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Norbert Schutte and Raymond Ruhe

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INSPECTION-FACILITIES

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TECHNICAL ASSISTANCE REPORT
TA 79-8

PEACE BRIDGE, BUFFALO, NEW YORK
RAINBOW BRIDGE, NIAGARA, NEW YORK

APRIL 1980

I. SUMMARY

At the request of the U.S. Department of Justice, the National Institute for Occupational Safety and Health (NIOSH) conducted surveys at the Peace Bridge, Buffalo, New York on March 16-17, 1979 and August 10-11, 1979 and the Rainbow Bridge, Niagara, New York on March 18-19 and August 12-13, 1979 to determine workers's exposure to: carbon monoxide, lead, sulfuric acid, total particulate, benzene, and noise. Employees were also given pre-and post-shift carboxyhemoglobin (COHb) tests.

Time-weighted-average (TWA) exposure levels for carbon monoxide as determined by personnel sampling using long-term detector tubes ranged from 1 to 13 ppm. (NIOSH recommends a 8-hour TWA of 35 ppm.) Carbon monoxide sampling at the inspection lanes using Ecolyzers equipped with recorders showed hourly average concentrations ranging from 1 to 30 ppm.

The test results for COHb at the Peace Bridge on August 10-11, 1979 showed that the non-smoking employees increased from 2.8% to 4.0%. Smokers COHb average post-shift levels were 7.4% from a pre-shift level of 7.1%. The tests results for COHb at the Rainbow Bridge on August 12-13, 1979 showed that the non-smoking employees increased from 2.7% to 3.7%. Smokers COHb average post shift levels were 6.6% from a pre-shift level of 6.0%.

Sample results indicated no detectable levels of sulfuric acid and low concentrations of benzene (0.08 mg/M^3), total particulate (0.76 mg/M^3) and lead .008 mg/M^3. Noise levels, as determined by dosimeter readings, were well within recommended levels.

Based on the information collected during these evaluations, NIOSH found no Health Hazard existed to inspectors under the current methods of operation and during periods of peak traffic density. Although carbon monoxide exposures were not in excess of recommended levels, an increase in COHb levels occurred during the shifts. Even though these increases were not excessive, the practice of rotating inspectors should be continued so as not to unduly expose these individuals.

II. INTRODUCTION

At the request of the District Director, U.S. Department of Justice, Immigration and Naturalization Service, NIOSH conducted a survey at the Peace Bridge, Buffalo, New York and the Rainbow Bridge in Niagara, New York. The purpose of the survey was to determine if employee exposures to auto emissions during routine inspection tasks posed a health problem. Of major concern was exposure to carbon monoxide. Because traffic is heavier during certain portions of each day, as well as during the summer months and on weekends, the weekend of August 10, 1979, was selected for peak traffic density.

The Peace and Rainbow Bridges have primary inspection lanes as well as secondary inspection areas and an administration building. The number of primary inspection lanes open to traffic at any time depends upon the time of day, day of the week, time of the year and traffic density. Number 1 lane is normally open on a 24-hour basis and also handles any truck and bus traffic.

The principal employees at the inspection facility are inspectors from the Immigration and Naturalization Service of the U.S. Department of Justice and inspectors from the Bureau of Customs of the U.S. Department of the Treasury. The inspectors rotate on a half-hour basis so that the maximum time that any one inspector would have to spend at the primary lines would be approximately four hours per day. The remainder of the day is spent in the secondary inspection areas or the administration building.

III. EVALUATION DESIGN AND METHODS

Personal sampling for carbon monoxide was conducted using Drager* long term detector tubes. A discoloration of the sorbent in the tube indicates the presence of carbon monoxide and the length of stain corresponds to the concentration. Carbon monoxide Ecolyzers*, equipped with recorders, were placed in the inspection booths. The sampling tubes for the Ecoloyzers were positioned to sample air that corresponded to the inspectors' breathing zones. Lead, total particulate, sulfuric acid, and benzene samples were collected in a similar manner. Samples for lead were collected on filters and analyzed using standard atomic absorption techniques. Samples for benzene were collected on charcoal tubes and analyzed by gas chromatographic methods. Sulfuric acid samples were taken on filters and analyzed by ion chromatography. Total particulate was determined by gravimetric methods using filters as collection media. Noise exposures were measured using Dupont* dosimeters.

