2</sup> Assumes no new development would occur under the No Action Alternative.

<sup>3</sup> See Table 5.3 for development rates for each alternative. Also see Tables 5.7-5.13.

<sup>4</sup> Based on costs presented in Table 5.2. Also see Tables 5.7-5.13.

<sup>5</sup> Nonproject labor earnings resulting from secondary economic activity induced by development.

Nonproject-required jobs resulting from secondary economic activity induced by development.

approximately \$31,881 for conventional drilling in the development area used for this analysis, with 5.5% conservatively assumes revenues are received as a lump sum at year end.

See Section 2.2 for a discussion of discounting.

These earnings do not include actual development labor earnings. See Table 5.2 for development wages included in direct costs. Also see Table 5.7-5.13.

These do not include project-required jobs. See Table 5.1 for estimated project workforce requirements. Average earnings per job would be

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#### 5.3.1.1 No Action Alternative

Under the No Action Alternative, no additional development would occur. This would reduce the number of rigs, crews, and associated services operating in the project area. Currently, one oilfield service operator employs over 300 people and employs local contractors from over 30 companies within the town of Rock Springs (Schlumberger Oil Field Services Companies [Schlumberger] 2003). It is estimated that between 1996 and 2002, 59.3% of all exploration and production oilfield service fees paid in the state were spent on services in the Jonah Field (Schlumberger 2003). These services and associated jobs would likely be reduced or eliminated under the No Action Alternative. No additional economic activity from development would occur under this alternative--no additional secondary labor earnings or jobs would be created, and no additional taxes or revenues from development would be realized. All action alternatives would have impacts greater than those described for the No Action because of increased development and longer LOP.

#### 5.3.1.2 Proposed Action

Under the Proposed Action, up to 3,100 new wells (assumed at 2,825 conventional and 275 directional) would be developed. The economic activity under the 250 well/year development rate (12.5 years) would be \$8,588.6 million (\$6,631.8 million present value) (\$687.1 million annually) including \$1,688.2 million secondary labor income (\$135.1 million annually) and 52,930.0 AJEs (4,234.4 AJEs annually) for the development period (Table 5.7).

#### 5.3.1.3 Alternative A (Maximum Recovery)

Under Alternative A, up to 3,100 new conventional wells would be developed. Economic activity from Alternative A would be less than that expected from the Proposed Action due to the removal of directional drilling. Nominally, the greatest economic activity for Alternative A (not including tax revenues) would occur in terms of dollars under either the 75 or 150 well/year development rates--resulting in \$8,565.1 million of economic activity (\$203.9 and \$407.9 million annually, respectively) including \$1,677.1 million secondary labor earnings (\$39.9 million and \$79.9 million

annually, respectively) over the development period (Table 5.8). The greatest number of AJEs (52,605) would occur under both the 75 and 150 well/year development rate [1,252.5 and 2,505.0 annually, respectively]). The greatest annual economic activity (\$679.8 million [\$133.1 million secondary labor earnings]) would occur under the 250 well/year development rate. The greatest real (present) value of economic activity (\$6,561.2 million) would occur under the 250 well/year development rate because dollars would flow into the community in a shorter period of time (12.5 years); however, the number of AJEs (52,187.5) would be reduced as a result of efficiencies realized by a compressed development schedule (Table 5.8).

#### 5.3.1.4 Alternative B

Under Alternative B, up to 3,100 new directionally drilled wells would be developed. Economic activity from Alternative B would be more than that expected from the Proposed Action due to the increased amount of directional drilling. The greatest nominal economic activity for Alternative B (not including tax revenues) would most likely occur in terms of dollars under the either the 75 or 150 well/year development rates--resulting in \$9,612.5 million of economic activity (\$228.9 million [\$46.6 million secondary labor earnings] and \$457.7 million [\$93.2 million secondary labor earnings] annually, respectively) over the development period; however, the greatest annual economic activity (\$762.9 million [\$155.3 million secondary labor earnings]) would occur under the 250 well/year development rate (Table 5.8). The greatest number of AJEs (61,110) would occur under both the 75 and 150 well/year development rate [1,455 and 2,910 annually, respectively]). The greatest real (present) value of economic activity (\$7,363.5 million) would occur under the 250 well/year development rate because dollars would flow into the community in a shorter period of time (12.5 years); however, the number of AJEs (60,625) would be reduced as a result of efficiencies realized by a compressed development schedule (Table 5.8).

#### 5.3.1.5 Alternative C

Under Alternative C, up to 1,250 new wells (assumed to be 975 conventional and 275 directional) would be developed. Economic activity from Alternative C would be less than half that expected

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from the Proposed Action due to the reduced number of wells developed. The greatest nominal economic activity for Alternative C (not including tax revenues) for the development period would most likely occur in terms of dollars and jobs under the 150 well/year development rate--resulting in \$3,796.5 million (\$421.8 million annually) of economic activity (including \$752.3 million [\$83.6 million annually]) of secondary labor earnings (Table 5.9). The greatest annual activity (\$698.1 million [\$138.0 million secondary labor earnings]) would occur under the 250 well/year development rate. The greatest number of AJEs (23,565.6 [2,618.4 annually]) would occur under the 150 well/year development rate; however, on an annual basis, the 250 well/year development rate would create 4,323.5 AJEs. The greatest real (present) value of economic activity (\$3,209.1 million) over the LOP would occur under the 150 well/year development rate because of the combination of time (9.0 years) and effort (Table 5.9).

#### 5.3.1.6 Alternative D

Under Alternative D, up to 2,200 new wells (assumed to be 1,925 conventional and 275 directional) would be developed. Economic activity from Alternative D would be less than that expected from the Proposed Action due to the reduced number of wells developed. The greatest nominal economic activity for Alternative D (not including tax revenues) for the development period, would most likely occur in terms of dollars and jobs under the 250 well/year development rate--resulting in \$6,228.7 million (\$692.1 million annually) of economic activity including \$1,227.5 million (\$136.4 million annually) of secondary labor earnings and 38,474 AJEs (4,274.9 annually) (Table 5.10). The greatest real (present) value of economic activity (\$5,265.1 million) would occur under the 250 well/year development rate because of the compressed rate of time (9.0 years) over which dollars would flow into the community (Table 5.10).

#### 5.3.1.7 Alternative E

Under Alternative E, up to 3,100 new wells (assumed to be 266 conventional and 2,834 directional) would be developed. Economic activity from Alternative E would be more than that expected from the Proposed Action due to the increased number of directionally drilled wells. The greatest nominal economic activity for Alternative E (not including tax revenues) for the development

period, would most likely occur in terms of dollars and jobs under the 75 well/year development rate--resulting in \$9,514.7 million (\$226.5 million annually) of economic activity (including \$1,930.9 million [\$46.0 million annually]) of secondary labor earnings and 60,316.2 AJEs (4,274.9 annually) (Table 5.11). However, the greatest annual economic activity (\$755.2 million [153.3 million secondary labor earnings], 4,787.9 AJEs) would occur under the 250 well/year development rate. The greatest real (present) value of economic activity (\$7,289.7 million) over the LOP would occur under the 250 well/year development rate because of the compressed rate of time (12.5 years) over which dollars would flow into the community (Table 5.11).

#### 5.3.1.8 Alternative F

Under Alternative F, up to 3,100 new wells (assumed to be 1,028 conventional and 2,072 directional) would be developed. Economic activity from Alternative F would be more than that expected from the Proposed Action due to the increased number of directionally drilled wells. The greatest nominal economic activity from development for all alternatives would most likely be realized from Alternative F (not including tax revenues) for the development period, in terms of dollars and jobs under the 150 well/year development rate--resulting in \$15,678.7 million (\$746.6 million annually) of economic activity (including \$3,170.3 million [\$151.0 million annually]) of secondary labor earnings and 99,071.7 AJEs (4,717.7 annually) (Table 5.12). The greatest real (present) value of economic activity (\$10,973.6 million) also occurs under the 150 well/year development rate. This development rate (when compared to all other alternatives) optimizes the combination of straight and directional drilling as well as time of development to maximize economic activity (Table 5.12)

#### 5.3.1.9 Alternative G

Under Alternative G, up to 3,100 new wells (assumed to be 2,553 conventional and 574 directional) would be developed. Economic activity from Alternative G would be similar to but slightly higher than that described for the Proposed Action due to the slightly increased number of directionally drilled wells. The greatest nominal economic activity for Alternative G (not including tax revenues) for

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the development period, would occur in terms of dollars and jobs under either the 75 or 150 well/year development rate--resulting in \$8,760.6 million (\$1,729.3 million secondary labor earnings) and 54,192.6 AJEs (208.6 and 417.2 AJEs annually, respectively) (Table 5.13). However, the highest annual economic activity (\$695.1 million [including \$137.2 million secondary labor earnings] and 4,299.2 AJEs would most likely occur under the 250 wells/year rate. The greatest real (present) value of economic activity (\$6,708.8 million) over the LOP would occur under the 250 well/year development rate because of the compressed rate of time (12.5 years) over which dollars would flow into the community (Table 5.13).

#### 5.3.1.10 Preferred Alternative

Under the Preferred Alternative, up to 3,100 new wells (assumed to be 2,553 conventional and 574 directional) would be developed. Economic activity from the Preferred Alternative would be approximately the same as that described for Alternative G at the 250 wells/year development rate.

### **5.3.2 Natural Gas Production Impacts**

The value of natural gas production is based on revenues less cost of operation. Table 5.15 shows that production from one BCF of natural gas would generate total economic activity (direct and secondary) of \$3,632,083 (includes \$132,083 of secondary labor earnings) and would create 3.92 AJEs. One million barrels of condensate are assumed to generate total economic activity (direct and secondary) of \$21,792,498 (includes \$792,498 of secondary labor earnings) and would create 23.52 AJEs. The economic activity associated with condensate production is likely conservatively underestimated because condensate from the Jonah Field is of particularly high quality and generally sells for a price higher than the price of crude oil. Assumed production rates, decline curves, and discounting tables are presented in Appendix A.

Table 5.15 Gas Production Impacts from One BCF of Natural Gas and One MBO, Jonah Infill Drilling Project, Sublette County, Wyoming, 2005.

Resource	Economic Activity
<b>Natural Gas</b>	
	Activity per BCF
Revenue <sup>1</sup>	\$3,500,000
Secondary Labor Earnings	\$132,083
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Total Economic Activity per BCF	\$3,682,083
AJEs	3.92
<b>Condensate</b>	
	Activity per MBO
Revenue <sup>2</sup>	\$21,000,000
Secondary Labor Earnings	\$792,498
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Total Economic Activity per MBO	\$21,792,498
AJEs	23.52

<sup>1</sup> Price is \$3.50/MCF based on CREG (2004). The value of production is based on revenues less cost of operation.

<sup>2</sup> Price is \$21/bbl based on CREG (2004). Assumes natural gas recovery costs include recovery of condensate.

### 5.3.2.1 No Action Alternative

Under the No Action Alternative, 533 currently authorized wells would be expected to produce 3,366 BCF of natural gas and 31.98 MBO, which would result in nominal economic activity of \$12,922.5 million (including \$469.9 million of secondary labor earnings) and 13,947 AJEs (Table 5.16). Production would result in \$9,275.7 million present value economic activity (including \$319.8 million in labor earnings) to the local economy over the LOP (Table 5.16). The anticipated LOP for the No Action Alternative could be up to 40 years.

It would be likely that, under the No Action Alternative, Jonah Operators also would produce at a slower pace. This would further reduce the number of crews and associated services employed in the area. Employment would likely be decreased, and these changes in employment might serve to decrease study area populations as disaffiliated workers might seek to leave the area in search of new



Table 5.16 Economic Activity Resulting from Natural Gas Production Over the Life of Field, Jonah Infill Drilling Project, Sublette County, 2005.

Impact	No Action Alternative <sup>1</sup>	Proposed Action <sup>1</sup>	Alternative A <sup>1</sup>	Alternative B <sup>1</sup>	Alternative C <sup>1</sup>	Alternative D <sup>1</sup>	Alternative E <sup>1</sup>	Alternative F <sup>1</sup>	Alternative G <sup>1</sup>	Preferred Alternative <sup>1</sup>
Total Anticipated Natural Gas Recovery over the LOF (BCF)	3,366	7,947	8,191	6,124	6,657	7,554	6,302	7,186	7,876	Same as Alternative G
Total Anticipated Condensate Recovery over the LOF (million bbls)	31.98	75.50	77.81	58.18	63.24	71.76	59.87	68.27	74.82	
<b>MAXIMUM ANNUAL ACTIVITY (250 WELLS-YEAR DEVELOPMENT RATE)</b>										
Value of Natural Gas Production <sup>3</sup> (millions of \$)	294.5	529.8	546.1	408.3	517.8	539.6	420.1	479.1	525.1	
Value of Condensate Production <sup>4</sup> (millions of \$)	16.8	30.2	31.1	23.3	29.5	30.8	23.9	27.3	29.9	Approximately the same as Alternative G
Secondary Labor Earnings <sup>5</sup> (millions of \$)	11.7	21.1	21.8	16.3	20.7	21.5	16.8	19.1	20.9	
Total Economic Activity (millions of \$)	323.1	581.1	599.0	447.8	567.9	591.8	460.8	525.5	575.9	
<b>NOMINAL VALUE OF ECONOMIC ACTIVITY</b>										
Value of Natural Gas Production <sup>3</sup> (millions of \$)	11,781.0	27,814.5	28,668.5	21,434.0	23,299.5	26,439.0	22,057.0	25,151.0	27,566.0	
Value of Condensate Production <sup>4</sup> (millions of \$)	671.6	1,585.5	1,634.0	1,221.8	1,328.0	1,507.0	1,257.3	1,433.7	1,571.2	
Secondary Labor Earnings <sup>5</sup> (millions of \$)	469.9	1,109.5	1,143.6	855.0	929.4	1,054.6	879.8	1,003.3	1,099.6	
Total Economic Activity (millions of \$)	12,922.5	30,509.5	31,446.1	23,510.8	25,556.9	29,000.6	24,194.1	27,587.9	30,236.8	Approximately the same as Alternative G
AJEs	13,947	32,928	33,939	25,374	27,583	31,299	26,112	29,775	32,634	
Average Earnings Per Job	\$47,173	\$47,173	\$47,173	\$47,173	\$47,173	\$47,173	\$47,173	\$47,173	\$47,173	
<b>PRESENT VALUE OF ECONOMIC ACTIVITY<sup>6</sup></b>										
<b>75 WELLS PER YEAR DEVELOPMENT RATE<sup>2</sup></b>										
Value of Natural Gas Production <sup>3</sup> (millions of \$)	8,473.0	11,053.8	11,093.6	8,518.1	12,907.2	12,065.7	8,765.6	9,995.2	10,955.0	;
Value of Condensate Production <sup>4</sup> (millions of \$)	483.0	630.1	632.3	485.5	735.7	687.7	499.6	569.7	624.4	;
Secondary Labor Earnings <sup>5</sup> (millions of \$)	319.8	417.1	418.7	321.5	487.1	455.3	330.8	377.2	413.4	;
Total Economic Activity (millions of \$)	9,275.7	12,101.0	12,144.6	9,325.1	14,130.0	13,208.8	9,596.1	10,942.1	11,992.8	;
<b>150 WELLS PER YEAR DEVELOPMENT RATE<sup>2</sup></b>										
Value of Natural Gas Production <sup>3</sup> (millions of \$)	8,473.0	14,491.3	14,935.0	11,167.1	14,660.7	15,111.4	11,491.7	13,103.6	14,361.9	;
Value of Condensate Production <sup>4</sup> (millions of \$)	483.0	826.0	851.3	636.5	835.7	861.4	655.0	746.9	818.6	;
Secondary Labor Earnings <sup>5</sup> (millions of \$)	319.8	546.9	563.6	421.4	553.3	570.3	433.7	494.5	542.0	;
Total Economic Activity (millions of \$)	9,275.7	15,864.2	16,349.9	12,225.0	16,049.7	16,543.1	12,580.4	14,345.1	15,722.5	;
<b>250 WELLS PER YEAR DEVELOPMENT RATE<sup>2</sup></b>										
Value of Natural Gas Production <sup>3</sup> (millions of \$)	8,473.0	16,409.2	16,909.2	12,644.7	15,661.6	16,636.1	13,012.4	14,837.6	16,262.4	
Value of Condensate Production <sup>4</sup> (millions of \$)	483.0	935.3	963.8	720.8	892.7	948.3	741.7	845.7	927.0	Approximately the same as Alternative G
Secondary Labor Earnings <sup>5</sup> (millions of \$)	319.8	619.3	638.1	477.2	591.0	627.8	491.1	559.9	613.7	
Total Economic Activity (millions of \$)	9,275.7	17,963.8	18,511.2	13,842.7	17,145.3	18,212.2	14,245.2	16,243.3	17,803.0	

1 Includes wells currently in production (i.e., No Action Alternative wells).  
 2 All wells under the No Action Alternative are currently under production, therefore, the rate of development will not affect the production values. Well life is assumed to be 40 years.  
 3 Price is \$3.50/MCF of natural gas based on CREG (2004). The value of production is based on revenues less cost of operation.  
 4 No additional cost of operation and no additional labor earnings or employment are attributable to condensate.  
 5 Price is \$21.00/bbl of condensate based on CREG (2004).  
 6 Net project labor earnings resulting from secondary economic activity induced by production. These earnings do not include actual production labor earnings. See Table 5.5 for production wages included in direct costs.  
 Based on annual production calculated using decline curves provided by Operators. All wells are assumed to have a 40-year life. See Appendix B for decline curves and expected annual production. Present value is the real value of production with discounting applied.  
 See Section 2.2 for a discussion of discounting.

employment. A declining population would result in a reduction in housing pressure. Potential increases in taxes and revenues would not be realized, and population-based disbursements (some royalties, severance, and PILT payments based on county and city populations) would likely decrease. Production impacts from all action alternatives would be higher than that described for the No Action Alternative due to the increased number of wells, higher production volume rates, and extended LOP.

