ATTACHMENT 1
ANALYSIS OF CRITERIA POLLUTANTS FROM COMBUSTION SOURCES

Technical Areas: TA–3, TA–8, TA–15, TA–16, TA–18, TA–21, TA–22, TA–33, TA–35, TA–39, TA–41, TA–43, TA–46, TA–48, TA–49, TA–50, TA–53, TA–54, TA–55, TA–58, TA–59, TA–61, TA–63, and TA–64.

Emission Sources

The sources of criteria pollutant emissions at LANL are mostly combustion facilities. The largest contributors are steam plants and an asphalt plant. There are also several smaller sources. The following emission sources were considered:

MAJOR SOURCES	LOCATION	FUEL
Steam Plant	TA–3–22–1	Natural gas/oil # 2
Steam Plant	TA–21–357–1	Natural gas/oil # 2
Replacement Boiler	TA–16–4	Natural gas
Replacement Boiler	TA–16–5	Natural gas
Replacement Boiler	TA–16–6	Natural gas
Replacement Boiler	TA–16–13	Natural gas
Asphalt Heater	TA–3–73–2	Oil #2
Water Pump	TA–54–1013	Natural gas
Incinerator	TA–16	Solid waste/waste oil

Note:

Emissions from the following smaller combustion sources also were considered.

- 62 miscellaneous boilers located at various TAs
- 149 standby emergency generators (7 natural gas, 50 diesel, and 92 gasoline fueled)

Pollutants Considered

As required by the *Clean Air Act*, NAAQS have been established for six major air pollutants: CO, NO_2, ozone (O_3), particulate matter smaller than 10 microns (PM_{10}), SO_2, and lead (Pb). Each of these pollutants was considered.

Emission Rates

Major Assumptions

1. For the dual-fueled boilers, fuel oil emission rates were used to estimate short-term concentrations, and natural gas emission rates were used to estimate annual emission rates.

2. Emission factors were obtained from EPA's Compilation of Air Pollution Emission Factors (AP-42) (EPA 1995).

3. Peak load emission rates ($ER_{peak\ load}$) were estimated based on the capacity of each unit.

$$ER_{peak\ load} = \frac{\text{Unit Capacity / Design Capacity x Emission Factor}}{\text{Heating Value of Fuel}}$$

   See Tables A and B of this attachment.

4. Annual average emission rates (ER_{annual}) were based on the annual fuel consumption rates (assuming that a 100 percent capacity was used).

$$ER_{annual} = \text{Emission Factor x Fuel Usage}$$

   See Table C of this attachment.

5. PM_{10} emissions during the combustion of diesel and gasoline fuels or fuel oil were conservatively assumed to be half of the total suspended particulate (TSP) emissions. Particulates emitted during the combustion of natural gas are less than 1 micron (1 micrometer) in diameter; hence, for natural gas combustion, PM_{10} emissions were considered equal to TSP emissions.

6. It was conservatively assumed, as per New Mexico Air Quality Bureau's guidelines, that 40 percent of exhausted NO was converted to NO_2 when the exhaust plume reached fence line receptors a few hundred meters away from the source. Conversion to NO_2 depends on the presence of ozone in the surface atmospheric layer. It usually takes several hours for full conversion.

7. Based on the LANL information, it was assumed that emergency and standby generators operate a maximum of four continuous hours a day.

Dispersion Modeling Analysis

The EPA Industrial Source Complex model, Version 3 (ISC–3) was applied in the analysis of criteria pollutants. ISC–3 is a steady-state Gaussian dispersion model validated to be used in a short- and a long-term mode in regulatory and nonregulatory applications. The model is capable of handling multiple point sources, stack-tip downwash calculation, buoyancy-induced dispersion, as well as having an algorithm to account for the aerodynamic downwash due to the nearby buildings. The actual options that were used to analyze emissions from combustion sources are as follows:

- In the ISC–3 short-term mode:
  - Stack-tip downwash
  - Buoyancy-induced dispersion

— Final plume rise
— Calm winds processing
— Default wind profile exponents and potential temperature gradients
— Simple terrain
— Rural dispersion
— Aerodynamic downwash (where applicable)
— Constant emission rates throughout the modeling period
— No precipitation scavenging

Other assumptions include:

- All chemicals are released to the atmosphere rather than used in process or product, or sent to waste disposal or recycling after use.
- There is no time spent indoors or inside automobiles; whereas, people actually spend more than 80 percent of their time indoors. Being inside would cut the concentration by half as a minimum.

Modeling Procedures

1. TA–3, TA–21 and TA–16 boiler plants were modeled using actual emission locations and actual stack parameters, as provided by LANL. Wake effects of the boiler buildings and buildings in the immediate vicinity of the emission sources were considered.

2. The waste incinerator at TA–16, the water pump at TA–54, and the asphalt plant heaters at TA–3 were modeled using actual locations and stack parameters, as obtained from LANL. Wake effects of the incinerator building were considered.

3. The emission rates of the other combustion sources considered (i.e., small boilers and standby and emergency generators—natural gas, diesel and gasoline fueled) were summed up by TA and modeled as if their combined emissions were released from the center of the TA where they are located. The following prototypical stack and stack parameters were assumed for each of these sources.

   - Stack height: 6 meters
   - Stack diameter: 0.5 meters
   - Stack exit velocity: 9 meters per second
   - Stack temperature: 127°C

4. Impacts from combustion sources were considered for both peak and normal (annual average) operating conditions. Peak load emissions were used to estimate short-term impacts and annual average emissions were used to estimate long-term impacts.

5. Emergency and standby generators were modeled to estimate short-term impacts only.

6. Five years of Los Alamos meteorological on-site observations for years 1991 through 1995 were used in dispersion analysis. These 5 years of data were obtained by using the EPA PC RAMMET program, with surface observations and morning and afternoon mixing heights data as inputs. The

surface observations were collected at the TA–6 meteorological tower at LANL. Mixing heights data were estimated based on the Albuquerque upper air observations and Santa Fe surface data.

7. Lead emissions from incinerator and oil-fired asphalt heaters (the two combustion sources that continuously emit lead) were modeled using actual source parameters. Concentrations at the sensitive receptors were found 5 orders of magnitude lower than the NAAQS quarterly standard for lead of 1.5 micrograms per cubic meter.

8. Background concentrations were conservatively assumed to be 20 percent of the corresponding standard.

Results:

Nitrogen Dioxide Modeling Analysis for Combustion Sources at LANL

Initial modeling of NO_x concentrations resulted in a modeled 24-hour concentration of 519.76 micrograms per cubic meter (based on ISCST3 modeling). The applicable 24-hour standard, per New Mexico Ambient Air Quality Control Standards (AAQS) is 147 micrograms per cubic meters (adjusted for temperature and pressure [elevation]). Thus, based on the preliminary analysis, NO_x modeled concentrations are above the New Mexico AAQS. Therefore, the following methodology was used to evaluate the NO_2 concentrations.

New Mexico Air Quality Bureau—NO_2 Modeling Methodology. The Bureau has approved two screening techniques for estimating NO_2 concentrations from NO_x point sources. The first technique is a partial conversion rate of 40 percent, which is only applicable to 24-hour concentrations. Therefore, if the NO_x concentration is 200 micrograms per cubic meter, the NO_2 concentration can be assumed to be 80 micrograms per cubic meter. The second technique is that some sources will need to examine the atmospheric chemistry in a more rigorous manner. The guidance provides for using Ozone Limiting Method (OLM) to more accurately determine NO_2 concentrations. OLM should be used to resolve, if possible, any NO_2 standard exceedances at each receptor that shows a violation.

Modeling Analysis. Using this partial conversion rate of 40 percent, the acceptable 24-hour standard for LANL would be 368 micrograms per cubic meter [147 micrograms per cubic meter per 0.40] for NO_x. For the annual concentration analysis, no conversion was used, and the full modeled values were considered while comparing the results with the applicable ambient air standards.

All the receptors above the 24-hour threshold NO_x value of 368 micrograms per cubic meter were identified from the output table listing of 50-maximum 24-average concentration values. The resulting 50-maximum value table includes several header records identifying the concentration, date for the modeled concentration (ending hour of the averaging period), and the receptors (X and Y coordinates).

Based on the ISCST3 output file, there are only two 24-hour concentrations above 368 micrograms per cubic meter. To demonstrate compliance with the ambient air standard, OLM analysis was conducted for these two receptors.

Estimation of NO_2 Concentrations Resulting from NO_x Point Sources

- The first step is to use a screening technique (a standard Gaussian dispersion model [ISCST3]) to estimate the maximum NO_x concentrations.
- The second step involves estimating the fraction of this NO_x concentration occurring as NO_2.

Although NO_2 may be emitted directly to the atmosphere, most of it is formed as a result of reactions between NO and various other gases. The reaction with ozone is an effective means of converting NO to NO_2. In heavily polluted areas, reaction between NO and organic radicals provides an additional source of NO_2. A third source of NO_2 is the thermal conversion process:

$$2NO + O_2 = 2NO_2.$$

Ozone Limiting Method. The Ozone Limiting Method (OLM) involves an initial comparison of the estimated maximum NO_x concentration, (NO_x)max and the ambient O_3 concentration to determine which is the limiting factor to NO_2 formation.

If the O_3 concentration is greater than (NO_x)max, total conversion is assumed. If (NO_x)max is greater than the O_3 concentration, the formation of NO_2 is limited by the ambient O_3 concentration.

<u>The following expressions detail the procedure</u>:

1. A standard dispersion model ISCST3 is used to calculate (NO_x)max.

2. (NO_x)max is separated into two components:

   - Thermal conversion portion. For combustion sources, this is estimated to be equal to $0.10(NO_x)$max.
   - The remaining NO subject to conversion by O_3 equal to 0.90 (NO_x)max.

3. If (O_3)ambient is greater than $0.90(NO_x)$max, then assume that all of the NO is converted to NO_2, i.e., (NO_2)max = (NO_x)max.

   If $0.90(NO_x)$max is greater than (O_3)ambient, then set (NO_2)max = (O_3)ambient + $0.10(NO_x)$max.

4. (NO_2)max computed for the source is added to the NO_2 background.

The OLM program used for this analysis was BEE-LINE Software Inc., Version 2.5 (1995). In the OLM analysis, the default value for the NO_2 factor, micrograms per cubic meter to parts per million, is 1882.8091. This is one of the required input values by the OLM model. The corrected value (according to Bureau's Dispersion Modeling Guidelines) at an elevation of 7,000 feet is 1,473.4 micrograms per cubic meter, which was used in this OLM analysis.

Based on this OLM run, none of the receptors was found to exceed the NO_2 ambient air 24-hour standard of 147 micrograms per cubic meter. The maximum ozone corrected NO_2 value was only 90 micrograms per cubic meter. Therefore, maximum modeled NO_2 concentrations are below the applicable standards.

As shown in the following table, estimated criteria pollutant concentrations from combustion sources at LANL were within (i.e., less than) all national or State of New Mexico AAQS.

Results of Criteria Pollutants Analysis—Expanded Operations Alternative

POLLUTANT	TIME PERIOD	MAXIMUM ESTIMATED LANL IMPACTS ($\mu g/m^3$)	ASSUMED BACKGROUND CONCENTRATIONS[a] ($\mu g/m^3$)	TOTAL POLLUTANT CONCENTRATIONS ($\mu g/m^3$)	CONTROLLING AMBIENT AIR QUALITY STANDARDS ($\mu g/m^3$)[b]
Carbon Monoxide	1 hour	2,712	2,350	5,062	11,750
	8 hours	1,436	1,560	2,996	7,800
Nitrogen Dioxide[c]	24 hours	90[c]	29	119	147
	Annual	9	15	24	74
Sulfur Dioxide	3 hours	254	205	459	1,025
	24 hours	130	41	171	205
	Annual	18	8	26	41
Total Suspended Particulates	24 hours	18	30	48	150
	Annual	2	12	14	60
PM_{10}	24 hours	9	30	39	150
	Annual	1	10	11	50
Lead	3 months (calendar quarter)	0.7×10^{-4}	0.30	0.30	1.5

[a] No data exists for background values. It was conservatively assumed that background concentrations were 20 percent of the corresponding standard. Because there are almost no other combustion sources in and around LANL, the background concentrations would be much less than the 20 percent assumed concentrations.

[b] New Mexico Ambient Air Quality standards for some of the pollutants are stated in parts per million (ppm). These values were converted to micrograms per cubic meter ($\mu g/m^3$), with appropriate corrections for temperature and pressure (elevation) following New Mexico Dispersion Modeling Guidelines (revised January 1996).

[c] New Mexico Air Quality Bureau accepts OLM to more accurately determine NO_2 concentrations. The 24-hour maximum modeled concentration for NO_x was 520 $\mu g/m^3$. This concentration, when modeled using OLM, is only 90 $\mu g/m^3$ for NO_2.

Note: Ozone Analysis: Hourly ozone monitoring data from the BNM monitoring station for 1992 to 1994 were analyzed. The 1-hour of the fourth-highest values for the years 1992, 1993, and 1994 are 0.070 ppm, 0.066 ppm, and 0.072 ppm, respectively. The 3-year average of the annual fourth-highest maximum 1-hour concentration is 0.069 ppm. This value is about 58 percent of the 1-hour standard of 0.120 ppm. Therefore, DOE believes that when 8-hour data are analyzed in the future, these would show lower values than the new 8-hour standard of 0.08 ppm.

TABLE A.—*Peak Load Emission Rates Used for the Combustion Sources Analysis (Boilers, Incinerator, and Natural Gas Fired Emergency Generators)*

SOURCE	FUEL	HEATING VALUE Btu/gal. (OR Btu/ scf)	UNIT CAPACITY million Btu/ hr (HP)	CO EF lb/10^3gal. (10^6ft^3) (OR lb/ million scf)	CO ER g/sec	NO_2 EF lb/10^3gal. (OR lb/ million scf)	NO_2 ER g/sec	SO_2 EF lb/10^3gal. (OR lb/ million scf)	SO_2 ER g/sec	PM_{10} EF lb/10^3gal. (OR lb/ million scf)	PM_{10} ER g/sec	TSP EF lb/10^3gal. (OR lb/ million scf)	TSP ER g/sec
TA–3–22–1	oil #2	140,000	210	5	0.95	20	3.78	48	9.07	1.00	0.19	2	0.38
TA–21–357–1	oil #2	140,000	12	5	0.05	20	0.22	48	0.52	1.00	0.01	2	0.02
TA–16–4	nat. gas	1,050	4.29	0.01854	0.02	0.01854	0.02	0.0003	0.0003	0.006	0.01		0.01
TA–16–5	nat. gas	1,050	6.13	0.01854	0.03	0.01854	0.03	0.0003	0.0004	0.006	0.01		0.01
TA–16–6	nat. gas	1,050	7.60	0.01854	0.03	0.01854	0.03	0.0003	0.0005	0.006	0.01		0.01
TA–16–13	nat. gas	1,050	5.12	0.01854	0.02	0.01854	0.02	0.0003	0.0004	0.006	0.01		0.01
TA–16 Prototypical	nat. gas	1,050	26.53	0.01854	0.12	0.01854	0.12	0.0003	0.0019	0.006	0.038		0.038
Misc. Prototypical Boiler TA–15	nat. gas	1,050	11.13	21	0.03	100	0.13	0.6	0.001	12	0.02		0.02
Misc. Prototypical Boiler TA–18	nat. gas	1,050	4.18	21	0.01	100	0.05	0.6	0.0003	12	0.01		0.01
Misc. Prototypical Boiler TA–22	nat. gas	1,050	6.69	21	0.02	100	0.08	0.6	0.0005	12	0.01		0.01
Misc. Prototypical Boiler TA–33	nat. gas	1,050	3.00	21	0.01	100	0.04	0.6	0.0002	12	0.004		0.004
Misc. Prototypical Boiler TA–35	nat. gas	1,050	37.25	21	0.09	100	0.45	0.6	0.003	12	0.05		0.05
Misc. Prototypical Boiler TA–41	nat. gas	1,050	6.69	21	0.02	100	0.08	0.6	0.0005	12	0.01		0.01

TABLE A.—*Peak Load Emission Rates Used for the Combustion Sources Analysis (Boilers, Incinerator, and Natural Gas Fired Emergency Generators)*-Continued

SOURCE	FUEL	HEATING VALUE Btu/gal. (OR Btu/ scf)	UNIT CAPACITY million Btu/ hr (HP)	CO EF lb/10^3gal. (10^6ft^3) (OR lb/ million scf)	CO ER g/sec	NO_2 EF lb/10^3gal. (OR lb/ million scf)	NO_2 ER g/sec	SO_2 EF lb/10^3gal. (OR lb/ million scf)	SO_2 ER g/sec	PM_{10} EF lb/10^3gal. (OR lb/ million scf)	PM_{10} ER g/sec	TSP EF lb/10^3gal. (OR lb/ million scf)	TSP ER g/sec
Misc. Prototypical Boiler TA–46	nat. gas	1,050	5.47	21	0.01	100	0.07	0.6	0.0004	12	0.01		0.01
Misc. Prototypical Boiler TA–48	nat. gas	1,050	38.89	21	0.10	100	0.47	0.6	0.003	12	0.06		0.06
Misc. Prototypical Boiler TA–50	nat. gas	1,050	15.78	21	0.04	100	0.19	0.6	0.001	12	0.02		0.02
Misc. Prototypical Boiler TA–52	nat. gas	1,050	12.00	21	0.03	100	0.14	0.6	0.001	12	0.02		0.02
Misc. Prototypical Boiler TA–53	nat. gas	1,050	42.49	21	0.11	100	0.51	0.6	0.003	12	0.06		0.06
Misc. Prototypical Boiler TA–55	nat. gas	1,050	20.10	21	0.05	100	0.24	0.6	0.001	12	0.03		0.03
Misc. Prototypical Boiler TA–58	nat. gas	1,050	11.51	21	0.03	100	0.14	0.6	0.001	12	0.02		0.02
TA–3–73–1	nat. gas	1,050	10	21	0.025	100	0.12	0.6	0.001	12	0.014		0.014
TA–3–73–2	oil #2	140,000	10	5	0.05	20	0.18	48	0.43	1	0.01	2	0.02
Nat. Gas EG TA–3	nat. gas	1,050	0.15	21	0.0004	100	0.002	0.6	0.00001	12	0.0002		0.0002
Nat. Gas EG TA–16	nat. gas	1,050	0.25	21	0.001	100	0.003	0.6	0.00002	12	0.0004		0.0004
Nat. Gas EG TA–35	nat. gas	1,050	0.20	21	0.001	100	0.002	0.6	0.00001	12	0.0003		0.0003

TABLE A.—*Peak Load Emission Rates Used for the Combustion Sources Analysis (Boilers, Incinerator, and Natural Gas Fired Emergency Generators)*-Continued

SOURCE	FUEL	HEATING VALUE Btu/gal. (OR Btu/ scf)	UNIT CAPACITY million Btu/ hr (HP)	CO EF lb/10^3gal. (10^6ft^3) (OR lb/ million scf)	CO ER g/sec	NO_2 EF lb/10^3gal. (OR lb/ million scf)	NO_2 ER g/sec	SO_2 EF lb/10^3gal. (OR lb/ million scf)	SO_2 ER g/sec	PM_{10} EF lb/10^3gal. (OR lb/ million scf)	PM_{10} ER g/sec	TSP EF lb/10^3gal. (OR lb/ million scf)	TSP ER g/sec
Nat.Gas EG TA–50	nat. gas	1,050	0.20	21	0.001	100	0.002	0.6	0.00001	12	0.0003		0.0003
Nat. Gas EG TA–53	nat. gas	1,050	0.25	21	0.001	100	0.003	0.6	0.00002	12	0.0004		0.0004
Nat. Gas Water Pump	nat. gas	1,050	700	1.60	0.311	5	0.972	0	0.000	0.003	0.001		0.001
Incinerator	waste				0.015		0.007		0.055		0.007		0.007

Notes:
[1] TA–16 emission factors in tons/MMSCF for the low NO_x boilers were provided by boiler manufacturer (Sellers Engineering Co., Danville, Kentucky, July 1995).
[2] TA–16 prototypical boiler unit capacity is a total capacity of all TA–16 boilers, except replacement (package) boilers, which were modeled separately.
[3] Miscellaneous prototypical boiler output capacity is a total capacity of boilers at each TA. Unit capacity is obtained from output capacity using the boiler efficiency of 72%.
[4] All miscellaneous boilers and replacement boilers at TA–16 are natural gas fired (Title V application) (LANL 1995b).
[5] Water pump engine has capacity of 700 hp, emission factors for water pump are in g/hp-hr.
[6] According to AP-42 (EPA 1995) particulate matter from the natural gas combustion is less than 1 µm in size, so ER(PM_{10}) = ER(TSP).
[7] TSP EF from the fuel oil #2 is the same as in Title V application (LANL 1995b); PM_{10} EF is obtained from Table 1.3–5 for size-specific EF from industrial boilers (EPA 1995).
[8] Waste oil and solid waste are burned. 8-hour CO and 24-hour SO_2 concentrations were conservatively estimated with 1-hour (CO) and 3-hours (SO_2) average emission rates.
[9] The second stacks at steam plants at TA–3 and TA–21 are used for standby or emergency operations only and were not taken into account (LANL 1995b).
EF = Emission Factor, EG = Emergency Generators, ER = Emission Rate, HP = horse power, SCF = standard cubic foot, TSP = Total Suspended Particulates

TABLE B.—*Peak Load Emission Rates Used for the Combustion Sources Analysis (Diesel and Gasoline Fired Emergency Generators)*[d]

SOURCE[a,b]	FUEL	HEATING VALUE Btu/gal. (OR Btu/ scf)	DESIGN CAPACITY kw	CO EF g/kw-hr	CO ER g/sec	NO_2 EF g/kw-hr	NO_2 ER g/sec	SO_2 EF g/kw-hr	SO_2 ER g/sec	PM_{10} EF[c] g/kw-hr (OR lb/ million Btu)	PM_{10} ER g/sec	TSP EF g/kw-hr (OR lb/ million Btu)	TSP ER g/sec
Diesel EG TA–3	diesel	137,000	1344.97	4.06	1.52	18.8	7.02	1.25	0.47	1.34	0.50	2.68	1.00
Diesel EG TA–3*	diesel	137,000	1100	3.2	0.98	14	4.28		0.00	0.0573	0.027	0.0697	0.033
Diesel EG TA–8	diesel	137,000	59.66	4.06	0.07	18.8	0.31	1.25	0.02	1.34	0.02	2.68	0.04
Diesel EG TA–15	diesel	137,000	19.39	4.06	0.02	18.8	0.10	1.25	0.01	1.34	0.01	2.68	0.01
Diesel EG TA–16	diesel	137,000	250	4.06	0.28	18.8	1.31	1.25	0.09	1.34	0.09	2.68	0.19
Diesel EG TA–18	diesel	137,000	286.93	4.06	0.32	18.8	1.50	1.25	0.10	1.34	0.11	2.68	0.21
Diesel EG TA–21*	diesel	137,000	750	3.2	0.67	14	2.92		0.00	0.0573	0.018	0.0697	0.022
Diesel EG TA–21	diesel	137,000	140.19	4.06	0.16	18.8	0.73	1.25	0.05	1.34	0.05	2.68	0.10
Diesel EG TA–33	diesel	137,000	59.66	4.06	0.07	18.8	0.31	1.25	0.02	1.34	0.02	2.68	0.04
Diesel EG TA–35	diesel	137,000	79.79	4.06	0.09	18.8	0.42	1.25	0.03	1.34	0.03	2.68	0.06
Diesel EG TA–41	diesel	137,000	150	4.06	0.17	18.8	0.78	1.25	0.05	1.34	0.06	2.68	0.11
Diesel EG TA–43	diesel	137,000	150	4.06	0.17	18.8	0.78	1.25	0.05	1.34	0.06	2.68	0.11
Diesel EG TA–46	diesel	137,000	300	4.06	0.34	18.8	1.57	1.25	0.10	1.34	0.11	2.68	0.22
Diesel EG TA–50*	diesel	137,000	1,700	3.2	1.51	14	6.61		0.00	0.0573	0.042	0.0697	0.051

TABLE B.—*Peak Load Emission Rates Used for the Combustion Sources Analysis (Diesel and Gasoline Fired Emergency Generators)*[d]-Continued

SOURCE[a,b]	FUEL	HEATING VALUE Btu/gal. (OR Btu/ scf)	DESIGN CAPACITY kw	CO EF g/kw-hr	CO ER g/sec	NO_2 EF g/kw-hr	NO_2 ER g/sec	SO_2 EF g/kw-hr	SO_2 ER g/sec	PM_{10} EF[c] g/kw-hr (OR lb/ million Btu)	PM_{10} ER g/sec	TSP EF g/kw-hr (OR lb/ million Btu)	TSP ER g/sec
Diesel EG TA–53	diesel	137,000	59.66	4.06	0.07	18.8	0.31	1.25	0.02	1.34	0.02	2.68	0.04
Diesel EG TA–55*	diesel	137,000	600	3.2	0.53	14	2.33		0.00	0.0573	0.015	0.0697	0.018
Diesel EG TA–55	diesel	137,000	200	4.06	0.23	18.8	1.04	1.25	0.07	1.34	0.07	2.68	0.15
Diesel EG TA–59	diesel	137,000	238.62	4.06	0.27	18.8	1.25	1.25	0.08	1.34	0.09	2.68	0.18
Diesel EG TA–61	diesel	137,000	35.05	4.06	0.04	18.8	0.18	1.25	0.01	1.34	0.01	2.68	0.03
Diesel EG TA–64	diesel	137,000	264.91	4.06	0.30	18.8	1.38	1.25	0.09	1.34	0.10	2.68	0.20
Diesel EG 6th Str.	diesel	137,000	300	4.06	0.34	18.8	1.57	1.25	0.10	1.34	0.11	2.68	0.22
Diesel EG Rover	diesel	137,000	80.54	4.06	0.09	18.8	0.42	1.25	0.03	1.34	0.03	2.68	0.06
Gasoline EG TA–3	gasoline	130,000	181.95	267	13.49	6.92	0.35	0.359	0.02	0.439	0.02	0.878	0.04
Gasoline EG TA–8	gasoline	130,000	46.98	267	3.48	6.92	0.09	0.359	0.005	0.439	0.01	0.878	0.01
Gasoline EG TA–15	gasoline	130,000	0.75	267	0.06	6.92	0.001	0.359	0.0001	0.439	0.0001	0.878	0.0002
Gasoline EG TA–16	gasoline	130,000	10.44	267	0.77	6.92	0.02	0.359	0.001	0.439	0.001	0.878	0.003
Gasoline EG TA–21	gasoline	130,000	10.44	267	0.77	6.92	0.02	0.359	0.001	0.439	0.001	0.878	0.003
Gasoline EG TA–39	gasoline	130,000	2.24	267	0.17	6.92	0.004	0.359	0.0002	0.439	0.0003	0.878	0.0005

TABLE B.—*Peak Load Emission Rates Used for the Combustion Sources Analysis (Diesel and Gasoline Fired Emergency Generators)*[d]-Continued

SOURCE[a,b]	FUEL	HEATING VALUE Btu/gal. (OR Btu/ scf)	DESIGN CAPACITY kw	CO EF g/kw-hr	CO ER g/sec	NO_2 EF g/kw-hr	NO_2 ER g/sec	SO_2 EF g/kw-hr	SO_2 ER g/sec	PM_{10} EF[c] g/kw-hr (OR lb/ million Btu)	PM_{10} ER g/sec	TSP EF g/kw-hr (OR lb/ million Btu)	TSP ER g/sec
Gasoline EG TA–46	gasoline	130,000	8.95	267	0.66	6.92	0.02	0.359	0.001	0.439	0.001	0.878	0.002
Gasoline EG TA–49	gasoline	130,000	5.97	267	0.44	6.92	0.01	0.359	0.001	0.439	0.001	0.878	0.001
Gasoline EG TA–50	gasoline	130,000	32.07	267	2.38	6.92	0.06	0.359	0.003	0.439	0.004	0.878	0.008
Gasoline EG TA–53	gasoline	130,000	49.96	267	3.71	6.92	0.10	0.359	0.005	0.439	0.01	0.878	0.01
Gasoline EG TA–54	gasoline	130,000	27.59	267	2.05	6.92	0.05	0.359	0.003	0.439	0.003	0.878	0.007
Gasoline EG TA–55	gasoline	130,000	3.73	267	0.28	6.92	0.01	0.359	0.0004	0.439	0.0005	0.878	0.0009
Gasoline EG TA–59	gasoline	130,000	11.19	267	0.83	6.92	0.02	0.359	0.001	0.439	0.001	0.878	0.003
Gasoline EG TA–63	gasoline	130,000	21.63	267	1.60	6.92	0.04	0.359	0.002	0.439	0.003	0.878	0.005
Gasoline EG TA–64	gasoline	130,000	26.10	267	1.94	6.92	0.05	0.359	0.003	0.439	0.003	0.878	0.006

Notes:

[a] All emergency generators design capacities at a particular TA are total capacity of all of the same fuel fired generators.