Pre-shift and post-shift carboxyhemoglobin levels on the inspectors were determined using an Ecolyzer Carboximeter*. This instrument is designed to measure the concentration of carbon monoxide in a breath sample introduced into its intake port. The carbon monoxide level is displayed on the meter as % COHb in the blood.

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*Mention of commerical name or products does not constitute endorsement by NIOSH.

IV. EVALUATION CRITERIA

Carbon monoxide is classified as a chemical asphysiant whose toxic effects are a direct result of the hypoxia (lack of oxygen) produced by a given exposure. Carbon monoxide is rapidly transferred in the lungs from the inhaled air to the blood. The carbon monoxide is reversibly bound to hemoglobin in the red blood cells forming carboxyhemoglobin. Hemoglobin has 200 times more affinity for carbon monoxide than oxygen. Symptoms will vary according to the COHb saturation level, measured in %. Symptoms may include headache, nausea, vomiting, dizziness, drowsiness and collapse. Individuals with coronary heart disease are believed to be especially sensitive to elevated levels of COHb. Studies have also indicated that chronic exposure to carbon monoxide may result in cardiovascular alterations in persons with coronary heart disease or underlying coronary heart problems.

NIOSH recommends that no worker be exposed to concentrations of carbon monoxide greater than 35 ppm as determined by a time-weighted-average (TWA) exposure and that concentrations of carbon monoxide not exceed a ceiling concentration of 200 ppm. A worker continuously exposed to the 35 ppm allowable concentration would not be expected to have COHb level in excess of 5%. It should, however, be noted that the recommended levels do not take into consideration the smoking habits of the worker.

Additional occupational health criteria for total particulate, sulfuric acid, lead, benzene and noise are as follows:

	NIOSH Recommended Standard	OSHA Legal Standard
Total Particulate	-	15 mg/M^3
Lead	0.1 mg/M^3	0.05 mg/M^3
Benzene	3.2 mg/M^3	30 mg/M^3
Sulfuric Acid	1.0 mg/M^3	1.0 mg/M^3
Noise	85 dBA	90 dBA

where mg/M^3 refers to milligrams of contaminant per cubic meter of air, ppm refers to parts of contaminant per million parts of air by volume and dBA refers to decibel level as determined using the A-weighted sound level scale. Exposures should not be exceeded on an 8-hour TWA basis.

V. RESULTS AND DISCUSSION

The carbon monoxide concentrations in the inspection booths at the Peace and Rainbow Bridges as measured by the Ecolyzers are presented in Table I and II. Examination of these Figures show the hourly average carbon monoxide levels did not exceed 35 ppm, and that the time-weighted average concentration for any 8-hour time period was considerably less than 35 ppm In addition, the inspectors' average exposure for their workday would be expected to be less than the time-weighted 8-hour average concentration at the inspection booths since the inspectors generally work no more than four hours per day at the inspection booths. The personnel samples collected on the inspectors show this to be true. The TWA concentration as measured by long-term detector tubes ranged from 1 to 13 ppm (Table III).

The test results for COHb at the Peace Bridge on August 10-11, 1979 showed that the non-smoking employees increased from 2.8% to 4.0%. Smokers COHb average post-shift levels were 7.4% from a pre-shift levels of 7.1%. The test results for COHb at the Rainbow Bridge on August 12-13, 1979 showed that the non-smoking employees increased from 2.7% to 3.7%. Smokers COHb average post-shift levels were 6.6% from a pre-shift levels of 6.0%. The results indicate that the inspectors were being exposed to carbon monoxide while at work. It is difficult to single out and rank individual sources of carbon monoxide in order to importance. Studies have shown that smoking habits of workers have a tremendous bearing on their actual daily exposure to carbon monoxide. Smokers, in fact, are less susceptible to increases in COHb due to exposure to low concentrations of carbon monoxide, since their levels of COHb, already high, would not be increased by the exposure. This appears to be true of the smokers evaluated in this study. Their COHb levels are higher than expected when the measured environmental carbon monoxide levels are considered. The non-smoker COHb levels are a result of workplace exposure to carbon monoxide. Again, the measured COHb levels are slightly higher than expected when considering the carbon monoxide levels measured in the inspection lanes. This slight elevation in COHb above that expected as result of measured ambient carbon monoxide exposures could be a result of the non-smoking inspectors spending time with smokers in rather confined areas, resulting in increased carbon monoxide exposure which would not be associated with inspection lane concentrations.

