GAS TRANSMISSION SYSTEM

APPLICATION
FOR A CERTIFICATE OF
ENVIRONMENTAL COMPATIBILITY
AND PUBLIC NEED

MARCH 25, 2002

Long Island Sound (NERBC 1980a & b). These three sites are the Central Long Island Sound Disposal Site, the New London Disposal Site, and the Cornfield Shoals Disposal Site. An additional site identified in the Interim Plan, Eaton's Neck, was closed and replaced by the Western Long Island Sound Disposal Site through an Environmental Impact Statement.

The proposed pipeline will not cross any area identified on NOAA navigational charts as a designated dumping ground (NOAA 1984, Rossiter 2001). The nearest designated dumping ground is the CLIS, which is maintained by the USACE for disposal of dredged materials, and located approximately 3.5 miles east of the proposed route alignment (NOAA 1984, Rossiter 2001).

2.3.5 Shellfish Franchise Areas/Aquaculture

The proposed pipeline crosses one leased shellfish bed in Connecticut waters; this bed is off the coast of Milford, and is leased to Fairhaven Clam and Lobster Co, LLC (Lease No. 580). See Figure 8

2.4 HAZARDS TO CONSTRUCTION AND OPERATION

The hazard survey discussed in Section 2.3.1 provided the results of high-resolution geophysical surveys associated with the proposed Iroquois Extension. The only known area that will have to be negotiated and considered in design and anchor placement within the proposed route is an area of boulders and rock outcrop near Charles Island (Milford, CT).

For most of the area surveyed, the bottom sediments and shallow subsurface soils are unconsolidated clays and sands that should be readily trenched for pipeline protection. Some

localized seafloor conditions have been identified from this survey that may require route alignment modifications and/or specialized engineering attention.

The scope of work included geophysical surveys along the proposed Iroquois Extension route, which included full coverage swath and single beam bathymetry, sidescan sonar imaging with 100% overlap, and sub-bottom profiler to at least a 30-ft penetration. Magnetometer readings were also collected and analyzed to identify any anomalies such as shipwrecks, pipelines, and cable crossings.

2.4.1 Hazard Survey Results

The sonar data collected are excellent for recognizing and plotting significant geological and man-made features. An attempt has been made to characterize surficial sediments using the strength and patterns of the sonar backscatter. This attempt has been reasonably successful when compared to the soils encountered as part of the geo-technical and bio-chemical sampling program. It is likely that some of the backscatter variations reflect factors other than sediment texture, such as the percentage and size of shell material, organic content of the surface sediments and the resulting methane gas, and other factors not yet recognized. Numerous individual lobster traps and strings of traps lie within the proposed pipeline corridor, frequently crossing the proposed route. These features are considered transient and are not considered in the survey results. No ship wrecks or extensive debris fields were encountered during the survey of the proposed pipeline corridor.

The bottom and shallow subsurface sediments over most of the proposed route are generally unconsolidated and include either soft silty clays or fine sand, with clay being the most

common. In general, trenching for pipeline installation and protection to depths of at least five feet should not pose a problem over the majority of the proposed route alignment. It is only nearshore, just north of Long Island, that coarser sediment, principally medium-grained sand is encountered, and similarly, trenching in this sediment should not pose any sever difficulties. Firmer sediment, sand silt, is also found near the beginning of the proposed pipeline route.

No ship wrecks were identified during surveys of the Long Island Sound. Similarly, no extensive manmade debris fields were encountered along the proposed route. There was, however, evidence of an active ground fishery (trawling) located between the Point of Beginning (MP 0.0) and approximately MP 2.3, but this fishing gear does not apparently penetrate the seafloor more than a few inches and should therefore pose no risk to the proposed pipeline. South of this fishery area the seafloor is littered with lobster traps, of which most are probably derelict.

The proposed route does not cross any telecommunications cables or pipelines in Connecticut waters.

2.4.2 Meteorological Hazards

The principal meteorological hazards to construction and operation of the proposed Iroquois Extension include water currents and severe storms and storm waves.

2.4.3 Severe Storms and Storm Waves

Meteorological events that may potentially impact construction and operation of the proposed pipeline include severe storms and hurricanes. There is a high probability that severe storms and hurricanes may cause damage to the physical, biological, and socioeconomic systems

of the Long Island Sound. Severe storms warrant discussion because such events may affect offshore construction operations and activities by delaying daily construction efforts, increasing safety concerns, and/or leading to the shut down of the entire construction spread, which ultimately causes delays in construction schedules during the passage of inclement weather. Pipeline construction within the Long Island Sound needs to consider storm surge, wave height, and currents generated by potential storms and hurricanes (MMS 1990).

Wind and wave magnitude and direction have a direct effect on marine pipeline installation activities. As winds and sea states increase, pipeline operations have to be temporarily interrupted in order to maintain equipment and personnel safety as well as pipeline integrity (Centaur Associates, Inc. 1984). Under more severe conditions, pipe laying activities have to be abandoned altogether. Hurricanes are the leading cause of pipeline failure in oil and gas activities, but such events are rather infrequent. From 1964 to 1992, only two pipelines have been damaged by hurricanes, resulting in the release of more than 1,000 barrels. Due to the pipeline being buried in less than 200 ft of water, hurricanes, severe storms, and high winds have a lower probability of damaging the pipeline and are thus not expected to impact the operation of the proposed pipeline.

Severe storms not only produce high winds, but may also produce large storm waves that may potentially cause damage to the proposed pipeline. Waves cause circulatory currents in the water column, which extend to considerable depths below the water surface. In certain cases, when the waves are high enough and the water shallow enough, the movement of the water could cause the pipeline to move. This would only be possible if the proposed pipeline were exposed

on or above the seabed.

2.4.4 Currents

The current regime in the Long Island Sound is described in detail in Section 3.1.3. During construction, the pipeline may be excessively deflected if it is exposed to strong water currents. The risk of pipeline deflection from currents during construction is only significant in the event of an extreme storm. Several construction techniques may be implemented to avoid damage to the pipeline from this cause.

The pipeline would be provided with a concrete coating to overcome its natural buoyancy. The "negative buoyancy" (net submerged weight) of the pipeline is designed to ensure it does not deflect excessively if impacted by strong bottom currents. The "design storm" is derived by statistical analysis of weather patterns in the specific section of the Long Island Sound being considered. The pipeline weight is then chosen to withstand the given storm with an acceptably low probability of occurrence. The fact that the pipeline is only exposed during a period of a few weeks or less lowers the probability of it being affected by an extreme storm.

3.0 POTENTIAL IMPACTS FROM PIPELINE CONSTRUCTION AND OPERATION

This section provides an assessment of the potential impacts that the installation of the Iroquois Extension pipeline may have on the Long Island Sound environment. The standard types of lay barge construction (dredging, jetting, plowing, and mechanical trenching) that may be utilized for the installation of the pipeline generally involve similar disturbances to the seabed (linear, depth, temporary) and; therefore, distinctions between construction types are not