#### 5.3.2.2 Proposed Action

Under the Proposed Action, it is assumed that recovery for the LOP would be up to 7,947 BCF of natural gas and 75.50 MBO, which would result in nominal economic activity of \$30,509.5 million (including \$1,109.5 million of secondary labor earnings) and 32,928 AJEs (Table 5.16). Production would result in \$17,963.8 million present value in economic activity (including \$619.3 million in labor earnings) to the local economy over the LOP (Table 5.16). The LOP (excluding final reclamation) for the Proposed Action could be up to 52.5 years (12.5 years to develop, 40-year life of well).

This alternative would have more nominal economic activity in terms of production than the No Action Alternative because of the higher level of resource recovery.

#### 5.3.2.3 Alternative A (Maximum Recovery)

Under Alternative A (maximum recovery), it is assumed that recovery for the LOP would be up to 8,191 BCF of natural gas and 77.81 MBO, which would result in nominal economic activity of \$31,446.1 million (including \$1,143.6 million of secondary labor earnings) and 33,939 AJEs (Table 5.16). The greatest economic activity from this alternative would result in \$18,511.2 million in present value economic activity (including \$638.1 million in labor earnings) to the local economy over the LOP under the 250 well/year development rate (52.5-year LOP, excluding final

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reclamation) (Table 5.16). The LOP, excluding final reclamation, for Alternative A could be up to 82 years (42 years to develop, 40-year life of well) under the 75 well/year development rate. This alternative would have more nominal economic activity in terms of production than the Proposed Action because of the higher level of resource recovery.

#### 5.3.2.4 Alternative B

Under Alternative B, it is assumed that recovery for the LOP would be up to 6,124 BCF of natural gas and 58.18 MBO, which would result in nominal economic activity of \$23,510.8 million (including \$855.0 million of secondary labor earnings) and 25,374 AJEs (Table 5.16). The greatest economic activity from this alternative would result in \$13,842.7 million in present value economic activity (including \$477.2 million in labor earnings) to the local economy over the LOP under the 250 well/year development rate (52.5-year LOP, excluding final reclamation) (Table 5.16). The LOP, excluding final reclamation, for Alternative B could be up to 82 years (42 years to develop, 40-year life of well) under the 75 well/year development rate (Table 5.16). This alternative would have less nominal economic activity in terms of production than the Proposed Action because of the lower level of resource recovery.

#### 5.3.2.5 Alternative C

Under Alternative C, it is assumed that recovery for the LOP would be up to 6,657 BCF of natural gas and 63.24 MBO, which would result in nominal economic activity of \$25,556.9 million (including \$929.4 million of secondary labor earnings) and 27,583 AJEs (Table 5.16). The greatest economic activity from this alternative would result in \$17,145.3 million in present value economic activity (including \$591.0 million in labor earnings) to the local economy over the LOP under the 250 well/year development rate (45-year LOP, excluding final reclamation) (Table 5.16). The LOP, excluding final reclamation, for Alternative C could be up to 57 years (17.0 years to develop, 40-year life of well) under the 75 well/year development rate. This alternative would have less nominal

economic activity in terms of production than the Proposed Action because of the lower level of resource recovery.

#### 5.3.2.6 Alternative D

Under Alternative D, it is assumed that recovery for the LOP would be up to 7,554 BCF of natural gas and 71.76 MBO, which would result in nominal economic activity of \$29,000.6 million (including \$1,054.6 million of secondary labor earnings) and 31,299 AJEs (Table 5.16). The greatest economic activity from this alternative would result in \$18,212.2 million in present value economic activity (including \$627.8 million in labor earnings) to the local economy over the LOP under the 250 well/year development rate (49-year LOP, excluding final reclamation) (Table 5.16). The maximum anticipated LOP, excluding final reclamation, for Alternative D could be up to 70 years (30 years to develop, 40-year life of well) under the 75 well/year development rate. This alternative would have less nominal economic activity in terms of production than the Proposed Action because of the lower level of resource recovery.

#### 5.3.2.7 Alternative E

Under Alternative E, it is assumed that recovery for the LOP would be up to 6,302 BCF of natural gas and 59.87 MBO, which would result in nominal economic activity of \$24,191.1 million (including \$879.8 million of secondary labor earnings) and 26,112 AJEs (Table 5.16). The greatest economic activity from this alternative would result in \$14,245.2 million in present value economic activity (including \$491.1 million in labor earnings) to the local economy over the LOP under the 250 well/year development rate (52.5-year LOP, excluding final reclamation) (Table 5.16). The maximum anticipated LOP, excluding final reclamation, for Alternative E could be up to 82 years (42 years to develop, 40-year life of well) under the 75 well/year development rate. This alternative would have less nominal economic activity in terms of production than the Proposed Action because of the lower level of resource recovery.

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#### 5.3.2.8 Alternative F

Under Alternative F, it is assumed that recovery for the LOP would be up to 7,186 BCF of natural gas and 68.27 MBO, which would result in nominal economic activity of \$27,587.9 million (including \$1,003.3 million of secondary labor earnings) and 29,775 AJEs (Table 5.16). The greatest economic activity from this alternative would result in \$16,243.3 million in present value economic activity (including \$559.9 million in labor earnings) to the local economy over the LOP under the 250 well/year development rate (52.5-year LOP, excluding final reclamation) (Table 5.16). The maximum anticipated LOP, excluding final reclamation, for Alternative F could be up to 82 years (42 years to develop, 40-year life of well) under the 75 well/year development rate (Table 5.16). This alternative would have less nominal economic activity in terms of production than the Proposed Action because of the lower level of resource recovery.

#### 5.3.2.9 Alternative G

Under Alternative G, it is assumed that recovery for the LOP would be up to 7,876 BCF of natural gas and 74.82 MBO, which would result in nominal economic activity of \$30,236.8 million (including \$1,099.6 million of secondary labor earnings) and 32,634 AJEs (Table 5.16). The greatest economic activity from this alternative would result in \$17,803.0 million in present value economic activity (including \$613.7 million in labor earnings) to the local economy over the LOP under the 250 well/year development rate (52.5-year LOP, excluding final reclamation) (Table 5.16). The maximum anticipated LOP, excluding final reclamation, for Alternative G could be up to 82 years (42 years to develop, 40-year life of well) under the 75 well/year development rate (Table 5.16). This alternative would have less nominal economic activity in terms of production than the Proposed Action because of the lower level of resource recovery.

#### 5.3.2.10 Preferred Alternative

Under the Preferred Alternative, its recovery and economic impacts from production for the LOP would be approximately the same as that described for Alternative G at the 250 wells/year development rate. This alternative would have less nominal economic activity in terms of production than the Proposed Action because of the lower level of resource recovery.

### **5.3.3 Government Revenues**

The project would generate substantial revenues for state, county, and local governments, as well as area school districts, through state sales tax, federal income tax, ad valorem taxes, severance taxes, federal minerals royalties, and other taxes on facilities and production. The assumed severance tax rates for both natural gas (base rate) and condensate is 6%, and approximately 4.2% of production is expected to come from state lands and would result in revenues from severance tax. The other 95.8% of production would be from federal lands and would result in revenues from federal mineral royalties at the rate of 12.5%. Secondary labor earnings would be subject to federal income tax at an assumed rate of 15% based on estimated average wages and the current (2004) Internal Revenue Service tax rate tables.

The estimated revenues and taxes resulting from the project, as well as their present value, for the LOP are presented in Table 5.17. The likely distribution of those funds to the U.S., Wyoming, affected counties, cities, and towns based on current statutes and distribution trends presented in Chapter 3 are presented in Table 5.18. For the purposes of this analysis, the rate of development and an average decline curve for individual well production was used to estimate total annual field production; well life was assumed to be 40 years (see Appendix A). Increases in taxes and revenues would have the effect of providing counties and communities with more discretionary dollars to develop infrastructure and provide for the needs of low-income residents; thus, the dependence on federal or state grant monies would be reduced.

Table 5.17 Government Taxes and Revenues Resulting from the Jonah Infill Drilling Project (Life of Field), Sublette County, Wyoming, 2005.

		Economic Activity Resulting from Development (LOF)										
Development Rate <sup>1</sup>	No Action Alternative <sup>3</sup>	Alternative A										Preferred Alternative
		Proposed Action <sup>2</sup>	Maximum Recovery <sup>2</sup>	Alternative B <sup>2</sup>	Alternative C <sup>2</sup>	Alternative D <sup>2</sup>	Alternative E <sup>2</sup>	Alternative F <sup>2</sup>	Alternative G <sup>2</sup>			
NOMINAL VALUE OF TAX REVENUES FROM ECONOMIC ACTIVITY												
<b>75 Wells/Year</b>												
State Sales Taxes from Development <sup>3</sup> (millions of \$)	0.0	266.9	264.5	294.0	109.9	192.0	291.2	284.1	270.0	270.0	270.0	270.0
Federal Income Tax from Development Labor <sup>4</sup> (millions of \$)	0.0	41.7	41.3	45.9	17.2	30.0	45.5	44.4	42.2	42.2	42.2	42.2
Taxes from Secondary Development Labor Earnings <sup>4</sup> (millions of \$)	0.0	254.9	251.6	293.6	105.9	184.1	289.6	279.6	259.4	259.4	259.4	259.4
Severance Revenues from Production <sup>5</sup> (millions of \$)	31.4	74.1	76.4	57.1	62.1	70.4	58.8	67.0	73.4	73.4	73.4	73.4
Federal Mineral Royalties from Production <sup>5</sup> (millions of \$)	1,491.2	3,520.7	3,628.7	2,713.0	2,949.1	3,346.5	2,791.9	3,183.5	3,489.2	3,489.2	3,489.2	3,489.2
Ad Valorem Taxes on Production <sup>6</sup> (millions of \$)	741.8	1,751.4	1,805.1	1,349.6	1,467.1	1,664.7	1,388.8	1,583.6	1,735.7	1,735.7	1,735.7	1,735.7
Federal Income Taxes from Secondary Production Labor Earnings <sup>4</sup> (millions of \$)	70.5	166.4	171.5	128.2	139.4	158.2	132.0	150.5	164.9	164.9	164.9	164.9
Total Taxes and Revenues <sup>7</sup> (millions of \$)	2,334.9	6,076.0	6,239.1	4,881.4	4,850.7	5,646.0	4,997.8	5,592.7	6,034.8	6,034.8	6,034.8	6,034.8
<b>150 Wells/Year</b>												
State Sales Taxes from Development <sup>3</sup> (millions of \$)	0.0	267.1	264.5	294.0	116.9	192.0	291.0	480.3	270.0	270.0	270.0	270.0
Federal Income Tax from Development Labor <sup>4</sup> (millions of \$)	0.0	41.7	41.3	45.9	18.3	30.0	45.5	75.1	42.2	42.2	42.2	42.2
Taxes from Secondary Development Labor Earnings <sup>4</sup> (millions of \$)	0.0	255.2	251.6	293.6	112.9	184.1	289.4	475.5	259.4	259.4	259.4	259.4
Severance Revenues from Production <sup>5</sup> (millions of \$)	31.4	74.1	76.4	57.1	62.1	70.4	58.8	67.0	73.4	73.4	73.4	73.4
Federal Mineral Royalties from Production <sup>5</sup> (millions of \$)	1,491.2	3,520.7	3,628.7	2,713.0	2,949.1	3,346.5	2,791.9	3,183.5	3,489.2	3,489.2	3,489.2	3,489.2
Ad Valorem Taxes on Production <sup>6</sup> (millions of \$)	741.8	1,751.4	1,805.1	1,349.6	1,467.1	1,664.7	1,388.8	1,583.6	1,735.7	1,735.7	1,735.7	1,735.7
Federal Income Taxes from Secondary Production Labor Earnings <sup>4</sup> (millions of \$)	70.5	166.4	171.5	128.2	139.4	158.2	132.0	150.5	164.9	164.9	164.9	164.9
Total Taxes and Revenues <sup>7</sup> (millions of \$)	2,334.9	6,076.5	6,239.1	4,881.4	4,865.7	5,646.0	4,997.3	6,015.6	6,034.8	6,034.8	6,034.8	6,034.8
<b>250 Wells/Year</b>												
State Sales Taxes from Development <sup>3</sup> (millions of \$)	0.0	265.0	262.4	291.6	107.5	192.0	288.9	281.9	267.8	267.8	267.8	267.8
Federal Income Tax from Development Labor <sup>4</sup> (millions of \$)	0.0	41.4	41.0	45.6	16.8	30.0	45.1	44.1	41.8	41.8	41.8	41.8
Taxes from Secondary Development Labor Earnings <sup>4</sup> (millions of \$)	0.0	253.2	249.6	291.2	103.5	184.1	287.4	277.4	257.2	257.2	257.2	257.2
Severance Revenues from Production <sup>5</sup> (millions of \$)	31.4	74.1	76.4	57.1	62.1	70.4	58.8	67.0	73.4	73.4	73.4	73.4
Federal Mineral Royalties from Production <sup>5</sup> (millions of \$)	1,491.2	3,520.7	3,628.7	2,713.0	2,949.1	3,346.5	2,791.9	3,183.5	3,489.2	3,489.2	3,489.2	3,489.2
Ad Valorem Taxes on Production <sup>6</sup> (millions of \$)	741.8	1,751.4	1,805.1	1,349.6	1,467.1	1,664.7	1,388.8	1,583.6	1,735.7	1,735.7	1,735.7	1,735.7
Federal Income Taxes from Secondary Production Labor Earnings <sup>4</sup> (millions of \$)	70.5	166.4	171.5	128.2	139.4	158.2	132.0	150.5	164.9	164.9	164.9	164.9
Total Taxes and Revenues <sup>7</sup> (millions of \$)	2,334.9	6,072.1	6,234.7	4,876.4	4,845.5	5,646.1	4,992.9	5,588.0	6,030.1	6,030.1	6,030.1	6,030.1

Approximately the same as Alternative G

Table 5.17 (Continued)

Development Rate <sup>1</sup>	Economic Activity Resulting from Development (LOF)										Preferred Alternative	
	No Action Alternative <sup>3</sup>	Alternative A		PRESENT VALUE OF REVENUES AND TAXES FROM ECONOMIC ACTIVITY <sup>8</sup>						Alternative F <sup>2</sup>		Alternative G <sup>2</sup>
		Proposed Action <sup>2</sup>	Maximum Recovery <sup>2</sup>	Alternative B <sup>2</sup>	Alternative C <sup>2</sup>	Alternative D <sup>2</sup>	Alternative E <sup>2</sup>	Alternative F <sup>2</sup>	Alternative G <sup>2</sup>			
<b>75 Wells/Year</b>												
State Sales Taxes from Development (millions of \$)	0.0	145.7	144.4	160.5	60.0	104.8	159.0	155.1	147.4			
Federal Income Tax from Development Labor (millions of \$)	0.0	22.8	22.6	25.1	9.4	16.4	24.8	24.2	23.0			
Taxes from Secondary Development Labor Earnings (millions of \$)	0.0	139.2	137.3	160.2	57.8	100.5	158.1	152.6	141.6			
Severance Revenues from Production (millions of \$)	22.6	29.4	29.5	22.7	34.4	32.1	23.3	26.6	29.2			
Federal Mineral Royalties from Production (millions of \$)	1,072.5	1,399.1	1,404.2	1,078.2	1,633.7	1,527.2	1,109.5	1,265.2	1,386.6			
Ad Valorem Taxes on Production (millions of \$)	533.5	696.0	698.5	536.3	812.7	759.7	551.9	629.4	689.8			
Federal Income Taxes from Secondary Production Labor Earnings (millions of \$)	125.1	125.1	125.1	125.1	125.1	125.1	125.1	125.1	125.1			
Total Taxes and Revenues (millions of \$)	1,753.7	2,557.3	2,561.7	2,108.2	2,733.2	2,665.9	2,151.9	2,378.2	2,542.8			
<b>150 Wells/Year</b>												
State Sales Taxes from Development (millions of \$)	0.0	98.1	97.2	108.0	43.0	70.6	106.9	176.5	99.2			
Federal Income Tax from Development Labor (millions of \$)	0.0	15.3	15.2	16.9	6.7	11.0	16.7	27.6	15.5			
Taxes from Secondary Development Labor Earnings (millions of \$)	0.0	93.8	92.4	107.9	41.5	67.6	106.3	174.7	95.3			
Severance Revenues from Production (millions of \$)	22.6	38.6	39.8	29.7	39.1	40.3	30.6	34.9	38.3			
Federal Mineral Royalties from Production (millions of \$)	1,072.5	1,834.2	1,890.4	1,413.5	1,855.7	1,912.7	1,454.6	1,658.6	1,817.9			
Ad Valorem Taxes on Production (millions of \$)	533.5	912.5	940.4	703.1	923.1	951.5	723.6	825.1	904.3			
Federal Income Taxes from Secondary Production Labor Earnings (millions of \$)	125.1	164.1	164.1	164.1	164.1	164.1	164.1	164.1	164.1			
Total Taxes and Revenues (millions of \$)	1,753.7	3,156.6	3,239.5	2,543.2	3,073.1	3,217.8	2,602.8	3,061.5	3,134.5			
<b>250 Wells/Year</b>												
State Sales Taxes from Development (millions of \$)	0.0	63.9	63.3	70.4	25.9	46.3	69.7	68.0	64.6			
Federal Income Tax from Development Labor (millions of \$)	0.0	10.0	9.9	11.0	4.1	7.2	10.9	10.6	10.1			
Taxes from Secondary Development Labor Earnings (millions of \$)	0.0	61.1	60.2	70.3	25.0	44.4	69.3	66.9	62.1			
Severance Revenues from Production (millions of \$)	22.6	43.7	45.0	33.7	41.7	44.3	34.7	39.5	43.3			
Federal Mineral Royalties from Production (millions of \$)	1,072.5	2,077.0	2,140.3	1,600.5	1,982.4	2,105.7	1,647.1	1,878.1	2,058.4		Approximately the same as Alternative G	
Ad Valorem Taxes on Production (millions of \$)	533.5	1,033.2	1,064.7	796.2	986.1	1,047.5	819.3	934.3	1,024.0			
Federal Income Taxes from Secondary Production Labor Earnings (millions of \$)	125.1	185.8	191.4	143.2	177.3	188.3	147.3	168.0	184.1			
Total Taxes and Revenues (millions of \$)	1,753.7	3,474.7	3,574.9	2,725.2	3,242.5	3,483.9	2,798.3	3,165.4	3,446.6			

