

In accordance with NEPA and planning regulations that require development of a reasonable range of alternatives, the SJPLC developed four alternative management strategies for managing the SJPL, as described and analyzed in the Draft LMP/EIS. This Supplement is based on the same four alternatives. Alternative A, the No Action alternative, is a continuation of current management. Alternative B, the preferred alternative, maintains most of the large, contiguous blocks of undeveloped lands while at the same time maintaining the diversity of uses and active forest and rangeland vegetation management. Alternative C emphasizes preserving the undeveloped character of the planning area. Alternative D emphasizes actively managing lands to produce the highest amounts of commodity goods and services. A No Lease Alternative was also analyzed for the oil and gas leasing availability decision. The No Lease Alternative would not make any new lands available for lease.

The inclusion of the GSGP development projections and the new air quality model information does not add or remove any alternatives. This new information also does not change the status of the affected lands as described in the Draft LMP/EIS with regard to lands available for lease, withdrawn, proposed for withdrawal, administratively not available, or stipulated lands. For context, Table S-2.1 below provides the acreage of lands available for oil and gas development and stipulated by alternative, as disclosed in the Draft LMP/EIS.

The inclusion of the new GSGP area does change the development projections (number of wells, miles of road, and acres of disturbance) under each alternative. The increased development projections are based on the 2009 RFD scenario. Table S-2.2 summarizes well and disturbance projections from the 2009 RFD and illustrates how the new GSGP projections compare with the projections of the 2006 RFD that was used in the Draft EIS analysis.

Range of Alternatives

The acres available for lease across the entire SJPL planning area range from approximately 981,000 to 1,550,000 acres¹ (not including the No Lease Alternative which does not make any lands available for lease). The range of acres available for lease, withdrawn, proposed for withdrawal, administratively not available, or stipulated within the GSGP area, as shown in Tables S-2.4 to S-2.7 below, represents only a subset of the complete range of management alternatives as jointly presented in the Draft LMP/EIS and Supplement because the Supplement only addresses a portion of the planning area (354,800 BLM/USFS acres within a 2,369,000 acre planning area). The vast majority of the GSGP area addressed in this Supplement has a long history of multiple uses that are consistent with proposed leasing activity, and this area was identified during public scoping as appropriate for leasing activity with little in the way of competing uses. As a result, the proposed acreages for leasing availability in the GSGP area do not vary to a great extent. The acreages presented here should not be construed as a full range of alternatives, but rather as a subset of the reasonable range of management alternatives developed for the entire planning area as required by NEPA and planning regulations for the BLM and USFS. See page 2.19 of [Chapter Two](#) of the Draft EIS for an explanation of how the alternatives vary and address each revision issue differently.

¹ See Table S-2.1 in this chapter.

The following information from the Draft EIS relative to the oil and gas leasing availability decision has been summarized to provide context for how the GSGP fits within the alternatives and analysis of the Draft LMP/EIS.

Acres Available for Lease: The acres available for lease and stipulated, and the acres withdrawn, proposed for withdrawal, or administratively not available are the same as the acres identified in the Draft LMP/EIS for each alternative. Table S-2.1 is repeated from the Draft EIS to show the acres available and stipulated for the SJPL mineral estate.

Leasing Stipulations: A set of oil and gas leasing stipulations was published with the Draft EIS in [Appendix H - Resource Management Stipulations for New Oil and Gas Leases](#). The analysis of impacts from oil and gas leasing in the Draft EIS and in this Supplement assume that these lease stipulations will be applied at the project level. These stipulations apply only to new leases (issued after adoption of this SJPL Revised Plan). Existing leases are subject to the constraints within the stipulations that were attached as part of the lease sale. The lease and the attached constraints and conditions outlined in the stipulations are considered a valid and existing right.

No Lease Alternative: The No Lease Alternative remains the same as described in [Chapter Two](#) of the Draft EIS (page 2.64). The No Lease Alternative would not make any new lands available for lease, both within the GSGP and across the rest of the planning area. Current and future development could continue on existing leased lands; but no new lands would be available for lease under the No Lease Alternative. When existing leases expire, they would not be leased again under the No Lease Alternative.