[b] Emission factors for the diesel fired generators differ depending on the size of the generator; industrial generators are those with capacity up to 457 kW (600 hp) generators above this limit are considered large stationary diesel engines (in the table they are marked with an asterisk). If industrial generators are in the same TA as smaller generators, ER for industrial generators are presented separately.

[c] Particulate emissions for gasoline fueled generators and small industrial generators in size distribution were not available. It was assumed that ER(TSP) = 2 x ER(PM_{10}).

[d] Insignificant sources like small movable generators or TA–57 emergency generators were not included in this analysis. Emissions from Rover Street PA40 generator and 6th Street Cummins generator were added to the TA–3 diesel generator emissions.

TABLE C.—*Annual Average Emission Rates Used for the Combustion Source Analysis*

SOURCE[d]	FUEL	FUEL USAGE (million cf/yr) (OR gal./yr)	CO EF lb/10^3gal. (OR lb/ million scf)	CO ER[c] g/sec	NO_2 EF lb/ 10^3gal. (OR lb/ million scf)	NO_2 ER g/sec	SO_2 EF lb/10^3gal. (OR lb/ million scf)	SO_2 ER[c] g/sec	PM_{10} EF[a] lb/10^3gal. (OR lb/ million scf)	PM_{10} ER g/sec	TSP EF[b] lb/10^3gal. (OR lb/ million scf)	TSP ER g/sec
TA–3–22–1	nat. gas	1,500	40	0.86	163	3.52	0.6	0.01	5	0.11	5	0.11
TA–21–357–1	nat. gas	82	35	0.04	140	0.17	0.6	0.001	5	0.01	5	0.01
TA–16–4	nat. gas	45.56	0.01854	0.02	0.01854	0.02	0.0003	0.0004	0.006	0.01	0.006	0.01
TA–16–5	nat. gas	65.13	0.01854	0.03	0.01854	0.03	0.0003	0.001	0.006	0.01	0.006	0.01
TA–16–6	nat. gas	80.8	0.01854	0.04	0.01854	0.04	0.0003	0.001	0.006	0.01	0.006	0.01
TA–16–13	nat. gas	54.46	0.01854	0.03	0.01854	0.03	0.0003	0.0005	0.006	0.01	0.006	0.01
TA–16 Prototypical	nat. gas	294.23	0.01854	0.16	0.01854	0.16	0.0003	0.003	0.006	0.05	0.006	0.05
Misc. Prototypical Boiler TA–15	nat. gas	40.9	21	0.01	100	0.06	0.6	0.0004	12	0.01	12	0.01
Misc. Prototypical Boiler TA–18	nat. gas	15.88	21	0.005	100	0.02	0.6	0.0001	12	0.003	12	0.003
Misc. Prototypical Boiler TA–22	nat. gas	25.4	21	0.01	100	0.04	0.6	0.0002	12	0.004	12	0.004
Misc. Prototypical Boiler TA–33	nat. gas	11.38	21	0.003	100	0.02	0.6	0.0001	12	0.002	12	0.002
Misc. Prototypical Boiler TA–35	nat. gas	116.94	21	0.04	100	0.17	0.6	0.001	12	0.02	12	0.02
Misc. Prototypical Boiler TA–41	nat. gas	19.02	21	0.01	100	0.03	0.6	0.0002	12	0.003	12	0.003
Misc. Prototypical Boiler TA–46	nat. gas	15.55	21	0.005	100	0.02	0.6	0.0001	12	0.003	12	0.003

TABLE C.—*Annual Average Emission Rates Used for the Combustion Source Analysis*-Continued

SOURCE[d]	FUEL	FUEL USAGE (million cf/yr) (OR gal./yr)	CO EF lb/10^3gal. (OR lb/ million scf)	CO ER[c] g/sec	NO_2 EF lb/ 10^3gal. (OR lb/ million scf)	NO_2 ER g/sec	SO_2 EF lb/10^3gal. (OR lb/ million scf)	SO_2 ER[c] g/sec	PM_{10} EF[a] lb/10^3gal. (OR lb/ million scf)	PM_{10} ER g/sec	TSP EF[b] lb/10^3gal. (OR lb/ million scf)	TSP ER g/sec
Misc. Prototypical Boiler TA–48	nat. gas	103.44	21	0.03	100	0.15	0.6	0.001	12	0.02	12	0.02
Misc. Prototypical Boiler TA–50	nat. gas	21.56	21	0.01	100	0.03	0.6	0.0002	12	0.004	12	0.004
Misc. Prototypical Boiler TA–52	nat. gas	28.69	21	0.01	100	0.04	0.6	0.0002	12	0.005	12	0.005
Misc. Prototypical Boiler TA–53	nat. gas	95.68	21	0.03	100	0.14	0.6	0.001	12	0.02	12	0.02
Misc. Prototypical Boiler TA–55	nat. gas	48.28	21	0.01	100	0.07	0.6	0.0004	12	0.01	12	0.01
Misc. Prototypical Boiler TA–58	nat. gas	28.05	21	0.01	100	0.04	0.6	0.0002	12	0.005	12	0.005
TA–3–73–1	nat. gas	13.6	21	0.004	100	0.02	0.6	0.0001	12	0.002	12	0.002
TA–3–73–2	oil #2	7,000	5	0.001	20	0.002	48	0.005	2	0.0002	2	0.0002
Nat. Gas Water Pump	nat. gas	700	1.6	0.31	5	0.97	0	0.00	0.003	0.001	0.003	0.001
Incinerator	waste			0.00002		0.0002		0.0002		0.0002		0.0002

Notes:

[a] According to AP-42 (EPA 1995), particulate matter from the natural gas combustion is less than 1µm in size, so ER(PM_{10}) = ER(TSP).

[b] TSP EF from the fuel oil #2 is the same as in Title V application; PM_{10} EF is obtained from Table 1.3–5 for size-specific EF from industrial boilers (EPA 1995).

[c] Waste oil and solid waste was burned. 8-hour CO and 24-hour SO_2 concentrations were conservatively estimated using 1-hour (CO) and 3-hours (SO_2) emission rates.

[d] In the first column, a miscellaneous prototypical boiler is a boiler that sums up emissions from all boilers at this TA.

ATTACHMENT 2
TOXIC CHEMICALS CONSIDERED FOR THE ANALYSIS

Toxic Chemicals Considered for the Analysis

NO.	TOXIC AIR POLLUTANTS
NONCARCINOGENIC POLLUTANTS	
1	1,1-Dichloroethane
2	1,1,2-Trichloro-1,2,2-Trifluoroethane
3	1,1-Dichloro-Nitroethane
4	1,4-Dioxane
5	1,1,1-Trichloroethane
6	1,2,4-Trimethylbenzene
7	1,2-Dichloroethylene
8	1,3,5-Trimethylbenzene
9	1-Chloro-1-Nitropropane
10	1-Nitropropane
11	2,4,6-Trinitrotoluene (TNT)
12	2-Aminopyridine
13	2-Butoxyethanol
14	2-Butoxyethanol Acetate
15	2-Diethylaminoethanol
16	2-Ethoxyethanol (EGEE)
17	2-Ethoxyethyl Acetate (EGEEA)
18	2-Hydroxypropyl Acrilate
19	2-Methoxyethanol (EGME)
20	2-Methoxyethyl Acetate
21	2-Methyl-Cyclopent. Mang.Tricarbonyl
22	4-Methoxyphenol
23	a-Methyl Styrene
24	Acetic Acid
25	Acetic Anhydride
26	Acetone
27	Acetonitrile
28	Acetophenone
29	Acetylene
30	Acetylene Tetrabromide

Toxic Chemicals Considered for the Analysis-Continued

NO.	TOXIC AIR POLLUTANTS
31	Acrolein
32	Acrylic Acid
33	Adiponitrile
34	Allyl Alcohol
35	Allyl Glycidyl Ether (AGE)
36	Aluminum, Metal Dust, as Al
37	Aluminum Alkyls not otherwise classified
38	Aluminum Pyro Powders, as Al
39	Aluminum, Welding Fumes, as Al
40	Amitrole
41	Ammonia
42	Ammonium Chloride (Fume)
43	Aniline and Homologues
44	Anisidine (o-, p-isomers)
45	Antimony and Compounds, as Sb
46	Arsine
47	Asphalt (Petroleum) Fumes
48	Benzenethiol
49	Benzoyl Peroxide
50	Biphenyl
51	Bismuth Telluride
52	Boron Oxide
53	Boron Trifluoride
54	Bromine
55	Bromine Pentafluoride
56	Bromoform
57	Butyl Mercaptan
58	Carbon Black
59	Carbon Disulfide
60	Carbon Tetrabromide
61	Catechol
62	Cesium Hydroxide

Toxic Chemicals Considered for the Analysis-Continued

NO.	TOXIC AIR POLLUTANTS
63	Chlorinated Camphene
64	Chlorine
65	Chlorine Trifluoride
66	Chloroacetaldehyde
67	Chloroacetyl Chloride
68	Chlorobenzene
69	Chlorodifluoromethane
70	Chromium III comp., as Cr
71	Cobalt Carbonyl, as Co
72	Cobalt Hydrocarbonyl, as Co
73	Cobalt, el. & inorg. comp., as Co
74	Copper, Dusts & Mists, as Cu
75	Copper, Fume, as Cu
76	Cresol (all isomers)
77	Crotonaldehyde
78	Cumene
79	Cyanamide
80	Cyanogen
81	Cyanogen Chloride
82	Cyclohexane
83	Cyclohexanol
84	Cyclohexanone
85	Cyclohexene
86	Cyclohexylamine
87	Cyclopentadiene
88	Cyclopentane
89	Decaborane
90	Di-sec, Octyl Phthalate
91	Diacetone Alcohol
92	Diazinon
93	Diazomethane
94	Dibutyl Phosphate

Toxic Chemicals Considered for the Analysis-Continued

NO.	TOXIC AIR POLLUTANTS
95	Dibutyl Phthalate
96	Dichlorodifluoromethane
97	Dichlorofluoromethane
98	Dichlorovos
99	Dicyclopentadiene
100	Dicyclopentadienyl Iron
101	Diethyl Ketone
102	Diethyl Phthalate
103	Diethylamine
104	Diethylene Triamine
105	Diisoproprylamine
106	Dimethoxymethane
107	Dimethyl Amine
108	Dimethyl Phthalate
109	Dimethyl Sulfate
110	Dinitro-o-Cresol
111	Dinitrobenzene (all isomers)
112	Dinitrotoluene
113	Diphenylamine
114	Dipropyl Ketone
115	Diprop. Glycol Methyl Ether
116	Divinyl Benzene
117	Endrin
118	Enflurane
119	Ethanol
120	Ethanolamine
121	Ethion
122	Ethyl Acetate
123	Ethyl Benzene
124	Ethyl Bromide
125	Ethyl Chloride
126	Ethyl Ether

Toxic Chemicals Considered for the Analysis-Continued

NO.	TOXIC AIR POLLUTANTS
127	Ethyl Formate
128	Ethyl Mercaptan
129	Ethylamine
130	Ethylene Chlorohydrin
131	Ethylene Diamine
132	Fibrous Glass Dust
133	Fluorides, as F
134	Fluorine
135	Formamide
136	Formic Acid
137	Furfural
138	Furfuryl Alcohol
139	Gasoline
140	Germanium Tetrahydride
141	Glutaraldehyde
142	Hafnium
143	Hexafluoroacetone
144	Hexamethylene Diisocyanate
145	Hexane (other isomers)*
146	Hexylene Glycol
147	Hydrogen Bromide
148	Hydrogen Chloride
149	Hydrogen Cyanide
150	Hydrogen Fluoride, as F
151	Hydrogen Peroxide
152	Hydrogen Sulfide
153	Hydroquinone
154	Indene
155	Indium & compounds, as In
156	Iodine
157	Iodoform
158	Iron Oxide Fume, as Fe

Toxic Chemicals Considered for the Analysis-Continued

NO.	TOXIC AIR POLLUTANTS
159	Iron Pentacarbonyl, as Fe
160	Iso-Amyl Acetate
161	Iso-Amyl Alcohol
162	Isobutane
163	Isobutyl Acetate
164	Isobutyl Alcohol
165	Isobutyronitrile
166	Isooctyl Alcohol
167	Isophorone
168	Isophorone Diisocyanate
169	Isopropoxyethanol
170	Isopropyl Acetate
171	Isopropyl Alcohol
172	Isopropyl Ether
173	Isopropylamine
174	Kerosene
175	Lead, el. & inorg. compounds, as Pb
176	Lithium Hydride
177	m-Cresol
178	m-Phenylenediamine
179	m-Toluidine
180	Magnesium Oxide Fume
181	Maleic Anhydride
182	Malononitrile
183	Manganese Comp., as Mn
184	Manganese as Mn Fume
185	Mercury (in. forms, incl. m.Hg)
186	Mercury Alkyl Compounds
187	Mercury Aryl Compounds
188	Methacrylic Acid
189	Methoxychlor
190	Methyl 2-Cyanoacrylate

Toxic Chemicals Considered for the Analysis-Continued

NO.	TOXIC AIR POLLUTANTS
191	Methyl Acetate
192	Methyl Acetylene
193	Methyl Acrylate
194	Methyl Alcohol
195	Methyl Cyclohexane
196	Methyl Ethyl Ketone (MEK)
197	Methyl Formate
198	Methyl Hydrazine
199	Methyl Iodide
200	Methyl Isobutyl Carbinol
201	Methyl Isobutyl Ketone
202	Methyl Isocyanate
203	Methyl Mercaptan
204	Methyl Methacrylate
205	Methyl n-Amyl Ketone
206	Methyl n-Butyl Ketone
207	Methyl Propyl Ketone
208	Methyl Silicate
209	Methylacrylonitrile
210	Methylamine
211	Methylene Bisphenyl Isocyanate
212	Molybdenum as Mo Insol. Comp.
213	Molybdenum as Mo Sol. Comp.
214	Morpholine
215	n,n-Dimethyl Acetamide
216	n,n-Dimethylaniline
217	n,n-Dimethylformamide
218	n-Amyl Acetate
219	n-Butyl Acetate
220	n-Butyl Acrylate
221	n-Butyl Alcohol
222	n-Butyl Glycidyl Ether (BGE)

Toxic Chemicals Considered for the Analysis-Continued

NO.	TOXIC AIR POLLUTANTS
223	n-Butylamine
224	n-Heptane
225	n-Hexane
226	n-Methylaniline
227	n-Propyl Acetate
228	Naphtalene
229	Nickel Carbonyl, as Ni
230	Nickel Sol. & In. Comp., as Ni
231	Nicotine
232	Nitric Acid
233	Nitric Oxide
234	Nitrobenzene
235	Nitroethane
236	Nitromethane
237	Nitrotoluene
238	Nitrous Oxide
239	Nonane
240	o-Chlorostyrene
241	o-Chlorotoluene
242	o-Dichlorobenzene
243	o-Methylcyclohexanone
244	o-Phenylenediamine
245	o-Toluidine
246	Octane
247	Oil Mist, Mineral
248	Osmium Tetroxide, as Os
249	Oxalic Acid
250	p-Nitroaniline
251	p-Nitrochlorobenzene
252	p-Phenylenediamine
253	p-Toluidine
254	Paraffin Wax Fume

Toxic Chemicals Considered for the Analysis-Continued

NO.	TOXIC AIR POLLUTANTS
255	Paraquat Dichloride
256	Paraquat Respirable Sizes
257	Particulate Matter, Resp. Dust
258	Pentachlorophenol
259	Pentaerythritol
260	Pentane (all isomers)
261	Perchloromethyl Mercaptan
262	Phenol
263	Phenothiazine
264	Phenylhydrazine
265	Phenylphosphine
266	Phosgene
267	Phosphoric Acid
268	Phosphorus
269	Phosphorus Oxychloride
270	Phosphorus Pentachloride
271	Phosphorus Trichloride
272	Picric Acid
273	Platinum Metal
274	Potassium Hydroxide
275	Propane
276	Propargyl Alcohol
277	Propionic Acid
278	Propionitrile
239	Propyl Alcohol
280	Propylene Glycol Monomethyl Ether
281	Pyridine
282	Rhodium Metal
283	sec-Butyl Acetate
284	sec-Butyl Alcohol
285	Selenium Compounds, as Se
286	Silica, Cristobalite

Toxic Chemicals Considered for the Analysis-Continued

NO.	TOXIC AIR POLLUTANTS
287	Silica, Quartz
288	Tridymite, Respirable Dust
289	Silica, Fused (respirable)
290	Silicon Tetrahydride
291	Silver (met. dust & sol. comp., as Ag)
292	Stoddard Solvent
293	Sulfur Hexafluoride
294	Sulfuric Acid
295	Sulfuryl Fluoride
296	Tantalum Metal
297	Tellurium & Compounds, as Te
298	Terphenyls
299	tert-Butyl Alcohol
300	Tetraethyl Lead
301	Tetrahydrofuran
302	Tetranitromethane
303	Tetrasodium Pyrophosphate
304	Thioglycolic Acid
305	Thionyl Chloride
306	Tin, metal
307	Tin Organic Compounds, as Sn
308	Tin Oxide & Inorg. Comp., as Sn
309	Toluene
310	Toluene-2,4-diisocyanate (TDI)
311	Tributyl Phosphate
312	Trichloroacetic Acid
313	Triethylamine
314	Trimethyl Benzene
315	Trimethyl Phosphite
316	Trimethylamine
317	Triphenylamine
318	Triphenylphosphate

Toxic Chemicals Considered for the Analysis-Continued

NO.	TOXIC AIR POLLUTANTS
319	Tungsten as W insoluble Compounds
320	Turpentine
321	Uranium (nat.) Sol. & Unsol. Comp. as U
322	Vanadium, Respirable Dust & Fume
323	Vinyl Acetate
324	Vinyl Toluene
325	Vinylidene Fluoride
326	VM & P Naphtha
327	Welding Fumes not otherwise listed
328	Wood Dust (certain hard woods)
329	Xylene (o-, m-, p-Isomers)
330	Yttrium
331	Zinc Chloride Fume
332	Zinc Oxide Fume
333	Zinc Chromate, as Cr
334	Zirconium Compounds, as Zr
CARCINOGENIC POLLUTANTS	
335	Acetaldehyde
336	Acrylamide
337	Acrylonitrile
338	Allyl Chloride
339	Aldrin
340	Arsenic, el. & inorg., exc. Arsine, as As
341	Asbestos
342	Benzene
343	Benzidine
344	Benzo(a)pyrene
345	Benzyl Chloride
346	Beryllium
347	Bis(Chloromethyl)Ether (BCME)
348	1,3-Butadiene

Toxic Chemicals Considered for the Analysis-Continued

NO.	TOXIC AIR POLLUTANTS
349	Cadmium, el. & compounds, as Cd
350	Carbon Tetrachloride
351	Chloroform
352	Chlordane
353	Chromium VI
354	Diethanolamine
355	3,3-Dichlorobenzidine
356	Epichlorohydrin
357	Ethyl Acrylate
358	Ethylene Dibromide
359	Ethylene Dichloride
360	Ethylene Oxide
361	Formaldehyde
362	Hexachlorobenzene
363	Hexachlorobutadiene
364	Hexachloroethane
365	Hydrazine
366	Lindane
367	Methyl Chloride
368	Methylene Chloride
369	Nickel, metal (dust)
370	Polychlorinated Biphenyl (PCB)
371	Propylene Dichloride
372	Propylene Oxide
373	Styrene
374	Tetrachlorethylene
375	Trichloroethylene
376	Vinyl Chloride
377	1,1-Dichloethylene
378	1,1,2,2-Tetrachloroethane
379	1,1,1,2-Tetrachloroethane

Toxic Chemicals Considered for the Analysis-Continued

NO.	TOXIC AIR POLLUTANTS
380	1,1,2-Trichloroethane
381	1,2-Dibromo-3-Chloropropane
382	2-Nitropropane

ATTACHMENT 3
SET OF SENSITIVE RECEPTORS FOR NONRADIOLOGICAL AIR QUALITY ANALYSIS

Set of Sensitive Receptors for Nonradiological Air Quality Analysis

RECEPTOR ID	RECEPTOR NAME
1	Entrance Park
2	Airport
3	East Park
4	Sombrillo Facility
5	Canyon School Park
6	Canyon Elementary School
7	Furr's Supermarket
8	Canyon Road Park
9	Pine Street Playlot
10	YMCA
11	Post Office
12	Community Shopping Center
13	Community Center Park
14	Masonic Temple
15	Unitarian Fellowship Church and Sage Montessori School
16	Church of Latter Day Saints
17	Fuller Lodge and Park
18	Ashley Pond
19	Mesa Public Library
20	Senior Center
21	United Church of Los Alamos and Canyoncito Montessori School
22	Jewish Center
23	Orange Street Playlot
24	Larry Walkup Aquatic Center
25	Immaculate Heart of Mary Catholic Church
26	Los Alamos High School
27	Episcopal Church
28	Los Alamos Medical Center
29	Methodist Church and ARK Daycare Center
30	Sullivan Field
31	Mesa Complex
32	Ed's Food Market
33	Western Area Park

Set of Sensitive Receptors for Nonradiological Air Quality Analysis-Continued

RECEPTOR ID	RECEPTOR NAME
34	Ridgeway Playlot
35	Pueblo Complex
36	37th Street Playlot
37	Aspen Elementary School
38	Walnut Street Playlot
39	Urban Park
40	Mountain School
41	Church of Christ
42	Fantasy Playlot
43	Golf Course
44	Guaje Pines Cemetery
45	Park
46	Picnic Area
47	Los Alamos Middle School
48	North Mesa Picnic Grounds
49	Rodeo Arena
50	Playlot
51	Barranca School
52	Barranca Mesa Park
53	Park
54	Overlook Park
55	Chamisa Elementary School
56	Mountain Meadow Playlot
57	Teddy Bear Junction
58	WR Shopping Center
59	Piñon Park
60	Piñon Elementary School
61	Grand Canyon Park
62	Jeffrey Playlot
63	Rover Park
64	Sage Montessori School
65	Park
66	Park
67	Community Club
68	Park
69	Park
70	Park

Set of Sensitive Receptors for Nonradiological Air Quality Analysis-Continued

RECEPTOR ID	RECEPTOR NAME
71	First Baptist Church and Busy Bee Daycare and Playschool
72	Little Forest Daycare
73	North Mesa Ballfields
74	36th Street Tennis Courts
75	Covenant Christian School
76	Hilltop Christian Academy
77	Los Alamos Sportman's Club
78	Royal Crest RV and Mobile Home Park
79	Camp May
80	Pajarito Ski Area
81	Los Alamos Reservoir
82	Duchess Castle Ruins
83	Tsankawi Ruins
84	Mortandad Cave
85	Otowi Ruins
86	Puye Cliffs
87	Two-Mile Mesa Trail
88	LANL Fitness Trail
89	Cuba
90	Jemez Springs
91	Coyote
92	Abiquiu
93	Chimayo
94	San Ysidro
95	Bernalillo
96	Corrales
97	Cedar Crest
98	Golden
99	Madrid
100	Lamy
101	Village of Agua Fria
102	Santa Fe
103	Tesuque
104	Española
105	Santa Cruz