1 Assumes no new development.  
 2 Assumes wells currently in production (i.e. No Action Alternative wells) are subject to state sales tax. Assumes state sales tax rate is 4%. Counties where materials are purchased may impose additional sales tax.  
 3 Based on costs presented in Table 5.2.  
 4 Nonproject labor earnings resulting from secondary economic activity are assumed to be taxed at a federal income tax rate of 15% (rate for head of household in 2004, assuming average wage of \$37,228).  
 5 Assumes 4.2% of production is from state minerals with severance taxes at a rate of 6% on production value; 95.8% of production is from federal minerals and with federal royalty at a rate of 12.5% on production value.  
 6 Assumes 59.57 wells develop and produce in the project area.  
 7 Assumes analysis wells develop and produce in the project area.  
 8 The discount rate used for this analysis was 3.5%. Conservatively assumes revenues are received as a lump sum at year end.  
 See Section 2.2 for a discussion of discounting.



Table 5.18 Taxes and Revenues Received by Governments From the Jonah Infill Drilling Project (Life of Project), Sublette County, Wyoming, 2005.<sup>1</sup>

Development Rate/Government	Taxes and Revenues Received by Governments									
	No Action Alternative	Proposed Action	Alternative A Maximum Recovery	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F	Alternative G	Preferred Alternative
<b>75 Wells/Year</b>										
<b>Federal</b>										
Federal Income Tax from All Labor (millions of \$)	70.49	463.04	464.42	467.74	262.49	372.28	467.12	474.45	466.53	--
Federal Mineral Royalties from Production (millions of \$)	1,491.20	3,520.65	3,628.73	2,713.03	2,949.15	3,346.53	2,791.88	3,183.51	3,489.18	--
Total Federal Taxes and Revenues	1,561.69	3,983.69	4,093.15	3,180.77	3,211.64	3,718.81	3,259.00	3,657.96	3,955.71	--
<b>State</b>										
State Sales Taxes from Development <sup>2</sup> (millions of \$)	0.00	266.86	264.50	293.97	109.92	192.02	291.22	284.15	270.00	--
Severance Revenues from Production (millions of \$)	31.38	74.09	76.36	57.09	62.06	70.42	58.75	66.99	73.43	--
Federal Mineral Royalties from Production Returned to State (millions of \$)	745.60	1,760.33	1,814.36	1,356.51	1,474.57	1,673.26	1,395.94	1,591.76	1,744.59	--
Total State Taxes and Revenues	776.98	2,101.27	2,155.23	1,707.58	1,646.56	1,935.70	1,745.91	1,942.90	2,088.02	--
<b>Sublette County</b>										
State Sales Taxes from Development Returned to County <sup>2</sup> (millions of \$)	0.00	88.06	87.29	97.01	36.27	63.37	96.10	93.77	89.10	--
Severance Revenues from Production Returned to County <sup>3</sup> (millions of \$)	0.02	0.04	0.05	0.03	0.04	0.04	0.04	0.04	0.04	--
Ad Valorem Taxes on Production <sup>2</sup> (millions of \$)	741.80	1,751.36	1,805.12	1,349.60	1,467.06	1,664.74	1,388.83	1,583.65	1,735.70	--
Total County Taxes and Revenues	741.82	1,839.47	1,892.45	1,446.65	1,503.37	1,728.15	1,484.97	1,677.46	1,824.85	--
<b>Lincoln County</b>										
Severance Revenues from Production Returned to County <sup>3</sup> (millions of \$)	0.05	0.11	0.11	0.08	0.09	0.10	0.09	0.10	0.11	--
<b>Sweetwater County</b>										
Severance Revenues from Production Returned to County <sup>3</sup> (millions of \$)	0.12	0.28	0.29	0.22	0.24	0.27	0.22	0.25	0.28	--
<b>LaBarge</b>										
Severance Revenues from Production Returned to Cities and Towns <sup>3</sup> (millions of \$)	0.10	0.01	0.26	0.19	0.21	0.24	0.20	0.22	0.25	--
Federal Mineral Royalties from Production Returned to Cities and Towns <sup>4</sup> (millions of \$)	0.20	4.60	4.75	0.35	0.39	0.44	0.37	0.42	0.46	--
Total Town Taxes and Revenues	0.30	4.61	5.00	0.55	0.59	0.67	0.56	0.64	0.70	--
<b>Big Piney</b>										
Severance Revenues from Production Returned to Cities and Towns <sup>3</sup> (millions of \$)	0.10	0.01	0.24	0.18	0.20	0.22	0.19	0.21	0.23	--
Federal Mineral Royalties from Production Returned to Cities and Towns <sup>4</sup> (millions of \$)	0.19	4.54	4.68	0.35	0.38	0.43	0.36	0.41	0.45	--
Total Town Taxes and Revenues	0.29	4.55	4.92	0.53	0.58	0.66	0.55	0.62	0.68	--
<b>Marbleton</b>										
Severance Revenues from Production Returned to Cities and Towns <sup>3</sup> (millions of \$)	0.18	0.02	0.43	0.32	0.35	0.39	0.33	0.38	0.41	--
Federal Mineral Royalties from Production Returned to Cities and Towns <sup>4</sup> (millions of \$)	0.30	7.10	7.31	0.55	0.59	0.67	0.56	0.64	0.70	--
Total Town Taxes and Revenues	0.48	7.11	7.74	0.87	0.94	1.07	0.89	1.02	1.11	--

Table 5.18 (Continued)

Development Rate/Government Pinelake	Taxes and Revenues Received by Governments										Preferred Alternative
	No Action Alternative	Proposed Action	Alternative A Maximum Recovery	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F	Alternative G	Alternative H	
Severance Revenues from Production Returned Cities and Towns <sup>3</sup> (millions of \$)	0.34	0.01	0.26	0.62	0.68	0.77	0.64	0.73	0.80	0.80	--
Federal Mineral Royalties from Production Returned to Cities and Towns <sup>4</sup> (millions of \$)	0.54	4.60	4.75	0.98	1.06	1.21	1.01	1.15	1.26	1.26	--
Total Town Taxes and Revenues	0.88	4.61	5.00	1.60	1.74	1.98	1.65	1.88	2.06	2.06	--
<b>Rock Springs</b>											
Severance Revenues from Production Returned Cities and Towns <sup>3</sup> (millions of \$)	4.56	0.01	0.26	8.30	9.02	10.24	8.54	9.74	10.67	10.67	--
Federal Mineral Royalties from Production Returned to Cities and Towns <sup>4</sup> (millions of \$)	3.47	4.60	4.75	6.32	6.87	7.80	6.50	7.42	8.13	8.13	--
Total Town Taxes and Revenues	8.04	4.61	5.00	14.62	15.89	18.03	15.05	17.16	18.80	18.80	--
Federal Mineral Royalties from Production Allocated to School Capital Account <sup>4</sup> (millions of \$)	20.13	47.53	48.99	36.63	39.81	45.18	37.69	42.98	47.10	47.10	--
<b>150 Wells/Year</b>											
<b>Federal</b>											
Federal Income Tax from All Labor (millions of \$)	70.49	463.35	464.42	467.74	270.53	372.28	466.81	701.09	466.53	466.53	--
Federal Mineral Royalties from Production (millions of \$)	1,491.20	3,520.65	3,628.73	2,713.03	2,949.15	3,346.53	2,791.88	3,183.51	3,489.18	3,489.18	--
Total Federal Taxes and Revenues	1,561.69	3,984.00	4,093.15	3,180.77	3,219.67	3,718.81	3,258.69	3,884.60	3,955.71	3,955.71	--
<b>State</b>											
State Sales Taxes from Development <sup>2</sup> (millions of \$)	0.00	267.06	264.50	293.97	116.89	192.02	291.02	480.32	270.00	270.00	--
Severance Revenues from Production (millions of \$)	31.38	74.09	76.36	57.09	62.06	70.42	58.75	66.99	73.43	73.43	--
Federal Mineral Royalties from Production Returned to State (millions of \$)	745.60	1,760.33	1,814.36	1,356.51	1,474.57	1,673.26	1,395.94	1,591.76	1,744.59	1,744.59	--
Total State Taxes and Revenues	776.98	2,101.47	2,155.23	1,707.58	1,653.53	1,935.70	1,745.72	2,139.07	2,088.02	2,088.02	--
<b>Sublette County</b>											
State Sales Taxes from Development Returned to County <sup>2</sup> (millions of \$)	0.00	88.13	87.29	97.01	38.57	63.37	96.04	158.51	89.10	89.10	--
Severance Revenues from Production Returned to County <sup>3</sup> (millions of \$)	0.02	0.04	0.05	0.03	0.04	0.04	0.04	0.04	0.04	0.04	--
Ad Valorem Taxes on Production <sup>2</sup> (millions of \$)	741.80	1,751.36	1,805.12	1,349.60	1,467.06	1,664.74	1,388.83	1,583.65	1,735.70	1,735.70	--
Total County Taxes and Revenues	741.82	1,839.53	1,892.45	1,446.65	1,505.67	1,728.15	1,484.90	1,742.20	1,824.85	1,824.85	--
<b>Lincoln County</b>											
Severance Revenues from Production Returned to County <sup>3</sup> (millions of \$)	0.05	0.11	0.11	0.08	0.09	0.10	0.09	0.10	0.11	0.11	--
<b>Sweetwater County</b>											
Severance Revenues from Production Returned to County <sup>3</sup> (millions of \$)	0.12	0.28	0.29	0.22	0.24	0.27	0.22	0.25	0.28	0.28	--
<b>LaBarge</b>											
Severance Revenues from Production Returned Cities and Towns <sup>3</sup> (millions of \$)	0.10	0.01	0.26	0.19	0.21	0.24	0.20	0.22	0.25	0.25	--
Federal Mineral Royalties from Production Returned to Cities and Towns <sup>4</sup> (millions of \$)	0.20	4.60	4.75	0.35	0.39	0.44	0.37	0.42	0.46	0.46	--
Total Town Taxes and Revenues	0.30	4.61	5.00	0.55	0.59	0.67	0.56	0.64	0.70	0.70	--

Table 5.18 (Continued)

Development Rate/Government	Taxes and Revenues Received by Governments										Preferred Alternative	
	No Action Alternative	Proposed Action	Alternative A Maximum Recovery	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F	Alternative G	Alternative H		
<b>Big Pine</b>												
Severance Revenues from Production Returned Cities and Towns <sup>3</sup> (millions of \$)	0.10	0.01	0.24	0.18	0.20	0.22	0.19	0.21	0.23	--	--	
Federal Mineral Royalties from Production Returned to Cities and Towns <sup>4</sup> (millions of \$)	0.19	4.54	4.68	0.35	0.38	0.43	0.36	0.41	0.45	--	--	
Total Town Taxes and Revenues	0.29	4.55	4.92	0.53	0.58	0.66	0.55	0.62	0.68	--	--	
<b>Marbleton</b>												
Severance Revenues from Production Returned Cities and Towns <sup>3</sup> (millions of \$)	0.18	0.02	0.43	0.32	0.35	0.39	0.33	0.38	0.41	--	--	
Federal Mineral Royalties from Production Returned to Cities and Towns <sup>4</sup> (millions of \$)	0.30	7.10	7.31	0.55	0.59	0.67	0.56	0.64	0.70	--	--	
Total Town Taxes and Revenues	0.48	7.11	7.74	0.87	0.94	1.07	0.89	1.02	1.11	--	--	
<b>Pinedale</b>												
Severance Revenues from Production Returned Cities and Towns <sup>3</sup> (millions of \$)	0.34	0.01	0.26	0.62	0.68	0.77	0.64	0.73	0.80	--	--	
Federal Mineral Royalties from Production Returned to Cities and Towns <sup>4</sup> (millions of \$)	0.54	4.60	4.75	0.98	1.06	1.21	1.01	1.15	1.26	--	--	
Total Town Taxes and Revenues	0.88	4.61	5.00	1.60	1.74	1.98	1.65	1.88	2.06	--	--	
<b>Rock Springs</b>												
Severance Revenues from Production Returned Cities and Towns <sup>3</sup> (millions of \$)	4.56	0.01	0.26	8.30	9.02	10.24	8.54	9.74	10.67	--	--	
Federal Mineral Royalties from Production Returned to Cities and Towns <sup>4</sup> (millions of \$)	3.47	4.60	4.75	6.32	6.87	7.80	6.50	7.42	8.13	--	--	
Total Town Taxes and Revenues	8.04	4.61	5.00	14.62	15.89	18.03	15.05	17.16	18.80	--	--	
Federal Mineral Royalties from Production Allocated to School Capital Account <sup>4</sup> (millions of \$)	20.13	47.53	48.99	36.63	39.81	45.18	37.69	42.98	47.10	--	--	
<b>250 Wells/Year</b>												
<b>Federal</b>												
Federal Income Tax from All Labor (millions of \$)	70.49	461.06	462.10	465.05	259.70	372.33	464.52	471.94	464.01			
Federal Mineral Royalties from Production (millions of \$)	1,491.20	3,520.65	3,628.73	2,713.03	2,949.15	3,346.53	2,791.88	3,183.51	3,489.18			
Total Federal Taxes and Revenues	1,561.69	3,981.71	4,090.83	3,178.08	3,208.85	3,718.86	3,256.40	3,655.45	3,953.19			
<b>State</b>												
State Sales Taxes from Development <sup>2</sup> (millions of \$)	0.00	264.97	262.40	291.64	107.53	192.04	288.95	281.93	267.78			
Severance Revenues from Production (millions of \$)	31.38	74.09	76.36	57.09	62.06	70.42	58.75	66.99	73.43			
Federal Mineral Royalties from Production Returned to State (millions of \$)	745.60	1,760.33	1,814.36	1,356.51	1,474.57	1,664.74	1,395.94	1,591.76	1,744.59			
Total State Taxes and Revenues	776.98	2,099.39	2,153.13	1,705.24	1,644.17	1,935.73	1,743.64	1,940.68	2,085.80			
<b>Sublette County</b>												
State Sales Taxes from Development Returned to County <sup>2</sup> (millions of \$)	0.00	87.44	86.59	96.24	35.49	63.37	95.35	93.04	88.37			
Severance Revenues from Production Returned to County <sup>3</sup> (millions of \$)	0.12	0.28	0.29	0.22	0.24	0.27	0.22	0.25	0.28			
Ad Valorem Taxes on Production <sup>5</sup> (millions of \$)	741.80	1,751.36	1,805.12	1,349.60	1,467.06	1,664.83	1,388.83	1,583.65	1,735.70			
Total County Taxes and Revenues	741.92	1,839.08	1,892.00	1,446.06	1,502.78	1,728.38	1,484.41	1,676.94	1,824.35			
<b>Lincoln County</b>												
Severance Revenues from Production Returned to County <sup>3</sup> (millions of \$)	0.05	0.11	0.11	0.08	0.09	0.10	0.09	0.10	0.11			

Approximately the same as Alternative G

Table 5.18 (Continued)