In addition to carbon monoxide concentration, measurements were made to determine the inspectors' personal noise exposures. The dosimeters used to make the measurement give the actual exposure during the workday is a percentage of that permitted in the OSHA regulations (90 dBA) average for a 8-hour workday. Of the thirty measurements made at the Peace and Rainbow Bridges, twenty-one showed zero percent exposure. The remaining nine showed exposures of 1% to 15%. All readings were low compared to the 100% allowable exposure.

Other environmental measurements for lead, total particulate, sulfuric acid and benzene were collected at the Peace and Rainbow Bridges. No sulfuric acid was detected. Low concentrations of benzene (0.08 mg/M^3), total particulate (0.76 mg/M^3), and lead .008 mg/M^3, as shown in Table VI and VII.

VI. RECOMMENDATIONS

1. The practice of rotating inspectors should be continued to help minimize exposure.

VII. AUTHORSHIP AND ACKNOWLEDGEMENTS

Evaluation Conducted and Report Prepared By:

Norbert Schutte
Raymond Ruhe
Industrial Hygiene Section
Hazard Evaluations and Technical Assistance Branch
Cincinnati, Ohio

Originating Office:

Hazard Evaluations and Technical Assistance
Division of Surveillance, Hazard Evaluations and Field Studies
Cincinnati, Ohio

Report Typed By:

Linda Morris
Clerk-Typist
Industrial Hygiene Section
Hazard Evaluations and Technical Assistance Branch
Cincinnati, Ohio

VIII. REFERENCE

1. Criteria for a Recommended Standard . . . Occupational Exposure to Carbon Monoxide; U.S. Department of HEW, Public Health Service, Center for Disease Control, HSM 73-11000, 1972.

IX. DISTRIBUTION AND AVAILABILITY OF DETERMINATION REPORT

Copies of this report are currently available upon request from NIOSH, Division of Technical Services, Publications Dissemination, 4676 Columbia Parkway, Cincinnati, Ohio 45226. After 90 days, the report will be available through the National Technical Information Service (NTIS), Springfield, Virginia 22161.

Copies of this report have been sent to:

1. U.S. Department of Justice, Immigration and Naturalization Service, Buffalo, New York.
2. U.S. Custom Service, Region I, Boston, Massachusetts
3. U.S. Department of Justice, Immigration and Naturalization Service, Eastern Regional Office, Burlington, Vermont 05401.
4. U.S. Department of Labor, Region II
5. NIOSH, Region II

Table I

Peace Bridge, Buffalo, New York

Readings from Portable Direct Carbon Monoxide Analyzer (Ecolyzer®)