Set of Sensitive Receptors for Nonradiological Air Quality Analysis-Continued

RECEPTOR ID	RECEPTOR NAME
106	El Rancho
107	Jaconita
108	Pojoaque
109	Nambe
110	Cuyamungue
111	Eldorado
112	Gallina
113	Alcalde
114	Ojo Caliente
115	Dixon
116	Taos
117	Picuris Pueblo
118	Nambe Pueblo
119	Tesuque Pueblo
120	Santa Clara Pueblo
121	San Juan Pueblo
122	San Ildefonso Pueblo
123	Cochiti Pueblo
124	San Felipe Pueblo
125	Santa Ana Pueblo
126	Jemez Pueblo
127	Jemez Pueblo
128	Jemez Pueblo
129	Sandia Pueblo
130	Taos Pueblo
131	Jicarilla Apache Indian Reservation
132	Acoma Pueblo
133	Isleta Pueblo
134	Mescalero Apaches
135	Abiquiu Lake
136	Cochiti Lake
137	Fenton Lake
138	Las Cumbres Learning Services
139	Zia Pueblo
140	Zia Pueblo
141	Zia Pueblo
142	Bandelier National Monument

Set of Sensitive Receptors for Nonradiological Air Quality Analysis-Continued

RECEPTOR ID	RECEPTOR NAME
143	Santo Domingo Pueblo
144	Crownpoint Navajo Indian Reservation
145	Taos Pueblo
146	Taos Pueblo
147	Trail on North Side of White Rock
148	White Rock Canyon Rim Trail
149	Red Dot Trail
150	Trail on West Side of Pajarito Acres
151	Trail on East Side of LANL
152	Trail on East Side of LANL
153	Fey Trail
154	Trail West of Frey Trail
155	Lower Frijoles Canyon Trail
156	Trail on North Side of Bandelier National Monument
157	North Side of Bandelier National Monument
158	Burnt Mesa Trail
159	Burnt Mesa Trail
160	Trail South of Burnt Mesa Trail
161	Burnt Mesa Trail
162	Burnt Mesa Trail
163	Burnt Mesa Trail
164	Upper Frijoles Crossing Trail
165	Water Canyon Trail 281
166	Canyon de Valle Trail
167	Trail South of Pajarito Canyon Trail 280
168	Nature Loop
169	Pueblo Canyon Trail
170	Pueblo Canyon Trail
171	Pueblo Canyon Trail
172	Pueblo Canyon Trail
173	Pueblo Canyon Trail
174	Pueblo Canyon Trail
175	Elevated Receptors at TA–43
176	Elevated Receptors at TA–43

Set of Sensitive Receptors for Nonradiological Air Quality Analysis-Continued

RECEPTOR ID	RECEPTOR NAME
177	Elevated Receptors at TA–43
178	Elevated Receptors at TA–43
179	Elevated Receptors at TA–43
180	Elevated Receptors at TA–43

ATTACHMENT 4
DISPERSION MODELING METHODOLOGY USED TO DEVELOP SCREENING LEVEL EMISSION VALUES

Dispersion Modeling Analysis

The EPA's Industrial Source Complex Air Quality Dispersion Model (ISC–3) was used for the dispersion analyses conducted for this study. The ISC–3 model, which applies a steady-state Gaussian plume equation for a continuous source, is a validated model that is often used to estimate air quality impacts from existing and proposed sources of air pollutants. The ISC–3's short-term algorithm was used to estimate 8-hour and annual concentrations at each of the receptor locations. Flat terrain was assumed. An emission rate of 1 gram per second was used to establish the relationship between emission rate and concentration at the maximum receptor location for each TA.

The regulatory default options that were used include:

- Rural dispersion algorithm
- Final plume rise
- Stack-tip downwash
- Building downwash
- Buoyancy-induced dispersion
- Default wind speed and vertical temperature profiles
- Terrain receptors, equal to and below the height of the lowest stack

The land use within or near Los Alamos (using the EPA-recommended Auer's technique [Auer 1978]) was considered to be rural. As such, the Pasquill-Gifford rural dispersion coefficients were used for all dispersion analyses.

Five years of Los Alamos meteorological on-site observations for years 1991 through 1995 were used in dispersion analysis for nonradiological air emissions. These 5 years of data were obtained by using the EPA PC RAMMET program, with surface observations and morning and afternoon mixing heights data as inputs. The surface observations were collected at the TA–6 meteorological tower at LANL. Mixing heights were estimated based on the Albuquerque upper air observations and Santa Fe surface data.

Because the TA stacks and nearby buildings may be subject to building downwash (i.e., stack heights may be less than good-engineering practice [GEP] stack heights), the controlling prototypical building dimensions were entered as input into the dispersion analysis. Trinity Consultants' Breeze Air™ (TCI 1996) BPIP (Building Profile Input Program [EPA 1993a]) computer software were used to determine direction-specific building dimensions (height, projected width, and GEP stack height).

Because there are no other significant sources of toxic air pollutants near LANL facilities, background air toxin levels were assumed to be zero.

The ISC–3-estimated maximum 8-hour and annual pollutant concentrations associated with LANL TAs, for a test case of 1 gram per second, using 1991 through 1995 meteorological data, are provided in Table A of this attachment.

TABLE A.—*The ISC–3 Estimated 8-Hour and Annual Concentrations Associated with LANL Technical Areas Using 1991–1995 Meteorological Data*

8-HOUR ESTIMATED CONCENTRATIONS (μg/m^3)[a]					
METEOROLOGICAL DATA[c]					
TA	**1991**	**1992**	**1993**	**1994**	**1995**
00	279.49560	229.43240	276.49660	248.43500	**287.41440**
2	513.64450	473.75730	**568.91710**	509.66990	560.53440
3	163.81105	**198.62587**	155.75540	164.33449	155.43233
5	149.90700	162.09580	128.37780	138.83980	**183.12160**
8	**324.95227**	305.07642	251.05130	273.90700	321.50980
9	**310.63486**	244.58514	245.01843	262.47159	260.73364
11	353.89670	**481.48288**	365.60450	346.11150	285.51890
15	290.83716	**292.22995**	225.39305	219.32697	200.88281
16	123.92935	**179.15591**	150.07620	113.51302	122.97661
18	910.98451	665.79895	842.05798	787.37677	**946.91431**
21	**432.78125**	312.27692	427.35263	372.58060	403.49457
22	488.72080	**524.60850**	435.44110	446.54640	523.14040
33	177.21200	112.63840	120.58750	**139.54990**	118.77170
35	576.44983	557.09857	**612.55536**	610.81940	592.49658
36	282.37897	204.94788	295.61194	219.22858	**389.92822**
39	233.96115	**285.91559**	159.50490	249.67120	276.70010
40	322.70642	296.88312	323.19415	**479.85321**	367.77228
41	490.36520	657.47140	676.38990	**709.29850**	666.62910
46	318.06880	**460.12480**	297.29060	341.28820	299.20180
48	488.90000	534.90000	568.60000	**589.30000**	556.10000
50	456.40000	453.60000	484.60000	**593.56396**	478.00000
51	359.90330	430.70670	**562.89490**	421.93490	494.20170
53	190.86334	150.54651	147.59128	**220.65263**	209.51642
54	147.87006	207.02702	169.36514	**219.19812**	141.96089
55	860.71283	739.73020	968.98750	821.74750	**1017.25200**
59	684.99225	769.20410	730.56140	653.36480	**769.62010**
60	223.43800	250.81170	176.93660	**274.93510**	179.31870
61	234.10380	177.12100	218.73490	196.43460	**253.92700**
64	615.90990	**784.60700**	499.29060	462.26250	613.96380

TABLE A.—*The ISC–3 Estimated 8-Hour and Annual Concentrations Associated with LANL Technical Areas Using 1991–1995 Meteorological Data*-Continued

ANNUAL ESTIMATED CONCENTRATIONS (μg/m^3)[b]					
METEOROLOGICAL DATA[c]					
TA	**1991**	**1992**	**1993**	**1994**	**1995**
00	**2.19354**	1.76703	2.02104	1.69840	1.95963
2	4.48941	4.29066	**4.98455**	4.54396	4.59531
3	2.15460	1.96920	2.45068	**2.46536**	2.30553
5	0.74664	**0.76824**	0.73882	0.72562	0.67348
8	1.37394	1.26414	1.25554	1.22274	**1.40186**
9	0.60227	0.60095	**0.71872**	0.61262	0.56950
11	**0.86231**	0.81774	0.52535	0.45393	0.53742
15	0.29479	**0.31361**	0.28034	0.28057	0.26807
16	0.60160	**0.78717**	0.48017	0.61480	0.43183
18	0.46945	0.46511	0.43969	**0.50015**	0.45972
21	3.49665	2.61230	3.90596	3.67452	**3.96519**
22	0.51278	0.54939	**0.58868**	0.55958	0.52204
33	1.07322	0.99352	0.97370	1.06143	**1.11189**
35	0.55983	0.54803	**0.65824**	0.64655	0.60591
36	0.37314	**0.39786**	0.35679	0.34646	0.37540
39	2.55763	2.26826	**3.05966**	2.88462	2.97997
40	0.56740	0.54473	0.54502	**0.60511**	0.52467
41	5.10670	4.54171	5.34982	**5.40181**	5.26285
46	**0.66202**	0.54784	0.55816	0.52594	0.57425
48	2.69000	2.25000	2.88000	**2.94752**	2.82000
50	0.56421	0.59867	**0.64865**	0.57143	0.57586
51	0.52689	0.57286	0.62493	**0.71755**	0.66236
53	2.13802	2.31454	**2.42821**	2.31592	2.25865
54	0.68160	0.61071	0.69577	**0.78755**	0.68274
55	0.58653	0.65019	**0.67169**	0.63840	0.57909
59	1.61045	1.49807	1.86697	1.76562	**1.87894**
60	3.53892	**3.61417**	3.45185	3.48662	3.48484
61	3.79212	4.02321	**4.07485**	4.00865	3.79064
64	1.51835	1.34770	1.40558	1.43161	**1.54660**

Notes:
[a] 8-hour pollutant concentrations were estimated at the fence line receptors located around each TA.
[b] Annual pollutant concentrations were estimated at the sensitive receptors.
[c] Bold entries indicate that the highest concentration occurs for this year of the meteorological event.

ATTACHMENT 5
EIGHT-HOUR SCREENING LEVEL EMISSION VALUES (TABLE 1) AND ANNUAL SCREENING LEVEL EMISSION VALUES FOR CHEMICALS (TABLE 2) TA–3 EXAMPLE WORKSHEETS

TABLE 1 (PART A).—*8-Hour SLEVs of the Toxic (Noncarcinogenic and Carcinogenic) Air Pollutants from TA–3 Facilities Based on RAPS–90 (LANL 1990) and ACIS 1995 (LANL 1995a) Data*

NO.	TOXIC AIR POLLUTANTS	CAS NUMBER	OELS µg/m^3	1/100 OF THE OELS µg/m^3	8-HOUR SLEVS		RAPS 1990 DATA		ACIS 1995 DATA			THE SMALLER (R^1) OR (R^2) RATIO
					g/sec	lb/hr	HOURLY EMISSION RATE FROM RAPS (Q^{hr}) lb/hr	RATIO SLEVS/Q^{hr} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS lb/year	ESTIMATED HOURLY EMISSION RATES (Q^{ha}) lb/hr	RATIO SLEVS/ Q^{ha} (R^2)	
1	2	3	4	5	6	7	8	9	10	11	12	13
NONCARCINOGENIC POLLUTANTS												
1	1,1 Dichloroethane	75-34-3	400,000	4,000	2.01E+01	1.60E+02						
2	1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	7,600,000	76,000	3.83E+02	3.04E+03						
3	1,1-Dichloro-Nitroethane	594-72-9	10,000	100	5.03E-01	4.00E+00						
4	1,4-Dioxane	123-91-1	90,000	900	4.53E+00	3.60E+01	8.44E-04	4.26E+04	9.08E+00	7.95E-03	4.52E+03	4.52E+03
5	1,1,1-Trichloroethane	71-55-6	1,900,000	19,000	9.57E+01	7.59E+02			1.51E+03	1.32E+00	5.74E+02	5.74E+02
6	1,2,4-Trimethylbenzene	95-63-6	123,000	1,230	6.19E+00	4.91E+01						
7	1,2-Dichloroethylene	540-59-0	790,000	7,900	3.98E+01	3.16E+02						
8	1,3,5-Trimethylbenzene	108-67-8	123,000	1,230	6.19E+00	4.91E+01						
9	1-Chloro-1-Nitropropane	600-25-9	10,000	100	5.03E-01	4.00E+00						
10	1-Nitropropane	108-03-2	90,000	900	4.53E+00	3.60E+01						
11	2,4,6-Trinitrotoluene	118-96-7	500	5	2.52E-02	2.00E-01						
12	2-Aminopyridine	504-29-0	2,000	20	1.01E-01	7.99E-01						
13	2-Butoxyethanol	111-76-2	121,000	1,210	6.09E+00	4.83E+01	5.11E-01	9.47E+01				9.47E+01
14	2-Butoxyethanol Acetate	112-07-2	33,000	330	1.66E+00	1.32E+01						
15	2-Diethylaminoethanol	100-37-8	9,600	96	4.83E-01	3.84E+00						
16	2-Ethoxyethanol	110-80-5	18,000	180	9.06E-01	7.19E+00						
17	2-Ethoxyethyl Acetate	111-15-9	27,000	270	1.36E+00	1.08E+01						
18	2-Hydroxypropyl Acrylate	999-61-1	2,800	28	1.41E-01	1.12E+00						

TABLE 1 (PART A).—*8-Hour SLEVs of the Toxic (Noncarcinogenic and Carcinogenic) Air Pollutants from TA–3 Facilities Based on RAPS–90 (LANL 1990) and ACIS 1995 (LANL 1995a) Data*-Continued

NO.	TOXIC AIR POLLUTANTS	CAS NUMBER	OELS µg/m^3	1/100 OF THE OELS µg/m^3	8-HOUR SLEVS		RAPS 1990 DATA		ACIS 1995 DATA			THE SMALLER (R^1) OR (R^2) RATIO
					g/sec	lb/hr	HOURLY EMISSION RATE FROM RAPS (Q^{hr}) lb/hr	RATIO SLEVS/Q^{hr} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS lb/year	ESTIMATED HOURLY EMISSION RATES (Q^{ha}) lb/hr	RATIO SLEVS/ Q^{ha} (R^2)	
1	2	3	4	5	6	7	8	9	10	11	12	13
19	2-Methoxyethanol	109-86-4	16,000	160	8.06E-01	6.39E+00						
20	2-Methoxyethyl Acetate	110-49-6	24,000	240	1.21E+00	9.59E+00						
21	2-Methyl Cyclopentadienyl Manganese Tricarbonyl	12108-13-3	200	2	1.01E-02	7.99E-02						
22	4-Methoxyphenol	150-76-5	5,000	50	2.52E-01	2.00E+00						
23	a-Methyl Styrene	98-83-9	242,000	2,420	1.22E+01	9.67E+01						
24	Acetic Acid	64-19-7	25,000	250	1.26E+00	9.99E+00	2.84E+00	3.51E+00	1.62E+01	1.42E-02	7.04E+02	3.51E+00
25	Acetic Anhydride	108-24-7	20,000	200	1.01E+00	7.99E+00	--					
26	Acetone	67-64-1	1,780,000	17,800	8.96E+01	7.11E+02	2.41E+00	2.95E+02	5.64E+02	4.93E-01	1.44E+03	2.95E+02
27	Acetonitrile	75-05-8	67,000	670	3.37E+00	2.68E+01	--		2.41E+01	2.11E-02	1.27E+03	1.27E+03
28	Acetophenone	98-86-2	49,000	490	2.47E+00	1.96E+01	--					
29	Acetylene	74-86-2	2,662,000	26,620	1.34E+02	1.06E+03			9.09E+02	7.95E-01	1.34E+03	1.34E+03
30	Acetylene Tetrabromide	79-27-6	14,000	140	7.05E-01	5.59E+00	--					
31	Acrolein	107-02-8	230	2	1.16E-02	9.19E-02						
32	Acrylic Acid	79-10-7	5,900	59	2.97E-01	2.36E+00			6.95E-01	6.08E-04	3.88E+03	1.34E+03
33	Adiponitrile	111-69-3	8,800	88	4.43E-01	3.52E+00						
34	Allyl Alcohol	107-18-6	4,800	48	2.42E-01	1.92E+00	--					
35	Allyl Glycidyl Ether	106-92-3	23,000	230	1.16E+00	9.19E+00						
36	Aluminum, Metal Dust, as Al	7429-90-5	10,000	100	5.03E-01	4.00E+00	4.09E-02	9.78E+01	2.20E+00	1.93E-03	2.08E+03	9.78E+01
37	Aluminum Alkyls not otherwise classified	7429-90-5	2,000	20	1.01E-01	7.99E-01						

TABLE 1 (PART A).—*8-Hour SLEVs of the Toxic (Noncarcinogenic and Carcinogenic) Air Pollutants from TA–3 Facilities Based on RAPS–90 (LANL 1990) and ACIS 1995 (LANL 1995a) Data*-Continued

NO.	TOXIC AIR POLLUTANTS	CAS NUMBER	OELS µg/m^3	1/100 OF THE OELS µg/m^3	8-HOUR SLEVS		RAPS 1990 DATA		ACIS 1995 DATA			THE SMALLER (R^1) OR (R^2) RATIO
					g/sec	lb/hr	HOURLY EMISSION RATE FROM RAPS (Q^{hr}) lb/hr	RATIO SLEVS/Q^{hr} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS lb/year	ESTIMATED HOURLY EMISSION RATES (Q^{ha}) lb/hr	RATIO SLEVS/ Q^{ha} (R^2)	
1	2	3	4	5	6	7	8	9	10	11	12	13
38	Aluminum Pyro Powders, as Al	7429-90-5	5,000	50	2.52E-01	2.00E+00						
39	Aluminum, Welding Fumes, as Al	7429-90-5	5,000	50	2.52E-01	2.00E+00	6.04E-01	3.31E+00				3.31E+00
40	Amitrole	61-8-5	200	2	1.01E-02	7.99E-02						
41	Ammonia	7664-41-7	17,000	170	8.56E-01	6.79E+00	7.09E-01	9.59E+00				9.59E+00
42	Ammonia Chloride (Fume)	12125-02-9	10,000	100	5.03E-01	4.00E+00						
43	Aniline & Homologues	62-53-3	7,600	76	3.83E-01	3.04E+00	2.81E-04	1.08E+04				1.08E+04
44	Anisidine (o-, p-isomers)	29191-52-4	500	5	2.52E-02	2.00E-01						
45	Antimony and Compounds, as Sb	7440-36-0	500	5	2.52E-02	2.00E-01			2.47E-01	2.16E-04	9.25E+02	9.25E+02
46	Arsine	7784-42-1	160	2	8.06E-03	6.39E-02						
47	Asphalt (Petroleum) Fumes	8052-42-4	5,000	50	2.52E-01	2.00E+00						
48	Benzenethiol	108-98-5	500	5	2.52E-02	2.00E-01						
49	Benzoyl Peroxide	94-36-0	5,000	50	2.52E-01	2.00E+00						
50	Biphenyl	92-52-4	1,000	10	5.03E-02	4.00E-01						
51	Bismuth Telluride	1304-82-1	5,000	50	2.52E-01	2.00E+00						
52	Boron Oxide	1303-86-2	10,000	100	5.03E-01	4.00E+00	7.25E-04	5.51E+03				5.51E+03
53	Boron Trifluoride	7637-07-2	3,000	30	1.51E-01	1.20E+00	3.50E-04	3.42E+03				3.42E+03
54	Bromine	7726-95-6	660	7	3.32E-02	2.64E-01	5.00E-04	5.27E+02				5.27E+02
55	Bromine Pentafluoride	7789-30-2	700	7	3.52E-02	2.80E-01						
56	Bromoform	75-25-2	5,000	50	2.52E-01	2.00E+00						

TABLE 1 (PART A).—*8-Hour SLEVs of the Toxic (Noncarcinogenic and Carcinogenic) Air Pollutants from TA–3 Facilities Based on RAPS–90 (LANL 1990) and ACIS 1995 (LANL 1995a) Data*-Continued

NO.	TOXIC AIR POLLUTANTS	CAS NUMBER	OELS µg/m^3	1/100 OF THE OELS µg/m^3	8-HOUR SLEVS		RAPS 1990 DATA		ACIS 1995 DATA			THE SMALLER (R^1) OR (R^2) RATIO
					g/sec	lb/hr	HOURLY EMISSION RATE FROM RAPS (Q^{hr}) lb/hr	RATIO SLEVS/Q^{hr} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS lb/year	ESTIMATED HOURLY EMISSION RATES (Q^{ha}) lb/hr	RATIO SLEVS/ Q^{ha} (R^2)	
1	2	3	4	5	6	7	8	9	10	11	12	13
57	Butyl Mercaptan	109-79-5	1,500	15	7.55E-02	5.99E-01						
58	Carbon Black	1333-86-4	3,500	35	1.76E-01	1.40E+00	1.47E-02	9.49E+01	1.10E+00	9.63E-04	1.45E+03	9.49E+01
59	Carbon Disulfide	75-15-0	31,000	310	1.56E+00	1.24E+01						
60	Carbon Tetrabromide	558-13-4	1,400	14	7.05E-02	5.59E-01						
61	Catechol	120-80-9	23,000	230	1.16E+00	9.19E+00						
62	Cesium Hydroxide	21351-79-1	2,000	20	1.01E-01	7.99E-01						
63	Chlorinated Camphene	8001-35-2	500	5	2.52E-02	2.00E-01						
64	Chlorine	7782-50-5	1,500	15	7.55E-02	5.99E-01	1.40E-04	4.28E+03				4.28E+03
65	Chlorine Trifluoride	7790-91-2	400	4	2.01E-02	1.60E-01						
66	Chloroacetaldehyde	107-20-0	3,000	30	1.51E-01	1.20E+00						
67	Chloroacetyl Chloride	79-04-9	200	2	1.01E-02	7.99E-02						
68	Chlorobenzene	108-90-7	46,000	460	2.32E+00	1.84E+01	1.88E-03	9.80E+03				9.80E+03
69	Chlorodifluoromethane	75-45-6	3,540,000	35,400	1.78E+02	1.41E+03						
70	Chromium, Metal & Cr III Compounds, as Cr	7440-47-3	500	5	2.52E-02	2.00E-01	4.46E-04	4.48E+02	1.10E+00	9.63E-04	2.08E+02	2.08E+02
71	Cobalt Carbonyl, as Co	10210-68-1	100	1	5.03E-03	4.00E-02						
72	Cobalt Hydrocarbonyl, as Co	16842-03-8	100	1	5.03E-03	4.00E-02						
73	Cobalt, elemental & inorg. comp., as Co	7440-48-4	20	0	1.01E-03	7.99E-03	2.80E-06	2.85E+03				2.85E+03
74	Copper, Dusts & Mists, as Cu	7440-50-8	1,000	10	5.03E-02	4.00E-01	7.07E-04	5.66E+02	1.30E+00	1.14E-03	3.51E+02	3.51E+02
75	Copper, Fume, as Cu	7440-50-8	200	2	1.01E-02	7.99E-02	5.48E-04	1.46E+02				1.46E+02
76	Cresol (all isomers)	1319-77-3	22,000	220	1.11E+00	8.79E+00						

TABLE 1 (PART A).—*8-Hour SLEVs of the Toxic (Noncarcinogenic and Carcinogenic) Air Pollutants from TA–3 Facilities Based on RAPS–90 (LANL 1990) and ACIS 1995 (LANL 1995a) Data*-Continued

NO.	TOXIC AIR POLLUTANTS	CAS NUMBER	OELS µg/m^3	1/100 OF THE OELS µg/m^3	8-HOUR SLEVS		RAPS 1990 DATA		ACIS 1995 DATA			THE SMALLER (R^1) OR (R^2) RATIO
					g/sec	lb/hr	HOURLY EMISSION RATE FROM RAPS (Q^{hr}) lb/hr	RATIO SLEVS/Q^{hr} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS lb/year	ESTIMATED HOURLY EMISSION RATES (Q^{ha}) lb/hr	RATIO SLEVS/ Q^{ha} (R^2)	
1	2	3	4	5	6	7	8	9	10	11	12	13
77	Crotonaldehyde	4170-30-3	5,700	57	2.87E-01	2.28E+00						
78	Cumene	98-28-8	245,000	2,450	1.23E+01	9.79E+01						
79	Cyanamide	420-04-2	2,000	20	1.01E-01	7.99E-01						
80	Cyanogen	460-19-5	20,000	200	1.01E+00	7.99E+00						
81	Cyanogen Chloride	506-77-4	750	8	3.78E-02	3.00E-01						
82	Cyclohexane	110-82-7	1,030,000	10,300	5.19E+01	4.12E+02	4.53E-02	9.10E+03				9.10E+03
83	Cyclohexanol	108-93-0	200,000	2,000	1.01E+01	7.99E+01						
84	Cyclohexanone	108-94-1	100,000	1,000	5.03E+00	4.00E+01						
85	Cyclohexene	110-83-8	1,010,000	10,100	5.08E+01	4.04E+02						
86	Cyclohexylamine	108-91-8	40,000	400	2.01E+00	1.60E+01						
87	Cyclopentadiene	542-92-7	200,000	2,000	1.01E+01	7.99E+01						
88	Cyclopentane	287-92-3	1,720,000	17,200	8.66E+01	6.87E+02						
89	Decaborane	17702-41-9	250	3	1.26E-02	9.99E-02						
90	Di-sec, Octyl Phthalate	117-81-7	5,000	50	2.52E-01	2.00E+00						
91	Diacetone Alcohol	123-42-2	238,000	2,380	1.20E+01	9.51E+01						
92	Diazinon	333-41-5	100	1	5.03E-03	4.00E-02						
93	Diazomethane	334-88-3	340	3	1.71E-02	1.36E-01						
94	Dibutyl Phosphate	107-66-4	5,000	50	2.52E-01	2.00E+00						
95	Dibutyl Phthalate	84-74-2	5,000	50	2.52E-01	2.00E+00						
96	Dichlorodifluoromethane	75-71-8	4,950,000	49,500	2.49E+02	1.98E+03	7.95E-03	2.49E+05				2.49E+05
97	Dichlorofluoromethane	75-43-4	42,000	420	2.11E+00	1.68E+01						
98	Dichlorovos	62-73-7	900	9	4.53E-02	3.60E-01						
99	Dicyclopentadiene	77-73-6	27,000	270	1.36E+00	1.08E+01						