Development Rate/Government	Taxes and Revenues Received by Governments									
	No Action Alternative	Proposed Action	Alternative A Maximum Recovery	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F	Alternative G	Preferred Alternative
<u>Sweetwater County</u>										
Severance Revenues from Production Returned to County <sup>2</sup> (millions of \$)	0.12	0.28	0.29	0.22	0.24	0.27	0.22	0.25	0.28	
<u>LaBarge</u>										
Severance Revenues from Production Returned Cities and Towns <sup>3</sup> (millions of \$)	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	
Federal Mineral Royalties from Production Returned to Cities and Towns <sup>4</sup> (millions of \$)	0.20	4.60	4.75	0.35	0.39	0.44	0.37	0.42	0.46	
Total Town Taxes and Revenues	0.20	4.61	4.76	0.36	0.39	0.45	0.37	0.43	0.47	
<u>Big Piney</u>										
Severance Revenues from Production Returned Cities and Towns <sup>3</sup> (millions of \$)	0.10	0.01	0.24	0.18	0.20	0.22	0.19	0.21	0.23	
Federal Mineral Royalties from Production Returned to Cities and Towns <sup>4</sup> (millions of \$)	0.19	4.54	4.68	0.35	0.38	0.43	0.36	0.41	0.45	
Total Town Taxes and Revenues	0.29	4.55	4.92	0.53	0.58	0.66	0.55	0.62	0.68	
<u>Marbleton</u>										
Severance Revenues from Production Returned Cities and Towns <sup>3</sup> (millions of \$)	0.18	0.02	0.43	0.32	0.35	0.39	0.33	0.38	0.41	
Federal Mineral Royalties from Production Returned to Cities and Towns <sup>4</sup> (millions of \$)	0.30	7.10	7.31	0.55	0.59	0.67	0.56	0.64	0.70	
Total Town Taxes and Revenues	0.48	7.11	7.74	0.87	0.94	1.07	0.89	1.02	1.11	
<u>Prineade</u>										
Severance Revenues from Production Returned Cities and Towns <sup>3</sup> (millions of \$)	0.34	0.01	0.26	0.62	0.68	0.77	0.64	0.73	0.80	
Federal Mineral Royalties from Production Returned to Cities and Towns <sup>4</sup> (millions of \$)	0.54	4.60	4.75	0.98	1.06	1.21	1.01	1.15	1.26	
Total Town Taxes and Revenues	0.88	4.61	5.00	1.60	1.74	1.98	1.65	1.88	2.06	
<u>Rock Springs</u>										
Severance Revenues from Production Returned Cities and Towns <sup>3</sup> (millions of \$)	4.56	0.01	0.26	8.30	9.02	10.24	8.54	9.74	10.67	
Federal Mineral Royalties from Production Returned to Cities and Towns <sup>4</sup> (millions of \$)	3.47	4.60	4.75	6.32	6.87	7.80	6.50	7.42	8.13	
Total Town Taxes and Revenues	8.04	4.61	5.00	14.62	15.89	18.03	15.05	17.16	18.80	
Federal Mineral Royalties from Production Allocated to School Capital Account <sup>5</sup> (millions of \$)	20.13	47.53	48.99	36.63	39.81	45.18	37.69	42.98	47.10	

<sup>1</sup> See Table 5.17 for present value of taxes.

<sup>2</sup> This analysis does not present all possible taxes that may be levied on the production of oil and gas. For purposes of this analysis, all sales taxes are attributed to Sublette County.

<sup>3</sup> Sales tax returns to the county of origin. This analysis does not include the impact of other possible taxes levied on production.

<sup>4</sup> Based on 2003 proportions. Counties would also receive a percentage of severance for road construction funds (see Table 3.23).

<sup>5</sup> Based on 2003 proportions. For the purposes of this analysis all revenues are allocated to Sublette County; however, actual distribution is likely to vary.

Assumes 59.57 mills levied as ad valorem tax rate on production in Sublette County.

Approximately the same as Alternative G

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All counties in the study area would benefit from increased revenues from federal royalties, severance taxes, sales taxes, and presumably use and lodging taxes, although the latter are not discussed further herein.

Because development and production would occur within Sublette County, directly related increases in ad valorem production and property taxes would impact only Sublette County and its communities. Ad valorem taxes on production were estimated herein; however, real property values are likely to change if populations fluctuate, which could result in fluctuating receipts from ad valorem taxes on property. Real property value changes are beyond the scope of this analysis and are not addressed further.

#### 5.3.3.1 No Action Alternative

Under the No Action Alternative, total nominal taxes and royalties would amount to \$2,334.9 million over the LOP (Table 5.17). These returns would provide \$741.82 million to Sublette County (Table 5.18). Based on a population of 6,024 (year 2002), this would be equivalent to the county receiving funds of \$123,144 (approximately \$3,079 annually) for each person in the county. This alternative would generate approximately \$20.13 million for the school capital account to be distributed by the state (Table 5.18).

This alternative would result in a lower recovery of resources and a lower supply of natural gas over the long-term than under the Proposed Action and other alternatives and may result in higher consumer prices and increased dependence on foreign supplies over the long term. The additional taxes and revenues generated by the Proposed Action and other alternatives would remain unrealized. Local community government operating budgets would likely remain essentially static under this alternative.

Because revenues from development would not be realized under the No Action Alternative, this alternative would return the least amount of revenues (\$2,334.9 million nominal; \$1,753.7 million present value) to affected governments (Table 5.17).

### 5.3.3.2 Proposed Action

Under the Proposed Action, total nominal taxes and royalties would amount to \$6,072.1 million (\$3,474.7 million present value) over the LOP (Table 5.17). Nominal taxes and royalties to Sublette County would be \$1,839.08 million (Table 5.18). Based on a population of 6,024 (year 2002), this would be equivalent to the county receiving funds of \$305,292 (approximately \$5,815 annually) for each person in the county. This alternative would generate approximately \$47.53 million for the school capital account to be distributed by the state (Table 5.18).

In addition, property tax revenues would likely increase due to the increased tax base resulting from capital improvements in the JIDPA. Additional natural gas production could affect consumers because retail prices for natural gas are driven by supply and demand. As supply increases in relation to demand, prices of natural gas tend to fall. Reduced energy costs would also affect the local, state, and national economies. While, conceptually, changes in production for this field could impact pricing of natural gas for consumers, given the size of the market it is not likely that a measurable change in market price would be associated with this alternative due to the length of the LOP.

Tables 5.19-5.21 present speculative examples of what budgets for Big Piney, Pinedale, and Sublette County may be in year 10 of development under the Proposed Action. These budgets are calculated on a straight line annual average increase based on the current budgets for these governments as presented in Chapter 3, adjusted for the expected increase in revenues resulting from project activities. Expenses were calculated as a percentage of total revenues based on the last budget year (2003-2004) presented in Chapter 3. While these budgets are merely speculative due to the variability of appropriations and taxes within governments from year to year, they are illustrative of the potential funds that could be available to the towns and county as natural gas development and production proceeds.

### 5.3.3.3 Alternative A (Maximum Recovery)

Under Alternative A, nominal taxes and royalties under the 250 well/year development rate would most likely amount to \$6,234.7 million (\$3,574.9 million present value) over the LOP (Table 5.17).

Table 5.19 Speculative Big Piney Budget in Year 10 under the Proposed Action.

Government/Line Item	2003-2004 <sup>1</sup> (Estimated--Approved by Board) (\$)	Project Year 10 <sup>2</sup> (Estimated Available \$)
<b>REVENUES</b>		
<b><u>Taxes</u></b>		
Property Taxes	14,000	40,667
Gasoline Tax	11,501	9,643
Sales and Use Tax	414,080	3,733,739
Electric Franchise	3,000	3,000
Telephone Franchise	1,000	1,000
Cable TV Franchise	600	600
Special Fuels Tax	2,364	2,782
Severance Tax	17,397	14,391
Mineral Royalty Allocation	53,418	231,678
Cigarette Tax	4,288	5,044
Motor Vehicle Tax	5,000	3,028
Total Tax Revenues	526,648	4,045,574
<b><u>Licenses and Permits</u></b>		
Business Licenses	500	45
Building Permits	50	92
Animal Licenses	50	50
Totals Licenses and Permits	600	73
<b><u>Other Revenues</u></b>		
Liquor License Fees	3,750	3,750
Fines and Forfeitures	1,000	328
Interest Earnings	20,000	65,391
PP&L Collection Services	600	600
Sundry Revenues	100	100
Contributions and Transfers	386,102	1,211,840
Total Other Revenues	411,552	1,282,009
<b>TOTAL REVENUES</b>	<b>938,800</b>	<b>5,327,656</b>
<b>EXPENDITURES</b>		
Legislative	3,715	3,145
Court	8,240	25,963
Administrative	104,560	1,221,150
Social Services/Holidays	33,678	262,349
Buildings	28,637	840,620
Time and Temperature	200	2,459
Parks <sup>3</sup>	18,077	857,624
Health and Safety	5,696	8,508
Police Department	68,866	160,983
Fire Protection	17,000	31,076
Airport Board	4,000	7,312
Streets	146,545	189,902
Total Expenditures	439,214	3,611,092

<sup>1</sup> Only line items that had sufficient data to calculate annual average growth rates appear in this table. It does not entirely reflect the actual Big Piney Budget shown in Table 3.35.

<sup>2</sup> Assumes straight line annual average growth rate of revenues from 1999 to 2003 except where otherwise noted, then adds additional revenues from sales tax, severance, and federal mineral royalties distributed in the same proportion as in year 2003 (see Chapter 3); however, it is unlikely that budget growth or budget items will remain constant over time.

<sup>3</sup> Applied growth rate from 2001-2003.

Table 5.20 Speculative Pinedale Budget in Year 10 under the Proposed Action.

Government/Line Item	2003-2004 <sup>1</sup> (Estimated--Approved by Board) (\$)	Project Year 10 <sup>2</sup> (Estimated Available \$)
<b>REVENUES</b>		
Motor Vehicle Tax	37,000	361,645
Sales and Use Tax	1,433,043	29,823,528
Cigarette Tax	6,400	458
Gasoline Tax	42,127	747,967
Mineral Royalties	147,420	750,591
Mineral Severance	60,256	187,863
Property Tax	107,000	343,692
Dog Licenses	2,500	10,186
Building Permits	5,000	62,131
Liquor Licenses	12,200	16,631
Franchise Fees	30,000	91,490
Court Costs and Fines	10,100	7,517
Interest	37,500	17,000
Fire Department <sup>3</sup>	140,120	12,575,008
Miscellaneous	3,000	3,000
<b>Total Revenues</b>	<b>2,073,666</b>	<b>44,998,706</b>
<b>EXPENDITURES</b>		
Administration	325,255	2,685,201
Municipal Court	15,874	61,604
Animal Control	52,312	593,251
Police Department	227,237	1,550,822
Fire Protection	194,060	21,689,385
Streets <sup>4</sup>	381,840	1,411,560
Pest <sup>4</sup>	25,137	496,190
Recreation	11,000	9,039
Parks	56,900	305,727
Planning	4,500	113,848
Maintenance	219,500	2,339,106
Airport	32,500	139,962
Sanitation <sup>5</sup>	3,000	13,958
<b>Total Expenditures</b>	<b>1,764,115</b>	<b>31,409,651</b>

<sup>1</sup> Only line items that had sufficient data to calculate annual average growth rates appear in this table. It does not entirely reflect the actual Pinedale Budget shown in Table 3.36.

<sup>2</sup> Assumes straight line annual average growth rate of revenues from 1999 to 2003 except where otherwise noted, then adds additional revenues from sales tax, severance, and federal mineral royalties distributed in the same proportion as in year 2003 (see Chapter 3); however, it is unlikely that budget growth or budget items will remain constant over time.

<sup>3</sup> Applied growth rate from 1999-2002.

<sup>4</sup> Applied growth rate from 2002-2003.

<sup>5</sup> Assumes 5% annual growth rate.



Table 5.21 Speculative Sublette County Budget in Year 10 under the Proposed Action.

Government/Line Item	2003-2004 <sup>1</sup> (Estimated--Approved by Board) (\$)	Project Year 10 <sup>2</sup> (Estimated Available \$)
<b>NONPROPERTY TAX REVENUES</b>		
Gas Tax	275,000	526,899
Forest Service	187,202	372,584
Severance Tax	64,016	83,742
PILT	410,577	1,791,253
County Attorney	23,000	23,000
Emergency Management & S&R	25,000	50,114
County Clerk Fees	120,000	556,309
Clerk of Court Fees	12,000	24,217
Planning and Zoning Fees	19,500	49,962
Sheriff's Fees	24,000	13,744
Sales and Use Tax	3,000,000	44,623,297
Cigarette Tax	4,098	4,207
Interest	300,000	276,626
Liquor Licenses	6,750	14,179,286
Big Piney & Pinedale Metro	352,882	623,163
Miscellaneous Fees	30,000	2,958
Special Fuel	350,000	679,440
5%	20,000	43,138
Nurse	35,000	58,172
Motor Vehicles	250,000	468,587
Landfill	400,000	715,679
Federal Mineral Royalty <sup>3</sup>	10,000	--
U.S. Forest-Law Enforcement	9,500	7,586
Contract-Prisoners from Other Counties <sup>4</sup>	168,000	287,337
Sales Tax Penalty	8,000	11,321
Fuel Reimbursement (W&P, Fair)	6,000	9,939
COPS Universal Grant	48,000	757
E-911 Reimbursement	30,000	47,169
Search and Rescue	12,000	67,395
County Court Jury and Reimbursement	2,000	15,403
State-County Road Fund	298,688	1,149,016
Total Revenue Other than Property Taxes	6,501,213	66,751,669
<b>PROPERTY TAX REVENUES</b>		
General Fund	9,616,995	164,047,243
Fair	276,436	3,279,593
Airport	115,500	570,173
Library	520,495	1,552,068
Museum	198,865	555,903
Fire	487,688	1,362,201
Total Revenue from Property Taxes	11,215,979	171,367,182
<b>Total Revenues</b>	<b>17,717,192</b>	<b>238,118,851</b>
<b>GENERAL FUND APPROPRIATIONS<sup>5</sup></b>		
<b><u>Specific Appropriations</u></b>		
County Commissioners	204,700	2,876,186
County Clerk	169,615	861,671
County Treasurer	160,378	1,331,521
County Assessor	230,503	1,230,122
County Attorney	214,807	1,596,578
Clerk of Court	174,547	1,355,335
Recycling <sup>6</sup>	123,672	4,499,627
GIS	48,171	388,311
County Engineer	10,000	282,198
Courthouse and Jail <sup>7</sup>	3,382,200	6,943,137

Table 5.21 (Continued)

Government/Line Item	2003-2004 <sup>1</sup> (Estimated--Approved by Board) (\$)	Project Year 10 <sup>2</sup> (Estimated Available \$)
<b><u>Specific Appropriations (Cont.)</u></b>		
Election	2,225	2,397
Zoning and Land Planning	120,168	816,840
Detention	1,278,212	146,968,141
Communication	315,363	1,485,479
Law Enforcement	1,843,227	16,163,833
County Coroner	26,857	1,518,178
County Health	124,147	1,246,237
Health Officer and Sanitarian	86,740	5,434,407
Road and Bridge	3,651,063	70,508,929
Transfer Station	48,200	58,733
Sanitary Landfill	735,023	26,744,797
Emergency Management	108,112	6,617,404
County Extension Office	96,484	2,825,494
<b>Total Specific Appropriations</b>	<b>11,999,864</b>	<b>301,755,554</b>
<b><u>Other General Fund Appropriations</u></b>		
Financial Administration	60,000	820,460
FICA, Insurance, Retirement	1,200,000	15,357,363
County Officer's Expense	20,000	596,120
Printing and Publication	40,000	119,581
Postage	27,000	154,235
Telephone	4,000	11,716
CPA Audit	22,500	76,875
Grant-Historic Survey	10,023	177,523
Senior Citizens-Big Piney	35,000	386,638
Senior Citizens-Pinedale	45,000	992,194
SAFV Task Force	13,950	95,928
Office Rent	1,968	4,666
Worker's Compensation	125,000	4,590,925
Unemployment Compensation	10,000	24,237
Pre-School Grant	15,000	13,393
Learning Center	20,000	470
Soil Conservation	164,000	5,238,877
County Court Jury	2,000	9,643
<b>Total Other General Fund Appropriations</b>	<b>1,815,441</b>	<b>28,670,841</b>
<b>Total General Fund Appropriations</b>	<b>13,815,305</b>	<b>330,426,395</b>

<sup>1</sup> Only line items that had sufficient data to calculate annual average growth rates appear in this table. It does not entirely reflect the actual Sublette County Budget shown in Table 3.37.

<sup>2</sup> Assumes straight line annual average growth rate of revenues from 1999 to 2003 except where otherwise noted, then adds additional revenues from sales tax, severance, and production ad valorem distributed in the same proportion as in year 2003 (see Chapter 3). However, it is unlikely that budget growth or budget items will remain constant over time.

<sup>3</sup> Although Sublette County budgets from 1999-2004 indicate that federal mineral royalties have been received, the state disbursements do not indicate such distributions to counties. Therefore, for purposes of this analysis, it is assumed that no such distributions will take place.

<sup>4</sup> Assumes 5% annual growth rate.

<sup>5</sup> Assumes appropriations occur as a constant percentage of total revenue based on the assumed straight line annual average growth rates from 1999 to 2003.

<sup>6</sup> Applied same growth rate as sanitary landfill.

<sup>7</sup> Applied growth rate from 2001-2003.

