

H. LEAD POLLUTION CONTROL

1. General

Existing exposures of lead in the ambient air are generated primarily through the use of lead contained in gasoline. Because of the carbon monoxide problem in Anchorage and Fairbanks from vehicular traffic, an air monitoring program was initiated in both cities to measure ambient concentrations of lead. Data collected for the period of March 1980 through March 1982, shown in Table III.H.1, indicate that exposures are below the specified ambient standard of 1.5 micrograms per cubic meter of air (quarterly arithmetic mean exposure). Other areas of the state are projected to exhibit even lower exposures since vehicular activity is less. At the present time, no industrial or mining activities occur which emit sufficient quantities of lead to adversely affect the air quality. Phasing out automobiles which utilize leaded fuel and diminishing the lead content of gasoline will continue to diminish lead exposures. Additional support documents regarding the assessment of this pollutant in the Alaska environment are presented in Section III.H of Volume III of this document.

2. Sources of Lead Emissions

Two small lead acid battery manufacturing plants located in Anchorage and Fairbanks produce approximately 50 and 20 batteries per day respectively. These facilities emit approximately 280 and 112 lbs. of lead per year at each respective location. Other than these minor sources, all emissions of lead are emitted either directly to the air from vehicle tailpipes or indirectly as re-entrained road dust. Projected vehicle emissions at each of the cities are presented in Table III.H.-1.

3. Control of New Emission Sources

Several criteria are established in Article 3 of the State Air Quality Control Regulations to prevent new facilities or other industrial activities from creating an ambient air quality problem for lead. Although each of these criteria are established for specific types of activities, the combined effect is to ensure that all proposed facilities that may emit large quantities of lead are reviewed by department personnel prior to issuance of a permit to operate.

Table III.H-1

ALASKA AMBIENT LEAD DATA
 -Quarterly Arithmetic Mean Values
 April 1980-March 1982

| Year | Calendar Quarter | Fairbanks Nordale School | | Fairbanks Borough Bld #2 | | Fairbanks State Office Building† | | Anchorage 8th & L Street | | Anchorage City Fire Station | |
|------|------------------|--------------------------|----------------------------|--------------------------|----------------------------|----------------------------------|----------------------------|--------------------------|----------------------------|-----------------------------|----------------------------|
| | | Sample Days | Ave [Pb] ug/m ³ | Sample Days | Ave [Pb] ug/m ³ | Sample Days | Ave [Pb] ug/m ³ | Sample Days | Ave [Pb] ug/m ³ | Sample Days | Ave [Pb] ug/m ³ |
| 1980 | 2 | 15 | 0.18 | 12 | 0.18 | | | 15 | 0.33 | 15 | 0.60 |
| | 3 | 11 | 0.15 | 13 | 0.31 | | | 16 | 0.32 | 16 | 0.57 |
| | 4 | 7 | * | 7 | * | | | 14 | 1.08 | 15 | 1.25 |
| 1981 | 1 | 13 | 0.90 | 14 | 1.07 | | | 14 | 0.44 | 15 | 0.67 |
| | 2 | 11 | * | 13 | 0.30 | | | 15 | 0.29 | 15 | 0.49 |
| | 3 | 9 | * | 13 | 0.29 | 13 | 0.27 | 15 | 0.27 | 13 | 0.47 |
| | 4 | 15 | 1.02 | 13 | 0.87 | 10 | 1.17 | 13 | 0.56 | 13 | 0.73 |
| 1982 | 1 | 10 | * | 14 | 1.08 | 10 | 0.88 | 13 | 0.47 | 14 | 0.78 |

† Lead analysis of TSP samples at this site began June of 1981.

* Insufficient data from which to calculate an arithmetic mean value (i.e. minimum 10 sample days with at least 2 samples in each month.