TABLE 1 (PART A).—*8-Hour SLEVs of the Toxic (Noncarcinogenic and Carcinogenic) Air Pollutants from TA–3 Facilities Based on RAPS–90 (LANL 1990) and ACIS 1995 (LANL 1995a) Data*-Continued

NO.	TOXIC AIR POLLUTANTS	CAS NUMBER	OELS µg/m^3	1/100 OF THE OELS µg/m^3	8-HOUR SLEVS		RAPS 1990 DATA		ACIS 1995 DATA			THE SMALLER (R^1) OR (R^2) RATIO
					g/sec	lb/hr	HOURLY EMISSION RATE FROM RAPS (Q^{hr}) lb/hr	RATIO SLEVS/Q^{hr} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS lb/year	ESTIMATED HOURLY EMISSION RATES (Q^{ha}) lb/hr	RATIO SLEVS/ Q^{ha} (R^2)	
1	2	3	4	5	6	7	8	9	10	11	12	13
100	Dicyclopentadienyl Iron	102-54-5	10,000	100	5.03E-01	4.00E+00						
101	Diethyl Ketone	96-22-0	705,000	7,050	3.55E+01	2.82E+02	1.00E-03	2.82E+05				2.82E+05
102	Diethyl Phthalate	84-66-2	5,000	50	2.52E-01	2.00E+00						
103	Diethylamine	109-89-7	15,000	150	7.55E-01	5.99E+00	1.00E-04	5.99E+04				5.99E+04
104	Diethylene Triamine	111-40-0	1,000	10	5.03E-02	4.00E-01			6.05E+00	5.30E-03	7.55E+01	7.55E+01
105	Diisopropylamine	108-18-9	21,000	210	1.06E+00	8.39E+00						
106	Dimethoxymethane	109-87-5	3,100,000	31,000	1.56E+02	1.24E+03						
107	Dimethyl Acetamide	127-19-5	35,000	350	1.76E+00	1.40E+01						
108	Dimethyl Amine	124-40-3	9,200	92	4.63E-01	3.68E+00						
109	Dimethyl Phthalate	131-11-3	5,000	50	2.52E-01	2.00E+00						
110	Dimethyl Sulfate	77-78-1	520	5	2.62E-02	2.08E-01						
111	Dinitro-o-Cresol	534-52-1	200	2	1.01E-02	7.99E-02						
112	Dinitrobenzene (all isomers)	99-65-0	1,000	10	5.03E-02	4.00E-01						
113	Dinitrotoluene	25321-14-6	150	2	7.55E-03	5.99E-02						
114	Diphenylamine	122-39-4	10,000	100	5.03E-01	4.00E+00						
115	Dipropyl Ketone	123-19-3	233,000	2,330	1.17E+01	9.31E+01						
116	Dipropylene Glycol Methyl Ether	34590-94-8	600,000	6,000	3.02E+01	2.40E+02						
117	Divinyl Benzene	1321-74-0	50,000	500	2.52E+00	2.00E+01						
118	Endrin	72-20-8	100	1	5.03E-03	4.00E-02						
119	Enflurane	13838-16-9	566,000	5,660	2.85E+01	2.26E+02						
120	Ethanol	64-17-5	1,880,000	18,800	9.47E+01	7.51E+02			6.52E+02	5.70E-01	1.32E+03	1.32E+03
121	Ethanolamine	141-43-5	6,000	60	3.02E-01	2.40E+00			2.25E+00	1.97E-03	1.22E+03	1.22E+03

TABLE 1 (PART A).—*8-Hour SLEVs of the Toxic (Noncarcinogenic and Carcinogenic) Air Pollutants from TA–3 Facilities Based on RAPS–90 (LANL 1990) and ACIS 1995 (LANL 1995a) Data*-Continued

NO.	TOXIC AIR POLLUTANTS	CAS NUMBER	OELS µg/m^3	1/100 OF THE OELS µg/m^3	8-HOUR SLEVS		RAPS 1990 DATA		ACIS 1995 DATA			THE SMALLER (R^1) OR (R^2) RATIO
					g/sec	lb/hr	HOURLY EMISSION RATE FROM RAPS (Q^{hr}) lb/hr	RATIO SLEVS/Q^{hr} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS lb/year	ESTIMATED HOURLY EMISSION RATES (Q^{ha}) lb/hr	RATIO SLEVS/ Q^{ha} (R^2)	
1	2	3	4	5	6	7	8	9	10	11	12	13
122	Ethion	563-12-2	400	4	2.01E-02	1.60E-01						
123	Ethyl Acetate	141-78-6	1,400,000	14,000	7.05E+01	5.59E+02	2.78E-03	2.02E+05	5.06E+01	4.43E-02	1.26E+04	1.26E+04
124	Ethyl Benzene	100-41-04	434,000	4,340	2.19E+01	1.73E+02						
125	Ethyl Bromide	74-96-4	22,000	220	1.11E+00	8.79E+00						
126	Ethyl Chloride	75-00-3	264,000	2,640	1.33E+01	1.05E+02	1.50E-04	7.03E+05				7.03E+05
127	Ethyl Ether	60-29-7	1,200,000	12,000	6.04E+01	4.79E+02	7.50E-03	6.39E+04	6.26E+00	5.48E-03	8.75E+04	6.39E+04
128	Ethyl Formate	109-94-4	300,000	3,000	1.51E+01	1.20E+02						
129	Ethyl Mercaptan	75-08-1	1,300	13	6.54E-02	5.19E-01						
130	Ethylamine	75-04-7	9,200	92	4.63E-01	3.68E+00						
131	Ethylene Chlorohydrin	107-07-3	3,000	30	1.51E-01	1.20E+00						
132	Ethylene Diamine	107-15-3	25,000	250	1.26E+00	9.99E+00						
133	Fibrous Glass Dust	NA	10,000	100	5.03E-01	4.00E+00						
134	Fluorides, as F	NA	2,500	25	1.26E-01	9.99E-01	1.33E-02	7.49E+01				7.49E+01
135	Fluorine	7782-41-4	200	2	1.01E-02	7.99E-02						
136	Formamide	75-12-7	18,000	180	9.06E-01	7.19E+00	2.38E-02	3.03E+02				3.03E+02
137	Formic Acid	64-18-6	9,000	90	4.53E-01	3.60E+00	2.56E-04	1.41E+04	1.35E+00	1.18E-03	3.06E+03	3.06E+03
138	Furfural	98-01-1	800	8	4.03E-02	3.20E-01						
139	Furfuryl Alcohol	98-00-0	40,000	400	2.01E+00	1.60E+01			4.95E+01	4.33E-02	3.69E+02	3.69E+02
140	Gasoline	8006-61-9	890,000	8,900	4.48E+01	3.56E+02						
141	Germanium Tetrahydride	7782-65-2	600	6	3.02E-02	2.40E-01	1.10E-07	2.18E+06				2.18E+06
142	Glutaraldehyde	111-30-8	700	7	3.52E-02	2.80E-01	5.00E-07	5.59E+05	7.28E-01	6.37E-04	4.39E+02	4.39E+02
143	Hafnium	7440-58-6	500	5	2.52E-02	2.00E-01	1.25E-05	1.60E+04	1.33E+00	1.16E-03	1.72E+02	1.72E+02
144	Hexafluoroacetone	684-16-2	680	7	3.42E-02	2.72E-01						

TABLE 1 (PART A).—*8-Hour SLEVs of the Toxic (Noncarcinogenic and Carcinogenic) Air Pollutants from TA–3 Facilities Based on RAPS–90 (LANL 1990) and ACIS 1995 (LANL 1995a) Data*-Continued

NO.	TOXIC AIR POLLUTANTS	CAS NUMBER	OELS µg/m^3	1/100 OF THE OELS µg/m^3	8-HOUR SLEVS		RAPS 1990 DATA		ACIS 1995 DATA			THE SMALLER (R^1) OR (R^2) RATIO
					g/sec	lb/hr	HOURLY EMISSION RATE FROM RAPS (Q^{hr}) lb/hr	RATIO SLEVS/Q^{hr} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS lb/year	ESTIMATED HOURLY EMISSION RATES (Q^{ha}) lb/hr	RATIO SLEVS/ Q^{ha} (R^2)	
1	2	3	4	5	6	7	8	9	10	11	12	13
145	Hexamethylene Diisocyanate	822-06-0	34	0.3	1.71E-03	1.36E-02						
146	Hexane (other isomers)*	110-54-3	1,760,000	17,600	8.86E+01	7.03E+02	2.63E-02	2.68E+04				2.68E+04
147	Hexylene Glycol	107-41-5	121,000	1,210	6.09E+00	4.83E+01						
148	Hydrogen Bromide	10035-10-6	9,900	99	4.98E-01	3.96E+00	8.70E-03	4.55E+02	1.97E+01	1.72E-02	2.29E+02	2.29E+02
149	Hydrogen Chloride	7647-01-0	7,000	70	3.52E-01	2.80E+00	5.36E-01	5.22E+00	5.27E+02	4.61E-01	6.07E+00	5.22E+00
150	Hydrogen Cyanide	74-90-8	5,000	50	2.52E-01	2.00E+00						
151	Hydrogen Fluoride, as F	7664-39-3	2,300	23	1.16E-01	9.19E-01	1.20E-02	7.67E+01	2.74E+01	2.39E-02	3.84E+01	3.84E+01
152	Hydrogen Peroxide	7722-84-1	1,400	14	7.05E-02	5.59E-01	1.28E-02	4.37E+01	7.47E+01	6.53E-02	8.56E+00	8.56E+00
153	Hydrogen Sulfide	7783-06-4	1,400	14	7.05E-02	5.59E-01	1.00E-07	5.59E+06				5.59E+06
154	Hydroquinone	123-31-9	2,000	20	1.01E-01	7.99E-01	1.07E-05	7.50E+04				7.50E+04
155	Indene	95-13-6	45,000	450	2.27E+00	1.80E+01						
156	Indium & compounds, as In	7440-74-6	100	1	5.03E-03	4.00E-02			6.00E-01	5.25E-04	7.61E+01	7.61E+01
157	Iodine	7553-56-2	1,000	10	5.03E-02	4.00E-01			3.00E-01	2.63E-04	1.52E+03	1.52E+03
158	Iodoform	75-47-8	10,000	100	5.03E-01	4.00E+00						
159	Iron Oxide Fume, as Fe	1309-37-1	5,000	50	2.52E-01	2.00E+00						
160	Iron Pentacarbonyl, as Fe	13463-4--6	800	8	4.03E-02	3.20E-01						
161	Iso-Amyl Acetate	123-92-2	525,000	5,250	2.64E+01	2.10E+02						
162	Iso-Amyl Alcohol	123-51-3	360,000	3,600	1.81E+01	1.44E+02	6.25E-04	2.30E+05				2.30E+05
163	Isobutane	75-28-5	1,936,000	19,360	9.75E+01	7.74E+02						
164	Isobutyl Acetate	110-19-0	700,000	7,000	3.52E+01	2.80E+02	2.28E-03	1.23E+05				1.23E+05
165	Isobutyl Alcohol	78-83-1	150,000	1,500	7.55E+00	5.99E+01	1.29E-03	4.66E+04				4.66E+04
166	Isobutyronitrile	78-82-0	22,000	220	1.11E+00	8.79E+00						

TABLE 1 (PART A).—*8-Hour SLEVs of the Toxic (Noncarcinogenic and Carcinogenic) Air Pollutants from TA–3 Facilities Based on RAPS–90 (LANL 1990) and ACIS 1995 (LANL 1995a) Data*-Continued

NO.	TOXIC AIR POLLUTANTS	CAS NUMBER	OELS µg/m^3	1/100 OF THE OELS µg/m^3	8-HOUR SLEVS		RAPS 1990 DATA		ACIS 1995 DATA			THE SMALLER (R^1) OR (R^2) RATIO
					g/sec	lb/hr	HOURLY EMISSION RATE FROM RAPS (Q^{hr}) lb/hr	RATIO SLEVS/Q^{hr} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS lb/year	ESTIMATED HOURLY EMISSION RATES (Q^{ha}) lb/hr	RATIO SLEVS/ Q^{ha} (R^2)	
1	2	3	4	5	6	7	8	9	10	11	12	13
167	Isooctyl Alcohol	26952-21-6	266,000	2,660	1.34E+01	1.06E+02	1.25E-04	8.50E+05				8.50E+05
168	Isophorone	78-59-1	23,000	230	1.16E+00	9.19E+00						
169	Isophorone Diisocyanate	4098-71-9	45	0	2.27E-03	1.80E-02						
170	Isopropoxyethanol	109-59-1	106,000	1,060	5.34E+00	4.24E+01						
171	Isopropyl Acetate	108-21-4	950,000	9,500	4.78E+01	3.80E+02						
172	Isopropyl Alcohol	67-63-0	980,000	9,800	4.93E+01	3.92E+02	1.93E+00	2.03E+02	6.22E+02	5.44E-01	7.20E+02	2.03E+02
173	Isopropyl Ether	108-20-3	1,040,000	10,400	5.24E+01	4.16E+02	2.50E-04	1.66E+06				1.66E+06
174	Isopropylamine	75-31-0	12,000	120	6.04E-01	4.79E+00						
175	Kerosene	8008-20-6	100,000	1,000	5.03E+00	4.00E+01	9.75E-01	4.10E+01	1.00E+02	8.75E-02	4.57E+02	4.10E+01
176	Lead, el. & inorg. compounds, as Pb	7439-92-1	50	0.5	2.52E-03	2.00E-02						
177	Lithium Hydride	7580-67-8	25	0.25	1.26E-03	9.99E-03	1.02E-02	9.82E-01				9.82E-01
178	m-Cresol	108-39-4	10,000	100	5.03E-01	4.00E+00						
179	m-Phenylenediamine	108-45-2	100	1	5.03E-03	4.00E-02						
180	m-Toluidine	108-44-1	8,800	88	4.43E-01	3.52E+00						
181	Magnesium Oxide Fume	1309-48-4	10,000	100	5.03E-01	4.00E+00	3.60E-02	1.11E+02				1.11E+02
182	Maleic Anhydride	108-31-6	1,000	10	5.03E-02	4.00E-01						
183	Malononitrile	109-77-3	8,000	80	4.03E-01	3.20E+00						
184	Manganese as Dust & Compounds, as Mn	7439-96-5	200	2	1.01E-02	7.99E-02	5.00E-05	1.60E+03				1.60E+03
185	Manganese as Mn Fume	7439-96-5	200	2	1.01E-02	7.99E-02	2.75E-06	2.91E+04				2.91E+04
186	Mercury (inorganic forms, incl. metallic Hg)	7439-97-6	25	0.25	1.26E-03	9.99E-03						

TABLE 1 (PART A).—*8-Hour SLEVs of the Toxic (Noncarcinogenic and Carcinogenic) Air Pollutants from TA–3 Facilities Based on RAPS–90 (LANL 1990) and ACIS 1995 (LANL 1995a) Data*-Continued

NO.	TOXIC AIR POLLUTANTS	CAS NUMBER	OELS µg/m^3	1/100 OF THE OELS µg/m^3	8-HOUR SLEVS		RAPS 1990 DATA		ACIS 1995 DATA			THE SMALLER (R^1) OR (R^2) RATIO
					g/sec	lb/hr	HOURLY EMISSION RATE FROM RAPS (Q^{hr}) lb/hr	RATIO SLEVS/Q^{hr} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS lb/year	ESTIMATED HOURLY EMISSION RATES (Q^{ha}) lb/hr	RATIO SLEVS/ Q^{ha} (R^2)	
1	2	3	4	5	6	7	8	9	10	11	12	13
187	Mercury Alkyl Compounds	7439-97-6	10	0.1	5.03E-04	4.00E-03						
188	Mercury Aryl Compounds	7439-97-6	100	1	5.03E-03	4.00E-02						
189	Methacrylic Acid	79-41-4	70,000	700	3.52E+00	2.80E+01						
190	Methoxychlor	72-43-5	10,000	100	5.03E-01	4.00E+00						
191	Methyl 2-Cyanoacrylate	137-05-3	8,000	80	4.03E-01	3.20E+00	1.95E-03	1.64E+03				1.64E+03
192	Methyl Acetate	79-20-9	606,000	6,060	3.05E+01	2.42E+02						
193	Methyl Acetylene	74-99-7	1,640,000	16,400	8.26E+01	6.55E+02						
194	Methyl Acrylate	96-33-3	35,000	350	1.76E+00	1.40E+01						
195	Methyl Alcohol	67-56-1	260,000	2,600	1.31E+01	1.04E+02	6.60E-01	1.57E+02	5.80E+02	5.08E-01	2.05E+02	1.57E+02
196	Methyl Cyclohexane	108-87-2	1,610,000	16,100	8.11E+01	6.43E+02						
197	Methyl Ethyl Ketone	78-93-3	590,000	5,900	2.97E+01	2.36E+02	8.62E-01	2.73E+02	1.00E+01	8.78E-03	2.69E+04	2.73E+02
198	Methyl Formate	107-31-3	246,000	2,460	1.24E+01	9.83E+01						
199	Methyl Hydrazine	60-34-4	19	0	9.57E-04	7.59E-03						
200	Methyl Iodide	74-88-4	12,000	120	6.04E-01	4.79E+00						
201	Methyl Isobutyl Carbinol	108-11-2	100,000	1,000	5.03E+00	4.00E+01						
202	Methyl Isobutyl Ketone	108-10-1	205,000	2,050	1.03E+01	8.19E+01	1.71E-02	4.80E+03	1.76E+00	1.54E-03	5.31E+04	4.80E+03
203	Methyl Isocyanate	624-83-9	47	0.47	2.37E-03	1.88E-02						
204	Methyl Mercaptan	74-93-1	980	10	4.93E-02	3.92E-01						
205	Methyl Methacrylate	80-62-6	410,000	4,100	2.06E+01	1.64E+02	3.30E-06	4.96E+07				4.96E+07
206	Methyl n-Amyl Ketone	110-43-0	233,000	2,330	1.17E+01	9.31E+01						
207	Methyl n-Butyl Ketone	591-78-6	20,000	200	1.01E+00	7.99E+00	5.00E-03	1.60E+03				1.60E+03
208	Methyl Propyl Ketone	107-87-9	6,000	60	3.02E-01	2.40E+00	2.50E-04	9.59E+03				9.59E+03

TABLE 1 (PART A).—*8-Hour SLEVs of the Toxic (Noncarcinogenic and Carcinogenic) Air Pollutants from TA–3 Facilities Based on RAPS–90 (LANL 1990) and ACIS 1995 (LANL 1995a) Data*-Continued

NO.	TOXIC AIR POLLUTANTS	CAS NUMBER	OELS µg/m^3	1/100 OF THE OELS µg/m^3	8-HOUR SLEVS		RAPS 1990 DATA		ACIS 1995 DATA			THE SMALLER (R^1) OR (R^2) RATIO
					g/sec	lb/hr	HOURLY EMISSION RATE FROM RAPS (Q^{hr}) lb/hr	RATIO SLEVS/Q^{hr} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS lb/year	ESTIMATED HOURLY EMISSION RATES (Q^{ha}) lb/hr	RATIO SLEVS/ Q^{ha} (R^2)	
1	2	3	4	5	6	7	8	9	10	11	12	13
209	Methyl Silicate	681-84-5	6,000	60	3.02E-01	2.40E+00						
210	Methylacrylonitrile	126-98-7	2,700	27	1.36E-01	1.08E+00						
211	Methylamine	74-89-5	6,400	64	3.22E-01	2.56E+00						
212	Methylene Bisphenyl Isocyanate	101-68-8	51	1	2.57E-03	2.04E-02						
213	Molybdenum as Mo Insoluble Compounds	7439-98-7	10,000	100	5.03E-01	4.00E+00	1.31E-04	3.04E+04	1.00E-01	8.75E-05	4.57E+04	3.04E+04
214	Molybdenum as Mo Soluble Compounds	7439-98-7	5,000	50	2.52E-01	2.00E+00	2.50E-11	7.99E+10	1.00E-01	8.75E-05	2.28E+04	2.28E+04
215	Morpholine	110-91-8	70,000	700	3.52E+00	2.80E+01						
216	n,n-Dimethyl Acetamide	127-19-5	35,000	350	1.76E+00	1.40E+01						
217	n,n-Dimethylaniline	121-69-7	25,000	250	1.26E+00	9.99E+00						
218	n,n-Dimethylformamide	68-12-2	30,000	300	1.51E+00	1.20E+01			1.26E+01	1.10E-02	1.09E+03	1.09E+03
219	n-Amyl Acetate	628-63-7	525,000	5,250	2.64E+01	2.10E+02	6.25E-03	3.36E+04				3.36E+04
220	n-Butyl Acetate	123-86-4	710,000	7,100	3.57E+01	2.84E+02	3.35E-03	8.47E+04				8.47E+04
221	n-Butyl Acrylate	141-32-2	52,000	520	2.62E+00	2.08E+01						
222	n-Butyl Alcohol	71-36-3	150,000	1,500	7.55E+00	5.99E+01	2.08E-03	2.89E+04				2.89E+04
223	n-Butyl Glycidyl Ether	2426-08-6	133,000	1,330	6.70E+00	5.31E+01	1.27E-04	4.18E+05				4.18E+05
224	n-Butylamine	109-73-9	15,000	150	7.55E-01	5.99E+00						
225	n-Heptane	142-82-5	1,640,000	16,400	8.26E+01	6.55E+02	3.98E-03	1.65E+05				1.65E+05
226	n-Hexane	110-54-3	176,000	1,760	8.86E+00	7.03E+01	4.77E-02	1.48E+03	2.04E+01	1.78E-02	3.94E+03	1.48E+03
227	n-Methylalinine	100-61-8	2,000	20	1.01E-01	7.99E-01						
228	n-Propyl Acetate	109-60-4	835,000	8,350	4.20E+01	3.34E+02						
229	Naphtalene	91-20-3	50,000	500	2.52E+00	2.00E+01						

TABLE 1 (PART A).—*8-Hour SLEVs of the Toxic (Noncarcinogenic and Carcinogenic) Air Pollutants from TA–3 Facilities Based on RAPS–90 (LANL 1990) and ACIS 1995 (LANL 1995a) Data*-Continued

NO.	TOXIC AIR POLLUTANTS	CAS NUMBER	OELS µg/m^3	1/100 OF THE OELS µg/m^3	8-HOUR SLEVS		RAPS 1990 DATA		ACIS 1995 DATA			THE SMALLER (R^1) OR (R^2) RATIO
					g/sec	lb/hr	HOURLY EMISSION RATE FROM RAPS (Q^{hr}) lb/hr	RATIO SLEVS/Q^{hr} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS lb/year	ESTIMATED HOURLY EMISSION RATES (Q^{ha}) lb/hr	RATIO SLEVS/ Q^{ha} (R^2)	
1	2	3	4	5	6	7	8	9	10	11	12	13
230	Nickel Carbonyl, as Ni	13463-39-3	7	0.1	3.52E-04	2.80E-03						
231	Nickel, soluble & inorg. comp., as Ni	7440-02-0	100	1	5.03E-03	4.00E-02	7.53E-06	5.31E+03	1.70E+00	1.49E-03	2.69E+01	2.69E+01
232	Nicotine	54-11-5	500	5	2.52E-02	2.00E-01						
233	Nitric Acid	7697-32-2	5,000	50	2.52E-01	2.00E+00	4.87E-01	4.10E+00	6.20E+02	5.43E-01	3.68E+00	3.68E+00
234	Nitric Oxide	10102-43-9	30,000	300	1.51E+00	1.20E+01	1.02E-02	1.17E+03				1.17E+03
235	Nitrobenzene	98-95-3	5,000	50	2.52E-01	2.00E+00						
236	Nitroethane	79-24-3	3,070,000	30,700	1.55E+02	1.23E+03	1.20E-08	1.02E+11				1.02E+11
237	Nitromethane	75-52-5	50,000	500	2.52E+00	2.00E+01	1.20E-08	1.66E+09				1.66E+09
238	Nitrotoluene	99-99-0	11,000	110	5.54E-01	4.40E+00						
239	Nitrous Oxide	10024-97-2	90,000	900	4.53E+00	3.60E+01	1.50E-03	2.39E+04				2.39E+04
240	Nonane	111-84-2	1,050,000	10,500	5.29E+01	4.20E+02						
241	o-Chlorostyrene	2039-87-4	283,000	2,830	1.42E+01	1.13E+02						
242	o-Chlorotoluene	95-49-8	250,000	2,500	1.26E+01	9.99E+01						
243	o-Dichlorobenzene	95-50-1	150,000	1,500	7.55E+00	5.99E+01			2.87E+00	2.51E-03	2.39E+04	2.39E+04
244	o-Methylcyclohexanone	583-60-8	234,000	2,340	1.18E+01	9.35E+01						
245	o-Phenylenediamine	95-54-5	100	1	5.03E-03	4.00E-02						
246	o-Toluidine	95-53-4	8,800	88	4.43E-01	3.52E+00						
247	Octane	111-65-9	1,400,000	14,000	7.05E+01	5.59E+02	2.50E-03	2.24E+05				2.24E+05
248	Oil Mist, Mineral	NA	5,000	50	2.52E-01	2.00E+00	2.45E-02	8.16E+01				8.16E+01
249	Osmium Tetroxide, as Os	20816-12-0	2	0.02	8.06E-05	6.39E-04						
250	Oxalic Acid	144-62-7	1,000	10	5.03E-02	4.00E-01	5.25E-04	7.61E+02	3.30E+00	2.89E-03	1.38E+02	1.38E+02
251	p-Nitroaniline	100-01-6	3,000	30	1.51E-01	1.20E+00						

