

Appendix 3C

New Construction Techniques

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PIPELINE CONSTRUCTION TECHNIQUES

Appendix 3C describes construction techniques and specifications including the standards that were used to construct the Longhorn pipeline. Similar construction techniques and specifications would be used for any future construction. A limited amount of new construction is required to complete the proposed Environmental Assessment (EA) project. The El Paso Laterals are scheduled to be constructed pending the EA decision in 1999. Also, there are plans to extend the Odessa Lateral approximately 2,500 feet (ft) to connect to a terminal owned and operated by Equilon.

CONSTRUCTION SCHEDULE, LANDOWNER NOTICE, AND SPECIFICATIONS

Mainline construction of the new 18-inch diameter pipeline from Crane Station to El Paso Terminal, the new 20-inch diameter pipeline from Galena Park to Mileage 9.1, and the new Odessa 8-inch diameter lateral pipeline were commenced and completed in 1998. Construction progressed at a rate of one to 3 miles per day. In rugged terrain and in the Houston Lighting & Power (HL&PL) corridor, construction progressed at a rate of 0.5 to 1-mile per day. The El Paso lateral pipelines are scheduled to be constructed pending the EA decision in 1999 and will be completed approximately 30 days after construction begins. Plans are to extend the Odessa lateral approximately 2,500 ft to connect to the Odessa-Equilon Terminal.

Landowners and surface tenants were notified in advance of the construction across their land tracts. In cooperation with landowners, construction activities occurred between 7:00 a.m. and 7:00 p.m., seven days a week.

The construction specifications adopted were Williams Energy Services Standard CS4 Pipeline Construction Specifications with minor modifications. The CS4 construction specifications contain 22 sections covering every aspect of pipeline construction.

Construction Labor, Equipment, and Material

Construction of the mainline and lateral lines was based on a single spread approach. Crew sizes were proportionate for mainline and lateral lines, respectively, and were composed of approximately 70 percent skilled and 30 percent unskilled labor. Each construction spread was divided into a number of functional work crews:

- Pre-construction activity (including fence building);
- Clearing and grading of the right-of-way (ROW);
- Ditching;
- Hauling and stringing of pipe;

- Pipe bending;
- Line-up and welding;
- Weld inspection;
- Pipe pre-testing;
- Applying protective coating to the weld joints;
- Final coating inspection;
- Lowering and tying in;
- Backfilling;
- Hydrostatic testing; and
- ROW cleanup and restoration.

Construction equipment was estimated for a typical rural spread. The estimates represent the type and size of construction equipment used on this project.

Air Compressor	Hydro Crane	Side Boom
Backhoe	Loader	Skid Truck
Bending Machine	Low Bed Truck	Trackhoe
Boring Machine	Motor Patrol	Water Truck
Ditcher	Padding Machine	Welding Truck
Dozer	Passenger Bus	X-Ray Truck
Flat Bed Truck	Pickup Truck	
Fuel and Service Truck	Pipe Truck	

STAGING AND STORAGE AREAS

The major material component of the Longhorn pipeline is pipe and materials used in pipeline, station and terminal construction. The pipe was coated by a coating vendor before being delivered for use at the construction site. The pipe was stored at the construction contractor's yard or at a staging area until it was loaded onto trucks for stringing along the ROW. Materials and equipment were delivered to the ROW by truck. Contractor equipment was parked on the ROW overnight. By utilizing the 50 ft of permanent ROW plus additional temporary construction easement, which was acquired when needed, there was minimal need for storage and staging areas during construction.

Refueling and lubrication of all construction equipment was conducted in a containment area at a designated minimum distance of 0.25 miles away from streams and wetland areas. This reduced the risk of construction related spills. A maximum of two barrels of fuel was stored at the construction sites within 0.5 miles of sensitive streams and wetlands. Heavy equipment used for construction was steam cleaned prior to the start of construction and inspected daily for leaks. No leaking equipment was used in or near surface water.

PIPELINE PRESERVATION

Due to a court ordered injunction and delays caused by preparation of the EA, the Longhorn Pipeline System will not be placed into operation until allowed by the court. Longhorn has developed procedures to preserve the Longhorn pipeline during the period it remains idle.

EL PASO TERMINAL CONSTRUCTION

The El Paso Terminal is located in El Paso County, Texas, along and north of U.S. 62/180 and the juncture of SR 659, which is east of the city, and south of the Fort Bliss property line. The terminal is located on Longhorn's 418-acre site. The 418-acre site was totally undeveloped except for a trail that ran north through the property.

Approximately 90 acres were cleared and graded; currently approximately 85 acres are fenced. The total construction period, when the majority of the construction was being completed, took place in approximately 15 months. The peak workforce was 450 people; total labor-hours to complete are estimated at 320,000.

Within the 85-acre site, there are approximately two acres of concrete, most of which is driveway. All other roads on the site are gravel with native soil beneath the gravel. The tank basins are sloped and graded to impound any run off within the dikes at one end. Runoff due to precipitation normally disappears or evaporates before it can be pumped out of the basins.

During site construction, sewage disposal was handled by chemical sewage disposal facilities. Waste generated from construction, such as welding rods, crates, cardboard and some pipe, was collected in containers and hauled to local refuse centers for recycling or to a disposal site.

PUMP STATION CONSTRUCTION

The largest pump station on the System (Crane Station) is 21.5 acres of graded and rock area. The other four sites are less than five acres with most of these having less than one acre that is fenced and graveled. Each station was cleared and graded to allow drainage and then covered with gravel. None of the sites had any trees, and none of the sites have concrete or asphalt roads or parking areas. The contractor crews rarely exceeded 20 people, and all the stations were constructed with less than 40,000 labor-hours. Contract sewage disposal was utilized at all these stations, and very little trash was generated.