4.13 Impact on Wetlands

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4.13.1 Vegetation and Wetlands

Section 4.3.2.2 discusses impact to wetlands from the proposed action of a 30-year renewal of the TAPS ROW. The following is excerpted from that section.

Loss of wetlands associated with the TAPS ROW can occur as a result of pipeline replacement, pipeline reroutes, workpad maintenance and construction, and the development of material sites (JMM, 1990). Loss is primarily due to the placement of fill, but also may occur from dredging and excavation of wetlands or oil spills. Wetland loss from pipeline replacement and workpad construction typically occurs within the ROW, whereas pipeline reroutes, material sites, and oil spills also may include wetlands outside the ROW.

Only three pipeline replacements/reroutes have occurred along the TAPS ROW since startup: Dietrich River (1985), Atigun Pass (1987), and Atigun River (1991). The frequency of pipeline replacements/reroutes is expected to continue to be rare for the next 30 years because of advancements in pipeline integrity monitoring. No data are currently available for the area of wetlands that were affected at the Dietrich River and Atigun Pass sites, but less than 1 mile (1.2 km) of pipeline was involved for both of these projects (Section 4.1). Assuming a mean construction width of 80 ft (24 m), a maximum of 7 acres (15.4 ha) would have been effected for both sites if the two project areas included only wetlands. The pipeline replacement at Atigun Pass in the Brooks Range affected up to 11.9 acres (26.18 ha) (JMM, 1990). The losses were attributable to work pad, trench, and access road construction.

The development of material sites was one of the greatest impacts to wetlands, mostly riverine and palustrine, during pipeline construction, because many of the borrow pits were located in floodplains (Pamplin, 1979). During construction, the Joint State/Federal Fish and Wildlife Advisory Team found numerous problems associated with the selection and development of several TAPS borrow sites (Burger and Swenson, 1977). The most common problems included alteration of hydrology and increased siltation, but the loss of riparian habitat also occurred.

Because future maintenance of the ROW is not expected to require frequent pipeline replacements or reroutes, wetland losses should be minimal. The development of new borrow sites is expected to be limited as large volumes of gravel fill will not be needed for future ROW maintenance activities.

The alteration of wetland habitats along the TAPS ROW can occur from de-watering, water impoundment, thin gravel fill or dust outfall, compaction, and contamination from oil spills. Natural occurrences such as stream migration or erosion can also impact wetland habitat. No surveys of wetland alteration have been conducted along the ROW, but studies in the Prudhoe and Kuparuk oil fields (Walker, Cate et al., 1987; Kertell, 1993) found localized impacts to wetlands. It is reasonable to expect similar impacts from structures or activities that occur along the ROW.

Wetlands may be enhanced in areas adjacent to roads and pads where soil temperatures are higher and water impoundments have formed. Impoundments alter both the hydrology and species composition of wetlands. Plant productivity may increase biomass in a few species, or productivity may decrease as plants are lost to the development of deep open-water areas. In most cases, impoundments lead to a decrease in plant species richness (Klinger et al., 1983; Walker, Cate et al., 1987).

Hydrocarbon spills affect wetland communities by physically covering and killing vegetation, creating toxic soil conditions (Haag and Bliss, 1973; Deneke et al., 1974; Brown, J. and Grave, 1979; Jorgenson and Cater, 1996; Everett, 1978) and increasing the depth of the active layer in permafrost soils (Brown, J. and Grave, 1979; Lawson, D.E. et al., 1978). The effects of oil spills on vegetation are detailed under a separate heading in this section.

4.13.2 No-Action Alternative

Section 4.4.4.2 discusses wetland impacts from the no-action alternative. The following is from that discussion.

Impact to wetlands from DR&R should be minimal, although impoundments associated with workpads are likely to persist unless efforts to breach them are made. Since culverts will be converted to low-water crossings, any sedimentation or erosion should be minimized. It is possible that permafrost areas covered with fine-grained soils could be restored to wetlands over the long term by thermokarst, but the process would likely take several decades.