

## **APPENDIX B**

### **Future Water Supplies Along the Longhorn Pipeline Route—Status of SB 1 Studies**



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The Environmental Assessment (EA) of the Proposed Longhorn Pipeline System, October 1999, addresses potential pipeline impacts on known and existing water supplies. Potential impacts on future water supplies are not explicitly addressed in the EA, nor are they stipulated in the Settlement Agreement under which the EA was conducted.

However, as part of the public comment portion of the Longhorn Environmental Assessment process, the Lower Colorado River Authority (LCRA) has requested that potential impacts of the proposed pipeline on future water uses be considered given that significant population growth is expected statewide and regionally over the next 50 years, with subsequent increases in water demands.

This appendix presents the results of this additional consideration. Section 1 provides background information. Section 2 summarizes available information on water planning. Section 3 addresses relevance of future water demands/supplies to the EA.

### **1.0 BACKGROUND**

In 1997, the 75<sup>th</sup> Texas Legislature enacted Senate Bill 1 (SB1), which put into place a comprehensive water planning process. Subsequently, the water planning rules adopted by the Texas Water Development Board (TWDB) in 1998 delineated 16 regional planning areas, each of which has formed a Regional Water Planning Group (RWPG). Each RWPG has been tasked to prepare and adopt a regional water plan for its area to meet projected water demands through the year 2050.

Each regional water plan has the following common tasks:

- Development of current and projected population and water demands;
- Evaluation of current water supplies, to include development of estimates of water availability of both surface and ground waters into the future;
- Water supply and demand analysis, to include determining water shortages/surplus for each water source and each water demand center;
- Evaluation of alternatives to address identified needs and surpluses. This task includes a number of significant subtasks:
  - Identification and evaluation of supply and demand-side alternatives;
  - Identification of options for redistribution of existing available supplies; and
  - Evaluation of social impacts from not meeting needs;
- Development of integrated water plans;
- Preparation of general recommendations; and
- Preparation of a Regional Plan Report.

The schedule for completion of each task varies from RWPG to RWPG, but the plans must be completed by each RWPG by September 1, 2000.

The plans, once approved by TWDB, will likely include projects for the development of new water sources (new reservoirs, new ground water sources, aquifer storage projects, inter-basin transfers with accompanying pipelines, etc.). Each project approved in each plan, depending on project nature, may require environmental study and permitting per the required regulatory process prior to detailed engineering design. In general, projects identified through the SB1 process will not be built until several years following the issuance of the state plan in 2001.

## **2.0 SUMMARY OF SELECTED AVAILABLE INFORMATION ON WATER PLANNING**

The proposed Longhorn pipeline traverses SB1 Regions H, K (Lower Colorado), F, and E (far West Texas).

The current schedule of the public availability of SB1 planning documents for Region K is as follows (based upon information provided during meeting of Quentin Martin, LCRA, and Jim Blacksmith, Radian on December 22, 1999):

- Current and projected population demands (Chapter 2 of the plan) is currently available in draft;
- Evaluation of current supplies (Chapter 3), available in approximately mid first quarter CY 2000;
- Water supplies and demand analysis (Chapter 4), available in approximately second quarter CY 2000; and
- Identification and evaluation of projects, available later in CY 2000.

Region L, south-central Texas, to the south of Region K, has published a list of water supply options, which are being evaluated for inclusion in that region's plan. These options include several that transfer water from the Colorado River to Region L. There is no available documentation which provides an assessment of the likelihood of these options being included in the final plan for Region L, or of the ultimate likelihood of the options being developed even if included in the final plan.

## **3.0 RELEVANCE OF FUTURE WATER DEMANDS/SUPPLIES TO THE EA**

Given the detailed and comprehensive nature of the ongoing water planning process, any determination of future water sources is speculative and subject to change. Therefore, an appropriate course of action to address LCRA's request for consideration of future water uses is to focus upon Region K, as an example of a rapid growth area, and to accomplish the following:

- Summarize briefly the available population and water demand projections (from the draft Chapter 2 for Region K), for areas dependent on water supplies downstream of the pipeline;
- Present the Region L options involving water transfers from Region K, as examples of future projects; and
- Present a summary discussion that presents qualitatively how new sources, if developed, would fit within the existing EA analysis.

### 3.1 SB1 Population and Water Demand Projections, Region K

The RWPG for Region K draft report of population and water use growth (Chapter 2 of the Regional Plan, provided to Radian by LCRA) was reviewed. Data were also reviewed from the RWPG Region L website.

The table below identifies counties traversed by the Longhorn Pipeline in Region K with projected population and municipal water use increases:

<b>County</b>	<b>Municipal Water Demand Increase By the Year 2050 (%)</b>	<b>Population Increase by the Year 2050 (%)</b>
Hays	170	233
Travis	86	108
Bastrop	76	106
Fayette	49	79
Gillespie	40	66
Blanco	34	67

In particular, municipal water use is expected to significantly increase in Bastrop, Travis, and Hays counties, as discussed below.