Table S-2.1 - Oil and Gas Availability by Alternative (reprinted from the Draft EIS Table 2.9.6 in Chapter Two)

Oil and Gas Leasing Availability by Alternative	Alternative A (No Action)	Alternative B (Preferred)	Alternative C	Alternative D	No Lease Alternative
Currently Leased and Unleased Lands (acres)					
San Juan Public Lands Fluid-Minerals (Oil and Gas) <i>(figures are based on total mineral estate, including private surface)</i>					
Total San Juan Public Lands Oil and Gas	2,642,053	2,642,053	2,642,053	2,642,053	2,642,053
Total Lands Currently Leased	528,069	528,069	528,069	528,069	528,069
Total Unleased Lands	2,113,984	2,113,984	2,113,984	2,113,984	2,113,984
Currently Unleased Lands (acres)					
San Juan Public Lands Fluid-Minerals (Oil and Gas) <i>(figures are based on total mineral estate, including private surface)</i>					
Total Unleased Lands	2,113,984	2,113,984	2,113,984	2,113,984	2,113,984
• Withdrawn from Leasing	480,953	480,953	480,953	480,953	480,953
• Proposed for Withdrawal	0	67,726	532,957	0	0
• Administratively Not Available for Leasing	63,851	93,238	118,821	93,238	1,633,031
• Available for Leasing	1,569,180	1,472,067	981,253	1,539,793	0
• No Surface Occupancy (NSO)	22,469	827,559	362,288	894,144	0
• Controlled Surface Use (CSU)	60,276	259,114	277,520	248,221	0
• CSU and Timing Limitations (TL)	15,017	78,937	75,176	72,150	0
• Timing Limitations (TL)	46,019	122,151	112,463	129,078	0
• Standard Lease Terms	1,425,399	184,306	153,806	196,200	0

Gothic Shale Gas Play Overview and Development Projections

The BLM and USFS lands within the GSGP have had a history of multiple use management, including timber harvest, mining, grazing, recreation, and oil and gas development. Across all alternatives approximately 50% of the GSGP was identified as a Management Area 5 (MA 5) - Working Forest and Rangelands, which places the greatest emphasis on multiple uses (see description of MAs in the [Draft EIS Chapter Two](#) on page 2.11). Consequently, the GSGP area is generally roaded and accessible (including USFS and BLM administrative roads, oil and gas roads, county and private roads, and unauthorized roads created by cross-country travel), and a place where past uses and management actions have influenced the overall landscape pattern. Approximately 34% of the federal mineral estate within the GSGP area is currently held under lease, the majority of which are BLM lands.

The Paradox Basin within the planning area, was identified as having moderate to high development potential for conventional gas development in the Draft EIS, and accounted for more than 80% of the

development projected for unleased SJPL in the Draft EIS. Hence, the development projections for the GSGP are occurring in the same general location as the majority of wells that were projected and analyzed in the Draft EIS.

In the 2009 RFD Addendum, detailed information is provided about how the GSGP could develop (including trends, timelines, well numbers, infrastructure, surface disturbance, etc.). Table S-2.2 displays the number of wells, well pads and surface disturbance reported in the 2006 RFD, and the addition of the GSGP (as reported in the 2009 RFD). Please note that these figures represent potential development for both federal and non-federal mineral estate lands, on both leased and unleased lands, in the planning area.

Table S-2.2 – Summary Table of 2006 RFD and 2009 RFD for Well, Well Pad, and Surface Disturbance Projections for the San Juan Public Lands Planning Area

Projections	2006 RFD Conventional and CBM Plays	2009 Gothic Shale Gas Play Addition	2006 and 2009 Combined Totals for San Juan Planning Area
Oil and Gas Wells	1,185 wells	1,769 wells	2,954 wells
Well Pads	795 pads	495 one-well per pad 637 two-wells per pad	1,927 well pads
Surface Disturbance	3,185 ac. well-related & 937 ac. infrastructure-related	5,887 ac. well-related & 910 ac. infrastructure-related	9,072 ac. well-related & 1,847 ac. infrastructure-related

In Table S-2.3 below, a summary of the wells projected in the RFD for just the GSGP by surface and mineral estate ownership, is provided. As indicated in the table, fifty-seven percent (57%) of the GSGP development is projected to occur on Federal Mineral Estate. Of the 1,012 wells projected on Federal Mineral Estate, 66% (or 661 wells) are projected to be on lands that are currently unleased (i.e., wells that could be developed if the lands are made available for lease and developed).

