Appendix 7A

Identifying Sensitive and Hypersensitive Areas Along the Pipeline

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Introduction

The location of the hypersensitive and sensitive areas along the pipeline are listed by milepost in Tables 7-1 and 7-2 in the EA and graphically in Figures 9-1 and 9-2 in the EA.

The selection of sensitive and hypersensitive areas along the pipeline is based on the sensitivity of the existing environment (Chapter 4) and potentially impacted resources (Chapter 7). Taking analyses in both chapters into account, the designation was based on two factors:

- The presence of receptors which could incur impacts that the EPA could consider "significant;" and
- The existence of environmental pathways that could allow a release of pipeline product to impact the identified receptor.

Background data were collected along the line to identify potentially sensitive and hypersensitive receptors, as well as sensitive and hypersensitive environmental pathways. Although the environmental pathways (e.g., streams that could conduct spilled product to one of the Highland Lakes) could themselves be considered to be receptors, under this analysis the definition of receptors was limited as defined below.

Proximity and Density of Human Population

For potential impacts to human safety, the proximity of the pipeline to population centers and a subclass of sensitive facilities (including schools, hospitals, and prisons) was used to determine sensitivity. Criteria spelled out for identifying portions of the pipeline as sensitive or hypersensitive for population safety were as follows:

- An area sensitive on the basis of human population has 20 or more residences, or other similar places where population gathers during the day or night (e.g., schools, jails) per linear mile within 1250 feet (ft) of the pipeline; and
- An area hypersensitive on the basis of human population has 100 or more residences, or other similar places where population gathers during the day or night (e.g., schools, jails) per linear tenth of a mile within 1250 ft of the pipeline.

Ground Water Sensitivity

Potential impacts related to ground water include: (a) drinking water contamination; (b) limits on uses of recreational caves or springs; (c) contamination of threatened and endangered species habitat; and (d) limits to use of ground water for agricultural or stock purposes.

After identifying public drinking water supplies along the pipeline, the following criteria were used to evaluate sensitivity and hypersensitivity:

- An area is defined as sensitive is there is a potential major impacts to public drinking water wells (including municipal utility districts, water supply companies, etc). Criteria for this determination include:
  - Non-karstic aquifers within a radius of 2.5 miles of the pipeline,
  - Karstic aquifers – PWS within a radius of 25 miles of the pipeline, or
  - Alluvial aquifers – PWS drawing from alluvial aquifer less than 60 miles downstream of crossing of river or stream which feeds alluvium; and
- An area is defined as hypersensitive for ground water based on a hydrogeological evaluation of local formations and recharge features, and the proximity to potentially affected drinking water supplies.

In addition, the Balcones Fault Zone and portions of the Barton Springs Contributing Zone in Travis and Hays counties were rated sensitive for potential impacts to recreational uses of the ground water dependent Barton Springs.

Surface Water Sensitivity

A five-step process was used to identify portions of the pipeline route that could be sensitive or hypersensitive for potential impacts to surface waters.

Step 1) Each stream crossed by the pipeline was classified with respect to three factors:

- Importance of downstream water uses – drinking water, recreational, and agricultural;
- Potential to control the spread of a spill; and
- Potential for product from a spill be transported away form the pipeline.

Step 2) Streams and rivers crossed by the pipeline were classified as sensitive or hypersensitive based on the factors mentioned in Step 1, including a variable width buffer along the stream or river. Buffer width depends on stream size and topography.

Step 3) Because a leak or spill from the pipeline from points other than stream crossings could contaminate surface waters, overland flow potential was scored at every 100 meters along pipeline, using the following inputs:

- Modeled flow path to surface water body;
- Slope from pipeline to surface water;
- Soil permeability in the area of the overland flow trace;
- Land use/land cover between pipeline and surface water; and

- Classification and overland flow potential were combined to assess sensitivity for each 100 meters along the pipeline.

4) The combined "classification x potential" score for each stretch were sorted to establish cutoff threshold for defining sensitivity. Thresholds were spot verified by studying topographic maps.

5) Finally, the combined "classification x potential" score for each stretch was also used to establish cutoff threshold for defining hypersensitivity. Spot verification of thresholds were performed. In addition, crossings of lands acquired by the City of Austin for watershed protection purposes were designated sensitive for surface water impacts.

Threatened and Endangered Species Sensitivity

A number of data sources were accessed in evaluating the presence of threatened and endangered species which could be impacted along the pipeline, including:

- Contractor literature studies and contacts with US Fish and Wildlife, and Texas Parks and Recreation personnel;
- Habitat delineations performed by Horizon Environmental for Longhorn Partners Pipeline; and
- Spot field verification by the Contractor.

Final determination of sensitive and hypersensitive areas for threatened and endangered species was made in collaboration with FWS. The EA designated the Balcones Fault Zone and points within the Barton Creek recharge zone as places where a release could adversely impact the Barton Creek Salamander.

Sensitivity of Recreational Areas

Three recreational factors defined sensitive areas:

- Actual crossings of parkland (Houston, Buescher State Park, Pedernales Falls State Park);
- Crossings of rivers or streams upstream of parks or recreational areas or rivers known to have recreational uses; and
- Crossings of aquifers which fed recreational springs.

The scoring of sensitivity for rivers/streams upstream of parks or recreational areas was performed along with scoring for other surface water sensitivities. Rivers or streams with contact recreation in parks or recreational areas were rated as hypersensitive.

Places where the pipeline crossed parkland, and places along the pipeline where a spill could potentially damage future uses of a public or publicly accessible cave, were rated as

sensitive for recreation, along with places where the unmitigated pipeline could cause contamination of Barton Springs in Austin.