**Bastrop County.** There is a projected significant increase in withdrawals of groundwater from the Carrizo-Wilcox and Colorado River Alluvium Aquifers in Bastrop County. In areas where the Longhorn pipeline crosses these two aquifers, there may be a greater sensitivity to increasing populations and groundwater users, especially in the City of Bastrop area. Most of the growth is concentrated in the City of Bastrop with a projected 102 percent increase in water use.

**Travis County.** In southern Travis County, there is a projected significant increase in municipal water use derived from the Colorado River and some increase of municipal use derived from the Edwards Aquifer (Barton Springs Segment). Travis County's projected increases are concentrated within the northern portions of the county well away from the Longhorn Pipeline System. However, the City of Austin (where the pipeline traverses) is expected to achieve a 34 percent increase in municipal water use over the 50-year period.

**Hays County.** In northern Hays County, there will be a significant increase in municipal use in the vicinity of the City of Dripping Springs from groundwater and Lower Colorado River surface water. The county's municipal water use is projected to increase by 170 percent over 50 years but this increase is concentrated in the communities of Buda and Dripping Springs with increases of 252 percent and 120 percent, respectively. Both communities may have to meet their water demands by obtaining water from the Highland Lakes (downstream of the Longhorn pipeline) or from an aquifer potentially affected by a spill from the pipeline.

**Other counties.** Fayette, Gillespie, and Blanco Counties are displayed in the table above for comparison purposes. These counties have population and municipal water use increases of considerably lesser degrees and are concentrated in the urban areas.

In summary, the areas in the vicinity of Longhorn pipeline (in Region K) with the largest projected percentage increase in water demand are the cities of Buda and Dripping Springs in Hays County; the southern portions of the City of Austin in Travis County; and the City of Bastrop in Bastrop County. It can reasonably be assumed that new sources of water may have to be developed/tapped to meet demand in these areas, and that these sources may be within areas potentially impacted from a spill along portions of the Longhorn pipeline.

### **3.2 Region L Water Supply Options**

Metropolitan areas (notably the San Antonio area) within Region L (south-central Texas) are also projected to have rapid growth in population and water demand through 2050. This region is actively evaluating the potential for new water sources from outside the Region L planning region. Of the 57 water supply options that have been publicly presented by the Region L RWPG, seven involve potentially diverting water from the Colorado River to Region L. All of these proposed diversions occur downstream of the Longhorn pipeline, the nearest to the pipeline being a potential diversion at an unspecified location in Bastrop County. The other studied diversions are noted as being in counties further downstream: Fayette, Colorado, Wharton.

As stated above, these projects are listed by the RWPG as “under evaluation.” The viability and future status of these projects are unknown at this time.

### **3.3 Summary**

Given the high rate of population and water demand growth projected for the Lower Colorado Region, the existing sources of water will become increasingly more important in the future. In addition, there may be new sources of water developed to meet the new demand.

#### **3.3.1 Existing Sources**

The EA analysis follows the following logic:

- A segment of pipeline is assigned a “sensitivity to public water supply” ranking based upon:
  - Proximity to a water supply well, and its importance as a sole or large source; and

- Proximity to surface municipal water supply diversion points.
- Similar rankings for each reach were developed for ability to transport a spill, and ability to isolate a spill for cleanup, and hydrogeologic sensitivity.
- These rankings were aggregated to rank segments of pipeline in terms of sensitivity to water resources.

Using this methodology, the segments of the pipeline where a spill could threaten existing surface or ground water sources were defined as sensitive. Virtually all of the water sources identified (e.g., the Highland Lakes) served significant municipal populations.

One conclusion of the Region K water demand projections is that irrigation water demand will decline slowly while municipal demand rises steeply. The existing water sources (e.g., the Highland Lakes) will become progressively more a municipal water source and less an irrigation source.

In any event, the existing sources (already identified as sensitive in the EA) are projected to be sensitive under future water use scenarios. Also, LCRA's suggested consideration of additional or enhanced mitigation measures and analysis is consistent with continuing sensitivity of existing sources under future water use scenarios.

### **3.3.2 New Sources**

The SB1 process will likely result in the development of new water supply sources, such as new well fields, new aquifer storage and recovery projects, and new in-channel and off-channel storage and diversion projects. The location of any of these projects could be downstream of the pipeline, within an area potentially impacted by a spill from the pipeline. If these locations could be estimated at this time, it would be possible to ascertain their potential effect on the environmental sensitivity rankings of the segments of the Longhorn pipeline, using the same methodology as presented using existing sources in the EA.

The locations of new projects selected for evaluation for each regional plan should be available by September 2000. The locations of new projects which have been selected by the TWDB to be in the state water plan will be available September 2001. Some but not all of these projects will likely be funded, permitted, and constructed in subsequent years. There is no publicly available information at this time that would allow for identifying the location and importance of future new water supply sources downstream of the pipeline.

Despite the uncertainty in projecting potential impacts of the proposed pipeline on new sources of water supply, LCRA's suggested consideration of additional or enhanced mitigation measures and analysis is consistent with potential sensitivity of new sources under future water use scenarios (in particular, for meeting future municipal water demands).