Table S-2.3 - Projected Wells in the Gothic Shale Gas Play (GSGP) for Federal and Non-Federal Mineral Estate

	Surface and Mineral Ownership Categories	Projected Wells
Federal Mineral Estate	USFS Unleased Lands	474
	USFS Leased Lands	110
	BLM Unleased Lands	187
	BLM Leased Lands	241
	Subtotal -- Projected Wells on Federal Mineral Estate	1,012
Non-Federal Mineral Estate	USFS Surface/Non-Federal Minerals	106
	BLM Surface/Non-Federal Minerals	2
	Private Lands Surface/Non-Federal Minerals	609
	State Lands Surface/Non-Federal Minerals	28
	Local Government Surface/Non-Federal Minerals	12
	Subtotal – Projected GSGP Wells on Non-Federal Mineral Estate	757
	Total GSGP Projected Wells	1,769

Development of the GSGP could result in approximately four times as many wells on unleased lands than were analyzed in the Draft EIS, causing our projections for oil and gas activities (wells, roads, acres of disturbance) to increase. In Tables S-2.4 through S-2.8, the well and surface disturbance projections analyzed in the Draft EIS are shown alongside the new GSGP well additions for each Alternative. These tables show projected development on unleased lands only, as the decision being analyzed in this Supplement is whether or not to lease these lands. Impacts from future development on lands currently held

under lease are generally subject to the terms and conditions under which they were originally leased. However, recent Interior Board of Land Appeals decisions do give the BLM discretion to modify surface operations or add specific mitigation measures to the lease terms at the project level, when supported by scientific analysis and when necessary to comply with plan direction (Yates Petroleum Corp., IBLA 2006-213, 2006-226 and William P. Maycock, IBLA 2008-197, 2008-200). Development projections and potential impacts from future development on unleased lands and lands currently held under lease are detailed in Chapter Three.

Table S-2.4 - GSGP Projected Activities with DRAFT EIS Projections for the San Juan Public Lands: Alternative A

PROJECTED ACTIVITIES On Unleased Lands	USFS		BLM		Combined Total
	<u>Draft EIS</u>	<u>GSGP Addition</u>	<u>Draft EIS</u>	<u>GSGP Addition</u>	
Projected Wells on Unleased Lands	167	456	0	177	800
Projected Road Miles for Projected Wells	56	145	0	57	258
Projected acres Disturbed for Projected Wells	550	1,513	0	598	2,661

Table S-2.5 - GSGP Projected Activities with DRAFT EIS Projections for the San Juan Public Lands: Alternative B

PROJECTED ACTIVITIES On Unleased Lands	USFS		BLM		Combined Total
	<u>Draft EIS</u>	<u>GSGP Addition</u>	<u>Draft EIS</u>	<u>GSGP Addition</u>	
Projected Wells on Unleased Lands	158	445	0	173	776
Projected Road Miles for Projected Wells	53	140	0	57	250
Projected acres Disturbed for Projected Wells	533	1,461	0	598	2,592

Table S-2.6 - GSGP Projected Activities with DRAFT EIS Projections for the San Juan Public Lands: Alternative C

PROJECTED ACTIVITIES On Unleased Lands	USFS		BLM		Combined Total
	<u>Draft EIS</u>	<u>GSGP Addition</u>	<u>Draft EIS</u>	<u>GSGP Addition</u>	
Projected Wells on Unleased Lands	148	439	0	171	758
Projected Road Miles for Projected Wells	50	138	0	57	245
Projected acres Disturbed for Projected Wells	487	1,435	0	598	2,520

Table S-2.7 - GSGP Projected Activities with DRAFT EIS Projections for the San Juan Public Lands: Alternative D

PROJECTED ACTIVITIES On Unleased Lands	USFS		BLM		Combined Total
	Draft EIS	GSGP Addition	Draft EIS	GSGP Addition	
Projected Wells on Unleased Lands	165	450	0	175	790
Projected Road Miles for Projected Wells	55	143	0	57	255
Projected acres Disturbed for Projected Wells	545	1,487	0	598	2,630

Table S-2.8 - GSGP Projected Activities with DRAFT EIS Projections for the San Juan Public Lands: No Lease Alternative

PROJECTED ACTIVITIES On Unleased Lands	USFS		BLM		Combined Total
	Draft EIS	GSGP Addition	Draft EIS	GSGP Addition	
Projected Wells on Unleased Lands	0	0	0	0	0
Projected Road Miles for Projected Wells	0	0	0	0	0
Projected acres Disturbed for Projected Wells	0	0	0	0	0

Lands Available for Lease and Stipulated Lands within the GSGP

Table S-2.9 below provides a comparison of the acreage within the GSGP that is available and not available for lease by alternative, including acres stipulated by alternative. The figures in Table S-2.9 are for the GSGP area only, and fall within the full range of alternatives presented in the Draft EIS. (Table S-2.1 provides the acres for the entire SJPL, whereas Table S-2.9 is only for the GSGP.)