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Nominal taxes and royalties to Sublette County would be \$1,892.00 million (Table 5.18). Based on a population of 6,024 (year 2002), this would be equivalent to the county receiving funds of \$314,077 (approximately \$5,982 annually) for each person in the county. This alternative would generate approximately \$48.99 million for the school capital account to be distributed by the state (Table 5.17).

Property tax revenues would likely be higher under this alternative than under the Proposed Action due to the greater amount of construction involved with development, which would result in an increased tax base resulting from capital improvements in the JIDPA. Because Alternative A maximizes resource recovery, benefits to consumers and local, state, and national economies would likely be higher than under the Proposed Action. Local area government operating budgets would likely increase but be less under this alternative than under the Proposed Action due to reduced development expenditures. Alternative A would generate the most overall taxes and revenues (\$6,234.7 million) and the most funds (\$48.99 million) for the school capital account over the LOP compared to the other alternatives (Table 5.18).

#### 5.3.3.4 Alternative B

Under Alternative B, nominal taxes and royalties under the 250 well/year development rate would most likely amount to \$4,876.4 million (\$2,725.2 million present value) over the LOP (Table 5.17).

Nominal taxes and royalties to Sublette County would be \$1,446.06 million (Table 5.18). Based on a population of 6,024 (year 2002), this would be equivalent to the county receiving funds of \$240,050 (approximately \$5,334 annually) for each person in the county. This alternative would generate approximately \$36.63 million for the school capital account to be distributed by the state (Table 5.18).

In addition, property tax revenues would increase due to the increased tax base resulting from capital improvements in the JIDPA but at a lower amount than under the Proposed Action due to the decreased number of well pads. However, this alternative would result in a lower recovery of resources and a lower supply of natural gas over the long-term than under the Proposed Action.

Conceptually, this may result in higher consumer prices and increased dependence on foreign supplies, although given the size of the market it is not likely that a measurable change in market price would be associated with this alternative due to the length of the LOP. Local area government operating budgets would likely increase but be less under this alternative than under the Proposed Action due to reduced development expenditures and lower recovery of resources.

#### 5.3.3.5 Alternative C

Under Alternative C, nominal taxes and royalties under the 250 well/year development rate would most likely amount to \$4,845.5 million (\$3,242.5 million present value) over the LOP (Table 5.17). Nominal taxes and royalties to Sublette County would be \$1,502.78 million (Table 5.18). Based on a population of 6,024 (year 2002), this would be equivalent to the county receiving funds of \$249,465 (approximately \$5,091 annually) for each person in the county. This alternative would generate approximately \$39.81 million for the school capital account to be distributed by the state (Table 5.18).

In addition, property tax revenues would increase due to the increased tax base resulting from capital improvements in the JIDPA but at a lower amount than under the Proposed Action due to the decreased number of wells. However, this alternative would result in a lower recovery of resources and a lower supply of natural gas over the long-term than under the Proposed Action. Conceptually, this may result in higher consumer prices and increased dependence on foreign supplies, although given the size of the market it is not likely that a measurable change in market price would be associated with this alternative due to the length of the LOP. Local area government operating budgets would likely increase but be less under this alternative than under the Proposed Action due to reduced development expenditures and lower recovery of resources.

#### 5.3.3.6 Alternative D

Under Alternative D, nominal taxes and royalties under the 250 well/year development rate would most likely amount to \$5,646.1 million (\$3,483.9 million present value) over the LOP (Table 5.17).

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Nominal taxes and royalties to Sublette County would be \$1,728.38 million (Table 5.18). Based on a population of 6,024 (year 2002), this would be equivalent to the county receiving funds of \$286,915 (approximately \$5,855 annually) for each person in the county. This alternative would generate approximately \$45.18 million for the school capital account to be distributed by the state (Table 5.18).

In addition, property tax revenues would increase due to the increased tax base resulting from capital improvements in the JIDPA but at a lower amount than under the Proposed Action due to the decreased number of wells. However, this alternative would result in a lower recovery of resources and a lower supply of natural gas over the long-term than under the Proposed Action. Conceptually, this may result in higher consumer prices and increased dependence on foreign supplies, although given the size of the market it is not likely that a measurable change in market price would be associated with this alternative due to the length of the LOP. Local area government operating budgets would likely increase but be less under this alternative than under the Proposed Action due to lower recovery of resources.

#### 5.3.3.7 Alternative E

Under Alternative E, nominal taxes and royalties under the 250 well/year development rate would most likely amount to \$4,992.9 million (\$2,798.3 million present value) over the LOP (Table 5.17). Nominal taxes and royalties to Sublette County would be \$1,484.41 million (Table 5.18). Based on a population of 6,024 (year 2002), this would be equivalent to the county receiving funds of \$246,416 (approximately \$4,694 annually) for each person in the county. This alternative would generate approximately \$37.69 million for the school capital account to be distributed by the state (Table 5.18).

In addition, property tax revenues would increase due to the increased tax base resulting from capital improvements in the JIDPA, but at a lower amount than under the Proposed Action due to the decreased number of well pads. However, this alternative would result in a lower recovery of resources and a lower supply of natural gas over the long-term than under the Proposed Action.

Conceptually, this may result in higher consumer prices and increased dependence on foreign supplies, although given the size of the market it is not likely that a measurable change in market price would be associated with this alternative due to the length of the LOP. Local area government operating budgets would likely increase but be less under this alternative than under the Proposed Action due to lower recovery of resources.

#### 5.3.3.8 Alternative F

Under Alternative F, nominal taxes and royalties under the 250 well/year development rate would most likely amount to \$5,588.0 million (\$3,165.4 million present value) over the LOP (Table 5.17). Nominal taxes and royalties to Sublette County would be \$1,676.94 million (Table 5.18). Based on a population of 6,024 (year 2002), this would be equivalent to the county receiving funds of \$278,376 (approximately \$5,302 annually) for each person in the county. This alternative would generate approximately \$42.98 million for the school capital account to be distributed by the state (Table 5.18).

In addition, property tax revenues would increase due to the increased tax base resulting from capital improvements in the JIDPA but at a lower amount than under the Proposed Action due to the decreased number of well pads. However, this alternative would result in a lower recovery of resources and a lower supply of natural gas over the long-term than under the Proposed Action. Conceptually, this may result in higher consumer prices and increased dependence on foreign supplies, although given the size of the market it is not likely that a measurable change in market price would be associated with this alternative due to the length of the LOP. Local area government operating budgets would likely increase but be less under this alternative than under the Proposed Action due to lower recovery of resources.

#### 5.3.3.9 Alternative G

Under Alternative G, nominal taxes and royalties under the 250 well/year development rate would most likely amount to \$6,030.1 million (\$3,446.6 million present value) over the LOP (Table 5.17).

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Nominal taxes and royalties to Sublette County would be \$1,824.35 million (Table 5.18). Based on a population of 6,024 (year 2002), this would be equivalent to the county receiving funds of \$302,847 (approximately \$5,769 annually) for each person in the county. This alternative would generate approximately \$47.10 million for the school capital account to be distributed by the state (Table 5.17).

In addition, property tax revenues would increase due to the increased tax base resulting from capital improvements in the JIDPA but at a lower amount than under the Proposed Action due to the decreased number of well pads. However, this alternative would result in a lower recovery of resources and a lower supply of natural gas over the long-term than under the Proposed Action. Conceptually, this may result in higher consumer prices and increased dependence on foreign supplies, although given the size of the market it is not likely that a measurable change in market price would be associated with this alternative due to the length of the LOP. Local area government operating budgets would likely increase but be less under this alternative than under the Proposed Action due to lower recovery of resources.

#### 5.3.3.10 Preferred Alternative

Under the Preferred Alternative, impacts from increased taxes and revenues on local governments would approximately the same as those described under Alternative G at the 250 wells/year development rate. at the 250 wells/year development rate.

## **5.4 RECREATION IMPACTS**

### **5.4.1 Nonconsumptive Recreation**

No developed recreation sites or facilities are present in or immediately adjacent to the JIDPA; therefore, no impacts to recreation sites or facilities are anticipated under the Proposed Action or any alternative.

There would likely be some unquantifiable long-term displacement or elimination of existing dispersed recreation due to an increased level of gas field development activities, but given the existing environment already contains these activities, much of this impact may have already occurred. That is, potential recreational visitors may already avoid the JIDPA because of a perceived reduction in the quality of the recreational experience in the area.

Information on the number of resident versus nonresident nonconsumptive recreational visitors is not collected for the JIDPA. Economic losses could result if recreationists were displaced from the JIDPA and moved their activities out of the study area. Losses would be proportional to the number of displaced recreationists. For the purposes of this analysis, it is assumed that all recreation would be lost from the JIDPA for the LOP. (It is likely that most of this loss has already occurred due to extant development effects.)

Direct impacts from displaced nonconsumptive recreationists (per visitor day) could result in a loss of \$29.62 (including \$6.80 of labor income) and 0.000518 AJEs each (Table 5.22). If all 3,396 RVDs (see Table 3.43) were lost (regardless of the authorized alternative), there would be an annual loss of direct expenditures of \$100,590 (including \$23,093 labor earnings) and an annual loss of 1.8 AJEs for the LOP (Table 5.23).

Table 5.22 Economic Activity per RVD from Nonconsumptive Recreation, Jonah Infill Drilling Project, Sublette County, Wyoming, 2005.

Item	Economic Activity per RVD
Direct Expenditures	\$22.82
Secondary Labor Earnings	\$6.80
Total Economic Activity per RVD	\$29.62
AJEs per RVD	0.000518



Table 5.23 Economic Activity from Nonconsumptive Recreation for the Life of Field, Jonah Infill Drilling Project, Sublette County, Wyoming, 2005.

Economic Activity	No Action Alternative	Proposed Action	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F	Alternative G	Preferred Alternative
Affected RVDs (Assumed Lost for LOF)	--	3,396	3,396	3,396	3,396	3,396	3,396	3,396	3,396	3,396
<b>Economic Activity/RVD</b>										
Direct Expenditures (\$)	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8
Secondary Labor Earnings (\$)	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8
Total Economic Effect (\$)	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6
Total AJEs	0.000518	0.000518	0.000518	0.000518	0.000518	0.000518	0.000518	0.000518	0.000518	0.000518
<b>Annual Economic Activity</b>										
Direct Expenditures (\$)	--	77,496.7	77,496.7	77,496.7	77,496.7	77,496.7	77,496.7	77,496.7	77,496.7	77,496.7
Secondary Labor Earnings (\$)	--	23,092.8	23,092.8	23,092.8	23,092.8	23,092.8	23,092.8	23,092.8	23,092.8	23,092.8
Total Economic Effect (\$)	--	100,589.5	100,589.5	100,589.5	100,589.5	100,589.5	100,589.5	100,589.5	100,589.5	100,589.5
Total Annual AJEs	--	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
<b>Nominal Value of LOF Recreation</b>										
<b>75 Wells/Year Development Rate</b>										
Direct Expenditures (millions of \$)	--	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Secondary Labor Earnings (millions of \$)	--	1.9	1.9	1.9	1.3	1.6	1.9	1.9	1.9	1.9
Total Economic Effect (millions of \$)	--	8.2	8.2	8.2	5.7	7.0	8.2	8.2	8.2	8.2
Total LOF AJEs <sup>2</sup>	--	144.2	144.2	100.3	123.1	144.2	144.2	144.2	144.2	144.2
<b>150 Wells/Year Development Rate</b>										
Direct Expenditures (millions of \$)	--	4.7	4.7	4.7	3.8	4.3	4.7	4.7	4.7	4.7
Secondary Labor Earnings (millions of \$)	--	1.4	1.4	1.4	1.1	1.3	1.4	1.4	1.4	1.4
Total Economic Effect (millions of \$)	--	6.1	6.1	6.1	4.9	5.5	6.1	6.1	6.1	6.1
Total LOF AJEs <sup>2</sup>	--	107.3	107.3	86.2	96.8	107.3	107.3	107.3	107.3	107.3
<b>250 Wells/Year Development Rate</b>										
Direct Expenditures (millions of \$)	--	4.1	4.1	4.1	3.5	3.8	4.1	4.1	4.1	4.1
Secondary Labor Earnings (millions of \$)	--	1.2	1.2	1.2	1.0	1.1	1.2	1.2	1.2	1.2
Total Economic Effect (millions of \$)	--	5.3	5.3	5.3	4.5	4.9	5.3	5.3	5.3	5.3
Total LOF AJEs <sup>2</sup>	--	92.4	92.4	79.2	86.2	92.4	92.4	92.4	92.4	92.4

Approximately the same as Alternative G

Approximately the same as Alternative G

Table 5.23 (Continued)

Economic Activity	No Action Alternative	Proposed Action	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F	Alternative G	Preferred Alternative
<b>Present Value of LOF Recreation<sup>2</sup></b>										
<b>75 Wells/Year Development Rate</b>										
Direct Expenditures (millions of \$)	--	2.1	2.1	2.1	1.9	2.0	2.1	2.1	2.1	--
Secondary Labor Earnings (millions of \$)	--	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	--
Total Economic Effect (millions of \$)	--	2.7	2.7	2.7	2.5	2.6	2.7	2.7	2.7	--
<b>150 Wells/Year Development Rate</b>										
Direct Expenditures (millions of \$)	--	1.9	1.9	1.9	1.8	1.9	1.9	1.9	1.9	--
Secondary Labor Earnings (millions of \$)	--	0.6	0.6	0.6	0.5	0.6	0.6	0.6	0.6	--
Total Economic Effect (millions of \$)	--	2.5	2.5	2.5	2.3	2.4	2.5	2.5	2.5	--
<b>250 Wells/Year Development Rate</b>										
Direct Expenditures (millions of \$)	--	1.8	1.8	1.8	1.7	1.8	1.8	1.8	1.8	Approximately the same as Alternative G
Secondary Labor Earnings (millions of \$)	--	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Total Economic Effect (millions of \$)	--	2.4	2.4	2.4	2.3	2.3	2.4	2.4	2.4	

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However, it is likely that any recreationists discouraged from engaging in activities in the JIDPA as a result of natural gas development would relocate their activities to other locations in the vicinity that would provide similar recreational opportunities unique to the PFO area. Individuals may experience impacts in terms of lessened enjoyment and satisfaction from relocated recreational activities.

#### 5.4.1.1 No Action Alternative

Under the No Action Alternative, no change in economic activity from current conditions for recreation would be expected. No additional development would occur; therefore, current recreationists would not likely relocate their activities (Table 5.23). Impacts from all action alternatives would likely be higher than those described for the No Action Alternative due to increased disturbance and longer LOP.

#### 5.4.1.2 Proposed Action

Under the Proposed Action, if it is assumed that all 3,396 RVDs are relocated for the LOP, reduced recreation economic activity would amount to \$2.4 million present value (including \$0.5 million present value secondary labor earnings) and up to 92.4 AJEs (Table 5.23).

#### 5.4.1.3 Alternative A (Maximum Recovery)

Under Alternative A, if it is assumed that all 3,396 RVDs are relocated for the LOP, the greatest reduction in economic activity would occur under the 75 well/year development rate due to project duration (up to 82 years) (Table 5.23). This option could result in the loss of recreational economic activity of up to \$2.7 million present value (including \$0.6 million present value in secondary labor earnings) and up to 144.2 AJEs for the 82-year LOP (Table 5.23). The least reduction in economic activity would occur under the 250 well/year development rate (52.5-year LOP) and would amount to \$2.4 million present value (including \$0.5 million present value secondary labor earnings) and up to 92.4 AJEs (Table 5.23). The loss of economic activity would be increased under longer development rates due to the extended period that RVDs would be displaced.

#### 5.4.1.4 Alternative B

Under Alternative B, losses to economic activity from recreation would be the same as those described for Alternative A (Table 5.23). Impacts would be less than for the Proposed Action due to reduced disturbance over the LOP.

#### 5.4.1.5 Alternative C

Under Alternative C, the greatest reduction in economic activity from recreation losses would most likely occur under the 75 well/year development rate due to project duration (up to 57 years). This option could result in the accumulated loss of up to \$2.5 million present value (including \$0.6 million present value in secondary labor earnings) and up to 100.3 AJEs for the 57-year LOP (Table 5.23). The least reduction in economic activity would occur under the 250 well/year development rate (45-year LOP) and would amount to \$2.3 million present value (including \$0.5 million present value secondary labor earnings) and up to 79.2 AJEs (Table 5.23). Impacts would be less than for the Proposed Action due to reduced disturbance over the LOP.

#### 5.4.1.6 Alternative D

Under Alternative D, the greatest reduction in economic activity would most likely occur under the 75 well/year development rate due to project duration (up to 70 years). This option could result in the accumulated loss of up to \$2.6 million present value (including \$0.6 million present value in secondary labor earnings) and up to 123.1 AJEs for the 70-year LOP (Table 5.23). The least reduction in economic activity would most likely occur under the 250 well/year development rate (49-year LOP) and would amount to \$2.3 million present value (including \$0.5 million present value secondary labor earnings) and up to 86.2 AJEs (Table 5.23). Impacts would be less than for the Proposed Action due to reduced disturbance over the LOP.

#### 5.4.1.7 Alternative E

Under Alternative E, changes to economic activity would likely be the same as those described for Alternative A.

#### 5.4.1.8 Alternative F

Under Alternative F, changes to economic activity would likely be the same as those described for Alternative A.

#### 5.4.1.9 Alternative G

Under Alternative G, changes to economic activity would likely be the same as those described for Alternative A.

