APPENDIX A: SPECIES SPECIFIC RECOMMENDATIONS

These reasonable recommendations are derived from the best available science and represent preferred management actions to protect wildlife and wildlife habitats where oil and gas development is occurring.

PLAINS SHARP-TAILED GROUSE

- Consult with CDOW at the earliest stage of development to review detailed maps of plains sharp-tailed grouse seasonal habitats and to help select development sites.
- Conduct comprehensive development planning that provides a clear point of reference in evaluating, avoiding, and mitigating large scale and cumulative impacts.
- No surface occupancy within 0.4 mile of any known plains sharp-tailed grouse lek.
- Avoid oil and gas operations within 1.25 miles of any known plains sharp-tailed grouse lek, and within mapped plains sharp-tailed grouse breeding or summer habitat outside the 1.25 mile buffer. Select sites for development that will not disturb suitable nest cover or brood-rearing habitats within 1.25 miles of an active lek, or within identified nesting and brood-rearing habitats outside the 1.25 mile perimeter.
- Where oil and gas activities must occur within 1.25 miles of plains sharp-tailed grouse leks or within other mapped plains sharp-tailed grouse breeding or summer habitat, conduct these activities outside the period between March 1 and June 30.
- 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 June 1).
- Establish company guidelines to minimize wildlife mortality from vehicle collisions on roads.
- Avoid surface facility density in excess of 10 well pads per 10-square mile area (one well pad per section) in plains sharp-tailed grouse breeding and summer habitat (within 1.25 miles of active leks).
- When surface density of oil and gas facilities exceeds 1 well pad/section, initiate a Comprehensive Development Plan (CDP) that includes recommendations for off-site and compensatory mitigation actions.
- Phase and concentrate all development activities, so that large areas of undisturbed habitat for wildlife remain and thorough reclamation occurs immediately after development and before moving to new sites. Development should progress at a pace commensurate with reclamation success.
- Retain core habitat areas and limit disturbance to ensure plains sharp-tailed grouse survival.
- Implement the species appropriate Infrastructure Layout and Drilling and Production Operations Wildlife Protection Measures found in Section II B. and Section II D. of this document.
- Minimize surface disturbance and fragmentation of plains sharp-tailed grouse habitat through use of the smallest facility footprints possible, use of multiple well pads, clustering of roads and pipelines, and the widest possible spacing of surface facilities.

- When compressor stations must be sited within 1.25 miles of plains sharp-tailed grouse active and inactive (within last 10 years) lek sites, locate compressor stations no closer than 2500 feet from the lek.
- Use noise reduction equipment on compressors and other development and production equipment.
- Use topographical features to provide visual concealment of facilities from known lek locations and as a noise suppressant.
- 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.
- Design tanks and other facilities with structures such that they do not provide perches or nest substrates for raptors, crows and ravens.
- Install raptor perch deterrents on equipment, fences, cross arms and pole tops in plains sharp-tailed grouse habitat.
- Utilize a central generator to feed the entire field via underground electrical lines.
- Bury new power lines and retrofit existing power lines by burying them or installing perch guards to prevent their use as raptor perches.
- Design wastewater pits to minimize retention of stagnant surface water.
- Treat waste water pits and any associated pit containing water that provides a medium for breeding mosquitos with Bti (*Bacillus thuringiensis v. israelensis*) or take other effective action to control mosquito larvae that may spread West Nile Virus to wildlife, especially grouse.
- In consultation with CDOW, replace any permanently impacted, disturbed, or altered plains sharp-tailed grouse habitat within identified nesting and brood rearing range through enhancement of existing or marginal plains sharp-tailed grouse habitat or reclamation of altered or converted habitat within or immediately adjacent to mapped nesting or brood rearing habitat.
- Implement the species appropriate reclamation guidelines found in Section II G. of this document.
- Use early and effective reclamation techniques, including an aggressive interim reclamation program to return habitat to use by plains sharp-tailed grouse as quickly as possible.
- Reclaim/restore plains sharp-tailed grouse habitats with native grasses and forbs conducive to optimal plains sharp-tailed grouse habitat and other wildlife appropriate to the ecological site.
- Use approved CP-4D (plains sharp-tailed grouse) seed mixes, based on soil type, available from Farm Service Agency or Natural Resources Conservation Service, or other seed mixes approved by CDOW.
- Do not use aggressive non-native grasses in plains sharp-tailed grouse habitat reclamation.
- Establish a small percentage (i.e., less than 5% cover) of adapted native shrubs listed in the Farm Service Agency and Natural Resources Conservation Service's CP-4D plains sharp-tailed grouse seed mixes on disturbed sites.

- Reclaim brood rearing areas with a substantially higher percentage of forbs than other areas.
- Utilize native and select non-native forbs and legumes in seed mixes as they are a vital component of brood-rearing habitat. Suitable species include those forbs approved by the Farm Service Agency and the Natural Resources Conservation Service's CP-4D seed mixes for CRP. Dryland adapted varieties of alfalfa and yellow sweet clover should be the primary non-native forb species used.