Table S-2.9 - Oil and Gas Leasing Availability by Alternative for the GSGP Area (acres)

	Alternative A	Alternative B	Alternative C	Alternative D	No Lease Alternative
Acres Available for Lease	393,525	379,627	379,615	379,627	0
Acres Proposed for Withdrawal	0	0	12	0	0
Acres Administratively Not Available	15,278	29,176	29,176	29,176	408,803
No Surface Occupancy (NSO)	45,844	88,793	94,487	87,873	0
Controlled Surface Use (CSU)	21,819	77,248	89,467	74,690	0
Timing Limitation (TL)	18,460	84,727	83,504	88,879	0
CSU/TL	26,534	7,398	7,951	6,621	0
Standard Lease Terms	280,868	121,461	104,206	121,564	0
TOTAL	408,803	408,803	408,803	408,803	408,803

As indicated in the table above, the GSGP occurs in an area that is almost entirely (93%) identified as available for lease, with the exception of the No Lease Alternative. The following areas are identified as not available for lease within the GSGP:

- Weber and Menefee Wilderness Study Areas, stipulated as Administratively Not Available for Lease under all alternatives.
- Anasazi Archaeological National Register District, stipulated as Administratively Not Available for lease under Alternatives B, C, and D; the area is available for lease under Alternative A.
- The “wild” segment of the Dolores River, which is found preliminarily suitable for Wild and Scenic River (WSR) designation under Alternatives A, B and C, is categorized as “proposed for withdrawal”. In Alternative D, the river is not recommended for WSR designation and would be available for lease under this alternative.

In addition to the areas and resources listed above, other unique resources within the GSGP that have restrictive lease stipulations include:

- Narraguinnep Research Natural Area, protected with a No Surface Occupancy (NSO) stipulation in Alternatives A, B, C, and D;
- Mesa Verde Escarpment, protected with an NSO stipulation in Alternatives B, C, and D and standard lease stipulation in Alternative A
- Canyons and other steep slopes are protected with an NSO stipulation in Alternatives B, C, and D, and standard lease stipulation in Alternative A.
- The Dolores River Canyon is stipulated with an NSO stipulation in Alternatives A, B, C, and D to protect the various unique resources within the river canyon.

Other lands within the GSGP area contain wildlife timing limitations (TLs), controlled surface use in popular recreation areas, and a variety of other resource specific stipulations. All resource management stipulations for new oil and gas leases found in [Appendix H](#) of the Draft EIS are still applicable.

New Standards and Guidelines

The following air quality standards and guidelines replace the air quality standards and guidelines that were published in the [Draft LMP, Part Three](#) beginning on page 250. They are presented here for public review and comment. These standards and guidelines have been developed to minimize impacts from projected shale gas and other oil and gas development activities on SJPL.

AIR QUALITY STANDARDS

- A. All new facilities and installations will use engines that meet the following standards within a stationary facility for fluid minerals. Engines less than 300 horsepower (excluding very small engines less than 40 horsepower) must have a mandatory NO_x limit of 2.0 grams per horsepower-hour or the minimum acceptable limit as determined by the Four Corners Air Quality Task Force process or the State of Colorado. If rich burn engines are selected, operators must demonstrate compliance with the SJPL NO_x limit standards.