#### 5.4.1.10 Preferred Alternative

Under the Preferred Alternative, changes to economic activity would approximately the same as same as those described for Alternative G at the 250 wells/year development rate.

### **5.4.2 Hunting**

Economic activity from hunting could be reduced if hunters were displaced from the JIDPA and moved their activities out of the study area. Losses would be proportional to the number of displaced hunters. Under the Proposed Action and alternatives, populations of pronghorn antelope and/or greater sage-grouse, which are the two principle species hunted on the JIDPA, would likely be displaced to such an extent that recreational hunting on the JIDPA may no longer occur. Cottontail rabbits are also hunted on the JIDPA, but are unlikely to be displaced. However, it is likely that hunters already avoid the area due to extant development. Lands adjacent to the JIDPA may absorb displaced hunting pressure since displaced wildlife (most notably pronghorn antelope

and greater sage-grouse) may also move to adjacent lands; thus, no economic loss may result from loss of hunting due to the project. However, for the purposes of this economic analysis, it is conservatively assumed that all hunting on the JIDPA would be lost for the LOP.

Only cottontail, greater sage-grouse, and pronghorn are likely to be hunted on the JIDPA. WGFD does not collect resident versus nonresident information for cottontail and greater sage-grouse hunting; therefore, it will be conservatively assumed for the purposes of this analysis that all hunters are nonresident. Direct impacts from displaced pronghorn hunters (61.0 hunter days per year attributable to JIDPA lands) could result in a loss of \$536.46/hunter day (including \$155.16 of labor income) and 0.012087 AJEs each (Table 5.24). Direct impacts from displaced cottontail hunters (26.4 hunter days per year) could result in a loss of \$243.48/hunter day (including \$70.42 of labor income) and 0.005486 AJEs each. Direct impacts from displaced greater sage-grouse hunters (16.3 hunter days per labor) could result in a loss of \$183.32 (including \$53.02 of labor income) and 0.004131 AJEs each. If all hunters relocate their activities away from the JIDPA could result in an annual economic activity loss of \$42,140 (\$12,188 of labor income) and an annual loss 0.95 AJEs (Table 5.25).

Table 5.24 Economic Activity per Hunter Day, Jonah Infill Drilling Project, Sublette County, Wyoming, 2005.

Item	Economic Activity from Hunting			Total
	Pronghorn	Cottontail	Greater Sage-grouse	
<b>Economic Activity Per Hunter Day</b>				
Direct Expenditures	\$381.30	\$173.06	\$130.30	\$684.66
Secondary Labor Earnings	\$155.16	\$70.42	\$53.02	\$278.60
Total Economic Activity per Hunter Day	\$536.46	\$243.48	\$183.32	\$963.26
AJEs	0.012087	0.005486	0.004131	0.021704
<b>Annual Economic Activity</b>				
No. Hunter Days	61.0	26.4	16.3	103.70
Direct Expenditures	\$23,259	\$4,569	\$2,124	\$29,952
Secondary Labor Earnings	\$9,465	\$1,859	\$864	\$12,188
Total Annual Economic Activity	\$32,724	\$6,428	\$2,988	\$42,140
AJEs	0.7	0.1	0.1	0.95

Table 5.25 Economic Activity Resulting from Hunting Over the Life of Field, Jonah Infill Drilling Project, Sublette County, 2005.

Economic Activity	No Action Alternative	Proposed Action	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F	Alternative G	Preferred Alternative
Affected Hunter Days <sup>1</sup> (Assumed Lost for L	--	103.7	103.7	103.7	103.7	103.7	103.7	103.7	103.7	103.7
<b>Economic Activity/AUM</b>										
Direct Expenditures (\$)	684.66	684.66	684.66	684.66	684.66	684.66	684.66	684.66	684.66	684.66
Secondary Labor Earnings (\$)	278.60	278.60	278.60	278.60	278.60	278.60	278.60	278.60	278.60	278.60
Total Economic Effect (\$)	963.26	963.26	963.26	963.26	963.26	963.26	963.26	963.26	963.26	963.26
Total AJEs	0.021704	0.021704	0.021704	0.021704	0.021704	0.021704	0.021704	0.021704	0.021704	0.021704
<b>Annual Economic Activity</b>										
Direct Expenditures (\$)	--	29,952.0	29,952.0	29,952.0	29,952.0	29,952.0	29,952.0	29,952.0	29,952.0	29,952.0
Secondary Labor Earnings (\$)	--	12,188.0	12,188.0	12,188.0	12,188.0	12,188.0	12,188.0	12,188.0	12,188.0	12,188.0
Total Economic Effect (\$)	--	42,140.0	42,140.0	42,140.0	42,140.0	42,140.0	42,140.0	42,140.0	42,140.0	42,140.0
Total Annual AJEs	--	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
<b>Nominal Value of LOF Hunting</b>										
<b>75 Wells/Year Development Rate</b>										
Direct Expenditures (millions of \$)	--	2.5	2.5	1.7	2.5	2.1	2.5	2.5	2.5	2.5
Secondary Labor Earnings (millions of \$)	--	1.0	1.0	0.7	1.0	0.9	1.0	1.0	1.0	1.0
Total Economic Effect (millions of \$)	--	3.5	3.5	2.4	3.5	2.9	3.5	3.5	3.5	3.5
Total Annual AJEs	--	77.9	77.9	54.2	77.9	66.5	77.9	77.9	77.9	77.9
<b>150 Wells/Year Development Rate</b>										
Direct Expenditures (millions of \$)	--	1.8	1.8	1.5	1.8	1.6	1.8	1.8	1.8	1.8
Secondary Labor Earnings (millions of \$)	--	0.7	0.7	0.6	0.7	0.7	0.7	0.7	0.7	0.7
Total Economic Effect (millions of \$)	--	2.6	2.6	2.1	2.6	2.3	2.6	2.6	2.6	2.6
Total Annual AJEs	--	58.0	58.0	46.6	58.0	52.3	58.0	58.0	58.0	58.0
<b>250 Wells/Year Development Rate</b>										
Direct Expenditures (millions of \$)	--	1.6	1.6	1.3	1.6	1.5	1.6	1.6	1.6	1.6
Secondary Labor Earnings (millions of \$)	--	0.6	0.6	0.5	0.6	0.6	0.6	0.6	0.6	0.6
Total Economic Effect (millions of \$)	--	2.2	2.2	1.9	2.2	2.1	2.2	2.2	2.2	2.2
Total Annual AJEs	--	49.9	49.9	42.8	49.9	46.6	49.9	49.9	49.9	49.9
Approximately the same as Alternative G										

Table 5.25 (Continued)

Economic Activity	No Action Alternative	Proposed Action	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F	Alternative G	Preferred Alternative
<b>Present Value of LOF Hunting</b>										
<b>75 Wells/Year Development Rate</b>										
Direct Expenditures (millions of \$)	--	0.8	0.8	0.8	0.7	0.8	0.8	0.8	0.8	--
Secondary Labor Earnings (millions of \$)	--	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	--
Total Economic Effect (millions of \$)	--	1.1	1.1	1.1	1.0	1.1	1.1	1.1	1.1	--
<b>150 Wells/Year Development Rate</b>										
Direct Expenditures (millions of \$)	--	0.8	0.8	0.8	0.7	0.7	0.8	0.8	0.8	--
Secondary Labor Earnings (millions of \$)	--	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	--
Total Economic Effect (millions of \$)	--	1.1	1.1	1.1	1.0	1.0	1.1	1.1	1.1	--
<b>250 Wells/Year Development Rate</b>										
Direct Expenditures (millions of \$)	--	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	--
Secondary Labor Earnings (millions of \$)	--	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	Approximately the same as Alternative G
Total Economic Effect (millions of \$)	--	1.0	1.0	1.0	0.9	1.0	1.0	1.0	1.0	

<sup>1</sup> Includes pronghorn, cottontail, and greater sage-grouse (assumed lost for LOF) (see Table 5.24).



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#### 5.4.2.1 No Action Alternative

Under the No Action Alternative, no change in economic activity from current conditions for hunting would be expected. No additional development would occur; therefore, current hunters would not likely relocate their activities more than has already occurred (Table 5.25). Under all action alternatives, impacts to hunting would likely be greater than that described for the No Action Alternative due to increased disturbance and longer LOP.

#### 5.4.2.2 Proposed Action

Under the Proposed Action, if it is assumed that all 103.7 hunter days per year are relocated for the LOP, reduction in economic activity from hunting expenditures would likely amount to \$1.0 million present value (including \$0.3 million present value secondary labor earnings) and up to 49.9 AJEs (Table 5.25).

#### 5.4.2.3 Alternative A (Maximum Recovery)

Under Alternative A, if it is assumed that all 103.7 hunter days per year are relocated for the LOP, the greatest reduction in economic activity would likely occur under the 75 well/year development rate due to project duration under this development rate (up to 82 years). This option could result in the accumulated loss of up to \$1.1 million present value (including \$0.3 million present value in secondary labor earnings) and up to 77.9 AJEs for the 82-year LOP (Table 5.25). The least reduction in economic activity would occur under the 250 well/year development rate (52.5-year LOP) and would amount to \$1.0 million present value (including \$0.3 million present value secondary labor earnings) and up to 49.9 AJEs (Table 5.25). Longer development periods under the 75 and 150 well/year development rates would result in greater reductions in hunting-generated economic activity than under the Proposed Action.

Nominally, the greatest total reduction in economic activity (\$3.5 million) from any alternative from loss of hunting would likely occur under the 75 well/year development rate under this alternative.

#### 5.4.2.4 Alternative B

Under Alternative B, changes to economic activity would likely be the same as those described for Alternative A. Impacts would be less than for the Proposed Action due to reduced disturbance over the LOP.

#### 5.4.2.5 Alternative C

Under Alternative C, the greatest reduction in economic activity would likely occur under the 75 well/year development rate due to project duration (up to 57 years). This option could result in the accumulated loss of up to \$1.0 million present value (including \$0.3 million present value in secondary labor earnings) and up to 54.2 AJEs for the 57-year LOP (Table 5.25). The least reduction in economic activity would occur under the 250 well/year development rate (45-year LOP) and would amount to \$0.9 million present value (including \$0.3 million present value secondary labor earnings) and up to 42.8 AJEs (Table 5.25). Impacts would be less than for the Proposed Action due to reduced disturbance over the LOP.

#### 5.4.2.6 Alternative D

Under Alternative D, the greatest reduction in economic activity would likely occur under the 75 well/year development rate due to project duration (up to 70 years). This option could result in the accumulated loss of up to \$1.1 million present value (including \$0.3 million present value in secondary labor earnings and up to 66.5 AJEs for the 70-year LOP (Table 5.25). The least reduction in economic activity would occur under the 250 well/year development rate (49-year LOP) and would amount to \$1.0 million present value (including \$0.3 million present value secondary labor earnings) and up to 46.6 AJEs (Table 5.25). Impacts would likely be less than for the Proposed Action due to reduced disturbance over the LOP.

#### 5.4.2.7 Alternative E

Under Alternative E, changes to economic activity would likely be the same as those described for Alternative A.

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#### 5.4.2.8 Alternative F

Under Alternative F, changes to economic activity would likely be the same as those described for Alternative A.

#### 5.4.2.9 Alternative G

Under Alternative G, changes to economic activity would likely be the same as those described for Alternative A.

#### 5.4.2.10 Preferred Alternative

Under the Preferred Alternative, changes to economic activity would approximately be the same as those described for Alternative G at the 250 wells/year development rate.

### **5.5 GRAZING IMPACTS**

There would be a reduction in available forage on grazing allotments within the JIDPA due to road, pipeline, and well pad construction (BLM 2004c). For the purposes of this analysis, it is conservatively assumed that, based on the reduction in forage, BLM would reduce the number of permitted AUMs during initial disturbance and for the LOP; these estimated reductions are presented in Table 5.26. The economic activity from these AUMs is presented in Table 5.27. The assumed reduction in AUMs does not take into consideration the possibility that areas reclaimed shortly after initial disturbance--areas not needed for the LOP--could potentially provide more forage (primarily grass) for livestock than the previously undisturbed range. Total economic impact per AUM lost is estimated at \$114.99 (including \$18.46 labor earnings) and 0.000709 AJEs annually (Table 5.27). Additionally, fees paid to the BLM by permittees (\$1.35/AUM) would not be realized if the number of permitted AUMs were reduced.

Table 5.26 Number of AUMs Potentially Affected under Each Alternative and Cumulatively Including Existing Disturbance, Jonah Infill Drill Project, 2004.

Alternative	Number of AUMs	
	Newly Affected (Assumed Lost for LOP)	Cumulative (Newly Affected + Reasonably Foreseeable Disturbance) (Assumed Lost for LOP)
Proposed Action	1,720	1,761
Alternative A	1,720	1,761
Alternative B	618	659
Alternative C	909	950
Alternative D	1,325	1,366
Alternative E	881	968
Alternative F	1,227	1,268
Alternative G	1,531	1,490
No Action	342	383
Total acres in All Allotments	--	120,597
Total Permitted AUMs in All Allotments	--	9,876

Table 5.27 Economic Activity from Grazing per AUM, Jonah Infill Drilling Project, Sublette County, Wyoming, 2005.

Item/AUM	Economic Activity per AUM
Value of Production	\$35.29
Indirect Economic Activity (not labor)	\$61.24
Secondary Labor Earnings	\$18.46
Total Economic Activity per AUM	\$114.99
AJEs per AUM	0.000709

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For the purposes of this economic analysis, it is conservatively assumed that all affected AUMs (cumulative plus reasonably foreseeable disturbance) would be lost under each alternative for the LOP (Tables 5.26 and 5.28). Total losses would depend on the LOP (ranging from 40 to up to 82 years), which depends on the number of wells and rate of development ultimately approved. Some AUMs would return to productivity during the LOP as reclamation proceeds and forage production increases. Removal and reinstatement of any permitted AUMs would be at the discretion of the BLM.

### **5.5.1 No Action Alternative**

Under the No Action Alternative, it is assumed no new surface disturbance would occur except for that which is already authorized; however, 383 AUMs that are currently affected plus reasonably foreseeable disturbance would remain lost for the LOP. The reduction could result in the accumulated loss of up to \$0.9 million present value (including \$0.2 million present value in secondary labor earnings) and up to 10.9 AJEs for the 40-year LOP (Table 5.28). The least change in grazing would occur under this alternative due to the shorter project duration and reduced disturbance. Impacts to grazing under all action alternatives would likely be higher than that described for the No Action Alternative due to increased disturbance and longer LOP.

### **5.5.2 Proposed Action**

Under the Proposed Action, if it is assumed that 1,761 AUMs would be lost for the LOP, reduction in economic activity would amount to \$6.6 million present value (including \$4.0 million present value secondary labor earnings) and up to 65.5 AJEs (Table 5.28) for the 40-year LOP. Impacts would be greater than for the No Action Alternative due to increased disturbance and longer project duration.

### **5.5.3 Alternative A (Maximum Recovery)**

Under Alternative A, if it is assumed that 1,761 AUMs would be lost for the LOP, the least reduction in economic activity would likely occur under the 150 well/year development rate due to

Table 5.28 Economic Activity Resulting from Grazing Over the Life of Field, Jonah Infill Drilling Project, Sublette County, 2005.

