

Recommended Management Practices
for
Reducing Oil/Gas Impacts to Wildlife

Preface: The following is a compilation of recommendations developed by the North Dakota Petroleum Council and the North Dakota Game and Fish Department for use in reducing oil/gas exploration and production impacts to fish and wildlife resources in North Dakota. It should be recognized these recommendations are largely voluntary and are not necessarily comprehensive in nature. These recommendations are considered to be contemporary “best management practices” based on the latest advances in technology and methodology for oil and gas exploration, extraction, production, and delivery; and are subject to change and revision. Additionally, numerous state and federal statutes and requirements have been established to guide and govern various aspects of oil/gas related activities and to protect migratory birds, bald and golden eagles, and threatened and endangered species and their habitats. The attached recommendations do not supplant those requirements.

Direct Habitat Loss (e.g. as a result of well pad and O/G road development)

1. Locate well pads, facilities and roads in clustered configurations within the least sensitive habitats. Drill multiple wells from the same pad where feasible. Site wells, tank batteries, compressor stations and other facilities near existing roads whenever possible. Minimize road construction by coordinating location and use among companies operating in the same oil and gas field, as practical and feasible given State permitting requirements. Following drilling, complete interim reclamation of well pads to the minimum size necessary to safely and efficiently conduct operations.
2. Establish utility corridors to utilize the common routes for multiple pipelines, powerlines, etc. to the extent feasible and as allowed by private surface owners and land management agencies. Route utility corridors away from sensitive or critical habitat areas. Locate pipelines and powerlines adjacent to existing roads or in other previously disturbed sites to reduce habitat fragmentation and wildlife disturbance.
3. Prompt reclamation of pipelines, expired pads, and roads. Assess degraded roads and well pads on public lands that preceded reclamation requirements when the leases were sold to determine potential reclamation action
4. Encourage directional boring of utilities and pipelines in rugged areas or in crossing drainages and wetlands, as feasible and practical.
5. Encourage seeding with native grasses, forbs, and shrubs on new areas of disturbance, especially in native prairie areas, as allowed by private surface owners and land management agencies.

Indirect Habitat Loss (e.g. disturbance, loud noise, increased truck traffic, dust and tailpipe emissions, habitat fragmentation)

1. **As operationally and economically feasible, design centralized production facilities for oil and gas outside of primary range whenever possible, and locate them closer to major highways and pipelines. Drill multiple wells from the same well pads, as feasible, to lessen disturbance in more sensitive areas. Work collaboratively with operators and wildlife agencies to place new pads and roads in areas with less wildlife disturbance; encourage operators to share existing roads and utility corridors when feasible.**

Comment: centralized production facilities, as with all other oil and gas facilities, must adhere to state and federal Clean Air Act requirements, which have air emission thresholds. Larger facilities (such as centralized tank batteries), may have more stringent air permitting requirements and are not operationally feasible in many situations.

2. **Helicopter traffic should not occur within 825-2460 feet above ground level and should not occur over bighorn areas, especially during the lambing season (i.e., April – June). Roads that route through sensitive bighorn areas should be gated and tank batteries placed away from areas with high bighorn use. Helicopters can be used to fly in cables, recording equipment, portable shothole drilling equipment, etc. during seismic operations resulting in less vehicle use and fewer habitat impacts.**

Comment: Helicopter use is generally only used for airlifting injured workers in an emergency situation. Helicopters are generally not used for most oil and gas development activity. Their primary use is during seismic exploration.

3. **Utilize remote sensing/telemetry equipment to increase safety and minimize accidental spills on well pads. Install telemetry to remotely monitor instrumentation and reduce travel required to manually inspect and read instruments. Install equipment that will automatically shut down operations if a leak/spill is detected.**

Comment: Oil and gas facilities are subject to the federal Spill Prevention Controls & Countermeasures Rule, administered by the U.S. Environmental Protection Agency, as part of the Oil Pollution Prevention Act, as well as the Clean Water Act, and Oil Pollution Act 40CFR part 112. These regulations dictate frequent visits and maintenance of facilities to ensure proper response and reporting of accidental spills.