TABLE 1 (PART A).—*8-Hour SLEVs of the Toxic (Noncarcinogenic and Carcinogenic) Air Pollutants from TA–3 Facilities Based on RAPS–90 (LANL 1990) and ACIS 1995 (LANL 1995a) Data*-Continued

NO.	TOXIC AIR POLLUTANTS	CAS NUMBER	OELS µg/m^3	1/100 OF THE OELS µg/m^3	8-HOUR SLEVS		RAPS 1990 DATA		ACIS 1995 DATA			THE SMALLER (R^1) OR (R^2) RATIO
					g/sec	lb/hr	HOURLY EMISSION RATE FROM RAPS (Q^{hr}) lb/hr	RATIO SLEVS/Q^{hr} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS lb/year	ESTIMATED HOURLY EMISSION RATES (Q^{ha}) lb/hr	RATIO SLEVS/ Q^{ha} (R^2)	
1	2	3	4	5	6	7	8	9	10	11	12	13
252	p-Nitrochlorobenzene	100-00-5	640	6	3.22E-02	2.56E-01						
253	p-Phenylenediamine	106-50-3	100	1	5.03E-03	4.00E-02						
254	p-Toluidine	106-49-0	8,800	88	4.43E-01	3.52E+00						
255	Paraffin Wax Fume	8002-74-2	2,000	20	1.01E-01	7.99E-01	2.50E-05	3.20E+04				3.20E+04
256	Paraquat Dichloride	1910-42-5	100	1	5.03E-03	4.00E-02						
257	Paraquat Respirable Sizes	4685-14-7	100	1	5.03E-03	4.00E-02						
258	Particulate Matter, Respirable Dust	NA	3,000	30.00	1.51E-01	1.20E+00	3.08E-03	3.89E+02				3.89E+02
259	Pentachlorophenol	87-86-5	500	5	2.52E-02	2.00E-01						
260	Pentaerythritol	115-77-5	5,000	50	2.52E-01	2.00E+00						
261	Pentane (all isomers)	109-66-0	1,770,000	17,700	8.91E+01	7.07E+02	6.25E-04	1.13E+06	5.56E+00	4.86E-03	1.45E+05	1.45E+05
262	Perchloromethyl Mercaptan	594-42-3	760	8	3.83E-02	3.04E-01						
263	Phenol	108-95-2	19,000	190	9.57E-01	7.59E+00	1.25E-04	6.07E+04				6.07E+04
264	Phenothiazine	92-84-2	5,000	50	2.52E-01	2.00E+00						
265	Phenyl Mercaptan	108-98-5	2,300	23	1.16E-01	9.19E-01						
266	Phenylhydrazine	100-63-0	440	4	2.22E-02	1.76E-01	2.50E-06	7.03E+04				7.03E+04
267	Phenylphosphine	638-21-1	230	2	1.16E-02	9.19E-02						
268	Phosgene	75-44-5	400	4	2.01E-02	1.60E-01						
269	Phosphoric Acid	7664-38-2	1,000	10	5.03E-02	4.00E-01	2.39E-03	1.67E+02	1.82E+01	1.59E-02	2.51E+01	2.51E+01
270	Phosphorus	7723-14-0	100	1	5.03E-03	4.00E-02			1.00E-01	8.75E-05	4.57E+02	4.57E+02
271	Phosphorus Oxychloride	10025-87-3	600	6	3.02E-02	2.40E-01	1.25E-03	1.92E+02				1.92E+02
272	Phosphorus Pentachloride	10026-13-8	850	9	4.28E-02	3.40E-01	2.50E-04	1.36E+03				1.36E+03
273	Phosphorus Trichloride	7719-12-2	1,100	11	5.54E-02	4.40E-01						

TABLE 1 (PART A).—*8-Hour SLEVs of the Toxic (Noncarcinogenic and Carcinogenic) Air Pollutants from TA–3 Facilities Based on RAPS–90 (LANL 1990) and ACIS 1995 (LANL 1995a) Data*-Continued

NO.	TOXIC AIR POLLUTANTS	CAS NUMBER	OELS µg/m^3	1/100 OF THE OELS µg/m^3	8-HOUR SLEVS		RAPS 1990 DATA		ACIS 1995 DATA			THE SMALLER (R^1) OR (R^2) RATIO
					g/sec	lb/hr	HOURLY EMISSION RATE FROM RAPS (Q^{hr}) lb/hr	RATIO SLEVS/Q^{hr} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS lb/year	ESTIMATED HOURLY EMISSION RATES (Q^{ha}) lb/hr	RATIO SLEVS/ Q^{ha} (R^2)	
1	2	3	4	5	6	7	8	9	10	11	12	13
274	Picric Acid	88-89-1	100	1	5.03E-03	4.00E-02						
275	Platinum Metal	7440-06-4	1,000	10	5.03E-02	4.00E-01	2.50E-06	1.60E+05				1.60E+05
276	Potassium Hydroxide	1310-58-3	2,000	20	1.01E-01	7.99E-01	7.80E-04	1.02E+03	3.96E+01	3.47E-02	2.31E+01	2.31E+01
277	Propane	74-98-6	1,800,000	18,000	9.06E+01	7.19E+02			2.11E+04	1.85E+01	3.89E+01	3.89E+01
278	Propargyl Alcohol	107-19-7	2,000	20	1.01E-01	7.99E-01						
279	Propionic Acid	79-09-4	30,000	300	1.51E+00	1.20E+01						
280	Propionitrile	107-12-0	14,000	140	7.05E-01	5.59E+00						
281	Propyl Alcohol	71-23-8	492,000	4,920	2.48E+01	1.97E+02	2.50E-02	7.87E+03				7.87E+03
282	Propylene Glycol Monomethyl Ether	107-98-2	369,000	3,690	1.86E+01	1.47E+02	5.50E-09	2.68E+10				2.68E+10
283	Pyridine	110-86-1	15,000	150	7.55E-01	5.99E+00			6.48E+00	5.67E-03	1.06E+03	1.06E+03
284	Rhodium Metal	7440-16-6	100	1	5.03E-03	4.00E-02						
285	sec-Butyl Acetate	105-46-4	950,000	9,500	4.78E+01	3.80E+02						
286	sec-Butyl Alcohol	78-92-2	300,000	3,000	1.51E+01	1.20E+02	6.25E-04	1.92E+05				1.92E+05
287	Selenium Compounds, as Se	7782-49-2	200	2	1.01E-02	7.99E-02	5.00E-10	1.60E+08				1.60E+08
288	Silica, Cristobalite	14464-64-1	50	0.5	2.52E-03	2.00E-02	2.50E-05	7.99E+02				7.99E+02
289	Silica, Quartz	14808-60-7	100	1	5.03E-03	4.00E-02	2.50E-04	1.60E+02	2.64E+01	2.31E-02	1.73E+00	1.73E+00
290	Tridymite, Respirable Dust	15468-32-3	50	0.5	2.52E-03	2.00E-02	2.50E-06	7.99E+03				7.99E+03
291	Silica, Fused (respirable)	60676-86-0	100	1	5.03E-03	4.00E-02	2.56E-03	1.56E+01	1.00E-01	8.75E-05	4.57E+02	1.56E+01
292	Silicon Tetrahydride	7803-62-5	6,600	66	3.32E-01	2.64E+00						
293	Silver (metal dust & soluble comp., as Ag)	7440-22-4	100	1	5.03E-03	4.00E-02	5.11E-05	7.82E+02	1.10E+00	9.63E-04	4.15E+01	4.15E+01

TABLE 1 (PART A).—*8-Hour SLEVs of the Toxic (Noncarcinogenic and Carcinogenic) Air Pollutants from TA–3 Facilities Based on RAPS–90 (LANL 1990) and ACIS 1995 (LANL 1995a) Data*-Continued

NO.	TOXIC AIR POLLUTANTS	CAS NUMBER	OELS µg/m^3	1/100 OF THE OELS µg/m^3	8-HOUR SLEVS		RAPS 1990 DATA		ACIS 1995 DATA			THE SMALLER (R^1) OR (R^2) RATIO
					g/sec	lb/hr	HOURLY EMISSION RATE FROM RAPS (Q^{hr}) lb/hr	RATIO SLEVS/Q^{hr} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS lb/year	ESTIMATED HOURLY EMISSION RATES (Q^{ha}) lb/hr	RATIO SLEVS/ Q^{ha} (R^2)	
1	2	3	4	5	6	7	8	9	10	11	12	13
294	Stoddard Solvent	8052-41-3	525,000	5,250	2.64E+01	2.10E+02	2.44E-01	8.59E+02				8.59E+02
295	Sulfur Hexafluoride	2551-62-4	5,970,000	59,700	3.01E+02	2.39E+03			1.27E+03	1.11E+00	2.15E+03	2.15E+03
296	Sulfuric Acid	7664-93-9	1,000	10	5.03E-02	4.00E-01	7.91E-02	5.05E+00	1.57E+02	1.37E-01	2.92E+00	2.92E+00
297	Sulfuryl Fluoride	2699-79-8	20,000	200	1.01E+00	7.99E+00						
298	Tantalum Metal	7440-25-7	5,000	50	2.52E-01	2.00E+00	1.13E-04	1.77E+04				1.77E+04
299	Tellurium & Compounds, as Te	13494-80-9	200	2	1.01E-02	7.99E-02						
300	Terphenyls	26140-60-3	5,000	50	2.52E-01	2.00E+00						
301	tert-Butyl Alcohol	75-65-0	300,000	3,000	1.51E+01	1.20E+02	1.05E-04	1.14E+06				1.14E+06
302	Tetraethyl Lead	78-00-2	75	1	3.78E-03	3.00E-02						
303	Tetrahydrofuran	109-99-9	590,000	5,900	2.97E+01	2.36E+02	4.50E-04	5.24E+05	3.92E+00	3.43E-03	6.86E+04	6.86E+04
304	Tetranitromethane	509-14-8	40	0	2.01E-03	1.60E-02						
305	Tetrasodium Pyrophosphate	7722-88-5	5,000	50	2.52E-01	2.00E+00						
306	Thioglycolic Acid	68-11-1	3,800	38	1.91E-01	1.52E+00						
307	Thionyl Chloride	7719-09-7	4,900	49	2.47E-01	1.96E+00			3.62E-01	3.16E-04	6.19E+03	6.19E+03
308	Tin, metal	7440-31-5	2,000	20	1.01E-01	7.99E-01	1.60E-04	4.99E+03				4.99E+03
309	Tin Organic Compounds, as Sn	7440-31-5	100	1	5.03E-03	4.00E-02						
310	Tin Oxide & Inorganic Compounds, as Sn	7440-31-5	2,000	20	1.01E-01	7.99E-01	5.00E-10	1.60E+09	1.97E+00	1.72E-03	4.63E+02	4.63E+02
311	Toluene	108-88-3	188,000	1,880	9.47E+00	7.51E+01	1.36E-02	5.54E+03	2.01E+01	1.76E-02	4.26E+03	4.26E+03
312	Toluene-2,4-diisocyanate	584-84-9	20	0.20	1.01E-03	7.99E-03			2.00E-01	1.75E-04	4.57E+01	4.57E+01
313	Tributyl Phosphate	126-73-8	2,200	22	1.11E-01	8.79E-01	2.50E-03	3.52E+02	2.16E-01	1.89E-04	4.65E+03	3.52E+02

TABLE 1 (PART A).—*8-Hour SLEVs of the Toxic (Noncarcinogenic and Carcinogenic) Air Pollutants from TA–3 Facilities Based on RAPS–90 (LANL 1990) and ACIS 1995 (LANL 1995a) Data*-Continued

NO.	TOXIC AIR POLLUTANTS	CAS NUMBER	OELS µg/m^3	1/100 OF THE OELS µg/m^3	8-HOUR SLEVS		RAPS 1990 DATA		ACIS 1995 DATA			THE SMALLER (R^1) OR (R^2) RATIO
					g/sec	lb/hr	HOURLY EMISSION RATE FROM RAPS (Q^{hr}) lb/hr	RATIO SLEVS/Q^{hr} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS lb/year	ESTIMATED HOURLY EMISSION RATES (Q^{ha}) lb/hr	RATIO SLEVS/ Q^{ha} (R^2)	
1	2	3	4	5	6	7	8	9	10	11	12	13
314	Trichloroacetic Acid	76-03-9	6,700	67	3.37E-01	2.68E+00	2.53E-04	1.06E+04				1.06E+04
315	Triethylamine	121-44-8	4,100	41	2.06E-01	1.64E+00			4.83E-01	4.23E-04	3.88E+03	3.88E+03
316	Trimethyl Benzene	25551-13-7	123,000	1,230	6.19E+00	4.91E+01						
317	Trimethyl Phosphite	121-45-9	10,000	100	5.03E-01	4.00E+00						
318	Trimethylamine	75-50-3	12,000	120	6.04E-01	4.79E+00						
319	Triphenylamine	603-34-9	5,000	50	2.52E-01	2.00E+00						
320	Triphenylphosphate	115-86-6	3,000	30	1.51E-01	1.20E+00						
321	Tungsten as W insoluble Compounds	7440-33-7	5,000	50	2.52E-01	2.00E+00	6.02E-01	3.32E+00				3.32E+00
322	Turpentine	8006-64-2	556,000	5,560	2.80E+01	2.22E+02	4.35E-02	5.11E+03				5.11E+03
323	Uranium (natural) Sol. & Unsol. Comp. as U	7440-61-1	50	1	2.52E-03	2.00E-02	5.00E-10	4.00E+07	1.98E-01	1.74E-04	1.15E+02	1.15E+02
324	Vanadium, Respirable Dust & Fume	1314-62-1	50	1	2.52E-03	2.00E-02	2.50E-10	7.99E+07	1.10E+00	9.63E-04	2.08E+01	2.08E+01
325	Vinyl Acetate	108-05-4	35,000	350	1.76E+00	1.40E+01	2.50E-03	5.59E+03				5.59E+03
326	Vinyl Toluene	25013-15-4	242,000	2,420	1.22E+01	9.67E+01						
327	Vinylidene Fluoride	75-38-7	2,660	27	1.34E-01	1.06E+00						
328	VM & P Naphtha	8032-32-4	1,370,000	13,700	6.90E+01	5.47E+02	3.52E-02	1.56E+04	1.65E+00	1.45E-03	3.78E+05	1.56E+04
329	Welding Fumes not otherwise listed	NA	5,000	50	2.52E-01	2.00E+00	1.95E+00	1.03E+00				1.03E+00
330	Wood Dust (certain hard woods)	NA	1,000	10	5.03E-02	4.00E-01	2.51E+00	1.60E-01				1.60E-01
331	Xylene (o-,m-,p-Isomers)	1330-20-7	434,000	4,340	2.19E+01	1.73E+02	1.20E-01	1.45E+03	1.31E+01	1.14E-02	1.51E+04	1.45E+03
332	Yttrium	7440-65-5	1,000	10	5.03E-02	4.00E-01	9.63E-04	4.15E+02	1.00E-01	8.75E-05	4.57E+03	4.15E+02

TABLE 1 (PART A).—*8-Hour SLEVs of the Toxic (Noncarcinogenic and Carcinogenic) Air Pollutants from TA–3 Facilities Based on RAPS–90 (LANL 1990) and ACIS 1995 (LANL 1995a) Data*-Continued

NO.	TOXIC AIR POLLUTANTS	CAS NUMBER	OELS µg/m^3	1/100 OF THE OELS µg/m^3	8-HOUR SLEVS		RAPS 1990 DATA		ACIS 1995 DATA			THE SMALLER (R^1) OR (R^2) RATIO
					g/sec	lb/hr	HOURLY EMISSION RATE FROM RAPS (Q^{hr}) lb/hr	RATIO SLEVS/Q^{hr} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS lb/year	ESTIMATED HOURLY EMISSION RATES (Q^{ha}) lb/hr	RATIO SLEVS/ Q^{ha} (R^2)	
1	2	3	4	5	6	7	8	9	10	11	12	13
333	Zinc Chloride Fume	7646-85-7	1,000	10	5.03E-02	4.00E-01	5.05E-03	7.91E+01	6.00E-01	5.25E-04	7.61E+02	7.91E+01
334	Zinc Oxide Fume	1314-13-2	5,000	50	2.52E-01	2.00E+00	3.65E-04	5.48E+03				5.48E+03
335	Zinc Chromate, as Cr	13530-65-9	10	0.1	5.03E-04	4.00E-03						
336	Zirconium Compounds, as Zr	7440-67-7	5,000	50	2.52E-01	2.00E+00	9.00E-04	2.22E+03				2.22E+03
					CARCINOGENIC POLLUTANTS							
337	Acrylamide	79-06-1	30	0.3	1.51E-03	1.20E-02			6.00E-01	5.25E-04	2.28E+01	2.28E+01
338	Acrylonitrile	107-13-1	4,300	43	2.16E-01	1.72E+00						
339	Allyl Chloride	107-05-1	3,000	30	1.51E-01	1.20E+00						
340	Aldrin	309-00-2	250	3	1.26E-02	9.99E-02						
341	Arsenic, el. & inorg., exc. Arsine, as As	7440-38-2	10	0.1	5.03E-04	4.00E-03	5.00E-10	7.99E+06				7.99E+06
342	Benzene	71-43-2	3,000	30	1.51E-01	1.20E+00						
343	Benzyl Chloride	100-44-7	2,800	28	1.41E-01	1.12E+00						
344	Beryllium	7440-41-7	2	0.02	1.01E-04	7.99E-04	3.01E-06	2.66E+02				2.66E+02
345	Bromoform	75-25-2	5,000	50	2.52E-01	2.00E+00						
346	1,3-Butadiene	106-99-0	4,400	44	2.22E-01	1.76E+00						
347	Cadmium, el. & compounds, as Cd	7440-43-9	2	0.02	1.01E-04	7.99E-04	6.60E-05	1.21E+01				1.21E+01
348	Carbon Tetrachloride	56-23-5	31,000	310	1.56E+00	1.24E+01	4.01E-02	3.09E+02				3.09E+02
349	Chloroform	67-66-3	49,000	490	2.47E+00	1.96E+01	4.55E-02	4.30E+02	1.44E+02	1.26E-01	1.56E+02	1.56E+02
350	Chromic acids & chromates	1333-82-0	1	0.01	5.03E-05	4.00E-04	8.06E-04	4.96E-01	3.00E-01	2.63E-04	1.52E+00	4.96E-01
351	Diethanolamine	111-42-2	200	2	1.01E-02	7.99E-02						

TABLE 1 (PART A).—*8-Hour SLEVs of the Toxic (Noncarcinogenic and Carcinogenic) Air Pollutants from TA–3 Facilities Based on RAPS–90 (LANL 1990) and ACIS 1995 (LANL 1995a) Data*-Continued

NO.	TOXIC AIR POLLUTANTS	CAS NUMBER	OELS µg/m^3	1/100 OF THE OELS µg/m^3	8-HOUR SLEVS		RAPS 1990 DATA		ACIS 1995 DATA			THE SMALLER (R^1) OR (R^2) RATIO
					g/sec	lb/hr	HOURLY EMISSION RATE FROM RAPS (Q^{hr}) lb/hr	RATIO SLEVS/Q^{hr} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS lb/year	ESTIMATED HOURLY EMISSION RATES (Q^{ha}) lb/hr	RATIO SLEVS/ Q^{ha} (R^2)	
1	2	3	4	5	6	7	8	9	10	11	12	13
352	Epichlorohydrin	106-89-8	7,600	76	3.83E-01	3.04E+00						
353	Ethyl Acrylate	140-88-5	20,000	200	1.01E+00	7.99E+00			6.09E-01	5.33E-04	1.50E+04	1.50E+04
354	Ethylene Dichloride	107-06-2	40,000	400	2.01E+00	1.60E+01						
355	Ethylene Oxide	75-21-8	1,800	18	9.06E-02	7.19E-01						
356	Hexachlorobenzene	118-74-1	25	0.25	1.26E-03	9.99E-03						
357	Hexachlorobutadiene	87-68-3	210	2	1.06E-02	8.39E-02						
358	Hexachloroethane	67-72-1	9,700	97	4.88E-01	3.88E+00						
359	Hydrazine	302-01-2	13	0.1	6.54E-04	5.19E-03			2.00E-01	1.75E-04	2.97E+01	2.97E+01
360	Lindane	58-89-9	500	5	2.52E-02	2.00E-01						
361	Methyl Chloride	74-87-3	103,000	1,030	5.19E+00	4.12E+01	1.10E-01	3.74E+02				3.74E+02
362	Methylene Chloride	75-09-2	174,000	1,740	8.76E+00	6.95E+01	3.76E-02	1.85E+03	1.73E+02	1.51E-01	4.59E+02	4.59E+02
363	Nickel, metal (dust)	7440-02-0	1,000	10	5.03E-02	4.00E-01	3.01E-01	1.33E+00				1.33E+00
364	Pentachlorophenol	87-86-5	500	5	2.52E-02	2.00E-01						
365	Polychlorinated Biphenyl (PCB)	11097-69-1	500	5	2.52E-02	2.00E-01						
366	Propylene Dichloride	78-87-5	347,000	3,470	1.75E+01	1.39E+02	1.38E-02	1.01E+04				1.01E+04
367	Propylene Oxide	75-56-9	48,000	480	2.42E+00	1.92E+01						
368	Styrene	100-42-5	213,000	2,130	1.07E+01	8.51E+01						
369	Toxaphene	8001-35-2	500	5	2.52E-02	2.00E-01						
370	Tetrachlorethylene	127-18-4	170,000	1,700	8.56E+00	6.79E+01	2.50E-03	2.72E+04				2.72E+04
371	Trichloroethylene	79-01-6	269,000	2,690	1.35E+01	1.07E+02	1.40E-01	7.68E+02	2.25E+00	1.97E-03	5.45E+04	7.68E+02
372	Vinyl Chloride	75-01-4	13,000	130	6.54E-01	5.19E+00						
373	1,1-Dichloethylene	75-35-4	20,000	200	1.01E+00	7.99E+00						

TABLE 1 (PART A).—*8-Hour SLEVs of the Toxic (Noncarcinogenic and Carcinogenic) Air Pollutants from TA–3 Facilities Based on RAPS–90 (LANL 1990) and ACIS 1995 (LANL 1995a) Data*-Continued

NO.	TOXIC AIR POLLUTANTS	CAS NUMBER	OELS µg/m^3	1/100 OF THE OELS µg/m^3	8-HOUR SLEVS		RAPS 1990 DATA		ACIS 1995 DATA			THE SMALLER (R^1) OR (R^2) RATIO
					g/sec	lb/hr	HOURLY EMISSION RATE FROM RAPS (Q^{hr}) lb/hr	RATIO SLEVS/Q^{hr} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS lb/year	ESTIMATED HOURLY EMISSION RATES (Q^{ha}) lb/hr	RATIO SLEVS/ Q^{ha} (R^2)	
1	2	3	4	5	6	7	8	9	10	11	12	13
374	1,1,2,2-Tetrachloroethane	79-34-5	6,900	69	3.47E-01	2.76E+00						
375	1,1,2-Trichloroethane	79-00-5	45,000	450	2.27E+00	1.80E+01	3.10E+00	5.81E+00				5.81E+00
376	2-Nitropropane	79-46-9	36,000	360	1.81E+00	1.44E+01						

Note: The highest ISC–3 estimated concentration at fence line receptors around TA–3 was found to be 198.63 µg/m^3 when emission rate is 1 g/sec.
NA = Not applicable, OELs = occupational exposure limits, RAPS = regulated air pollutants (reports), ACIS = Automated Chemical Inventory System

TABLE 1 (PART B).—*8-Hour SLEVs of the Potentially Sensitive Toxic Air Pollutants (Noncarcinogenic and Carcinogenic) from TA–3 Facilities Based on RAPS–90 (LANL 1990) and ACIS 1995 (LANL 1995a) Data*