Lane 1			Lane 3			Immigration Secondary Inspection			Lane 1			Lane 3		
Date	Time	PPM CO	Date	Time	PPM CO	Date	Time	PPM CO	Date	Time	PPM CO	Date	Time	PPM CO
3/16/79	1115-1215	2	3/16/79	1055-1155	5	3/16/79	1145-1245	2	8/10/79	1310-1410	10	8/10/79	1800-1900	20
3/16/79	1215-1315	2	3/16/79	1155-1255	5	3/16/79	1245-1345	2	8/10/79	1410-1510	10	8/10/79	1900-2000	20
3/16/79	1315-1415	2	3/16/79	1255-1355	5	3/16/79	1345-1445	2	8/10/79	1510-1610	15	8/10/79	2000-2100	25
3/16/79	1415-1515	2	3/16/79	1355-1455	5	3/16/79	1445-1545	1	8/10/79	1610-1710	14	8/10/79	2100-2200	25
3/16/79	1515-1615	2	3/16/79	1455-1555	3	3/16/79	1545-1645	2	8/10/79	1710-1810	12	8/10/79	2200-2300	25
3/16/79	1615-1715	2	3/16/79	1555-1655	4	3/16/79	1645-1745	2	8/10/79	1810-1910	10	8/10/79	2300-2400	22
3/16/79	1715-1815	2	3/16/79	1655-1755	6	3/16/79	1745-1845	2	8/10/79	1910-2010	10			
3/16/79	1815-1915	6	3/16/79	1755-1855	5	3/16/79	1845-1945	2	8/10/79	2010-2110	8			
3/16/79	1915-2015	10	3/16/79	1855-1955	6	3/16/79	1945-2045	3	8/10/79	2110-2210	8			
3/16/79	2015-2115	6	3/16/79	1955-2055	6	3/16/79	2045-2145	2	8/10/79	2210-2310	12			
3/16/79	2115-2215	4	3/16/79	2055-2155	5	3/16/79	2145-2245	2	8/10/79	2310-0010	10			
3/16/79	2215-2315	5	3/16/79	2155-2255	4	3/16/79	2245-2345	3						
3/16/79	2315-0015	5	3/16/79	2255-2355	2	3/16/79	2345-0045	3						
Average =		3.8	Average =		4.7	Average =		2.2	Average =		10.8	Average =		22.8
3/17/79	0015-0115	5	3/17/79	0935-1035	8	3/17/79	0945-1045	2	8/11/79	0010-0110	10	8/11/79	0700-0800	10
3/17/79	0115-0215	5	3/17/79	1035-1135	8	3/17/79	1045-1145	3	8/11/79	0110-0210	10	8/11/79	0800-0900	15
3/17/79	0215-0315	5	3/17/79	1135-1235	8	3/17/79	1145-1245	3	8/11/79	0210-0310	10	8/11/79	0900-1000	30
3/17/79	0315-0415	4	3/17/79	1235-1335	8	3/17/79	1245-1345	2	8/11/79	0310-0410	10	8/11/79	1000-1100	25
3/17/79	0415-0515	6	3/17/79	1335-1435	7	3/17/79	1345-1445	3	8/11/79	0410-0510	10	8/11/79	1100-1200	26
3/17/79	0515-0615	25	3/17/79	1435-1535	9	3/17/79	1445-1545	4	8/11/79	0510-0610	10	8/11/79	1200-1300	25
3/17/79	0615-0715	20	3/17/79	1535-1635	8	3/17/79	1545-1645	3	8/11/79	0610-0710	12	8/11/79	1300-1400	22
3/17/79	0715-0815	6	3/17/79	1635-1710	9				8/11/79	0710-0810	10	8/11/79	1400-1500	20
3/17/79	0815-0915	4							8/11/79	0810-0910	10	8/11/79	1500-1600	20
3/17/79	0915-1015	4							8/11/79	0910-1010	12	8/11/79	1600-1700	22
3/17/79	1015-1115	4							8/11/79	1010-1110	12	8/11/79	1700-1800	26
3/17/79	1115-1215	5							8/11/79	1110-1210	12	8/11/79	1800-1900	26
3/17/79	1215-1315	4							8/11/79	1210-1310	13	8/11/79	1900-2000	28
3/17/79	1315-1415	5							8/11/79	1310-1410	11	8/11/79	2000-2100	25
3/17/79	1415-1515	5							8/11/79	1410-1510	14	8/11/79	2100-2200	30
3/17/79	1515-1615	5							8/11/79	1510-1610	16			
3/17/79	1615-1715	8							8/11/79	1610-1710	15			
									8/11/79	1710-1810	18			
									8/11/79	1810-1910	22			
									8/11/79	1910-2010	21			
									8/11/79	2010-2110	25			
Average =		7.1	Average =		8.1	Average =		2.9	Average =		13.5	Average =		23.3

Table II

Rainbow Bridge, Niagara, New York

Readings from Portable Direct Carbon Monoxide Analyzer (Ecolyzer^{R})

