

APPENDIX M ENVIRONMENTAL JUSTICE IMPACT ANALYSIS METHODOLOGY

SEA followed a five step methodology to evaluate environmental justice impacts. The five step methodology draws on the general approach previously used by SEA and the USEPA Region VI Environmental Justice Methodology.¹ It was adapted to make the best use of available minority and low income data.

Under Step 1, SEA identified the potential health and environmental effects of the Proposed Action and Alternatives.

Under Step 2, SEA identified the environmental justice populations that are located in the project area. An environmental justice population is defined as one that meets any of the following criteria:

- Over one-half of the census block residents are minorities;
- Over one-half of the census block group² households are low income;
- The percentage of the census block residents who are minorities is more than ten percentage points higher than the minority percentage of Harris County.
- The percentage of the census block group households that are low income is more than ten percentage points higher than the low income percentage of Harris County.

SEA identified minority and low income populations using Census 2000 data. SEA identified households with low income status using year 2000 estimates³ for each census block group. Low income households include all households below the Department of Health and Human Services poverty threshold for a family of four. For the year 2000, this value was \$17,603 annual household income. This threshold falls in the middle of the \$15,000 to \$25,000 household annual income reporting range for 2000 income estimates; therefore, SEA used a linear interpolation to estimate households below the poverty threshold.⁴

¹ USEPA Region VI, Environmental Justice Methodology, August 1996.

² Block groups are the smallest geographic unit for which income information is reported. On average, block groups contain approximately 30 census blocks.

³ Household income estimates are data from Geoanalytics, Inc. The estimates are based on 1997 survey data used to update 1990 Census data.

⁴ This standard linear interpolation was conducted as follows: households below poverty = number of households earning under \$15,000 per year + 26% of households earning \$15,000 to \$25,000 per year, where 26% equals $(\$17,603 - \$15,000) / (\$25,000 - \$15,000)$.

Under Step 3, SEA assessed whether any potential effects to environmental justice populations could be high and adverse. To determine whether any potential effects could be high and adverse, SEA considered whether the effects would be significant, as defined by NEPA⁵ at grade crossings, for hazardous materials transport safety, and for noise.

Under Step 4, SEA defined the spatial distribution of environmental justice populations relative to the Proposed Action and Alternatives. SEA mapped all project information in order to identify areas of potential impact. SEA then superimposed this project information on maps showing all areas in the project vicinity that satisfy the environmental justice population criteria described in Step 2 (above). SEA presented this information in two separate sets of maps because the most recent information on minority status uses 2000 Census data, while the most recent income information uses 1990 Census data. SEA created one set of maps showing census blocks that meet environmental justice community criteria based on minority status, and another set of maps showing census block groups that meet environmental justice community criteria based on low income status.

SEA also created maps showing the density of minority and low income populations. Such density maps do not indicate the distribution of impacts between populations, but more accurately convey the actual number of individuals who could be affected. Densities are described from the lowest to highest quartile for Harris County. SEA evaluated the minority density of each census block (or the low-income density of each census block group) throughout Harris County and Liberty County. All census blocks (or block groups) were then divided into four density ranges for each county. These were defined so that 25 percent of the census blocks (or block groups) fell into each category. For example, in the minority density analysis, a Harris County census block in the highest density quartile would be among the highest quarter of minority census block densities in Harris County.

Under Step 5, SEA determined whether any potentially high and adverse effects would be disproportionately borne by environmental justice populations. SEA did not quantitatively test for disproportionate impacts because none of the expected impacts are deemed high and adverse. Therefore, SEA qualitatively assessed the distribution of impacts that fall below the threshold for high and adverse impacts.

⁵ This is based on the following Guidance: *Environmental Justice: Guidance Under the National Environmental Policy Act*, Council on Environmental Quality, December 10, 1997, p. 26 “Proposed Guidance on Terms in Executive Order 12898.”