NO.	TOXIC AIR POLLUTANTS	CAS NUMBER	OELS µg/m^3	1/100 OF THE OELS µg/m^3	8-HOUR SLEVS		RAPS 1990 DATA		ACIS 1995 DATA			THE SMALLER (R^1) OR (R^2) RATIO
							HOURLY EMISSION RATE FROM RAPS (Q^{hr})	RATIO SLEVS/ Q^{hr} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS	ESTIMATED HOURLY EMISSION RATES (Q^{ha})	RATIO SLEVS/Q^{ha} (R^2)	
					g/sec	lb/hr	lb/hr		lb/year	lb/hr		
1	2	3	4	5	6	7	8	9	10	11	12	13
NONCARCINOGENIC POLLUTANTS												
1	2-Butoxyethanol	111-76-2	121,000	1,210	6.09E+00	4.83E+01	5.11E-01	9.47E+01				9.47E+01
2	Acetic Acid	64-19-7	25,000	250	1.26E+00	9.99E+00	2.84E+00	3.51E+00	1.62E+01	1.42E-02	7.04E+02	3.51E+00
3	Aluminum, Metal Dust, as Al	7429-90-5	10,000	100	5.03E-01	4.00E+00	4.09E-02	9.78E+01	2.20E+00	1.93E-03	2.08E+03	9.78E+01
4	Aluminum, Welding Fumes, as Al	7429-90-5	5,000	50	2.52E-01	2.00E+00	6.04E-01	3.31E+00				3.31E+00
5	Ammonia	7664-41-7	17,000	170	8.56E-01	6.79E+00	7.09E-01	9.59E+00				9.59E+00
6	Carbon Black	1333-86-4	3,500	35	1.76E-01	1.40E+00	1.47E-02	9.49E+01	1.10E+00	9.63E-04	1.45E+03	9.49E+01
7	Diethylene Triamine	111-40-0	1,000	10	5.03E-02	4.00E-01			6.05E+00	5.30E-03	7.55E+01	7.55E+01
8	Fluorides, as F	NA	2,500	25	1.26E-01	9.99E-01	1.33E-02	7.49E+01				7.49E+01
9	Hydrogen Chloride	7647-01-0	7,000	70	3.52E-01	2.80E+00	5.36E-01	5.22E+00	5.27E+02	4.61E-01	6.07E+00	5.22E+00
10	Hydrogen Fluoride, as F	7664-39-3	2,300	23	1.16E-01	9.19E-01	1.20E-02	7.67E+01	2.74E+01	2.39E-02	3.84E+01	3.84E+01
11	Hydrogen Peroxide	7722-84-1	1,400	14	7.05E-02	5.59E-01	1.28E-02	4.37E+01	7.47E+01	6.53E-02	8.56E+00	8.56E+00
12	Indium & compounds, as In	7440-74-6	100	1	5.03E-03	4.00E-02			6.00E-01	5.25E-04	7.61E+01	7.61E+01
13	Kerosene	8008-20-6	100,000	1,000	5.03E+00	4.00E+01	9.75E-01	4.10E+01	1.00E+02	8.75E-02	4.57E+02	4.10E+01
14	Lithium Hydride	7580-67-8	25	0.25	1.26E-03	9.99E-03	1.02E-02	9.82E-01				9.82E-01
15	Nickel, soluble & inorg. comp., as Ni	7440-02-0	100	1	5.03E-03	4.00E-02	7.53E-06	5.31E+03	1.70E+00	1.49E-03	2.69E+01	2.69E+01
16	Nitric Acid	7697-32-2	5,000	50	2.52E-01	2.00E+00	4.87E-01	4.10E+00	6.20E+02	5.43E-01	3.68E+00	3.68E+00
17	Oil Mist, Mineral	NA	5,000	50	2.52E-01	2.00E+00	2.45E-02	8.16E+01				8.16E+01

TABLE 1 (PART B).—*8-Hour SLEVs of the Potentially Sensitive Toxic Air Pollutants (Noncarcinogenic and Carcinogenic) from TA–3 Facilities Based on RAPS–90 (LANL 1990) and ACIS 1995 (LANL 1995a) Data*-Continued

NO.	TOXIC AIR POLLUTANTS	CAS NUMBER	OELS µg/m^3	1/100 OF THE OELS µg/m^3	8-HOUR SLEVS		RAPS 1990 DATA		ACIS 1995 DATA			THE SMALLER (R^1) OR (R^2) RATIO
							HOURLY EMISSION RATE FROM RAPS (Q^{hr})	RATIO SLEVS/ Q^{hr} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS	ESTIMATED HOURLY EMISSION RATES (Q^{ha})	RATIO SLEVS/Q^{ha} (R^2)	
					g/sec	lb/hr	lb/hr		lb/year	lb/hr		
1	2	3	4	5	6	7	8	9	10	11	12	13
18	Phosphoric Acid	7664-38-2	1,000	10	5.03E-02	4.00E-01	2.39E-03	1.67E+02	1.82E+01	1.59E-02	2.51E+01	2.51E+01
19	Potassium Hydroxide	1310-58-3	2,000	20	1.01E-01	7.99E-01	7.80E-04	1.02E+03	3.96E+01	3.47E-02	2.31E+01	2.31E+01
20	Propane	74-98-6	1,800,000	18,000	9.06E+01	7.19E+02			2.11E+04	1.85E+01	3.89E+01	3.89E+01
21	Silica, Quartz	14808-60-7	100	1	5.03E-03	4.00E-02	2.50E-04	1.60E+02	2.64E+01	2.31E-02	1.73E+00	1.73E+00
22	Silica, Fused (respirable)	60676-86-0	100	1	5.03E-03	4.00E-02	2.56E-03	1.56E+01	1.00E-01	8.75E-05	4.57E+02	1.56E+01
23	Silver (metal dust & soluble comp., as Ag)	7440-22-4	100	1	5.03E-03	4.00E-02	5.11E-05	7.82E+02	1.10E+00	9.63E-04	4.15E+01	4.15E+01
24	Sulfuric Acid	7664-93-9	1,000	10	5.03E-02	4.00E-01	7.91E-02	5.05E+00	1.57E+02	1.37E-01	2.92E+00	2.92E+00
25	Toluene-2,4-diisocyanate	584-84-9	20	0.20	1.01E-03	7.99E-03			2.00E-01	1.75E-04	4.57E+01	4.57E+01
26	Tungsten as W insoluble Compounds	7440-33-7	5,000	50	2.52E-01	2.00E+00	6.02E-01	3.32E+00				3.32E+00
27	Vanadium, Respirable Dust & Fume	1314-62-1	50	1	2.52E-03	2.00E-02	2.50E-10	7.99E+07	1.10E+00	9.63E-04	2.08E+01	2.08E+01
28	Welding Fumes not otherwise listed	NA	5,000	50	2.52E-01	2.00E+00	1.95E+00	1.03E+00				1.03E+00
29	Wood Dust (certain hard woods)	NA	1,000	10	5.03E-02	4.00E-01	2.51E+00	1.60E-01				1.60E-01
30	Zinc Chloride Fume	7646-85-7	1,000	10	5.03E-02	4.00E-01	5.05E-03	7.91E+01	6.00E-01	5.25E-04	7.61E+02	7.91E+01

TABLE 1 (PART B).—*8-Hour SLEVs of the Potentially Sensitive Toxic Air Pollutants (Noncarcinogenic and Carcinogenic) from TA–3 Facilities Based on RAPS–90 (LANL 1990) and ACIS 1995 (LANL 1995a) Data*-Continued

NO.	TOXIC AIR POLLUTANTS	CAS NUMBER	OELS µg/m^3	1/100 OF THE OELS µg/m^3	8-HOUR SLEVS		RAPS 1990 DATA		ACIS 1995 DATA			THE SMALLER (R^1) OR (R^2) RATIO
							HOURLY EMISSION RATE FROM RAPS (Q^{hr})	RATIO SLEVS/ Q^{hr} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS	ESTIMATED HOURLY EMISSION RATES (Q^{ha})	RATIO SLEVS/Q^{ha} (R^2)	
					g/sec	lb/hr	lb/hr		lb/year	lb/hr		
1	2	3	4	5	6	7	8	9	10	11	12	13
CARCINOGENIC POLLUTANTS												
31	Acrylamide	79-06-1	30	0.3	1.51E-03	1.20E-02			6.00E-01	5.25E-04	2.28E+01	2.28E+01
32	Cadmium, el. & compounds, as Cd	7440-43-9	2	0.02	1.01E-04	7.99E-04	6.60E-05	1.21E+01				1.21E+01
33	Chromic acids & chromate's	1333-82-0	1	0.01	5.03E-05	4.00E-04	8.06E-04	4.96E-01	3.00E-01	2.63E-04	1.52E+00	4.96E-01
34	Hydrazine	302-01-2	13	0.1	6.54E-04	5.19E-03			2.00E-01	1.75E-04	2.97E+01	2.97E+01
35	Nickel, metal (dust)	7440-02-0	1,000	10	5.03E-02	4.00E-01	3.01E-01	1.33E+00				1.33E+00
36	1,1,2-Trichloroethane	79-00-5	45,000	450	2.27E+00	1.80E+01	3.10E+00	5.81E+00				5.81E+00

NA = Not applicable

TABLE 1 (PART C).—*8-Hour SLEVs of Potentially Sensitive Noncarcinogenic Pollutants from Building 1 of TA–3*

NO.	TOXIC AIR POLLUTANTS	CAS NUMBER	OELS µg/m^3	1/100 OF THE OELS µg/m^3	8-HOUR SLEVS		RAPS 1990 DATA		ACIS 1995 DATA			THE SMALLER (R^1) OR (R^2) RATIO
							HOURLY EMISSION RATE FROM RAPS (Q^{hr})	RATIO SLEVS/ Q^{hr} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS	ESTIMATED HOURLY EMISSION RATES (Q^{ha})	RATIO SLEVS/Q^{ha} (R^2)	
					g/sec	lb/hr	lb/hr		lb/year	lb/hour		
1	2	3	4	5	6	7	8	9	10	11	12	13
1	Propane	74-98-6	1,800,000	18,000	9.06E+01	7.19E+02			1.81E+02	1.59E-01	4.53E+03	4.53E+03

TABLE 1 (PART D).—*8-Hour SLEVs of Potentially Sensitive Noncarcinogenic and Carcinogenic Pollutants from Building 16 of TA–3*

NO.	TOXIC AIR POLLUTANTS	CAS NUMBER	OELS µg/m^3	1/100 OF THE OELS µg/m^3	8-HOUR SLEVS		RAPS 1990 DATA		ACIS 1995 DATA			THE SMALLER (R^1) OR (R^2) RATIO
							HOURLY EMISSION RATE FROM RAPS (Q^{hr})	RATIO SLEVS/Q^{hr} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS	ESTIMATED HOURLY EMISSION RATES (Q^{ha})	RATIO SLEVS/Q^{ha} (R^2)	
					g/sec	lb/hr	lb/hr		lb/year	lb/hr		
1	2	3	4	5	6	7	8	9	10	11	12	13
NONCARCINOGENIC POLLUTANTS												
1	Acetic Acid	64-19-7	25,000	250	1.26E+00	9.99E+00	3.13E-04	3.20E+04				3.20E+04
2	Hydrogen Chloride	7647-01-0	7,000	70	3.52E-01	2.80E+00	5.00E-06	5.59E+05				5.59E+05
3	Nitric Acid	7697-32-2	5,000	50	2.52E-01	2.00E+00	5.00E-04	4.00E+03				4.00E+03
4	Welding Fumes not otherwise listed	NA	5,000	50	2.52E-01	2.00E+00	1.20E-04	1.67E+04				1.67E+04
CARCINOGENIC POLLUTANTS												
5	Chromic Acids & Chromates	1333-82-0	1	0.01	5.03E-05	4.00E-04	5.00E-05	7.99E+00				7.99E+00

TABLE 1 (PART E).—*8-Hour SLEVs of Potentially Sensitive Noncarcinogenic and Carcinogenic Pollutants from Building 29 of TA–3*

NO.	TOXIC AIR POLLUTANTS	CAS NUMBER	OELS µg/m^3	1/100 OF THE OELS µg/m^3	8-HOUR SLEVS		RAPS 1990 DATA		ACIS 1995 DATA			THE SMALLER (R^1) OR (R^2) RATIO
							HOURLY EMISSION RATE FROM RAPS (Q^{hr})	RATIO SLEVS/Q^{hr} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS	ESTIMATED HOURLY EMISSION RATES (Q^{ha})	RATIO SLEVS/Q^{ha} (R^2)	
					g/sec	lb/hr	lb/hr		lb/year	lb/hr		
1	2	3	4	5	6	7	8	9	10	11	12	13
NONCARCINOGENIC POLLUTANTS												
1	Acetic Acid	64-19-7	25,000	250	1.26E+00	9.99E+00	1.25E-03	7.99E+03	1.27E+01	1.11E-02	8.97E+02	8.97E+02
2	Ammonia	7664-41-7	17,000	170	8.56E-01	6.79E+00	8.80E-04	7.72E+03				7.72E+03
3	Fluorides, as F	NA	2,500	25	1.26E-01	9.99E-01	1.33E-02	7.49E+01				7.49E+01
4	Hydrogen Chloride	7647-01-0	7,000	70	3.52E-01	2.80E+00	5.13E-01	5.46E+00	2.33E+02	2.04E-01	1.37E+01	5.46E+00
5	Hydrogen Fluoride, as F	7664-39-3	2,300	23	1.16E-01	9.19E-01	1.76E-03	5.21E+02	1.37E+01	1.20E-02	7.68E+01	7.68E+01
6	Hydrogen Peroxide	7722-84-1	1,400	14	7.05E-02	5.59E-01	1.12E-02	4.99E+01	3.79E+01	3.32E-02	1.69E+01	1.69E+01
7	Kerosene	8008-20-6	100,000	1,000	5.04E+00	4.00E+01	3.13E-03	1.28E+04				1.28E+04
8	Nitric Acid	7697-32-2	5,000	50	2.52E-01	2.00E+00	3.82E-01	5.23E+00	3.77E+02	3.30E-01	6.06E+00	5.23E+00
9	Oil Mist, Mineral	NA	5,000	50	2.52E-01	2.00E+00	2.43E-03	8.23E+02				8.23E+02
10	Phosphoric Acid	7664-38-2	1,000	10	5.03E-02	4.00E-01	3.98E-04	1.01E+03	1.01E+01	8.83E-03	4.53E+01	4.53E+01
11	Potassium Hydroxide	1310-58-31	2,000	20	1.01E-01	7.99E-01	6.50E-04	1.23E+03				1.23E+03
12	Propane	74-98-6	1,800,000	18,000	9.06E+01	7.19E+02			1.21E+02	1.06E-01	6.79E+03	6.79E+03
13	Silica, Fused (respirable)	60676-86-0	100	1	5.03E-03	4.00E-02			1.00E-01	8.75E-05	4.57E+02	4.57E+02
14	Silver (metal dust & soluble comp., as Ag)	7440-22-4	100	1	5.04E-03	4.00E-02	1.25E-07	3.20E+05				3.20E+05
15	Sulfuric Acid	7664-93-9	1,000	10	5.04E-02	4.00E-01	6.29E-02	6.35E+00	1.34E+02	1.17E-01	3.41E+00	6.35E+00
16	Vanadium, Respirable Dust & Fume	1314-62-1	50	1	2.52E-03	2.00E-02	2.50E-10	7.99E+07				7.99E+07
17	Welding Fumes not otherwise listed	NA	5,000	50	2.52E-01	2.00E+00	9.44E-03	2.12E+02				2.12E+02

TABLE 1 (PART E).—*8-Hour SLEVs of Potentially Sensitive Noncarcinogenic and Carcinogenic Pollutants from Building 29 of TA–3-*

NO.	TOXIC AIR POLLUTANTS	CAS NUMBER	OELS µg/m^3	1/100 OF THE OELS µg/m^3	8-HOUR SLEVS		RAPS 1990 DATA		ACIS 1995 DATA			THE SMALLER (R^1) OR (R^2) RATIO
							HOURLY EMISSION RATE FROM RAPS (Q^{hr})	RATIO SLEVS/Q^{hr} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS	ESTIMATED HOURLY EMISSION RATES (Q^{ha})	RATIO SLEVS/Q^{ha} (R^2)	
					g/sec	lb/hr	lb/hr		lb/year	lb/hr		
1	2	3	4	5	6	7	8	9	10	11	12	13
CARCINOGENIC POLLUTANTS												
18	Acrylamide	79-06-1	30	0.3	1.51E-03	1.20E-02			6.00E-01	5.25E-04	2.28E+01	2.28E+01
19	Cadmium, el.&compounds, as Cd	7440-43-9	2	0.02	1.01E-04	7.99E-04	6.60E-05	1.21E+01				1.21E+01
21	Chromic acids & chromate's	1333-82-0	1	0.01	5.03E-05	4.00E-04	6.31E-04	6.33E-01	2.00E-01	1.75E-04	2.28E+00	6.33E-01
22	Nickel, metal (dust)	7440-02-0	1,000	10	5.03E-02	4.00E-01	2.75E-06	1.45E+05				1.45E+05
23	1,1,2-Trichloroethane	79-00-5	45,000	450	2.27E+00	1.80E+01	4.51E-03	3.99E+03				3.99E+03

TABLE 1 (PART F).—*8-Hour SLEVs of Potentially Sensitive Noncarcinogenic Pollutants from Building 22 of TA–3*

NO.	TOXIC AIR POLLUTANTS	CAS NUMBER	OELS µg/m^3	1/100 OF THE OELS µg/m^3	8-HOUR SLEVS		RAPS 1990 DATA		ACIS 1995 DATA			THE SMALLER (R^1) OR (R^2) RATIO
							HOURLY EMISSION RATE FROM RAPS (Q^{hr})	RATIO SLEVS/Q^{hr} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS	ESTIMATED HOURLY EMISSION RATES (Q^{ha})	RATIO SLEVS/Q^{ha} (R^2)	
					g/sec	lb/hr	lb/hr		lb/year	lb/hr		
1	2	3	4	5	6	7	8	9	10	11	12	13
1	Sulfuric Acid	7664-93-9	1,000	10	5.04E-02	4.00E-01			1.62E+00	1.42E-03	2.81E+02	2.81E+02

TABLE 1 (PART G).—*8-Hour SLEVs of Potentially Sensitive Noncarcinogenic Pollutants from Building 30 of TA–3*

NO.	TOXIC AIR POLLUTANTS	CAS NUMBER	OELS µg/m^3	1/100 OF THE OELS µg/m^3	8-HOUR SLEVS		RAPS 1990 DATA		ACIS 1995 DATA			THE SMALLER (R^1) OR (R^2) RATIO
							HOURLY EMISSION RATE FROM RAPS (Q^{hr})	RATIO SLEVS/Q^{hr} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS	ESTIMATED HOURLY EMISSION RATES (Q^{ha})	RATIO SLEVS/Q^{ha} (R^2)	
					g/sec	lb/hr	lb/hr		lb/year	lb/hr		
1	2	3	4	5	6	7	8	9	10	11	12	13
1	2-Butoxyethanol	111-76-2	121,000	1,210	6.09E+00	4.84E+01	9.68E-03	5.00E+03				5.00E+03
2	Ammonia	7664-41-7	17,000	170	8.56E-01	6.79E+00	1.58E-03	4.31E+03				4.31E+03
3	Propane	74-98-6	1,800,000	18,000	9.06E+01	7.19E+02			1.02E+04	8.94E+00	8.05E+01	8.05E+01
4	Wood Dust (certain hard woods)	NA	1,000	10	5.04E-02	4.00E-01	2.50E+00	1.60E-01				1.60E-01

TABLE 1 (PART H).—*8-Hour SLEVs of Potentially Sensitive Noncarcinogenic Pollutants from Building 25 of TA–3*

NO.	TOXIC AIR POLLUTANTS	CAS NUMBER	OELS µg/m^3	1/100 OF THE OELS µg/m^3	8-HOUR SLEVS		RAPS 1990 DATA		ACIS 1995 DATA			THE SMALLER (R^1) OR (R^2) RATIO
							HOURLY EMISSION RATE FROM RAPS (Q^{hr})	RATIO SLEVS/Q^{hr} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS	ESTIMATED HOURLY EMISSION RATES (Q^{ha})	RATIO SLEVS/Q^{ha} (R^2)	
					g/sec	lb/hr	lb/hr		lb/year	lb/hr		
1	2	3	4	5	6	7	8	9	10	11	12	13
1	Propane	74-98-6	1,800,000	18,000	9.06E+01	7.19E+02			2.82E+02	2.47E-01	2.91E+03	2.91E+03

TABLE 1 (PART I).—*8-Hour SLEVs of Potentially Sensitive Noncarcinogenic Pollutants from Building 32 of TA–3*

NO.	TOXIC AIR POLLUTANTS	CAS NUMBER	OELS µg/m^3	1/100 OF THE OELS µg/m^3	8-HOUR SLEVS		RAPS 1990 DATA		ACIS 1995 DATA			THE SMALLER (R^1) OR (R^2) RATIO
							HOURLY EMISSION RATE FROM RAPS (Q^{hr})	RATIO SLEVS/Q^{hr} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS	ESTIMATED HOURLY EMISSION RATES (Q^{ha})	RATIO SLEVS/Q^{ha} (R^2)	
					g/sec	lb/hr	lb/hr		lb/year	lb/hr		
1	2	3	4	5	6	7	8	9	10	11	12	13
1	Acetic Acid	64-19-7	25,000	250	1.26E+00	9.99E+00			2.32E+00	2.03E-03	4.93E+03	4.93E+03
2	Kerosene	8008-20-6	100,000	1,000	5.03E+00	4.00E+01	2.25E-03	1.78E+04				1.78E+04
3	Nitric Acid	7697-32-2	5,000	50	2.52E-01	2.00E+00	1.13E-03	1.78E+03				1.78E+03

TABLE 1 (PART J).—*8-Hour SLEVs of Potentially Sensitive Noncarcinogenic and Carcinogenic Pollutants from Building 34 of TA–3*

NO.	TOXIC AIR POLLUTANTS	CAS NUMBER	OELS µg/m^3	1/100 OF THE OELS µg/m^3	8-HOUR SLEVS		RAPS 1990 DATA		ACIS 1995 DATA			THE SMALLER (R^1) OR (R^2) RATIO
							HOURLY EMISSION RATE FROM RAPS (Q^{hr})	RATIO SLEVS/Q^{hr} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS	ESTIMATED HOURLY EMISSION RATES (Q^{ha})	RATIO SLEVS/Q^{ha} (R^2)	
					g/sec	lb/hr	lb/hr		lb/year	lb/hr		
1	2	3	4	5	6	7	8	9	10	11	12	13
NONCARCINOGENIC POLLUTANTS												
1	Acetic Acid	64-19-7	25,000	250	1.26E+00	9.99E+00	1.25E-04	7.99E+04	1.16E+00	1.01E-03	9.86E+03	9.86E+03
2	Aluminum, Metal Dust, as Al	7429-90-5	10,000	100	5.04E-01	4.00E+00	6.25E-05	6.39E+04	1.10E+00	9.63E-04	4.15E+03	4.15E+03
3	Carbon Black	1333-86-4	3,500	35	1.76E-01	1.40E+00	2.53E-04	5.54E+03				5.54E+03
4	Hydrogen Chloride	7647-01-0	7,000	70	3.52E-01	2.80E+00	3.75E-04	7.46E+03	1.04E+01	9.11E-03	3.07E+02	3.07E+02
5	Hydrogen Fluoride, as F	7664-39-3	2,300	23	1.16E-01	9.19E-01			3.54E+00	3.09E-03	2.97E+02	2.97E+02
6	Hydrogen Peroxide	7722-84-1	1,400	14	7.05E-02	5.59E-01	2.50E-04	2.24E+03	2.45E+00	2.14E-03	2.61E+02	2.61E+02
7	Indium & Compounds, as In	7440-74-6	100	1	5.04E-03	4.00E-02			6.00E-01	5.25E-04	7.61E+01	7.61E+01
8	Kerosene	8008-20-6	100,000	1,000	5.04E+00	4.00E+01	8.45E-04	4.73E+04	4.29E+01	3.75E-02	1.07E+03	1.07E+03
9	Nickel, soluble & inorg. comp., as Ni	7440-02-0	100	1	5.03E-03	4.00E-02			1.60E+00	1.40E-03	2.85E+01	2.85E+01
10	Nitric Acid	7697-32-2	5,000	50	2.52E-01	2.00E+00	5.18E-03	3.86E+02	3.31E+01	2.89E-02	6.90E+01	6.90E+01
11	Potassium Hydroxide	1310-58-31	2,000	20	1.01E-01	7.99E-01			3.41E+01	2.98E-02	2.68E+01	2.68E+01
11	Silver (metal dust & soluble comp., as Ag)	7440-22-4	100	1	5.04E-03	4.00E-02			1.10E+00	9.63E-04	4.15E+01	4.15E+01
12	Zinc Chloride Fume	7646-85-7	1,000	10	5.04E-02	4.00E-01	5.00E-05	7.99E+03				7.99E+03
13	Toluene-2,4-diisocyanate	584-84-9	20	0.20	1.01E-03	7.99E-03			2.00E-01	1.75E-04	4.57E+01	4.57E+01
14	Tungsten as W insoluble Compounds	7440-33-7	5,000	50	2.52E-01	2.00E+00	6.25E-05	3.20E+04				3.20E+04
CARCINOGENIC POLLUTANTS												
15	Chromic acids & chromate's	1333-82-0	1	0.01	5.03E-05	4.00E-04			1.00E-01	8.75E-05	4.57E+00	4.57E+00
16	Hydrazine	302-01-2	13	0.1	6.54E-04	5.19E-03			2.00E-01	1.75E-04	2.97E+01	2.97E+01
17	Nickel, metal (dust)	7440-02-0	1,000	10	5.03E-02	4.00E-01	6.25E-05	6.39E+03				6.39E+03

TABLE 1 (PART K).—*8-Hour SLEVs of Potentially Sensitive Noncarcinogenic Pollutants from Building 35 of TA–3*

NO.	TOXIC AIR POLLUTANTS	CAS NUMBER	OELS µg/m^3	1/100 OF THE OELS µg/m^3	8-HOUR SLEVS		RAPS 1990 DATA		ACIS 1995 DATA			THE SMALLER (R^1) OR (R^2) RATIO
							HOURLY EMISSION RATE FROM RAPS (Q^{hr})	RATIO SLEVS/Q^{hr} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS	ESTIMATED HOURLY EMISSION RATES (Q^{ha})	RATIO SLEVS/Q^{ha} (R^2)	
					g/sec	lb/hr	lb/hr		lb/year	lb/hr		
1	2	3	4	5	6	7	8	9	10	11	12	13
1	Carbon Black	1333-86-4	3,500	35	1.76E-01	1.40E+00	1.25E-05	1.12E+05				1.12E+05
2	Propane	74-98-6	1,800,000	18,000	9.06E+01	7.19E+02			1.81E+02	1.59E-01	4.53E+03	4.53E+03

