

AFS POLICY STATEMENT #12:
CONSTRUCTION AND OPERATION OF OIL AND GAS PIPELINES

ISSUE DEFINITION

Transportation of oil and gas in North America is a vast operation with pipelines reaching virtually to every corner of the continent. Oil and gas may be transported from the field to process plants-to storage areas-to consumers in a system covering thousands of miles. For the most part, this network involves large diameter pipes. For example, gas-transmission pipelines are made of high-strength steel, generally 12 to 48 inches in diameter, and operate at pressures of 500 to 1,500 psi.

With improved technology, longer oil and gas transmission pipelines become feasible. The Northern Tier Pipeline proposed to transport Alaskan oil from Port Angeles (Washington) to Clearbrook (Minnesota) would have been 1,491 miles long. In Montana alone, the pipeline would have crossed 150 streams with comparable numbers of stream crossings in Washington, Idaho, North Dakota, and Minnesota. As the scale of these interstate projects has increased, so has regulatory involvement.

In March 1976, the Northern Border Pipeline Company (gas) funded a study to explore permitting requirements. The study team concluded that 72,000 permit applications would be required and that the company would need to satisfy 14 federal agencies and 409 states, counties, and townships to complete the pipeline between Fort Morgan, Montana and Ventura, Iowa. Impacts from oil and gas pipelines potentially occur during construction and during operation with the type of impact different in each. During construction, typical impacts are related to clearing the pipeline right-of-way (ROW), constructing access roads, and laying the pipeline. The extent of damage depends, for example, on use of erosion control techniques, number of stream crossings, climate, and terrain. When a pipeline crosses a stream there can be biological and engineering problems. For example, the El Paso Pipeline (gas) crossing beneath the Santa Cruz River in Arizona was designed to withstand, but was severely damaged by flooding associated with a 100-year rainfall event. This pipeline was replaced by a pipe-suspension bridge.

Impacts during pre-operational testing and operation are associated not only with spills but also with maintenance of the ROWs. Cleared ROWs can continue to be a source of sedimentation. Petroleum spilled during construction of the Trans-Alaska Pipeline was estimated to be 535,000 gallons. Five oil spills occurred in the first months of operation of the Trans-Alaska Pipeline, two of which resulted in losses of 12,000 and 15,000 barrels. On a national average, new pipelines have an annual spill frequency from all causes of 0.0022 spills per mile or about one spill for every 455 miles of pipeline. Because of the magnitude of pipeline projects, the number of waterways involved the high quality of fishery resources in many of these waterways, and the potential for impacts to fisheries from spills or construction activities, safeguards must be adopted to protect these important resources.