#### SUPPLEMENTARY INFORMATION:

### **Background**

Four violations of the primary 24hour SO<sub>2</sub> NAAQS of 365 ug/m<sup>3</sup> (0.14 parts per million) were recorded at a single monitoring site (Houston Regional Monitoring Network (HRM) monitoring site #3) located near the Houston Ship Channel in Harris County, Texas, during 1986, 1988, and 1990. The 24-hour SO<sub>2</sub> NAAQS only allows one exceedance of the 365 ug/m3 standard per calendar year. Each additional exceedance is considered a violation of the NAAQS. Due to the monitoring violations and a modeling study conducted in 1987 by Science Applications International Corporation, under contract with the EPA Region 6, which predicted SO<sub>2</sub> NAAQS exceedances in a portion of Harris County, the EPA declared, in an FR document dated April 22, 1991 (56 FR 16274), that Harris County was under consideration as a potential new SO<sub>2</sub> nonattainment area.

In response to the recommended redesignation, Radian Corporation, which represented the HRM, worked with the Texas Natural Resource Conservation Commission (TNRCC) to obtain reductions in SO<sub>2</sub> allowable emissions from certain Houston industries. Radian then modeled the revised allowable SO<sub>2</sub> emission inventory to determine if the area would attain the SO<sub>2</sub> NAAQS. By achieving these emission reductions, making them federally enforceable, and executing an in-depth modeling study, HRM sought to demonstrate that Harris County was in attainment for SO<sub>2</sub>, and could thus avoid being redesignated to nonattainment. The EPA agreed to defer its final decision regarding nonattainment for Harris County, and granted the TNRCC, HRM, and the involved Harris County industries time to complete the modeling analysis, and also allowed the TNRCC to put in place enforceable restrictions on the new SO<sub>2</sub> emission rates (i.e. through Agreed Orders).

## **Analysis of State Submission**

# A. Procedural Background

The Clean Air Act (the Act) requires states to observe certain procedural requirements in developing implementation plans for submission to the EPA. Section 110(a)(2) of the Act provides that each implementation plan submitted by a state must be adopted after reasonable notice and public hearing. Section 110(l) of the Act similarly provides that each revision to an implementation plan submitted by a

state under the Act must be adopted by such state after reasonable notice and public hearing. The EPA also must determine whether a submittal is complete and therefore warrants further EPA review and action (see section 110(k)(1) and 57 FR 13565). The EPA's completeness criteria for SIP submittals are set out at 40 Code of Federal Regulations (CFR) part 51, appendix V. The EPA attempts to make completeness determinations within 60 days of receiving a submission. However, a submittal is deemed complete by operation of law if a completeness determination is not made by the EPA six months after receipt of the submission.

The State of Texas held a public hearing on March 31, 1994, to entertain public comment on a proposed Texas SIP revision containing the following elements: (1) An example Agreed Order limiting SO<sub>2</sub> allowable emissions; (2) a modeling demonstration showing SO<sub>2</sub> NAAQS attainment for Harris County; and (3) supporting narrative information. Subsequent to the public hearing and consideration of hearing comments, the SIP revision, containing 13 Agreed Orders, was adopted by the State on June 29, 1994. The SIP revision was submitted by the Governor to the EPA by cover letter dated August 3, 1994.

The SIP revision package was reviewed by the EPA to determine completeness shortly after its submittal, in accordance with the completeness criteria set out at 40 CFR part 51, appendix V. A letter dated September 20, 1994, was forwarded to the Governor finding the submittal complete and indicating the next steps to be taken in the review process.

# B. Review of State SIP Revision

The Texas SIP Revision for Harris County contained, as outlined above, modeling analyses demonstrating SO<sub>2</sub> NAAQS attainment for Harris County (3-hour, 24-hour, and annual), Agreed Orders limiting SO<sub>2</sub> allowable emissions at 13 nonpermitted companies in Harris County, and supporting narrative information. The modeling analyses used a revised allowable emission inventory obtained through an SO<sub>2</sub> emissions reduction plan involving many Houston industries. As a result of the reduction plan, about 94,000 tons per year of federally-enforceable SO<sub>2</sub> allowable emissions reductions were obtained in Harris County, thereby decreasing the original areawide SO<sub>2</sub> allowable emissions inventory from about 287,000 tons per year to about 193,000 tons per year.

A review of the worst case scenario modeling presented in the SIP showed no exceedances of the SO<sub>2</sub> NAAQS (i.e. no exceedances at any of the receptors in the modeling grid). The modeling protocol and procedures, approved by the EPA and consistent with the EPA's "Guideline on Air Quality Models (Revised)" (July, 1986), used the EPA's **Industrial Source Complex Short Term** 2 model (most current version at the time of modeling) and five years of meteorological data (1981-1985) from the Houston International Airport with Lake Charles, Louisiana upper air data. A value of 3.5 ug/m<sup>3</sup> was used as the 24hour background value, based on an evaluation of background monitored values and the area source contribution to the total emission inventory. Further, no violations of the SO2 NAAQS have occurred at any Harris County area monitoring site since calendar year 1990. It is important to note that an SO<sub>2</sub> violation is defined as more than one exceedance of the 3-hour or 24-hour SO<sub>2</sub> NAAQS, or an exceedance of the annual SO<sub>2</sub> NAAQS. Only one exceedance of the 24-hour SO<sub>2</sub> NAAQS, in 1991, has been recorded in Harris County since calendar year 1990. For SO<sub>2</sub> NAAQS attainment, at least 8 calendar quarters (2 years) of data with no violations of the NAAQS is required. For further details on the modeling analyses and monitoring data, please reference the Technical Support Document (TSD) and the State submittal located at the EPA Region 6 office listed above.

The Agreed Orders were reviewed for consistency with the EPA enforceability guidance (i.e., the September 23, 1987, memorandum from J. Craig Potter regarding SIP enforceability), and with 40 CFR part 60. The provisions of the Agreed Orders clearly identify each subject company, which all contain unpermitted SO<sub>2</sub> sources. Each Order, effective June 29, 1994, also sets SO<sub>2</sub> maximum allowable emissions limits, and recordkeeping, reporting and compliance monitoring requirements, including continuous emission monitoring requirements. Six facilities requested approval of an equivalent method of monitoring SO<sub>2</sub> emissions: Crown Central Petroleum Corporation, Exxon Company USA, Lyondell Citgo Refining Company, LTD., Mobil Mining and Minerals Company (Mobil), Phibro Energy USA, Inc., and Shell Chemical/ Oil. On June 28, 1994, the Executive Director of the TNRCC approved the alternate method requests. The EPA is also granting in this FR document approval for each of the alternative monitoring proposals. The equivalent monitoring method proposed by all of