TABLE 1 (PART L).—*8-Hour SLEVs of Potentially Sensitive Noncarcinogenic Pollutants from Building 35 of TA–3*

NO.	TOXIC AIR POLLUTANTS	CAS NUMBER	OELS µg/m^3	1/100 OF THE OELS µg/m^3	8-HOUR SLEVS		RAPS 1990 DATA		ACIS 1995 DATA			THE SMALLER (R^1) OR (R^2) RATIO
							HOURLY EMISSION RATE FROM RAPS (Q^{hr})	RATIO SLEVS/Q^{hr} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS	ESTIMATED HOURLY EMISSION RATES (Q^{ha})	RATIO SLEVS/Q^{ha} (R^2)	
					g/sec	lb/hr	lb/hr		lb/year	lb/hr		
1	2	3	4	5	6	7	8	9	10	11	12	13
1	Aluminum, Welding Fumes, as Al	7429-90-5	5,000	50	2.52E-01	2.00E+00	9.00E-04	2.22E+03				2.22E+03
2	Hydrogen Chloride	7647-01-0	7,000	70	3.52E-01	2.80E+00	7.75E-04	3.61E+03	7.81E+01	6.83E-02	4.10E+01	4.10E+01
3	Propane	74-98-6	1,800,000	18,000	9.06E+01	7.19E+02			6.44E+02	5.63E-01	1.28E+03	1.28E+03
4	Welding Fumes not otherwise listed	NA	5,000	50	2.52E-01	2.00E+00	1.05E+00	1.91E+00				1.91E+00

TABLE 1 (PART M).—*8-Hour SLEVs of Potentially Sensitive Noncarcinogenic and Carcinogenic Pollutants from Building 39 of TA–3*

NO.	TOXIC AIR POLLUTANTS	CAS NUMBER	OELS µg/m^3	1/100 OF THE OELS µg/m^3	8-HOUR SLEVS		RAPS 1990 DATA		ACIS 1995 DATA			THE SMALLER (R^1) OR (R^2) RATIO
							HOURLY EMISSION RATE FROM RAPS (Q^{hr})	RATIO SLEVS/Q^{hr} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS	ESTIMATED HOURLY EMISSION RATES (Q^{ha})	RATIO SLEVS/Q^{ha} (R^2)	
					g/sec	lb/hr	lb/hr		lb/year	lb/hr		
1	2	3	4	5	6	7	8	9	10	11	12	13
NONCARCINOGENIC POLLUTANTS												
2	Aluminum, Welding Fumes, as Al	7429-90-5	5,000	50	2.52E-01	2.00E+00	6.03E-01	3.31E+00				3.31E+00
3	Hydrogen Chloride	7647-01-0	7,000	70	3.52E-01	2.80E+00	1.96E-02	1.43E+02				1.43E+02
4	Kerosene	8008-20-6	100,000	1,000	5.04E+00	4.00E+01	1.05E-03	3.81E+04				3.81E+04
5	Nitric Acid	7697-32-2	5,000	50	2.52E-01	2.00E+00	2.42E-02	8.27E+01				8.27E+01
6	Oil Mist, Mineral	NA	5,000	50	2.52E-01	2.00E+00	1.25E-02	1.60E+02				1.60E+02
7	Propane	74-98-6	1,800,000	18,000	9.06E+01	7.19E+02			3.63E+02	3.18E-01	2.26E+03	2.26E+03
8	Silica, Fused (respirable)	60676-86-0	100	1	5.04E-03	4.00E-02	2.50E-03	1.60E+01				1.60E+01
9	Tungsten as W insoluble Compounds	7440-33-7	5,000	50	2.52E-01	2.00E+00	6.01E-01	3.33E+00				3.33E+00
10	Welding Fumes not otherwise listed	NA	5,000	50	2.52E-01	2.00E+00	8.56E-01	2.33E+00				2.33E+00
11	Zinc Chloride Fume	7646-85-7	1,000	10	5.04E-02	4.00E-01	5.00E-03	7.99E+01				7.99E+01
CARCINOGENIC POLLUTANTS												
1	Nickel, metal (dust)	7440-02-0	1,000	10	5.03E-02	4.00E-01	3.00E-01	1.33E+00				1.33E+00

TABLE 1 (PART N).—*8-Hour SLEVs of Potentially Sensitive Noncarcinogenic and Carcinogenic Pollutants from Building 40 of TA–3*

NO.	TOXIC AIR POLLUTANTS	CAS NUMBER	OELS µg/m^3	1/100 OF THE OELS µg/m^3	8-HOUR SLEVS		RAPS 1990 DATA		ACIS 1995 DATA			THE SMALLER (R^1) OR (R^2) RATIO
							HOURLY EMISSION RATE FROM RAPS (Q^{hr})	RATIO SLEVS/Q^{hr} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS	ESTIMATED HOURLY EMISSION RATES (Q^{ha})	RATIO SLEVS/Q^{ha} (R^2)	
					g/sec	lb/hr	lb/hr		lb/year	lb/hr		
1	2	3	4	5	6	7	8	9	10	11	12	13
NONCARCINOGENIC POLLUTANTS												
1	Aluminum, Metal Dust, as Al	7429-90-5	10,000	100	5.03E-01	4.00E+00	1.25E-02	3.19E+02				3.19E+02
2	Aluminum, Welding Fumes, as Al	7429-90-5	5,000	50	2.52E-01	2.00E+00	2.25E-05	8.88E+04				8.88E+04
3	Carbon Black	1333-86-4	3,500	35	1.76E-01	1.40E+00	2.50E-05	5.59E+04				5.59E+04
4	Hydrogen Chloride	7647-01-0	7,000	70	3.52E-01	2.80E+00	1.52E-03	1.85E+03	2.08E+01	1.82E-02	1.54E+02	1.54E+02
5	Hydrogen Fluoride, as F	7664-39-3	2,300	23	1.16E-01	9.19E-01	8.25E-03	1.11E+02	1.27E+00	1.11E-03	8.29E+02	1.11E+02
6	Hydrogen Peroxide	7722-84-1	1,400	14	7.05E-02	5.59E-01	1.18E-03	4.76E+02	1.71E+01	1.50E-02	3.73E+01	3.73E+01
7	Kerosene	8008-20-6	100,000	1,000	5.04E+00	4.00E+01	8.94E-02	4.47E+02	5.72E+01	5.00E-02	7.99E+02	4.47E+02
8	Nitric Acid	7697-32-2	5,000	50	2.52E-01	2.00E+00	3.59E-02	5.57E+01	2.15E+01	1.88E-02	1.06E+02	5.57E+01
9	Oil Mist, Mineral	NA	5,000	50	2.52E-01	2.00E+00	5.28E-03	3.79E+02				3.79E+02
10	Phosphoric Acid	7664-38-2	1,000	10	5.03E-02	4.00E-01	6.25E-04	6.39E+02				6.39E+02
11	Potassium Hydroxide	1310-58-31	2,000	20	1.01E-01	7.99E-01	1.25E-04	6.39E+03	5.50E+00	4.81E-03	1.66E+02	1.66E+02
12	Propane	74-98-6	1,800,000	18,000	9.06E+01	7.19E+02			1.95E+02	1.71E-01	4.21E+03	4.21E+03
13	Sulfuric Acid	7664-93-9	1,000	10	5.04E-02	4.00E-01	1.26E-02	3.17E+01	1.83E+01	1.60E-02	2.50E+01	2.50E+01
14	Tungsten as W insoluble Compounds	7440-33-7	5,000	50	2.52E-01	2.00E+00	3.63E-05	5.51E+04				5.51E+04
15	Wood Dust (certain hard woods)	NA	1,000	10	5.04E-02	4.00E-01	1.13E-03	3.55E+02				3.55E+02
CARCINOGENIC POLLUTANTS												
16	Nickel, Metal (dust)	7440-02-0	1,000	10	5.03E-02	4.00E-01	1.19E-04	3.36E+03				3.36E+03
17	1,1,2-Trichloroethane	79-00-5	45,000	450	2.27E+00	1.80E+01	3.88E-02	4.64E+02				4.64E+02

TABLE 1 (PART O).—*8-Hour SLEVs of Potentially Sensitive Noncarcinogenic Pollutants from Building 43 of TA–3*

NO.	TOXIC AIR POLLUTANTS	CAS NUMBER	OELS µg/m^3	1/100 OF THE OELS µg/m^3	8-HOUR SLEVS		RAPS 1990 DATA		ACIS 1995 DATA			THE SMALLER (R^1) OR (R^2) RATIO
							HOURLY EMISSION RATE FROM RAPS (Q^{hr})	RATIO SLEVS/Q^{hr} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS	ESTIMATED HOURLY EMISSION RATES (Q^{ha})	RATIO SLEVS/Q^{ha} (R^2)	
					g/sec	lb/hr	lb/hr		lb/year	lb/hr		
1	2	3	4	5	6	7	8	9	10	11	12	13
2	Acetic Acid	64-19-7	25,000	250	1.26E+00	9.99E+00	8.03E-03	1.24E+03				1.24E+03
3	Ammonia	7664-41-7	17,000	170	8.56E-01	6.79E+00	5.55E-01	1.22E+01				1.22E+01
4	Carbon Black	1333-86-4	3,500	35	1.76E-01	1.40E+00	6.95E-03	2.01E+02				2.01E+02
5	Kerosene	8008-20-6	100,000	1,000	5.04E+00	4.00E+01	1.00E-02	4.00E+03				4.00E+03
6	Potassium Hydroxide	1310-58-31	2,000	20	1.01E-01	7.99E-01	3.13E-06	2.56E+05				2.56E+05
7	Wood Dust (certain hard woods)	NA	1,000	10	5.04E-02	4.00E-01	1.25E-03	3.20E+02				3.20E+02
8	1,1,2-Trichloroethane	79-00-5	45,000	450	2.27E+00	1.80E+01	2.50E-02	7.19E+02				7.19E+02

TABLE 1 (PART P).—*8-Hour SLEVs of Potentially Sensitive Noncarcinogenic and Carcinogenic Pollutants from Building 66 of TA–3*

NO.	TOXIC AIR POLLUTANTS	CAS NUMBER	OELS µg/m^3	1/100 OF THE OELS µg/m^3	8-HOUR SLEVS		RAPS 1990 DATA		ACIS 1995 DATA			THE SMALLER (R^1) OR (R^2) RATIO
							HOURLY EMISSION RATE FROM RAPS (Q^{hr})	RATIO SLEVS/ Q^{hr} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS	ESTIMATED HOURLY EMISSION RATES (Q^{ha})	RATIO SLEVS/Q^{ha} (R^2)	
					g/sec	lb/hr	lb/hr		lb/year	lb/hr		
1	2	3	4	5	6	7	8	9	10	11	12	13
					NONCARCINOGENIC POLLUTANTS							
2	Acetic Acid	64-19-7	25,000	250	1.26E+00	9.99E+00	1.38E-03	7.27E+03				7.27E+03
3	Aluminum, Metal Dust, as Al	7429-90-5	10,000	100	5.04E-01	4.00E+00	2.81E-02	1.42E+02				1.42E+02
4	Aluminum, Welding Fumes, as Al	7429-90-5	5,000	50	2.52E-01	2.00E+00	1.50E-04	1.33E+04				1.33E+04
5	Ammonia	7664-41-7	17,000	170	8.56E-01	6.79E+00	5.50E-03	1.24E+03				1.24E+03
6	Carbon Black	1333-86-4	3,500	35	1.76E-01	1.40E+00	5.00E-03	2.80E+02				2.80E+02
7	Hydrogen Chloride	7647-01-0	7,000	70	3.52E-01	2.80E+00	7.12E-04	3.93E+03	1.03E+02	8.99E-02	3.11E+01	3.11E+01
8	Hydrogen Fluoride, as F	7664-39-3	2,300	23	1.16E-01	9.19E-01	1.88E-03	4.90E+02	1.27E+00	1.11E-03	8.29E+02	4.90E+02
9	Hydrogen Peroxide	7722-84-1	1,400	14	7.05E-02	5.59E-01	1.50E-04	3.73E+03				3.73E+03
10	Kerosene	8008-20-6	100,000	1,000	5.04E+00	4.00E+01	2.92E-02	1.37E+03				1.37E+03
11	Nickel, soluble & inorg. comp., as Ni	7440-02-0	100	1	5.03E-03	4.00E-02	7.53E-06	5.31E+03				5.31E+03
12	Nitric Acid	7697-32-2	5,000	50	2.52E-01	2.00E+00	1.05E-02	1.90E+02	1.04E+02	9.12E-02	2.19E+01	2.19E+01
13	Oil Mist, Mineral	NA	5,000	50	2.52E-01	2.00E+00	4.28E-03	4.67E+02				4.67E+02
14	Phosphoric Acid	7664-38-2	1,000	10	5.03E-02	4.00E-01	1.37E-03	2.92E+02				2.92E+02
15	Potassium Hydroxide	1310-58-31	2,000	20	1.01E-01	7.99E-01	3.20E-07	2.50E+06				2.50E+06
16	Propane	74-98-6	1,800,000	18,000	9.06E+01	7.19E+02			5.14E+02	4.49E-01	1.60E+03	1.60E+03
17	Silica, Quartz	14808-60-7	100	1	5.03E-03	4.00E-02	2.50E-04	1.60E+02	2.64E+01	2.31E-02	1.73E+00	1.73E+00
18	Silica, Fused (respirable)	60676-86-0	100	1	5.04E-03	4.00E-02	6.25E-05	6.39E+02				6.39E+02
19	Silver (metal dust & soluble comp., as Ag)	7440-22-4	100	1	5.04E-03	4.00E-02	5.00E-05	7.99E+02				7.99E+02
20	Sulfuric Acid	7664-93-9	1,000	10	5.04E-02	4.00E-01	3.35E-03	1.19E+02	2.03E+00	1.78E-03	2.25E+02	1.19E+02

TABLE 1 (PART P).—*8-Hour SLEVs of Potentially Sensitive Noncarcinogenic and Carcinogenic Pollutants from Building 66 of TA–3-*

NO.	TOXIC AIR POLLUTANTS	CAS NUMBER	OELS µg/m^3	1/100 OF THE OELS µg/m^3	8-HOUR SLEVS		RAPS 1990 DATA		ACIS 1995 DATA			THE SMALLER (R^1) OR (R^2) RATIO
							HOURLY EMISSION RATE FROM RAPS (Q^{hr})	RATIO SLEVS/ Q^{hr} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS	ESTIMATED HOURLY EMISSION RATES (Q^{ha})	RATIO SLEVS/Q^{ha} (R^2)	
					g/sec	lb/hr	lb/hr		lb/year	lb/hr		
1	2	3	4	5	6	7	8	9	10	11	12	13
21	Tungsten as W insoluble Compounds	7440-33-7	5,000	50	2.52E-01	2.00E+00	1.50E-04	1.33E+04				1.33E+04
22	Welding Fumes not otherwise listed	NA	5,000	50	2.52E-01	2.00E+00	3.13E-02	6.38E+01				6.38E+01
CARCINOGENIC POLLUTANTS												
23	Chromic acids & chromates	1333-82-0	1.00	0.01	5.03E-05	4.00E-04	1.25E-04	3.20E+00				3.20E+00
24	1,1,2-Trichloroethane	79-00-5	45,000	450	2.27E+00	1.80E+01	4.15E-03	4.33E+03				4.33E+03

TABLE 1 (PART Q).—*8-Hour SLEVs of Potentially Sensitive Noncarcinogenic Pollutants from Building 70 of TA–3*

NO.	TOXIC AIR POLLUTANTS	CAS NUMBER	OELS µg/m^3	1/100 OF THE OELS µg/m^3	8-HOUR SLEVS		RAPS 1990 DATA		ACIS 1995 DATA			THE SMALLER (R^1) OR (R^2) RATIO
							HOURLY EMISSION RATE FROM RAPS (Q^{hr})	RATIO SLEVS/Q^{hr} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS	ESTIMATED HOURLY EMISSION RATES (Q^{ha})	RATIO SLEVS/Q^{ha} (R^2)	
					g/sec	lb/hr	lb/hr		lb/year	lb/hr		
1	2	3	4	5	6	7	8	9	10	11	12	13
1	Propane	74-98-6	1,800,000	18,000	9.06E+01	7.19E+02			2.51E+03	2.19E+00	3.28E+02	3.28E+02

TABLE 1 (PART R).—*8-Hour SLEVs of Potentially Sensitive Noncarcinogenic Pollutants from Building 142 of TA–3*

NO.	TOXIC AIR POLLUTANTS	CAS NUMBER	OELS µg/m^3	1/100 OF THE OELS µg/m^3	8-HOUR SLEVS		RAPS 1990 DATA		ACIS 1995 DATA			THE SMALLER (R^1) OR (R^2) RATIO
							HOURLY EMISSION RATE FROM RAPS (Q^{hr})	RATIO SLEVS/Q^{hr} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS	ESTIMATED HOURLY EMISSION RATES (Q^{ha})	RATIO SLEVS/Q^{ha} (R^2)	
					g/sec	lb/hr	lb/hr		lb/year	lb/hr		
1	2	3	4	5	6	7	8	9	10	11	12	13
1	Propane	74-98-6	1,800,000	18,000	9.06E+01	7.19E+02			1.09E+03	9.53E-01	7.55E+02	7.55E+02

TABLE 1 (PART S).—*8-Hour SLEVs of Potentially Sensitive Noncarcinogenic Pollutants from Building 102 of TA–3*

NO.	TOXIC AIR POLLUTANTS	CAS NUMBER	OELS µg/m^3	1/100 OF THE OELS µg/m^3	8-HOUR SLEVS		RAPS 1990 DATA		ACIS 1995 DATA			THE SMALLER (R^1) OR (R^2) RATIO
							HOURLY EMISSION RATE FROM RAPS (Q^{hr})	RATIO SLEVS/Q^{hr} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS	ESTIMATED HOURLY EMISSION RATES (Q^{ha})	RATIO SLEVS/Q^{ha} (R^2)	
					g/sec	lb/hr	lb/hr		lb/year	lb/hr		
1	2	3	4	5	6	7	8	9	10	11	12	13
1	Lithium Hydride	7580-67-8	25	0.25	1.26E-03	9.99E-03	1.02E-02	9.82E-01				9.82E-01

TABLE 1 (PART T).—*8-Hour SLEVs of Potentially Sensitive Noncarcinogenic Pollutants from Building 102 of TA–3*

NO.	TOXIC AIR POLLUTANTS	CAS NUMBER	OELS µg/m^3	1/100 OF THE OELS µg/m^3	8-HOUR		RAPS 1990 DATA		ACIS 1995 DATA			THE SMALLER (R^1) OR (R^2) RATIO
							HOURLY EMISSION RATE FROM RAPS (Q^{hr})	RATIO SLEVS/Q^{hr} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS	ESTIMATED HOURLY EMISSION RATES (Q^{ha})	RATIO SLEVS/Q^{ha} (R^2)	
					g/sec	lb/hr	lb/hr		lb/year	lb/hr		
1	2	3	4	5	6	7	8	9	10	11	12	13
1	Hydrogen Chloride	7647-01-0	7,000	70	3.52E-01	2.80E+00	5.00E-04	5.59E+03				5.59E+03
2	Nitric Acid	7697-32-2	5,000	50	2.52E-01	2.00E+00	2.80E-02	7.14E+01				7.14E+01
3	Sulfuric Acid	7664-93-9	1,000	10	5.04E-02	4.00E-01	2.50E-04	1.60E+03				1.60E+03
4	Welding Fumes not otherwise listed	NA	5,000	50	2.52E-01	2.00E+00	2.06E-03	9.70E+02				9.70E+02

TABLE 1 (PART U).—*8-Hour SLEVs of Potentially Sensitive Noncarcinogenic Pollutants from Building 132 of TA–3*

NO.	TOXIC AIR POLLUTANTS	CAS NUMBER	OELS µg/m^3	1/100 OF THE OELS µg/m^3	8-HOUR SLEVS		RAPS 1990 DATA		ACIS 1995 DATA			THE SMALLER (R^1) OR (R^2) RATIO
							HOURLY EMISSION RATE FROM RAPS (Q^{hr})	RATIO SLEVS/Q^{hr} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS	ESTIMATED HOURLY EMISSION RATES (Q^{ha})	RATIO SLEVS/Q^{ha} (R^2)	
					g/sec	lb/hr	lb/hr		lb/year	lb/hr		
1	2	3	4	5	6	7	8	9	10	11	12	13
1	Acetic Acid	64-19-7	25,000	250	1.26E+00	9.99E+00	2.79E+00	3.58E+00				3.58E+00

TABLE 1 (PART V).—*8-Hour SLEVs of Potentially Sensitive Noncarcinogenic and Carcinogenic Pollutants from Building 141 of TA–3*

NO.	TOXIC AIR POLLUTANTS	CAS NUMBER	OELS µg/m^3	1/100 OF THE OELS µg/m^3	8-HOUR SLEVS		RAPS 1990 DATA		ACIS 1995 DATA			THE SMALLER (R^1) OR (R^2) RATIO
							HOURLY EMISSION RATE FROM RAPS (Q^{hr})	RATIO SLEVS/Q^{hr} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS	ESTIMATED HOURLY EMISSION RATES (Q^{ha})	RATIO SLEVS/Q^{ha} (R^2)	
					g/sec	lb/hr	lb/hr		lb/year	lb/hr		
NONCARCINOGENIC POLLUTANTS												
1	Carbon Black	1333-86-4	3,500	35	1.76E-01	1.40E+00	2.50E-03	5.59E+02				5.59E+02
2	Nitric Acid	7697-32-2	5,000	50	2.52E-01	2.00E+00	7.50E-04	2.66E+03				2.66E+03
3	Tungsten as W insoluble Compounds	7440-33-7	5,000	50	2.52E-01	2.00E+00	1.25E-03	1.60E+03				1.60E+03
CARCINOGENIC POLLUTANTS												
4	Nickel, soluble & inorg. comp., as Ni	7440-02-0	100	1	5.03E-03	4.00E-02	1.25E-04	3.20E+02				3.20E+02

TABLE 1 (PART W).—*8-Hour SLEVs of Potentially Sensitive Noncarcinogenic Pollutants from Building 170 of TA–3*

NO.	TOXIC AIR POLLUTANTS	CAS NUMBER	OELS µg/m^3	1/100 OF THE OELS µg/m^3	8-HOUR SLEVS		RAPS 1990 DATA		ACIS 1995 DATA			THE SMALLER (R^1) OR (R^2) RATIO
							HOURLY EMISSION RATE FROM RAPS (Q^{hr})	RATIO SLEVS/Q^{hr} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS	ESTIMATED HOURLY EMISSION RATES (Q^{ha})	RATIO SLEVS/Q^{ha} (R^2)	
					g/sec	lb/hr	lb/hr		lb/year	lb/hr		
1	2	3	4	5	6	7	8	9	10	11	12	13
1	Propane	74-98-6	1,800,000	18,000	9.06E+01	7.19E+02			4.49E+03	3.93E+00	1.83E+02	1.83E+02

TABLE 1 (PART X).—*8-Hour SLEVs of Potentially Sensitive Noncarcinogenic and Carcinogenic Pollutants from Building 223 of TA–3*

NO.	TOXIC AIR POLLUTANTS	CAS NUMBER	OELS µg/m^3	1/100 OF THE OELS µg/m^3	8-HOUR SLEVS		RAPS 1990 DATA		ACIS 1995 DATA			THE SMALLER (R^1) OR (R^2) RATIO
							HOURLY EMISSION RATE FROM RAPS (Q^{hr})	RATIO SLEVS/Q^{hr} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS	ESTIMATED HOURLY EMISSION RATES (Q^{ha})	RATIO SLEVS/Q^{ha} (R^2)	
					g/sec	lb/hr	lb/hr		lb/year	lb/hr		
1	2	3	4	5	6	7	8	9	10	11	12	13
NONCARCINOGENIC POLLUTANTS												
1	2-Butoxyethanol	111-76-2	121,000	1,210	6.09E+00	4.84E+01	5.01E-01	9.66E+01				9.66E+01
2	Kerosene	8008-20-6	100,000	1,000	5.04E+00	4.00E+01	8.36E-01	4.78E+01				4.78E+01
3	Sulfuric Acid	7664-93-9	1,000	10	5.04E-02	4.00E-01			8.11E-01	7.10E-04	5.63E+02	5.63E+02
CARCINOGENIC POLLUTANTS												
4	1,1,2-Trichloroethane	79-00-5	45,000	450	2.27E+00	1.80E+01	3.03E+00	5.94E+00				5.94E+00

TABLE 1 (PART Y).—*8-Hour SLEVs of Potentially Sensitive Noncarcinogenic Pollutants from Building 287 of TA–3*

NO.	TOXIC AIR POLLUTANTS	CAS NUMBER	OELS µg/m^3	1/100 OF THE OELS µg/m^3	8-HOUR SLEVS		RAPS 1990 DATA		ACIS 1995 DATA			THE SMALLER (R^1) OR (R^2) RATIO
							HOURLY EMISSION RATE FROM RAPS (Q^{hr})	RATIO SLEVS/Q^{hr} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS	ESTIMATED HOURLY EMISSION RATES (Q^{ha})	RATIO SLEVS/Q^{ha} (R^2)	
					g/sec	lb/hr	lb/hr		lb/year	lb/hr		
1	2	3	4	5	6	7	8	9	10	11	12	13
1	Aluminum, Metal Dust, as Al	7429-90-5	10,000	100	5.04E-01	4.00E+00	2.50E-04	1.60E+04				1.60E+04
2	Kerosene	8008-20-6	100,000	1,000	5.04E+00	4.00E+01	3.00E-03	1.33E+04				1.33E+04

TABLE 1 (PART Z).—*8-Hour SLEVs of Potentially Sensitive Noncarcinogenic Pollutants from Building 316 of TA–3*