4. **Pipe (rather than trucking) liquids to sales to minimize truck trips to substantially reduce disturbances to wildlife.**
5. **Work with federal and state land managers on public lands to consider potential timing restrictions as appropriate. Mitigating some impacts of physiological stress on mule deer due to disturbance, timing**

restrictions (particularly during the winter and in late May and June fawning season) on drilling could be implemented. Coordinate with federal and state wildlife agencies to minimize O/G activity during the lambing season (April - June). Place pads no closer than 550 yards from known lambing areas and roads no closer than 220 yards. Consideration should also be given to avoiding primary nesting season for migratory birds and conducting seismic operations during times of least disturbance.

Comment: The extent of private surface ownership in North Dakota precludes the imposition of timing restrictions on oil and gas activity. However, Industry is willing to work together to evaluate the feasibility of such a constraint, as appropriate in certain areas, on public lands. Prior to implementation, these measures would need to be incorporated into the relevant land use plan.

- 6. Avoid wetland margins (the edge of wetland vegetation) by 110 yards will likely alleviate many of the impacts associated with disturbance and habitat destruction and degradation. Other options to limit disturbance to breeding waterfowl would be to curtail drilling operations May – August near wetlands. During construction of roads, culverts should be used to prevent damming or funneling of water that normally would reach a wetland basin. Avoid placing fill in wetlands and constructing well sites in floodplains or in drainages that are subject to flooding.**

Comment: The extent of private surface ownership in North Dakota precludes the implementation of a required setback or timing restriction on oil and gas activity. However, Industry is willing to work together to evaluate the feasibility of such a constraint, as appropriate in certain areas, on public lands. Prior to implementation, these measures would need to be incorporated into the relevant land use plan.

- 7. Prohibit above-ground oil and gas facilities within 0.5 miles of a golden eagle nest and restricts other activities (i.e. prescribed burning, reclamation activities) within 0.5 miles of the nest from February 1 to July 31. O/G development may be allowed to occur within the 0.5 mile buffer dependent upon the type of activity, the timing, and location. Spatial buffers should be placed around certain raptor nests. (Table 3).**

Comment: USFWS recommends these buffers when consulting with the BIA or BLM on federally permitted activities, and the BIA and BLM usually impose such a restriction as a condition of approval on permits, where recommended by USFWS. On private land, Industry would work with NDGF to identify any operationally feasible conservation measures for protection of golden eagles and other raptors.

- 8. Avoid critical habitat for federally threatened or endangered species. The U.S. Fish and Wildlife Service should be consulted for the appropriate buffer for placement of oil and gas facilities adjacent to these areas.**

Loss of Important Limited Habitat Types (e.g. woody draws, native prairie)

1. Travel plans should direct haul and feeder roads to well pads away from these areas prior to construction where feasible, as private landowners or surface management agency allows.
2. Impacts to waterfowl can be limited with avoidance of wetland habitats and taking preventative steps when constructing roads and well pads, as feasible. Industry will continue working with USFWS when siting well pads, roadways, and utilizing RMP's to minimize impacts to wetlands.

Direct Mortality

1. Above ground powerlines that are constructed across wetlands should be marked with bird flight diverters to decrease mortalities cause by powerline strikes.
2. Use closed or semi-closed loop containment systems during drilling operations to lessen potential impacts to wildlife and waterfowl. Promptly removing or reclaiming containment systems and disposing of wastes at licensed disposal facilities.
3. Use underground electrical lines when possible in limited circumstances. Burying electrical lines is generally only feasible for small powerlines; for example, to individual well locations.
4. To reduce eagle and raptor mortality from electrocution, utility line construction should follow *Suggested Practices for Avian Protection On Power Lines: The State of the Art in 2006* (APLIC).