Lane 4			Lane 6			Customs Secondary Inspection			Lane 4		
Date	Time	PPM CO	Date	Time	PPM CO	Date	Time	PPM CO	Date	Time	PPM CO
3/18/79	1115-1215	10	3/18/79	1130-1230	10	3/18/79	1150-1250	2	8/12/79	1910-2010	16
3/18/79	1215-1315	12	3/18/79	1230-1330	10	3/18/79	1250-1350	1	8/12/79	2010-2110	16
3/18/79	1315-1415	15	3/18/79	1330-1430	12	3/18/79	1350-1450	1	8/12/79	2110-2210	10
3/18/79	1415-1515	12	3/18/79	1430-1530	14	3/18/79	1450-1550	2	8/12/79	2210-2310	18
3/18/79	1515-1615	16	3/18/79	1530-1630	12	3/18/79	1550-1650	1	8/12/79	2310-0010	18
3/18/79	1615-1715	16	3/18/79	1630-1730	12	3/18/79	1650-1750	2			
3/18/79	1715-1750	12	3/18/79	1730-1830	20	3/18/79	1750-1850	4			
3/18/79	1755-1855	20	3/18/79	1830-1930	20	3/18/79	1850-1950	4			
3/18/79	1855-1855	22	3/18/79	1930-2030	16	3/18/79	1950-2050	4			
3/18/79	1955-2055	30	3/18/79	2030-2130	14	3/18/79	2050-2150	4			
3/18/79	2055-2155	14	3/18/79	2130-2230	12	3/18/79	2150-2250	4			
3/18/79	2155-2255	20				3/18/79	2250-2350	3			
3/18/79	2345-0045	16									
Average =		16.5	Average =		13.8	Average =		2.7	Average =		15.6
3/19/79	0045-0145	10	Lane not open on 3/19/79			3/19/79	0900-1000	3	8/13/79	0010-0110	12
3/19/79	0145-0245	2				3/19/79	1000-1100	3	8/13/79	0110-0210	10
3/19/79	0245-0345	1				3/19/79	1100-1200	3	8/13/79	0210-0310	10
3/19/79	0345-4445	1				3/19/79		3.0	8/13/79	0310-0410	7
3/19/79	0445-0545	1							8/13/79	0410-0510	7
3/19/79	0545-0645	2							8/13/79	0510-0610	8
3/19/79	0645-0745	8							8/13/79	0610-0710	8
3/19/79	0745-0845	10							8/13/79	0710-0810	12
3/19/79	0845-0945	10							8/13/79	0810-0910	10
3/19/79	0945-1045	8							8/13/79	0910-1000	6
3/19/79	1045-1145	16							8/13/79	1000-1100	5
3/19/79	1145-1215	13							8/13/79	1100-1200	5
									8/13/79	1200-1300	6
									8/13/79	1300-1400	5
									8/13/79	1400-1500	5
									8/13/79	1500-1600	3
									8/13/79	1600-1700	3
									8/13/79	1700-1800	3
									8/13/79	1800-1900	4
									8/13/79	1900-2000	4
									8/13/79	2000-2100	3
Average =		6.8				Average =		3.0	Average =		6.5

Table III

Personal Long-Term Carbon Monoxide Concentrations

Peace Bridge, Buffalo, New York
Rainbow Bridge, Niagara, New York

Date	Bridge	Inspector	Sampling Time	Carbon Monoxide Concentrations (ppm)
8/10/79	Peace	#1	0820-1440	3
8/10/79	Peace	#2	0840-1550	3
8/10/79	Peace	#3	0900-1550	3
8/10/79	Peace	#4	0825-1535	5
8/10/79	Peace	#5	0900-1645	2
8/10/79	Peace	#6	1000-1540	2
8/10/79	Peace	#7	1015-1745	5
8/10/79	Peace	#8	1025-1745	6
8/11/79	Peace	#1	0750-1435	7
8/11/79	Peace	#2	0815-1545	7
8/11/79	Peace	#3	0755-1555	6
8/11/79	Peace	#4	0805-1550	7
8/11/79	Peace	#5	0810-1540	5
8/11/79	Peace	#6	0815-1530	6
8/11/79	Peace	#7	0810-1550	8
8/11/79	Peace	#8	0900-1650	5
8/12/79	Rainbow	#1	1600-2315	10
8/12/79	Rainbow	#2	1605-2330	11
8/12/79	Rainbow	#3	1630-2310	12
8/12/79	Rainbow	#4	1630-2300	13
8/12/79	Rainbow	#5	1750-2455	12
8/12/79	Rainbow	#6	1655-2315	4
8/12/79	Rainbow	#7	1750-2450	10
8/13/79	Rainbow	#1	0745-1310	2
8/13/79	Rainbow	#2	0750-1520	2
8/13/79	Rainbow	#3	0750-1520	1
8/13/79	Rainbow	#4	0755-1510	1
8/13/79	Rainbow	#5	0830-1520	3
8/13/79	Rainbow	#6	0930-1630	3