Economic Activity	No Action Alternative	Proposed Action	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F	Alternative G	Preferred Alternative
<b>Economic Activity/AUM</b>										
Value of Production (\$)	35.3	35.29	35.29	35.29	35.29	35.29	35.29	35.29	35.29	35.29
Indirect Economic Activity (not labor) (\$)	61.2	61.24	61.24	61.24	61.24	61.24	61.24	61.24	61.24	61.24
Secondary Labor Earnings (\$)	18.5	18.46	18.46	18.46	18.46	18.46	18.46	18.46	18.46	18.46
Total Economic Effect (\$)	115.0	114.99	114.99	114.99	114.99	114.99	114.99	114.99	114.99	114.99
Total AJEs	0.000709	0.000709	0.000709	0.000709	0.000709	0.000709	0.000709	0.000709	0.000709	0.000709
<b>Annual Economic Activity</b>										
Value of Production (\$)	13,516.1	62,145.7	62,145.7	23,256.1	33,525.5	48,206.1	34,160.7	44,747.7	52,582.1	52,582.1
Indirect Economic Activity (not labor) (\$)	23,454.9	107,843.6	107,843.6	40,357.2	58,178.0	83,653.8	59,280.3	77,652.3	91,247.6	91,247.6
Secondary Labor Earnings (\$)	7,070.2	32,508.1	32,508.1	12,165.1	17,537.0	25,216.4	17,869.3	23,407.3	27,505.4	27,505.4
Total Economic Effect (\$)	44,041.2	202,497.4	202,497.4	75,778.4	109,240.5	157,076.3	111,310.3	145,807.3	171,335.1	171,335.1
Total Annual AJEs	0.3	1.2	1.2	0.5	0.7	1.0	0.7	0.9	1.1	1.1
<b>Nominal Value of LOF Grazing</b>										
<b>75 Wells/Year Development Rate</b>										
Value of Production (millions of \$)	0.9	8.8	8.8	3.3	3.3	5.9	4.9	6.4	7.5	7.5
Indirect Economic Activity (not labor) (millions of \$)	0.3	2.7	2.7	1.0	1.0	1.8	1.5	1.9	2.3	2.3
Secondary Labor Earnings (millions of \$)	0.3	2.7	2.7	1.0	1.0	1.8	1.5	1.9	2.3	2.3
Total Economic Effect (millions of \$)	1.5	14.2	14.2	5.3	5.3	9.4	7.8	10.2	12.0	12.0
Total Annual AJEs	10.9	102.4	102.4	38.3	38.4	67.8	56.3	73.7	86.6	86.6
<b>150 Wells/Year Development Rate</b>										
Value of Production (millions of \$)	0.9	6.6	6.6	2.5	2.9	4.6	3.6	4.7	5.6	5.6
Indirect Economic Activity (not labor) (millions of \$)	0.3	2.0	2.0	0.7	0.9	1.4	1.1	1.4	1.7	1.7
Secondary Labor Earnings (millions of \$)	0.3	2.0	2.0	0.7	0.9	1.4	1.1	1.4	1.7	1.7
Total Economic Effect (millions of \$)	1.5	10.5	10.5	3.9	4.6	7.4	5.8	7.6	8.9	8.9
Total Annual AJEs	10.9	76.2	76.2	28.5	33.0	53.3	41.9	54.8	64.4	64.4
<b>250 Wells/Year Development Rate</b>										
Value of Production (millions of \$)	0.9	5.7	5.7	2.1	2.6	4.1	3.1	4.1	4.8	4.8
Indirect Economic Activity (not labor) (millions of \$)	0.3	1.7	1.7	0.6	0.8	1.2	0.9	1.2	1.4	1.4
Secondary Labor Earnings (millions of \$)	0.3	1.7	1.7	0.6	0.8	1.2	0.9	1.2	1.4	1.4
Total Economic Effect (millions of \$)	1.5	9.1	9.1	3.4	4.2	6.6	5.0	6.5	7.7	7.7
Total Annual AJEs	10.9	65.5	65.5	24.5	30.3	47.5	36.0	47.2	55.5	55.5

Approximately the same as Alternative G

Approximately the same as Alternative G

Table 5.28 (Continued)

Economic Activity	No Action Alternative	Proposed Action	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F	Alternative G	Preferred Alternative
<b>Present Value of LOF Grazing</b>										
<b>75 Wells/Year Development Rate</b>										
Value of Production (millions of \$)	0.3	1.7	1.7	0.6	0.8	1.3	0.9	1.2	1.4	--
Indirect Economic Activity (not labor) (millions of \$)	0.5	2.9	2.9	1.1	1.4	2.2	1.6	2.1	2.5	--
Secondary Labor Earnings (millions of \$)	0.2	0.9	0.9	0.3	0.4	0.7	0.5	0.6	0.7	--
Total Economic Effect (millions of \$)	0.9	5.4	5.4	2.0	2.7	4.1	3.0	3.9	4.6	--
<b>150 Wells/Year Development Rate</b>										
Value of Production (millions of \$)	0.3	1.6	1.6	0.6	0.7	1.2	0.9	1.1	1.3	--
Indirect Economic Activity (not labor) (millions of \$)	0.5	2.7	2.7	1.0	1.4	2.0	1.5	1.9	2.3	--
Secondary Labor Earnings (millions of \$)	0.2	0.8	0.8	0.3	0.4	0.6	0.4	0.6	0.7	--
Total Economic Effect (millions of \$)	0.9	5.1	5.1	1.9	2.4	3.8	2.8	3.7	4.3	--
<b>250 Wells/Year Development Rate</b>										
Value of Production (millions of \$)	0.3	1.3	1.3	0.5	0.8	1.1	0.7	0.9	1.1	1.1
Indirect Economic Activity (not labor) (millions of \$)	0.5	1.3	1.3	0.5	1.3	1.9	0.7	0.9	1.1	Approximately the same as Alternative G
Secondary Labor Earnings (millions of \$)	0.2	4.0	4.0	1.5	0.4	0.6	2.2	2.9	3.4	
Total Economic Effect (millions of \$)	0.9	6.6	6.6	2.5	2.5	3.7	3.6	4.7	5.6	

<sup>1</sup> Cumulative AUMs (newly affected + RFD) (assumed lost for LOF).

project duration (up to 61 years). This option could result in the accumulated loss of up to \$5.1 million present value (including \$0.8 million present value in secondary labor earnings) and up to 76.2 AJEs for the 61-year LOP (Table 5.28). Under the 250 well/year development rate, impacts would be the same as under the Proposed Action. Losses would be greater than under the Proposed Action during the longer project durations due to the longer periods the AUMs would be unavailable.

The greatest loss in grazing from all alternatives would likely occur under Alternative A at a 75 well/year development rate.

#### **5.5.4 Alternative B**

Under Alternative B, if it is assumed that 659 AUMs would be reduced for the LOP, the least reduction in economic activity would likely occur under the 150 well/year development rate due to project duration (up to 61 years). This option could result in the accumulated loss of up to \$1.9 million present value (including \$0.3 million present value in secondary labor earnings) and up to 38.3 AJEs for the 82-year LOP (Table 5.28). The greatest reduction in economic activity would occur under the 250 well/year development rate (52.5-year LOP) and would amount to \$2.5 million present value (including \$1.5 million present value secondary labor earnings) and up to 24.5 AJEs (Table 5.28). Impacts would be less than for the Proposed Action due to reduced disturbance over the LOP.

#### **5.5.5 Alternative C**

Under Alternative C, if it is assumed that 950 AUMs would be reduced for the LOP, the greatest reduction in economic activity would likely occur under the 75 well/year development rate due to project duration (up to 57 years). This option could result in the accumulated loss of up to \$2.7 million present value (including \$0.4 million present value in secondary labor earnings) and up to 38.4 AJEs for the 57-year LOP (Table 5.28). The least reduction in economic activity would occur under the 150 well/year development rate (45-year LOP) and would amount to \$2.4 million present value (including \$0.4 million present value secondary labor earnings) and up to 30.3 AJEs



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(Table 5.28). Impacts would be less than for the Proposed Action due to reduced disturbance over the LOP.

### **5.5.6 Alternative D**

Under Alternative D, if it is assumed that 1,366 AUMs would be reduced for the LOP, the greatest reduction in economic activity would likely occur under the 75 well/year development rate due to project duration (up to 70 years). This option could result in the accumulated loss of up to \$4.1 million present value (including \$0.7 million present value in secondary labor earnings) and up to 67.8 AJEs for the 70-year LOP (Table 5.28). The least reduction in economic activity would occur under the 250 well/year development rate (49-year LOP) and would amount to \$3.7 million present value (including \$0.6 million present value secondary labor earnings) and up to 47.5 AJEs (Table 5.28). Impacts would be less than for the Proposed Action due to reduced disturbance over the LOP.

### **5.5.7 Alternative E**

Under Alternative E, if it is assumed that 968 AUMs would be reduced for the LOP, the least reduction in economic activity would likely occur under the 150 well/year development rate due to project duration (up to 61 years). This option could result in the accumulated loss of up to \$2.8 million present value (including \$0.4 million present value in secondary labor earnings) and up to 41.9 AJEs for the 61-year LOP (Table 5.28). The most reduction in economic activity would occur under the 250 well/year development rate (52.5-year LOP) and would amount to \$3.6 million present value (including \$2.2 million present value secondary labor earnings) and up to 36.0 AJEs (Table 5.28). Impacts would be less than for the Proposed Action due to reduced disturbance over the LOP.

### **5.5.8 Alternative F**

Under Alternative F, if it is assumed that 1,268 AUMs would be reduced for the LOP, the least reduction in economic activity would likely occur under the 150 well/year development rate due to project duration (up to 61 years) (Table 5.28). This option could result in the accumulated loss of

up to \$3.7 million present value (including \$0.6 million present value in secondary labor earnings) and up to 54.8 AJEs for the 61-year LOP. The most reduction in economic activity would occur under the 250 well/year development rate (52.5-year LOP) and would amount to \$4.7 million present value (including \$2.9 million present value secondary labor earnings) and up to 47.2 AJEs. Impacts would be less than for the Proposed Action due to reduced disturbance over the LOP.

### **5.5.9 Alternative G**

Under Alternative G, if it is assumed that 1,490 AUMs would be reduced for the LOP, the greatest reduction in economic activity would likely occur under the 150 well/year development rate due to project duration (up to 61 years). This option could result in the accumulated loss of up to \$4.3 million present value (including \$0.7 million present value in secondary labor earnings) and up to 64.4 AJEs for the 61-year LOP (Table 5.28). The most reduction in economic activity would occur under the 250 well/year development rate (52.5-year LOP) and would amount to \$5.6 million present value (including \$3.4 million present value secondary labor earnings) and up to 55.5 AJEs (Table 5.28). Impacts would be less than for the Proposed Action due to reduced disturbance over the LOP.

### **5.5.10 Preferred Alternative**

Under the Preferred Alternative, changes to economic activity would be approximately the same as those described for Alternative G at the 250 wells/year development rate.

## **5.6 POPULATION AND LABOR ACTIVITY**

### **5.6.1 No Action Alternative**

Under the No Action Alternative, no additional development would occur and the pace of production would likely be slowed. This would reduce the number of rigs, crews, and associated services

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currently operating in the area. Services and associated jobs would likely be reduced or eliminated under the No Action Alternative. No additional secondary labor earnings or jobs would occur from development under this alternative; minimal additional secondary labor and jobs may be created from production activities, but this employment is not expected to affect population in the study area.

### 5.6.2 Proposed Action

Project-required direct employment is not expected to affect population in the study area. Project-required natural gas workers would likely be primarily obtained from the existing pool of workers employed in the area because drilling and production in the JIDPA continue year-round, thus providing continuous employment for these workers and would likely attract mature, settled workers that have already permanently relocated to the CIAA. These jobs would likely be lost under the No Action Alternative. Increased potential for employment from secondary (non-project-required) jobs created as a result of the project may attract out-of-area job seekers, which could affect population in the study area; however, it is likely that these job seekers would already live in the area but work in adjoining counties, thus population changes are anticipated to be minimal. If the demographic of workers attracted to the project area were young unmarried or married males who did not move their families into the region, there could be a short-term impact related to the immigration of these workers. Additionally, secondary employment AJEs would likely be distributed throughout the study area, state, region, and nation. If population increases would occur, pressure on housing would likely increase, which could induce additional residential construction and development in the study area. A longer development period would reduce the present value of the economic activity in terms of the dollars that could be derived from development but a longer development period would be less likely to affect population and job trends over the long term.

### 5.6.3 Alternative A (Maximum Recovery)

Population changes from secondary employment would likely be similar to but reduced from that described for the Proposed Action because only conventional wells would be drilled; therefore, fewer AJEs would be created to attract new workers. The potential for population changes from secondary employment would likely be lowest under Alternative A when compared to all other alternatives that contain a development component.

### 5.6.4 Alternative B

Population changes from secondary employment would likely be similar to but increased from that described for the Proposed Action because all wells would be directionally drilled; therefore, more AJEs would be created to attract new workers.

### 5.6.5 Alternative C

Population changes from secondary employment would likely be less than that described for the Proposed Action due to the creation of fewer AJEs as a result of fewer wells being developed.

### 5.6.6 Alternative D

Population changes from secondary employment would likely be similar to but decreased from that described for the Proposed Action due to fewer numbers of AJEs being created as a result of fewer wells being developed.

### 5.6.7 Alternative E

Population changes from secondary employment would likely be similar to but somewhat higher than that described for the Proposed Action due to the increased number of AJEs created because of the higher level of directional drilling.

### 5.6.8 Alternative F

Population changes from secondary employment would likely be higher than that described for the Proposed Action. Under the 75 and 250 well/year development rate the number of AJEs created would be similar to but slightly higher than the Proposed Action, but more AJEs are created under the 150 well/year development rate due to the combination of straight and directional wells being drilled, which would likely attract some workers to come to the area seeking employment. The potential for population changes from secondary employment would likely be highest under Alternative F when compared to all other alternatives.

### 5.6.9 Alternative G

Population changes from secondary employment would likely be similar to but somewhat higher than that described for the Proposed Action due to the increased number of AJEs created as a result of the higher number of directionally drilled wells.

### 5.6.10 Preferred Alternative

Population changes from secondary employment would likely be approximately the same as that described for Alternative G at the 250 wells/year development rate.

## **5.7 SUMMARY OF ECONOMIC ACTIVITY**

### **5.7.1 No Action Alternative**

Under the No Action Alternative, the least amount of change in economic activity from current conditions would be expected when compared to all other alternatives; because no additional development would occur, no economic activity from development would occur. Production would be limited to the life of currently producing wells; therefore, only up to 3,366 BCF of gas and 31.98 MBO would be recovered under this alternative (Table 5.29). Over the LOP, the No Action Alternative would generate up to \$15,255.9 million (\$11,028.5 million present value) and 13,947 AJEs with an average wage of \$47,173 (Table 5.29). Up to \$2,334.9 million in taxes and revenues would be realized over the LOP (Table 5.29). Grazing could be reduced by up to \$1.5 million (Table 5.29). No effect would be expected to occur on recreation or hunting resources. The least total economic activity would occur under the No Action Alternative of all alternatives, and this alternative would create the least number of AJEs. Impacts from all action alternatives would likely be higher than those described under the No Action Alternative due to increased development and production, increased disturbance, and longer LOP.

### **5.7.2 Proposed Action**

Under the Proposed Action, change in economic activity from current conditions would be expected from the development of up to 3,100 wells and the recovery of up to 7,947 BCF of gas and 75.50 MBO (Table 5.29). Over the LOP of 52.5 years (12.5 years to develop), economic activity would be \$45,153.7 million (\$28,060.4 million present value), including \$6,072.1 million in taxes and revenues (Table 5.29). The number of AJEs that would be created would be up to 85,945.2 with an average wage ranging from \$31,881 to \$47,173 (Table 5.29). This action could result in a loss of economic activity from recreation of \$5.3 million, hunting of \$2.2 million, and grazing of \$9.1 million over the LOP (Table 5.29).

Table 5.29 Summary of Total Economic Activity Resulting from Natural Gas Development and Production Over the Life of Field, Jonah Infill Drilling Project, Sublette County, 2004.

