

Appendix E. Summary of oil and gas permits within Greater Sage-Grouse habitat as defined in the 100 Series Rule. Production Areas [also as known as Sensitive Wildlife Habitat Areas (SWHA)] are within 4 miles of a lek (using the 2008 lek database) and Restricted Surface Occupancy Areas (RSO) are within 0.6 mi of a lek.

The actual conditions that are included on Form 2A permits are contained in COGCCs data base. CPW assumes that recommendations made and agreed to by the operator will be attached to the permit as a condition of approval. COGCC enforces permit conditions. Neither CPW nor COGCC monitor BMP effectiveness.

Best Management Practices

Summary of the most commonly recommended Best Management Practices (BMPs) for COGCC Form 2A Permits. A total of 97 Form 2A permits occurred in GrSG Production Habitat Areas (SWHA) since 2010.

BMP	# of times BMP requested	Recommended Best Management Practice
Timing - Seasonal	22	Where oil and gas activities must occur within 4 miles of GrSG leks or within other mapped GrSG breeding or summer habitat, conduct these activities outside the period between March 1 and June 30.
Timing - Daily	21	Restrict well site visitations to portions of the day between 9:00 a.m. and 4:00 p.m. during the lekking season (March 1 to May 15).
Sound	14	Muffle or otherwise control exhaust noise from pump jacks and compressors so that operational noise will not exceed 49 dB measured at 30 feet from the source.
Fencing	14	Fence pits to exclude grouse from entry
Netting	10	Net pits to exclude grouse from entry
Native Veg	45	Reclaim/restore GrSG habitats with native grasses, forbs, and shrubs conducive to optimal GrSG habitat and other wildlife appropriate to the ecological site.
Non Native Veg	12	Avoid aggressive non-native grasses in GrSG habitat reclamation. Include integrated vegetation management plan in reclamation plan.
Mosquito	29	Treat waste water pits and any associated pit containing water that provides a medium for breeding mosquitos with Bti (<i>Bacillus thuringiensis v. israelensis</i>) or take other effective action to control mosquito larvae that may spread West Nile Virus to wildlife, especially grouse.
Raptor Perch	23	Design tanks and other facilities with structures such that they do not provide perches or nest substrates for raptors, crows and ravens.
SUA	11	Surface Use Agreement describes surface use actions to minimize impacts to wildlife.
BLM COAs for Fed/Fed Permits	6	CPW affirms that the lease stipulations and conditions of approval assigned to this permit by the BLM suffice to address wildlife habitat and mitigation concerns.
WMP Permit Comments	11	Comments convey permit conditions consistent with BMPs in WMP

Wildlife Mitigation Plans

Acres of Greater Sage-Grouse Habitat by Wildlife Mitigation Plan. (Operator names have been generalized). These operators contribute funding to the Parachute/Piceance/Roan Research Project as partial mitigation for wildlife impacts. Research is focused on the GrSG population in the Parachute/Piceance/Roan Plateau area. Operators contributions vary in amount and to the area of research being conducted ó vegetation management, movement and habitat selection and use, habitat treatments.

CDP/WMP Holder	Total Lease Area (Acres)	GRSG Production Areas (Acres)	GRSG Lek Areas (Acres)	Number of Leks (Not all are entirely within WMP boundary)
A	44,687	17,725	1,590	4
B	17,258	9,963	1,182	3
C	149,946	19,325	5,090	15
D	7,724	577	None	0

Specific BMPs related to GrSG contained in the Wildlife Mitigation Plan (WMP) agreements. All COGCC Form 2A permits in SWHA and RSO areas have language that reference BMPs. Out of 97 Form 2A Permits, CPW reviewed 2 RSO permits and 8 SWHA permits in WMPs.

BMPs* These BMPs are taken directly from the Wildlife Mitigation Plan Agreements. These apply specifically to GrSG and their habitats.	WMP OPERATOR			
	A	B	C	D
Continue to provide access to CPW research personnel for ongoing sage grouse population research.	X		X	X
Install raptor perch deterrents on cross arms of power poles and other documented raptor perches, such as radio towers where birds are noted perching. Monitor all structures exceeding six feet in height for the presence of perching raptors or ravens. Perch deterrents need not be installed if they pose a safety issue (e.g., on the handrails of a tank battery).	X	X		
New Disturbance will be concentrated within a Development Area, and preferably confined to a ridgeline, to reduce the duration of development activity within such Development Area to the extent practicable. No new disturbance activities will occur within a Development Area during more than three consecutive Critical Habitat Seasons between Vacated Periods.			X	
Limit any new disturbance [in mapped occupied GrSG habitat] in specific areas for 3 [nesting/brood-rearing] seasons.	X			
Drill areas west of specific areas as opposed to mapped occupied GrSG habitat on ridge tops.	X			
Reoccupy existing pads if possible [as opposed to building new pads in mapped occupied GrSG habitat].	X			

Locate new pads outside occupied grouse habitat wherever possible or in habitat that is already disturbed.	X			
Implement three-phase-gathering on existing locations where possible to reduce onsite facilities and increase the acreage put into interim reclamation.	X			
Reduce traffic impacts by carpooling personnel from the Temporary Living Quarters (TLQ) to project locations.	X			
Reduce additional surface disturbance by utilization of the staging/storage yards at the TLQ and XX gravel pit.	X			
Construct cut and fill slopes of the main access road to a length that decreases the extreme slopes typical of cut and fill to facilitate ground movement by sage grouse for the XX Pipeline Project.	X			
Apply a 0.6 mile radius No Disturbance buffer around active leks sites (documented activity in the last five years) from 5:00 AM to 9:00 AM, March 15 th through May 15 th . Where practicable, traffic and other disturbances will be restricted after sunset when sage grouse are congregating around the lek until 9:00 AM the following morning when birds depart the lek.	X			
Site new disturbance so as to use topographic features to shield leks from new disturbance whenever feasible.	X			X
Restrict well site visitation in occupied habitat to between the hours of 9:00 AM and 4:00 PM during lekking season (March 15 th to May 15 th).	X			
Schedule cross-country pipeline construction and installation (not including lines along roads) outside of the Critical Habitat Season.	X			
Restrict New Disturbance within nesting and brood-rearing habitat (occupied habitat as mapped until more concise mapping is available) as much as possible from April 15 th to July 1 st .	X			X
Use interim reclamation to redevelop, as quickly as possible, ground cover that provides for secure ground movements of sage grouse and is an effective precursor to the reestablishment of appropriate sagebrush cover. Detailed guidelines and practices for interim and final reclamation are outlined in the Integrated Vegetation Management Guidance	X	X	X	
Reseed disturbances exceeding 15 feet in width in mapped occupied sage grouse habitat with local sage brush seed, where topography and weather conditions allow safe access to do so.	X			
Utilize the Wildlife Resources Appendices and wildlife resources database and maps to identify and document (where appropriate) potential impacts or concerns during the project planning phase for proposed drilling operations and construction of roads, pads and pipelines. The Wildlife Resources Appendices reflects a prioritization of species habitat sensitivity as agreed upon by CPW.	X			
Voluntary avoidance of GrSG habitats: Lek avoidance March 1 through May 15	X	X		
Voluntary avoidance of GrSG habitats: 4-mile buffer from March 1 to June 30				X
Voluntary avoidance of GrSG habitats: Winter habitat December 1 and March 15				X

*Approximately 30 other field wide BMPs, agreed to in the WMPs, may contribute to minimizing impacts to GrSG. These other BMPs are directed toward big game, raptors, cutthroat trout and may minimize development impacts to greater sage-grouse as well.