Aquatic Resources

1. Identify high risk spill sites adjacent to important threatened and endangered species habitats or other important natural resource areas.
2. Spill Prevention Control and Counter Measures Plans (SPCC Plans) are maintained for all facilities, per state and federal regulations.
3. Operators comply with all SPCC regulations for spill containment, control, and response.
4. Industry has established the Lake Sakakawea Spill Response Cooperative as a hub for mutual aid information in the event of a spill. Spill response equipment is available and ready for deployment by trained employees and contractors of member companies in the event of a spill.
5. Fuel storage tanks above ground are diked, curbed or other suitable means provided to prevent the spread of liquids in case of leaking in the tanks or piping. Such dike, curbed area or device shall adhere to all applicable state and federal SPCC regulations and NDAC 43-02.
6. All dry cuttings reserve pits are lined with a suitable, impermeable barrier to prevent possible contamination of soil and groundwater, in compliance with state and federal regulations, which require liners., including NDAC 43-02-03-19.4 (effective April 1, 2012).

7. All oil and gas activity complies with approved storm water management plans and permits for use of proper erosion and sediment control techniques. Oil and gas facilities must adhere to the SWPPP, EPA NPDES permits, and State of North Dakota General Permit NDR10-0000 for storm water discharges from construction activities.
8. All pipeline crossings of a watercourse should be protected against surface disturbances and damage to the pipeline, to prevent a possible spill event.
9. Pipelines that convey fluids should be fitted with shutoff valves at all high quality stream crossings based on a case by case consultation with the NDGF biologists.
10. Trenching may be used for stream crossing based on a case by case consultation with the NDGF biologists. If the pipeline crossing will be trenched, consult with NDGF biologist to determine avoidance periods during critical fish spawning seasons, time limits for instream excavation work, and other management practices that apply.
11. Pipeline crossings can be installed through ephemeral streams by trenching. Use appropriate size riprap to stabilize stream banks. Place riprap from the channel bottom to the top of the normal high water line on the bank at all stream crossings. We recommend double-ditching techniques to separate the top one foot of stream bottom substrate from deeper soil layers. Reconstruct the original layers by replacing deeper substrate first.
12. Design road crossings of streams to allow fish passage at all flows. Types of crossing structures that minimize aquatic impacts, in descending order of effectiveness, are:
 - a) bridge spans with abutments on banks;
 - b) bridge spans with center support;
 - c) open bottomed box culverts;
 - and d) round culverts with the bottom placed no less than one foot below the existing stream grade.Perched culverts block fish passage and are unacceptable in any stream that supports a fishery.
13. Locate and construct all structures crossing intermittent and perennial streams such that they do not destabilize the channel or increase water velocity.
14. Avoid stripping riparian canopy or stream bank vegetation if possible. It is preferable to crush or shear streamside woody vegetation rather than completely remove it. Any locations where vegetation is stripped during installation of stream crossings should be re-vegetated immediately after the crossing is completed.
15. Staging, refueling, and storage areas should not be located in riparian zones or on flood plains. Keep all chemicals, solvents and fuels at least 500 feet away from streams and riparian areas.
16. Hydrostatic test waters released during pipeline construction could alter stream channels, increase sediment loads and introduce potentially toxic chemicals or invasive species into drainages. Avoid discharging hydrostatic test waters directly to streams.
17. Hydrostatic test waters should be dispersed onto an upland site using proper erosion and sediment control techniques.

18. Pipelines that parallel drainages should always be located outside the 100-year floodplain. Construct pipeline crossings at right angles to all riparian corridors and streams to minimize the area of disturbance.
19. Where pipelines cross riparian areas and streams, use the minimum practical width for rights-of-way.
20. Require testing and compliance with Health Dept standards for use of production water prior to its use for de icing roads.
21. Instream activity restrictions may be necessary to protect fish spawning habitat in certain streams. These restrictions will be identified in Section 404 permits issued by the U.S. Army Corps of Engineers (COE) or through the notification process under nationwide permits, as applicable. In such cases, the COE will consult regional fisheries or statewide fisheries personnel at the Department's local or Bismarck offices, respectively. We encourage companies to consult the Department's fisheries personnel for advice regarding appropriate practices and design considerations when planning instream activities.