Economic Effect	Economic Activity Resulting from Development (LOF)										Preferred Alternative
	No Action	Proposed Action	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F	Alternative G	Alternative H	
Total Anticipated Natural Gas Recovery over the LOF (BCF)	3,366	7,947	8,191	6,124	6,657	7,554	6,302	7,186	7,876	7,876	
Total Anticipated Condensate Recovery over the LOF (million bbls)	31.98	75.50	77.81	58.18	63.24	71.76	59.87	68.27	74.82	74.82	
<b>Potential Range of Change in Employment</b>											
Secondary Development Employment (AJEs)	--	\$2,930 to \$3,342	\$2,187.5 to \$2,605.0	60,625 to 61,110	21,617 to 22,119	38,466 to 38,474	59,848 to 60,316	57,823 to 59,071	53,740 to 54,193	53,740 to 54,193	
Average Earnings Per Job	--	\$31,881 to \$32,025	\$31,881 to \$32,025	\$31,881 to \$32,025	\$31,881 to \$32,025	\$31,881 to \$32,025	\$31,881 to \$32,025	\$31,881 to \$32,025	\$31,881 to \$32,025	\$31,881 to \$32,025	
Secondary Production Employment (AJEs)	13,947	32,928	33,939	25,374	27,583	31,299	26,112	29,775	32,634	32,634	
Average Earnings Per Job	\$47,173	\$47,173	\$47,173	\$47,173	\$47,173	\$47,173	\$47,173	\$47,173	\$47,173	\$47,173	
Recreation AJEs	--	-92.4 to -144.2	-92.4 to -144.3	-92.4 to -144.4	-79.2 to -100.3	-86.2 to -123.1	-92.4 to -144.4	-92.4 to -144.4	-92.4 to -144.4	-92.4 to -144.4	
Hunting AJEs	--	-49.9 to -77.9	-49.9 to -77.9	-49.9 to -77.9	-42.8 to -54.2	-46.6 to -66.5	-49.9 to -77.9	-49.9 to -77.9	-49.9 to -77.9	-49.9 to -77.9	
Grazing AJEs	--	-65.7 to -102.7	-65.7 to -102.7	-24.4 to -38.1	-30.5 to -38.6	-47.6 to -68.0	-34.5 to -53.9	-47.4 to -74.1	-58.7 to -91.7	-58.7 to -91.7	
Potential Range of Change in Employment	13,947	85,110.0 to 85,945.2	85,918.5 to 86,219.1	85,832.3 to 86,223.6	59,047.5 to 49,508.9	69,584.6 to 69,515.4	85,732.2 to 86,151.8	87,408.3 to 128,549.0	86,173.0 to 86,513.0	86,173.0 to 86,513.0	
<b>NOMINAL VALUE OF ECONOMIC ACTIVITY</b>											
<b>75 Wells Per Year Development Rate</b>											
Value of Development <sup>1</sup> (millions of \$)	0.0	8,655.9	8,565.1	9,612.5	3,568.6	6,227.7	9,514.7	9,263.4	8,760.6	8,760.6	
Value of Production <sup>1,2</sup> (millions of \$)	12,922.5	30,509.5	31,446.1	23,510.8	25,556.9	29,000.6	24,194.1	27,587.9	30,236.8	30,236.8	
Taxes/royalties from proposed project (millions of \$)	2,334.9	6,076.0	6,239.1	4,881.4	4,850.7	5,646.0	4,997.8	5,592.7	6,034.8	6,034.8	
Recreation (millions of \$)	0.0	-8.2	-8.2	-8.2	-5.7	-7.0	-8.2	-8.2	-8.2	-8.2	
Hunting (millions of \$)	0.0	-3.5	-3.5	-3.5	-2.4	-2.9	-3.5	-3.5	-3.5	-3.5	
Grazing (millions of \$)	-1.5	-14.2	-14.2	-5.3	-5.3	-9.4	-7.8	-10.2	-12.0	-12.0	
Total Nominal Economic Activity (millions of \$)	15,255.9	45,215.5	46,224.5	37,987.7	33,962.7	40,854.9	38,687.2	42,422.1	45,008.6	45,008.6	
<b>150 Wells Per Year Development Rate</b>											
Value of Development <sup>1</sup> (millions of \$)	0.0	8,655.9	8,565.1	9,612.5	3,796.5	6,227.7	9,507.8	15,678.7	8,760.6	8,760.6	
Value of Production <sup>1,2</sup> (millions of \$)	12,922.5	30,509.5	31,446.1	23,510.8	25,556.9	29,000.6	24,194.1	27,587.9	30,236.8	30,236.8	
Taxes/royalties (millions of \$)	2,334.9	6,076.5	6,239.1	4,881.4	4,865.7	5,646.0	4,997.3	6,015.6	6,034.8	6,034.8	
Recreation (millions of \$)	0.0	-6.1	-6.1	-6.1	-4.9	-5.5	-6.1	-6.1	-6.1	-6.1	
Hunting (millions of \$)	0.0	-2.6	-2.6	-2.6	-2.1	-2.3	-2.6	-2.6	-2.6	-2.6	
Grazing (millions of \$)	-1.5	-10.5	-10.5	-3.9	-4.6	-7.4	-5.8	-7.6	-8.9	-8.9	
Total Nominal Economic Activity (millions of \$)	15,255.9	45,222.7	46,231.1	37,992.0	34,207.5	40,854.9	38,684.7	49,265.9	45,014.7	45,014.7	
<b>250 Wells Per Year Development Rate</b>											
Value of Development <sup>1</sup> (millions of \$)	0.0	8,588.6	8,497.2	9,536.2	3,490.3	6,228.7	9,440.6	9,191.2	8,688.3	8,688.3	
Value of Production <sup>1,2</sup> (millions of \$)	12,922.5	30,509.5	31,446.1	23,510.8	25,556.9	29,000.6	24,194.1	27,587.9	30,236.8	30,236.8	
Taxes/royalties (millions of \$)	2,334.9	6,072.1	6,234.7	4,876.4	4,845.5	5,646.1	4,992.9	5,588.0	6,030.1	6,030.1	
Recreation (millions of \$)	0.0	-5.3	-5.3	-5.3	-4.5	-4.9	-5.3	-5.3	-5.3	-5.3	
Hunting (millions of \$)	0.0	-2.2	-2.2	-2.2	-1.9	-2.1	-2.2	-2.2	-2.2	-2.2	
Grazing (millions of \$)	-1.5	-9.1	-9.1	-3.4	-4.2	-6.6	-5.8	-6.5	-7.7	-7.7	
Total Nominal Economic Activity (millions of \$)	15,255.9	45,153.7	46,161.4	37,912.5	33,882.1	40,861.8	38,615.2	42,353.2	44,940.1	44,940.1	

Approximately the same as Alternative G

Table 5.29 (Continued)

Economic Effect	Economic Activity Resulting from Development (LOF)										Preferred Alternative
	No Action	Proposed Action	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F	Alternative G	Alternative G	
PRESENT VALUE OF ECONOMIC ACTIVITY <sup>3</sup>											
<b>75 Wells Per Year Development Rate</b>											
Value of Development <sup>1</sup> (millions of \$)	0.0	4,496.4	4,452.8	4,997.3	2,655.7	3,818.0	4,946.5	4,815.8	4,554.5	--	
Value of Production <sup>2</sup> (millions of \$)	9,275.7	12,101.0	12,144.6	9,325.1	14,130.0	13,208.8	9,596.1	10,942.1	11,992.8	--	
Taxes/royalties (millions of \$)	1,753.7	2,557.3	2,561.7	2,108.2	2,733.2	2,665.9	2,151.9	2,378.2	2,542.8	--	
Recreation (millions of \$)	0.0	-2.7	-2.7	-2.7	-2.5	-2.6	-2.7	-2.7	-2.7	--	
Hunting (millions of \$)	0.0	-1.1	-1.1	-1.1	-1.0	-1.1	-1.1	-1.1	-1.1	--	
Grazing (millions of \$)	-0.9	-5.4	-5.4	-2.0	-2.7	-4.1	-3.0	-3.9	-4.6	--	
Total Present Value of Economic Activity (millions of \$)	11,028.5	19,145.4	19,149.8	16,424.7	19,512.7	19,684.9	16,687.6	18,128.4	19,081.6	--	
<b>150 Wells Per Year Development Rate</b>											
Value of Development <sup>1</sup> (millions of \$)	0.0	6,038.3	5,994.8	6,727.8	3,209.1	4,781.8	6,654.5	10,973.6	6,131.6	--	
Value of Production <sup>2</sup> (millions of \$)	9,275.7	15,864.2	16,349.9	12,225.0	16,049.7	16,543.1	12,580.4	14,345.1	15,722.5	--	
Taxes/royalties (millions of \$)	1,753.7	3,156.6	3,239.5	2,543.2	3,073.1	3,217.8	2,602.8	3,061.5	3,134.5	--	
Recreation (millions of \$)	0.0	-2.5	-2.5	-2.5	-2.3	-2.4	-2.5	-2.5	-2.5	--	
Hunting (millions of \$)	0.0	-1.1	-1.1	-1.1	-1.0	-1.0	-1.1	-1.1	-1.1	--	
Grazing (millions of \$)	-0.9	-5.1	-5.1	-1.9	-2.4	-3.8	-2.8	-3.7	-4.3	--	
Total Present Value of Economic Activity (millions of \$)	11,028.5	25,070.4	25,575.5	21,490.6	22,326.1	24,535.3	21,831.3	28,372.9	24,980.7	--	
<b>250 Wells Per Year Development Rate</b>											
Value of Development <sup>1</sup> (millions of \$)	0.0	6,631.8	6,561.2	7,363.5	3,151.8	5,265.1	7,289.7	7,097.1	6,708.8	Approximately the same as Alternative G	
Value of Production <sup>2</sup> (millions of \$)	9,275.7	17,963.8	18,511.2	13,842.7	17,145.3	18,212.2	14,245.2	16,243.3	17,803.0		
Taxes/royalties (millions of \$)	1,753.7	3,474.7	3,574.9	2,725.2	3,242.5	3,483.9	2,798.3	3,165.4	3,446.6		
Recreation (millions of \$)	0.0	-2.4	-2.4	-2.4	-2.3	-2.3	-2.4	-2.4	-2.4		
Hunting (millions of \$)	0.0	-1.0	-1.0	-1.0	-0.9	-1.0	-1.0	-1.0	-1.0		
Grazing (millions of \$)	-0.9	-6.6	-6.6	-2.5	-2.5	-3.7	-3.6	-4.7	-5.6		
Total Present Value of Economic Activity (millions of \$)	11,028.5	28,060.4	28,637.3	23,925.5	23,533.9	26,954.2	24,326.2	26,497.8	27,949.5		

<sup>1</sup> Includes nonproject labor earnings resulting from secondary economic activity induced by project activities. These earnings do not include project labor earnings.

<sup>2</sup> Natural gas plus condensate; Proposed Action and Alternatives A-F include wells currently in production (i.e., No Action Alternative wells); natural gas price is assumed at \$3.50/mcf and condensate price is assumed at \$21/bbl.

<sup>3</sup> Number of years to develop varies for each alternative; well life is assumed to be 40 years; see Section 2.2 for a discussion of discounting. The discount rate used for this analysis was 3.5%. Conservatively assumes revenues are received as a lump sum at year end.



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### **5.7.3 Alternative A**

Under Alternative A, change in economic activity from current conditions would be expected from the development of up to 3,100 wells and the recovery of up to 8,191 BCF of gas and 77.81 MBO. Economic activity could range from \$46,224.5 million (\$19,149.8 million present value), including \$6,239.1 million in taxes and revenues to \$46,161.4 million (\$28,637.3 million present value), including \$6,234.7 million in taxes and revenues (Table 5.29). The number of AJEs that would be created in the study area could range from 85,918.5 to 86,219.1 with an average wage ranging from \$31,881 to \$47,173 (Table 5.29). This alternative could result in a loss of economic activity from recreation ranging from \$5.3 million to \$8.2 million, hunting ranging from \$2.2 million to \$3.5 million, and grazing ranging from \$9.1 million to \$14.2 million over the LOP (Table 5.29).

### **5.7.4 Alternative B**

Under Alternative B, change in economic activity from current conditions would be expected from the development of up to 3,100 wells and the recovery of up to 6,124 BCF of gas and 58.18 MBO (Table 5.29). LOP could range from 82 years (42 years to develop) to 52.5 years (12.5 years to develop). Economic activity could range from \$37,992.0 million (\$21,490.6 million present value), including \$4,881.4 million in taxes and revenues to \$37,912.5 million (\$23,925.5 million present value), including \$4,876.4 million in taxes and revenues (Table 5.29). The number of AJEs that would be created in the study area could range from 85,832.3 to 86,223.6 with an average wage ranging from \$31,881 to \$47,173 (Table 5.29). This alternative could result in a loss of economic activity from recreation ranging from \$5.3 million to \$8.2 million, hunting ranging from \$2.2 million to \$3.5 million, and grazing ranging from \$3.4 million to \$5.3 million over the LOP (Table 5.29).

### **5.7.5 Alternative C**

Under Alternative C, change in economic activity from current conditions would be expected from the development of up to 1,250 wells and the recovery of up to 6,657 BCF of gas and 63.24 MBO (Table 5.29). LOP could range from 57 years (17 years to develop) to 45 years (5 years to develop).

Economic activity could range from \$33,882.1 million (\$23,533.9 million present value), including \$4,845.5 million in taxes and revenues to \$34,207.5 million (\$22,326.1 million present value), including \$4,865.7 million in taxes and revenues. The number of AJEs that would be created in the study area could range from 59,047.5 to 49,508.9 with an average wage ranging from \$31,881 to \$47,173. This alternative could result in a loss of economic activity from recreation ranging from \$4.5 million to \$5.7 million, hunting ranging from \$1.9 million to \$2.4 million, and grazing ranging from \$4.2 million to \$5.3 million over the LOP.

### **5.7.6 Alternative D**

Under Alternative D, change in economic activity from current conditions would be expected from the development of up to 2,200 wells and the recovery of up to 7,554 BCF of gas and 71.76 MBO (Table 5.29). LOP could range from 70 years (30 years to develop) to 49 years (9 years to develop).

Economic activity could range from \$40,861.8 million (\$26,954.2 million present value), including \$5,646.1 million in taxes and revenues to \$40,854.9 million (\$19,684.9 million present value), including \$5,646.0 million in taxes and revenues (Table 5.29). The number of AJEs that would be created in the study area could range from 69,584.6 to 69,515.4 with an average wage ranging from \$31,881 to \$47,173 (Table 5.29). This alternative could result in a loss of economic activity from recreation ranging from \$4.9 million to \$7.0 million, hunting ranging from \$2.1 million to \$2.9 million, and grazing ranging from \$6.6 million to \$9.4 million over the LOP (Table 5.29).

### **5.7.7 Alternative E**

Under Alternative E, change in economic activity from current conditions would be expected from the development of up to 3,100 wells and the recovery of up to 6,302 BCF of gas and 59.87 MBO (Table 5.29). LOP could range from 82 years (42 years to develop) to 52.5 years (12.5 years to develop). Economic activity could range from \$38,615.2 million (\$24,326.2 million present value), including \$4,992.9 million in taxes and revenues to \$38,687.2 million (\$16,687.6 million present value), including \$4,997.8 million in taxes and revenues (Table 5.29). The number of AJEs that would be created in the study area could range from 85,732.2 to 86,151.8 with an average wage

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ranging from \$31,881 to \$47,173 (Table 5.29). This alternative could result in a loss of economic activity from recreation ranging from \$5.3 million to \$8.2 million, hunting ranging from \$2.2 million to \$3.5 million, and grazing ranging from \$5.0 million to \$7.8 million over the LOP (Table 5.29).

### **5.7.8 Alternative F**

Under Alternative F, change in economic activity from current conditions would be expected from the development of up to 3,100 wells and the recovery of up to 7,186 BCF of gas and 68.27 MBO (Table 5.29). LOP could range from 82 years (42 years to develop) to 52.5 years (12.5 years to develop). Economic activity could range from \$42,353.2 million (\$26,497.8 million present value), including \$5,588.0 million in taxes and revenues to \$49,265.9 million (\$28,372.9 million present value), including \$6,015.6 million in taxes and revenues (Table 5.29). The number of AJEs that would be created in the study area could range from 87,408.3 to 128,549.0 with an average wage ranging from \$31,881 to \$47,173 (Table 5.29). This alternative could result in a loss of economic activity from recreation ranging from \$5.3 million to \$8.2 million, hunting ranging from \$2.2 million to \$3.5 million, and grazing ranging from \$6.5 million to \$10.2 million over the LOP (Table 5.29).

The greatest total economic activity in terms of dollars and jobs would occur under the Alternative F under the 150 well/year development rate (Table 5.29).

### **5.7.9 Alternative G**

Under Alternative G, change in economic activity from current conditions would be expected from the development of up to 3,100 wells and the recovery of up to 7,876 BCF of gas and 74.82 MBO (Table 5.29). LOP could range from 82 years (42 years to develop) to 52.5 years (12.5 years to develop). Economic activity could range from \$44,940.1 million (\$27,949.5 million present value), including \$6,030.1 million in taxes and revenues to \$45,014.7 million (\$24,980.7 million present value), including \$6,034.8 million in taxes and revenues (Table 5.29). The number of AJEs that would be created in the study area could range from 86,173 to 86,513 with an average wage ranging from \$31,881 to \$47,173 (Table 5.29). This alternative could result in a loss of economic activity

from recreation ranging from \$5.3 million to \$8.2 million, hunting ranging from \$2.2 million to \$3.5 million, and grazing ranging from \$7.7 million to \$12.0 million over the LOP (Table 5.29).

#### **5.7.10 Preferred Alternative**

Under the Preferred Alternative, impacts would likely be approximately the same as those described for Alternative G at the 250 wells/year development rate.

### **5.8 CUMULATIVE IMPACTS**

The cumulative impacts assessment area for socioeconomics includes Sublette, Lincoln, and Sweetwater Counties. All of these counties depend upon the oil and gas industry for a portion of their economic activity and tax base (refer to Section 3.0), and the Jonah Infill Drilling Project, along with other oil and gas developments, would increase employment opportunities, expand the tax base, and improve the abilities for the counties to maintain and increase services and infrastructure for residents. When considering employment, tax base/revenues, and general economic health, increased oil and gas development produces impacts. Wells developed as part of this project would add proportionately to the economic benefits realized from the area. Local communities would experience economic impacts from an increase in consumption of local goods and services and increased sales tax revenues. For instance, construction of well pads and roads is usually contracted to local construction companies, and it is likely that many employees would spend some of their payroll in these communities. Actual impacts would depend on the rate of development and the number of wells authorized.

Increases in regional oil and gas development activity in a short period of time can cause notable changes in employment and income. These variables can in turn cause changes in population trends, which could have detrimental effects on community services, social structures and lifestyles. Increased oil and gas development is expected, under all alternatives, to cause an increase in taxes and revenues to all governments in the study area. Increases to ad valorem taxes would be expected to occur in Sublette County. Conversely, under the No

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Action Alternative, these increases would not be realized, which could result in negative impacts to local governments. Additional revenues would accrue to the U.S. in the form of personal and corporate income taxes. Wyoming, and especially Sublette, Sweetwater, and Lincoln Counties are highly dependent on mineral revenues, and the revenue anticipated from the proposed project would add to those revenues.

Where the surface is in private ownership and the minerals are in federal ownership, a lease holder has the right of ingress and egress on the private surface and the right to disturb whatever is reasonably necessary to recover the minerals. This does not prevent the private owner and the lease holder from entering into mutually acceptable terms regarding surface use to facilitate the process.

When both the surface and minerals are in private ownership, negotiations for a lease--including financial considerations--are between the private owner and the potential lessee, and the terms of the lease--financial and otherwise--are negotiated by the two parties. It is usual for the private mineral owner to share in the profits from the recovery of the mineral resource.

Some portion of the resident population, as well as many non-residents, prioritize preserving the naturalness of the area above all else and are not in favor of the high level of oil and gas development proposed in JIDPA. These individuals may be affected on a personal aesthetic and moral level by the proposed project.

## **5.9 UNAVOIDABLE ADVERSE IMPACTS**

There would be avoidable adverse short-term and/or long-term impacts to socioeconomic resources as a result of the proposed project.

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