Table IV

Carboxyhemoglobin Levels

Peace Bridge, Buffalo, New York

Date	Employee	% Carboxyhemoglobin Pre-Shift	% Carboxyhemoglobin Post Shift	Δ % COHb
8/10/79	Customs (1)	1.9	2.1	+ 0.2
8/10/79	Customs (2)	1.6	3.5	+ 1.9
8/10/79	Customs (3)*	10.8	13.2	+ 2.4
8/10/79	Customs (4)	6.4	2.8	- 3.6
8/10/79	Customs (5)	2.2	1.9	- 0.3
8/10/79	Immigration (1)	2.5	1.6	- 0.9
8/10/79	Immigration (2)*	9.5	9.6	- 0.1
8/10/79	Immigration (3)*	7.2	1.5	- 5.7
8/10/79	Immigration (4)	2.8	3.5	- 0.7
8/10/79	Immigration (5)	2.1	4.0	+ 1.9
8/10/79	Immigration (6)	2.1	2.4	+ 0.3
8/10/79	Immigration (7)	1.2	1.7	+ 0.5
8/10/79	Immigration (8)	1.7	4.1	+ 2.4
8/10/79	Immigration (9)*	1.9	5.0	+ 3.1
8/11/79	Customs (1)	2.4	5.0	+ 2.6
8/11/79	Customs (2)	3.0	4.8	+ 1.8
8/11/79	Customs (3)*	5.7	5.8	+ 0.1
8/11/79	Customs (4)	2.7	4.4	+ 1.7
8/11/79	Immigration (1)	3.3	5.2	+ 1.9
8/11/79	Immigration (2)	2.4	4.9	+ 2.5
8/11/79	Immigration (3)	2.5	4.3	+ 1.8
8/11/79	Immigration (4)	3.0	4.6	+ 1.6
8/11/79	Immigration (5)	3.0	5.0	+ 2.0
8/11/79	Immigration (6)*	8.8	12.8	+ 4.0
8/11/79	Immigration (7)*	5.2	4.1	- 1.1
8/11/79	Immigration (8)	3.3	5.5	+ 2.2
Non-Smokers' Average		2.8	4.0	+ 1.2
Smokers' Average		7.1	7.4	+ 0.3

* Smoker

Table V

Carboxyhemoglobin Levels

Rainbow Bridge, Niagara, New York

Date	Employee	% Carboxyhemoglobin Pre-Shift	% Carboxyhemoglobin Post Shift	Δ % COHb
8/12/79	Customs (1)	3.4	6.0	+ 2.6
8/12/79	Customs (2)	1.9	6.2	+ 4.3
8/12/79	Customs (3)*	6.8	9.2	+ 2.4
8/12/79	Immigration (1)	3.4	7.6	+ 4.2
8/12/79	Immigration (2)	2.0	6.1	+ 4.1
8/12/79	Immigration (3)*	2.3	5.9	+ 3.6
8/12/79	Immigration (4)*	10.1	11.5	+ 1.4
8/12/79	Immigration (5)	5.4	5.2	- 0.2
8/12/79	Immigration (6)*	14.5	13.0	- 1.5
8/13/79	Customs (1)	4.0	1.8	- 2.2
8/13/79	Customs (2)*	3.8	3.3	- 0.5
8/13/79	Customs (3)*	1.6	1.6	0
8/13/79	Customs (4)	1.4	1.7	+ 0.3
8/13/79	Immigration	3.3	2.8	- 0.5
8/13/79	Immigration	2.4	1.8	- 0.6
8/13/79	Immigration	1.9	1.6	- 0.3
8/13/79	Immigration	2.2	2.0	- 0.2
8/13/79	Immigration*	2.6	1.7	- 0.9
8/13/79	Immigration	1.3	1.2	- 0.1
	Non-Smokers' Average	2.7	3.7	+ 1.0
	Smokers' Average	6.0	6.6	+ 0.6

