A.2 EMISSIONS SUMMARY

Historical, present and projected emissions of sulfur dioxide and nitrogen oxides, and estimates of the probable error ranges around the present emissions in Canada and the United States have been developed. Emissions projections are based on baseline assumptions about economic and energy growth, assuming no changes in current environmental regulations. In addition, preliminary estimates of emissions of primary sulfates, volatile organic compounds and selected metals have been assembled.

Emissions of SO_2 in the U.S. rose from close to 20 million tonnes in 1950 to about 28 million tonnes in the mid-1960's before dropping to about 24 million tonnes in 1980. The southeastern and midwestern states shared the bulk of this increase. The southeastern states of Alabama, Florida, Georgia, Mississippi, Kentucky, North Carolina, South Carolina and Tennessee exhibited a sharp increase in SO_2 emissions between 1955 and 1978. The data suggest that this increase may be as high as three-fold, i.e. from about 2.1 million tonnes in 1955 to about 5.3 million tonnes in 1978.

In the midwestern states of Illinois, Indiana, Michigan, Minnesota, Ohio and Wisconsin there appears to have been a significant steady increase in SO_2 emissions between 1955 and 1965 (from 6.6 million tonnes to 9.8 million tonnes) and a significant steady decline in these emissions since 1965 to 8.1 million tonnes in 1978. Levels today are about 25% higher than in 1955 in this region of the United States.

Total Canadian emissions of SO_2 were approximately 4.8 million tonnes in 1980, about the same level as in 1955, after having peaked in 1965 at close to 6.6 million tonnes. Eastern Canada, comprising the provinces east of the Manitoba-Saskatchewan border, contributed the bulk of these emissions, i.e. 4.3 million tonnes in 1955, 5.6 million tonnes in 1965 and 4.0 million tonnes in 1980.

Nitrogen oxides emissions in the U.S. increased significantly in all areas over the 1950-78 period. This increase ranged from about a factor of two in the northeast to over three in the south. The trend also indicates that total U.S. NO_x emissions have increased steadily from about 9 million tonnes to 20 million tonnes and did not peak in the mid-1960's as did SO_2. In the eastern U.S., emissions which were at a level of about 6 million tonnes in 1950 reached more than 17 million tonnes in 1978. Total NO_x emissions in Canada have increased from 0.6 million tonnes in 1955 to 1.8 million tonnes in 1980. Eastern Canada has contributed more than 60% to these emissions over this period.