- B. All replacement or reconditioned reciprocating internal combustion engines less than 300 horsepower (excluding very small engines less than 40 horsepower) must also meet NO_x limit of 2.0 grams per horsepower-hour or the minimum acceptable limit, as determined by the Four Corners Air Quality Task Force process or the State of Colorado.
- C. All new facilities and installations will use engines that meet the following standards within a stationary facility for fluid minerals. Engines 300 horsepower or greater must have a mandatory NO_x limit of 1.0 gram per horsepower-hour or the minimum acceptable limit, as determined by the Four Corners Air Quality Task Force process or the State of Colorado.
- D. All replacement or reconditioned reciprocating internal combustion engines 300 horsepower or greater must have a mandatory NO_x limit of 1.0 gram must also meet NO_x limit of 1.0 gram per horsepower-hour or the minimum acceptable limit, as determined by the Four Corners Air Quality Task Force process or the State of Colorado.
- E. Reduced emission completions and workovers (i.e. “green completions” or “clean technology” as defined by the Environmental Protection Agency) using mobile well completion equipment for oil and gas wells is required to prevent venting or flaring of methane gas and other air pollutants into the atmosphere. Green mobile well equipment includes mobile tanks, portable separators, sand traps, and portable gas dehydration. Venting of methane gas during the well completion process will not be allowed except during emergency situations. This standard is required for all non-wildcat wells and will be implemented in all places where technically feasible.
- F. For exploration and production tanks, hatches must be closed, valves must be maintained in a leak-free condition, pressurized recovery, storage and transport of condensate must be used to reduce the venting of volatile organic compounds (VOC) and hazardous air pollutants (HAP) emissions by at least 95 % from uncontrolled emissions.
- G. Low bleed pneumatic devices are required for all new and retrofitted oil and gas production sites to reduce methane emissions.
- H. All new glycol dehydrators must use low or zero VOC emission technology or desiccant dehydrators if located within ¼ mile of the power grid. Dehydrators located more than ¼ mile from the power grid must use desiccant dehydrators to reduce the emissions of methane, VOCs and HAPs.

AIR QUALITY GUIDELINES

- I. Construction activities that disturb a surface area greater than 1 acre and are of a duration greater than five days should use effective dust-suppression materials and techniques to prevent dust from visibly transporting from the area of disturbance (e.g. well pad, landing, parking area, mine) or drift more than 50 feet from the road prism. In addition, these activities must handle, transport, and store material in such a way to prevent particulate matter (dust) from visibly transporting from the storage area or area of disturbance. There will be no oil, solvents, or other unacceptable contaminants in water used for dust abatement.
- J. Vapor recovery units, inert gas blankets, or floating roof tanks should be installed on all petroleum exploration, production and condensate storage tanks to limit VOC and other liquid petroleum emissions.
- K. For new lease or new development areas, co-locate and/or centralize new mineral development facilities. Facilities include roads, well pads, utilities, pipelines, compressors, power sources and

fluid storage tanks. Co-location of wells (more than one well per pad) should be required. Optimization (use of fewer, larger, and more efficient engines with lower emission rates, rather than using many small engines with higher emission and less efficiency and higher cumulative horse power) should be required.

Air Quality Additional Referenced Guidance

BLM 7300, Air Resource Management, Climate and Air Quality; FSM 2580, Air Resource Management; FSM 5100, Fire Management; the Clean Air Act (CAA), as amended (42 USC 7401 et seq.); the Wilderness Act of 1964; the Federal Land Policy Management Act of 1976; Environmental Protection Agency (EPA) Interim Air Quality Policy on Wildlands and Prescribed Fires, 1998; Weminuche Wilderness Monitoring Plan for Air Quality Related Values (AQRV) (USFS 1991), and Federal Land Managers AQRV Workgroup Phase I Report (FLAG 2010).

Water Standards and Guidelines

The following standards and guidelines *are new and in addition to* the water standard and guidelines published in the [Draft LMP, Part Three](#) on pages 251 and 252. They are presented here for public review and comment. These standards guidelines have been developed to minimize impacts to land health from projected shale gas and other oil and gas development activities on SJPL.

WATER STANDARDS

A. Closed loop, pitless drilling systems (i.e., self contained drilling systems) must be utilized.

WATER GUIDELINES

- B. As a general practice nontoxic fluid, additives, and other materials should be used for drilling.
- C. Exploration and production waste should be buried using Best Management Practices (BMPs) that meet state regulations 9-10-4, or exploration and production waste should be disposed of in such a manner as to not inhibit reclamation success of the site.
- D. Operators should utilize proven technologies for the recycling of fresh water, drilling fluids and produced water for reuse in drilling and completion operations or other beneficial purposes whenever possible.
- E. As individual fields are developed, centralized liquid gathering systems should be utilized for the delivery and gathering of drilling, completion, and produced fluids such as fresh water, waste/produced water, and condensate.
- F. Water Management Plans should be included in Plans of Development.

SUMMARY OF ENVIRONMENTAL CONSEQUENCES

The environmental consequences resulting from the GSGP are similar to the impacts disclosed in the [Draft EIS, Chapter Two](#) beginning on page 2.81. While this Supplement discloses increased oil and gas development projections in the GSGP and new air quality modeling results, the projections and model results have not changed the type of impacts, only the degree to which the impacts affect specific resources.