* Smoker

Table VI

Environmental Samples Collected at the Peace and Rainbow Bridges

March 16-19, 1980

Date	Location	Sample Location	Lead (mg/M^3)[1]	Total Particulates-Nuisance Dust (mg/M^3)	Benzene (mg/M^3)	Sulfuric Acid (mg/M^3)
3/16/79	Peace Bridge	Inspection Lane #1	N.D.[2]	0.02	N.D.	N.D.
3/16/79	Peace Bridge	Inspection Lane #3	N.D.	0.20	N.D.	N.D.
3/16/79	Peace Bridge	I.N.S. Secondary Inspection	N.D.	0.16	N.D.	N.D.
3/16/79	Peace Bridge	Between Lanes #1 & #3	-	-	-	-
3/17/79	Peace Bridge	Inspection Lane #1	N.D.	0.62	N.D.	N.D.
3/17/79	Peace Bridge	Inspection Lane #3	N.D.	0.76	N.D.	N.D.
3/17/79	Peace Bridge	I.N.S. Secondary Inspection	N.D.	0.26	N.D.	N.D.
3/17/79	Peace Bridge	Between Lanes #1 & #3	-	-	0.03	N.D.
3/18/79	Rainbow Bridge	Inspection Lane #4	N.D.	0.33	N.D.	N.D.
3/18/79	Rainbow Bridge	Inspection Lane #6	N.D.	*	N.D.	N.D.
3/18/79	Rainbow Bridge	Customs Secondary Inspection(Office)	N.D.	0.33	N.D.	N.D.
3/18/79	Rainbow Bridge	Between Lanes #4 & #5	-	-	0.02	-
3/19/79	Rainbow Bridge	Inspection Lane #4	N.D.	0.25	N.D.	N.D.
3/19/79	Rainbow Bridge	Customs Secondary Inspection(Office)	N.D.	0.08	N.D.	N.D.
3/19/79	Rainbow Bridge	Between Lanes #4 & #5	-	-	N.D.	-
Lower Limit of Detection for the Method			<0.005	0.01	<0.01	<0.02
Environmental Criteria			0.05	10.0[3]	3.2	1.0

1. mg/M^3 - Milligrams of substance per cubic meter of air
2. N.D. - Non Detectable
3. American Conference of Governmental Industrial Hygienist Threshold Limit Value

Table VII

Environmental Samples Collected at the Peace and Rainbow Bridges

August 10-13, 1979

Date	Location	Sample Location	Lead (mg/M^3)[1]	Total Particulates-Nuisance Dust (mg/M^3)	Benzene (mg/M^3)	Sulfuric Acid (mg/M^3)
8/10/79	Peace Bridge	Inspection Lane #1	N.D.[2]	0.06	0.05	N.D.
8/10/79	Peace Bridge	Inspection Lane #2	N.D.	0.05	0.04	N.D.
8/10/79	Peace Bridge	I.N.S. Secondary Inspection	N.D.	0.09	0.04	N.D.
8/11/79	Peace Bridge	Inspection Lane #1	.005	0.05	0.04	N.D.
8/11/79	Peace Bridge	Inspection Lane #2	.005	0.08	0.08	N.D.
8/11/79	Peace Bridge	I.N.S. Secondary Inspection	N.D.	0.35	0.04	N.D.
8/12/79	Rainbow Bridge	Inspection Lane #2	.008	0.06	0.04	N.D.
8/12/79	Rainbow Bridge	Inspection Lane #4	.008	0.05	0.02	N.D.
8/12/79	Rainbow Bridge	Customs Secondary Inspection(Office)	N.D.	0.10	0.05	N.D.
8/13/79	Rainbow Bridge	Inspection Lane #2	N.D.	0.03	N.D.	N.D.
8/13/79	Rainbow Bridge	Inspection Lane #4	N.D.	0.03	N.D.	N.D.
8/13/79	Rainbow Bridge	Customs Secondary Inspection(Office)	N.D.	0.06	0.04	N.D.
Lower Limit of Detection for the Method			<0.005	0.01	0.01	0.02
Environmental Criteria			0.05	10.0[3]	3.2	1.0

1. mg/M^3 - Milligrams of Substance per Cubic Meter of Air
2. N.D. - Non Detectable
3. American Conference of Governmental Industrial Hygienist Threshold Limit Value