NO.	TOXIC AIR POLLUTANTS	CAS NUMBER	OELS µg/m^3	1/100 OF THE OELS µg/m^3	8-HOUR SLEVS		RAPS 1990 DATA		ACIS 1995 DATA			THE SMALLER (R^1) OR (R^2) RATIO
							HOURLY EMISSION RATE FROM RAPS (Q^{hr})	RATIO SLEVS/Q^{hr} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS	ESTIMATED HOURLY EMISSION RATES (Q^{ha})	RATIO SLEVS/Q^{ha} (R^2)	
					g/sec	lb/hr	lb/hr		lb/year	lb/hr		
1	2	3	4	5	6	7	8	9	10	11	12	13
1	Propane	74-98-6	1,800,000	18,000	9.06E+01	7.19E+02			1.21E+02	1.06E-01	6.79E+03	6.79E+03

TABLE 1 (PART AA).—*8-Hour SLEVs of Potentially Sensitive Noncarcinogenic Pollutants from Building 409 of TA–3*

NO.	TOXIC AIR POLLUTANTS	CAS NUMBER	OELS µg/m^3	1/100 OF THE OELS µg/m^3	8-HOUR SLEVS		RAPS 1990 DATA		ACIS 1995 DATA			THE SMALLER (R^1) OR (R^2) RATIO
							HOURLY EMISSION RATE FROM RAPS (Q^{hr})	RATIO SLEVS/Q^{hr} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS	ESTIMATED HOURLY EMISSION RATES (Q^{ha})	RATIO SLEVS/Q^{ha} (R^2)	
					g/sec	lb/hr	lb/hr		lb/year	lb/hr		
1	2	3	4	5	6	7	8	9	10	11	12	13
1	Acetic Acid	64-19-7	25,000	250	1.26E+00	9.99E+00	1.17E-02	8.51E+02				8.51E+02

TABLE 1 (PART BB).—*8-Hour SLEVs of Potentially Sensitive Noncarcinogenic Pollutants from Building 425 of TA–3*

NO.	TOXIC AIR POLLUTANTS	CAS NUMBER	OELS µg/m^3	1/100 OF THE OELS µg/m^3	8-HOUR SLEVS		RAPS 1990 DATA		ACIS 1995 DATA			THE SMALLER (R^1) OR (R^2) RATIO
							HOURLY EMISSION RATE FROM RAPS (Q^{hr})	RATIO SLEVS/Q^{hr} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS	ESTIMATED HOURLY EMISSION RATES (Q^{ha})	RATIO SLEVS/Q^{ha} (R^2)	
					g/sec	lb/hr	lb/hr		lb/year	lb/hr		
1	2	3	4	5	6	7	8	9	10	11	12	13
1	Propane	74-98-6	1,800,000	18,000	9.06E+01	7.19E+02			3.86E+01	3.37E-02	2.13E+04	2.13E+04

TABLE 1 (PART CC).—*8-Hour SLEVs of Potentially Sensitive Noncarcinogenic Pollutants from Building 494 of TA–3*

NO.	TOXIC AIR POLLUTANTS	CAS NUMBER	OELS µg/m^3	1/100 OF THE OELS µg/m^3	8-HOUR SLEVS		RAPS 1990 DATA		ACIS 1995 DATA			THE SMALLER (R^1) OR (R^2) RATIO
							HOURLY EMISSION RATE FROM RAPS (Q^{hr})	RATIO SLEVS/Q^{hr} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS	ESTIMATED HOURLY EMISSION RATES (Q^{ha})	RATIO SLEVS/Q^{ha} (R^2)	
					g/sec	lb/hr	lb/hr		lb/year	lb/hr		
1	2	3	4	5	6	7	8	9	10	11	12	13
1	Acetic Acid	64-19-7	25,000	250	1.26E+00	9.99E+00	1.06E-05	9.40E+05				9.40E+05
2	Aluminum, Metal Dust, as Al	7429-90-5	10,000	100	5.04E-01	4.00E+00	2.50E-06	1.60E+06				1.60E+06
3	Ammonia	7664-41-7	17,000	170	8.56E-01	6.79E+00	1.25E-04	5.43E+04				5.43E+04
4	Hydrogen Chloride	7647-01-0	7,000	70	3.52E-01	2.80E+00	4.63E-05	6.05E+04	4.29E+01	3.76E-02	7.45E+01	7.45E+01
5	Hydrogen Fluoride, as F	7664-39-3	2,300	23	1.16E-01	9.19E-01	1.00E-04	9.19E+03	7.61E+00	6.66E-03	1.38E+02	1.38E+02
6	Hydrogen Peroxide	7722-84-1	1,400	14	7.05E-02	5.59E-01	3.75E-06	1.49E+05				1.49E+05
7	Nickel, soluble & inorg. comp., as Ni	7440-02-0	100	1	5.03E-03	4.00E-02	1.25E-10	3.20E+08				3.20E+08
8	Nitric Acid	7697-32-2	5,000	50	2.52E-01	2.00E+00	1.75E-04	1.14E+04	5.46E+01	4.78E-02	4.18E+01	4.18E+01
9	Phosphoric Acid	7664-38-2	1,000	10	5.03E-02	4.00E-01	5.00E-07	7.99E+05	4.04E+00	3.53E-03	1.13E+02	1.13E+02
10	Potassium Hydroxide	1310-58-31	2,000	20	1.01E-01	7.99E-01	1.25E-06	6.39E+05				6.39E+05
11	Silver (metal dust & soluble comp., as Ag)	7440-22-4	100	1	5.04E-03	4.00E-02	5.00E-12	7.99E+09				7.99E+09
12	Sulfuric Acid	7664-93-9	1,000	10	5.04E-02	4.00E-01	9.50E-06	4.21E+04				4.21E+04
13	Tungsten as W insoluble Compounds	7440-33-7	5,000	50	2.52E-01	2.00E+00	5.00E-10	4.00E+09				4.00E+09

TABLE 1 (PART DD).—*8-Hour SLEVs of Potentially Sensitive Noncarcinogenic Pollutants from Building 495 of TA–3*

NO.	TOXIC AIR POLLUTANTS	CAS NUMBER	OELS µg/m^3	1/100 OF THE OELS µg/m^3	8-HOUR SLEVS		RAPS 1990 DATA		ACIS 1995 DATA			THE SMALLER (R^1) OR (R^2) RATIO
							HOURLY EMISSION RATE FROM RAPS (Q^{hr})	RATIO SLEVS/Q^{hr} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS	ESTIMATED HOURLY EMISSION RATES (Q^{ha})	RATIO SLEVS/Q^{ha} (R^2)	
					g/sec	lb/hr	lb/hr		lb/year	lb/hr		
1	2	3	4	5	6	7	8	9	10	11	12	13
1	Silver (metal dust & soluble comp., as Ag)	7440-22-4	100	1	5.04E-03	4.00E-02	9.50E-07	4.21E+04				4.21E+04

TABLE 1 (PART EE).—*8-Hour SLEVs of Potentially Sensitive Noncarcinogenic Pollutants from Building 502 of TA–3*

NO.	TOXIC AIR POLLUTANTS	CAS NUMBER	OELS µg/m^3	1/100 OF THE OELS µg/m^3	8-HOUR SLEVS		RAPS 1990 DATA		ACIS 1995 DATA			THE SMALLER (R^1) OR (R^2) RATIO
							HOURLY EMISSION RATE FROM RAPS (Q^{hr})	RATIO SLEVS/Q^{hr} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS	ESTIMATED HOURLY EMISSION RATES (Q^{ha})	RATIO SLEVS/Q^{ha} (R^2)	
					g/sec	lb/hr	lb/hr		lb/year	lb/hr		
1	2	3	4	5	6	7	8	9	10	11	12	13
1	Propane	74-98-6	1,800,000	18,000	9.06E+01	7.19E+02			1.21E+02	1.06E-01	6.79E+03	6.79E+03

TABLE 1 (PART FF).—*8-Hour SLEVs of Potentially Sensitive Noncarcinogenic Pollutants from Building 562 of TA–3*

NO.	TOXIC AIR POLLUTANTS	CAS NUMBER	OELS µg/m^3	1/100 OF THE OELS µg/m^3	8-HOUR SLEVS		RAPS 1990 DATA		ACIS 1995 DATA			THE SMALLER (R^1) OR (R^2) RATIO
							HOURLY EMISSION RATE FROM RAPS (Q^{hr})	RATIO SLEVS/Q^{hr} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS	ESTIMATED HOURLY EMISSION RATES (Q^{ha})	RATIO SLEVS/Q^{ha} (R^2)	
					g/sec	lb/hr	lb/hr		lb/year	lb/hr		
1	2	3	4	5	6	7	8	9	10	11	12	13
1	Hydrogen Chloride	7647-01-0	7,000	70	3.52E-01	2.80E+00			3.90E+01	3.41E-02	8.19E+01	8.19E+01

TABLE 1 (PART GG).—*8-Hour SLEVs of Potentially Sensitive Noncarcinogenic Pollutants from Building 43/510 of TA–3*

NO.	TOXIC AIR POLLUTANTS	CAS NUMBER	OELS µg/m^3	1/100 OF THE OELS µG/M^3	8-HOUR SLEVS		RAPS 1990 DATA		ACIS 1995 DATA			THE SMALLER (R^1) OR (R^2) RATIO
							HOURLY EMISSION RATE FROM RAPS (Q^{hr})	RATIO SLEVS/Q^{hr} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS	ESTIMATED HOURLY EMISSION RATES (Q^{ha})	RATIO SLEVS/Q^{ha} (R^2)	
					g/sec	lb/hr	lb/hr		lb/year	lb/hr		
1	2	3	4	5	6	7	8	9	10	11	12	13
1	Acetic Acid	64-19-7	25,000	250	1.26E+00	9.99E+00	2.97E-02	3.37E+02				3.37E+02
2	Ammonia	7664-41-7	17,000	170	8.56E-01	6.79E+00	2.07E-02	3.28E+02				3.28E+02

TABLE 1 (PART HH).—*8-Hour SLEVs of Potentially Sensitive Noncarcinogenic Pollutants from Building 1498 of TA–3*

NO.	TOXIC AIR POLLUTANTS	CAS NUMBER	OELS µg/m^3	1/100 OF THE OELS µg/m^3	8-HOUR SLEVS		RAPS 1990 DATA		ACIS 1995 DATA			THE SMALLER (R^1) OR (R^2) RATIO
							HOURLY EMISSION RATE FROM RAPS (Q^{hr})	RATIO SLEVS/Q^{hr} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS	ESTIMATED HOURLY EMISSION RATES (Q^{ha})	RATIO SLEVS/Q^{ha} (R^2)	
					g/sec	lb/hr	lb/hr		lb/year	lb/hr		
1	2	3	4	5	6	7	8	9	10	11	12	13
1	Propane	74-98-6	1,800,000	18,000	9.06E+01	7.19E+02			6.05E+01	5.30E-02	1.36E+04	1.36E+04

TABLE 1 (PART II).—*8-Hour SLEVs of Potentially Sensitive Noncarcinogenic Pollutants from Building 1559 of TA–3*

NO.	TOXIC AIR POLLUTANTS	CAS NUMBER	OELS µg/m^3	1/100 OF THE OELS µg/m^3	8-HOUR SLEVS		RAPS 1990 DATA		ACIS 1995 DATA			THE SMALLER (R^1) OR (R^2) RATIO
							HOURLY EMISSION RATE FROM RAPS (Q^{hr})	RATIO SLEVS/Q^{hr} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS	ESTIMATED HOURLY EMISSION RATES (Q^{ha})	RATIO SLEVS/Q^{ha} (R^2)	
					g/sec	lb/hr	lb/hr		lb/year	lb/hr		
1	2	3	4	5	6	7	8	9	10	11	12	13
1	Ammonia	7664-41-7	17,000	170	8.56E-01	6.79E+00	1.25E-01	5.43E+01				5.43E+01

TABLE 1 (PART JJ).—*8-Hour SLEVs of Potentially Sensitive Noncarcinogenic Pollutants from Building 1698 of TA–3*

NO.	TOXIC AIR POLLUTANTS	CAS NUMBER	OELS µg/m^3	1/100 OF THE OELS µg/m^3	8-HOUR SLEVS		RAPS 1990 DATA		ACIS 1995 DATA			THE SMALLER (R^1) OR (R^2) RATIO
							HOURLY EMISSION RATE FROM RAPS (Q^{hr})	RATIO SLEVS/Q^{hr} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS	ESTIMATED HOURLY EMISSION RATES (Q^{ha})	RATIO SLEVS/Q^{ha} (R^2)	
					g/sec	lb/hr	lb/hr		lb/year	lb/hr		
1	2	3	4	5	6	7	8	9	10	11	12	13
1	Hydrogen Peroxide	7722-84-1	1,400	14	7.05E-02	5.59E-01			2.45E+00	2.14E-03	2.61E+02	2.61E+02
2	Nickel, soluble & inorg. comp., as Ni	7440-02-0	100	1	5.03E-03	4.00E-02			1.00E-01	8.75E-05	4.57E+02	4.57E+02
3	Nitric Acid	7697-32-2	5,000	50	2.52E-01	2.00E+00			1.65E+01	1.45E-02	1.38E+02	1.38E+02
4	Vanadium, Respirable Dust & Fume	1314-62-1	50	1	2.52E-03	2.00E-02			1.10E+00	9.63E-04	2.08E+01	2.08E+01
5	Zinc Chloride Fume	7646-85-7	1,000	10	5.04E-02	4.00E-01			6.00E-01	5.25E-04	7.61E+02	7.61E+02

TABLE 1 (PART KK).—*8-Hour SLEVs of Potentially Sensitive Noncarcinogenic Pollutants from Building 1701 of TA–3*

NO.	TOXIC AIR POLLUTANTS	CAS NUMBER	OELS µg/m^3	1/100 OF THE OELS µg/m^3	8-HOUR SLEVS		RAPS 1990 DATA		ACIS 1995 DATA			THE SMALLER (R^1) OR (R^2) RATIO
							HOURLY EMISSION RATE FROM RAPS (Q^{hr})	RATIO SLEVS/Q^{hr} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS	ESTIMATED HOURLY EMISSION RATES (Q^{ha})	RATIO SLEVS/Q^{ha} (R^2)	
					g/sec	lb/hr	lb/hr		lb/year	lb/hr		
1	2	3	4	5	6	7	8	9	10	11	12	13
1	Wood Dust (certain hard woods)	NA	1,000	10	5.04E-02	4.00E-01	2.50E-03	1.60E+02				1.60E+02

TABLE 1 (PART LL).—*8-Hour SLEVs of Potentially Sensitive Noncarcinogenic Pollutants from Building 2202 of TA–3*

NO.	TOXIC AIR POLLUTANTS	CAS NUMBER	OELS µg/m^3	1/100 OF THE OELS µg/m^3	8-HOUR SLEVS		RAPS 1990 DATA		ACIS 1995 DATA			THE SMALLER (R^1) OR (R^2) RATIO
							HOURLY EMISSION RATE FROM RAPS (Q^{hr})	RATIO SLEVS/Q^{hr} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS	ESTIMATED HOURLY EMISSION RATES (Q^{ha})	RATIO SLEVS/Q^{ha} (R^2)	
					g/sec	lb/hr	lb/hr		lb/year	lb/hr		
1	2	3	4	5	6	7	8	9	10	11	12	13
1	Nitric Acid	7697-32-2	5,000	50	2.52E-01	2.00E+00			1.32E+01	1.16E-02	1.73E+02	1.73E+02
2	Phosphoric Acid	7664-38-2	1,000	10	5.03E-02	4.00E-01			4.04E+00	3.53E-03	1.13E+02	1.13E+02

TABLE 1 (PART MM).—*8-Hour SLEVs of Potentially Sensitive Noncarcinogenic Pollutants from Building 2203 of TA–3*

NO.	TOXIC AIR POLLUTANTS	CAS NUMBER	OELS µg/m^3	1/100 OF THE OELS µg/m^3	8-HOUR SLEVS		RAPS 1990 DATA		ACIS 1995 DATA			THE SMALLER (R^1) OR (R^2) RATIO
							HOURLY EMISSION RATE FROM RAPS (Q^{hr})	RATIO SLEVS/Q^{hr} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS	ESTIMATED HOURLY EMISSION RATES (Q^{ha})	RATIO SLEVS/Q^{ha} (R^2)	
					g/sec	lb/hr	lb/hr		lb/year	lb/hr		
1	2	3	4	5	6	7	8	9	10	11	12	13
1	Aluminum, Metal Dust, as Al	7429-90-5	10,000	100	5.04E-01	4.00E+00			1.10E+00	9.63E-04	4.15E+03	4.15E+03
2	Carbon Black	1333-86-4	3,500	35	1.76E-01	1.40E+00			1.10E+00	9.63E-04	1.45E+03	1.45E+03

TABLE 1 (PART NN).—*8-Hour SLEVs of Potentially Sensitive Noncarcinogenic Pollutants from Building 2010 of TA–3*

NO.	TOXIC AIR POLLUTANTS	CAS NUMBER	OELS µg/m^3	1/100 OF THE OELS µg/m^3	8-HOUR SLEVS		RAPS 1990 DATA		ACIS 1995 DATA			THE SMALLER (R^1) OR (R^2) RATIO
							HOURLY EMISSION RATE FROM RAPS (Q^{hr})	RATIO SLEVS/Q^{hr} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS	ESTIMATED HOURLY EMISSION RATES (Q^{ha})	RATIO SLEVS/Q^{ha} (R^2)	
					g/sec	lb/hr	lb/hr		lb/year	lb/hr		
1	2	3	4	5	6	7	8	9	10	11	12	13
1	Hydrogen Peroxide	7722-84-1	1,400	14	7.05E-02	5.59E-01			1.47E+01	1.28E-02	4.35E+01	4.35E+01

TABLE 2 (PART A).—*Annual SLEVs of the Carcinogenic Pollutants from TA–3 Facilities*

NO.	CARCINOGENIC POLLUTANTS	CAS NUMBER	CAR. CLASS	UNIT RISK FACTOR (URF)	MAXIMUM CANCER RISK (C_{an} X URF)	ANNUAL SLEVS		RAPS 1990 DATA		NEW EMISSION RATE DATA			THE SMALLER (R^1) OR (R^2) RATIO
								ANNUAL EMISSION RATE FROM RAPS (Q^{aR})	RATIO SLEVS/ Q^{aR} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS	ESTIMATED ANNUAL EMISSION RATES (Q^{aA})	RATIO SLEVS/Q^{aA} (R^2)	
				$(\mu g/m^3)^{-1}$		g/sec	lb/yr	lb/yr		lb/year	lb/hr		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Acetaldehyde	75-07-0	B2	2.20E-06	5.42E-06	1.84E-03	2.93E+01			4.00E-01	1.40E-01	2.09E+02	2.09E+02
2	Acrylamide	79-06-1	B2	1.30E-03	3.20E-03	3.12E-06	4.95E-02						
3	Acrylonitrile	107-13-1	B1	6.80E-05	1.68E-04	5.97E-05	9.47E-01						
4	Allyl Chloride	107-05-1	C	5.50E-08	1.36E-07	7.37E-02	1.17E+03						
5	Aldrin	309-00-2	B2	4.90E-03	1.21E-02	8.28E-07	1.31E-02						
6	Arsenic, el. & in., exc. Arsine, as As	7440-38-2	A	4.30E-03	1.06E-02	9.43E-07	1.50E-02	2.00E-07	7.49E+04				7.49E+04
7	Asbestos	1332-21-4	A	6.90E+00	1.70E+01	5.88E-10	9.33E-06						
8	Benzene	71-43-2	A	8.30E-06	2.05E-05	4.89E-04	7.76E+00				2.37E+00	3.27E+00	3.27E+00
9	Benzidine	92-87-5	A	6.70E-02	1.65E-01	6.05E-08	9.61E-04						
10	Benzo(a)pyrene	50-32-8	B2	1.70E-03	4.19E-03	2.39E-06	3.79E-02						
11	Benzyl Chloride	100-44-7	B2	1.20E-05	2.96E-05	3.38E-04	5.37E+00						
12	Beryllium	7440-41-7	B2	2.40E-03	5.92E-03	1.69E-06	2.68E-02				1.10E-01	2.44E-01	2.44E-01
13	Bis (Chloromethyl) Ether (BCME)	542-88-1	A	6.20E-02	1.53E-01	6.54E-08	1.04E-03						
14	Bromoform	75-25-2	B2	1.10E-06	2.71E-06	3.69E-03	5.85E+01						
15	1,3-Butadiene	106-99-0	B2	2.80E-04	6.90E-04	1.45E-05	2.30E-01						
16	Cadmium, el.l&comp., as Cd	7440-43-9	B1	1.80E-03	4.44E-03	2.25E-06	3.58E-02						
17	Carbon Tetrachloride	56-23-5	B2	1.50E-05	3.70E-05	2.70E-04	4.29E+00	5.00E-01	8.58E+00	1.41E+01	4.94E+00	8.70E-01	8.70E-01
18	Chloroform	67-66-3	B2	2.30E-05	5.67E-05	1.76E-04	2.80E+00	4.50E-01	6.22E+00		4.52E+00	6.19E-01	6.19E-01
19	Chlordane	57-74-9	B2	3.70E-04	9.12E-04	1.10E-05	1.74E-01						
20	Chromium VI	18540-29-9	A	1.20E-02	2.96E-02	3.38E-07	5.37E-03						
21	Diethanolamine	111-42-2	--	1.10E-07	2.71E-07	3.69E-02	5.85E+02						
22	3,3-Dichlorobenzidine	91-94-1	B2	4.80E-04	1.18E-03	8.45E-06	1.34E-01						
23	Epichlorohydrin	106-89-8	B2	1.20E-06	2.96E-06	3.38E-03	5.37E+01						
24	Ethyl Acrylate	140-88-5	B2	5.00E-07	1.23E-06	8.11E-03	1.29E+02			6.09E-01	2.13E-01	6.05E+02	6.05E+02

TABLE 2 (PART A).—*Annual SLEVs of the Carcinogenic Pollutants from TA–3 Facilities*-Continued

NO.	CARCINOGENIC POLLUTANTS	CAS NUMBER	CAR. CLASS	UNIT RISK FACTOR (URF)	MAXIMUM CANCER RISK (C_{an} X URF)	ANNUAL SLEVS		RAPS 1990 DATA		NEW EMISSION RATE DATA			THE SMALLER (R^1) OR (R^2) RATIO
								ANNUAL EMISSION RATE FROM RAPS (Q^{aR})	RATIO SLEVS/ Q^{aR} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS	ESTIMATED ANNUAL EMISSION RATES (Q^{aA})	RATIO SLEVS/Q^{aA} (R^2)	
				$(\mu g/m^3)^{-1}$		g/sec	lb/yr	lb/yr		lb/year	lb/hr		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
25	Ethylene Dibromide	106-93-4	B2	2.20E-04	5.42E-04	1.84E-05	2.93E-01						
26	Ethylene Dichloride	107-06-2	B2	2.60E-05	6.41E-05	1.56E-04	2.48E+00			2.60E+00	9.10E-01	2.72E+00	2.72E+00
27	Ethylene Oxide	75-21-8	B1	1.00E-04	2.47E-04	4.06E-05	6.44E-01						
28	Formaldehyde	50-00-0	B1	1.30E-05	3.20E-05	3.12E-04	4.95E+00	5.46E+00	9.07E-01				9.07E-01
29	Hexachlorobenzene	118-74-1	B2	4.60E-04	1.13E-03	8.82E-06	1.40E-01						
30	Hexachlorobutadiene	87-68-3	C	2.20E-05	5.42E-05	1.84E-04	2.93E+00						
31	Hexachloroethane	67-72-1	C	4.00E-06	9.86E-06	1.01E-03	1.61E+01						
32	Hydrazine	302-01-2	B2	4.90E-03	1.21E-02	8.28E-07	1.31E-02						
33	Lindane	58-89-9	B2-C	3.80E-04	9.37E-04	1.07E-05	1.69E-01						
34	Methyl Chloride	74-87-3	C	1.80E-06	4.44E-06	2.25E-03	3.58E+01						
35	Methylene Chloride	75-09-2	B2	4.70E-07	1.16E-06	8.63E-03	1.37E+02	1.50E+01	9.11E+00		7.42E+02	1.85E-01	1.85E-01
36	Nickel, metal (dust)	NA	A	2.40E-04	5.92E-04	1.69E-05	2.68E-01	7.36E-02	3.65E+00	5.25E+01	1.58E-03	1.70E+02	3.65E+00
37	Pentachlorophenol	87-86-5	B2	3.90E-07	9.61E-07	1.04E-02	1.65E+02						
38	Polychlorinated Biphenyl (PCB)	11097-69-1	B2	1.20E-03	2.96E-03	3.38E-06	5.37E-02						
39	Propylene Dichloride	78-87-5	B2	7.20E-07	1.78E-06	5.63E-03	8.94E+01	5.50E+00	1.63E+01				1.63E+01
40	Propylene Oxide	75-56-9	B2	3.70E-06	9.12E-06	1.10E-03	1.74E+01						
41	Styrene	100-42-5	B2	5.70E-07	1.41E-06	7.12E-03	1.13E+02			1.00E-01	3.50E-02	3.23E+03	3.23E+03
42	Toxaphene	8001-35-2	B2	3.20E-04	7.89E-04	1.27E-05	2.01E-01						
43	Tetrachlorethylene	127-18-4	B2	1.40E-05	3.45E-05	2.90E-04	4.60E+00	1.00E+00	4.60E+00				4.60E+00
44	Trichloroethylene	79-01-6	B2	1.00E-05	2.47E-05	4.06E-04	6.44E+00	4.15E+00	1.55E+00		1.12E-01	5.75E+01	1.55E+00
45	Vinyl Chloride	75-01-4	A	8.40E-05	2.07E-04	4.83E-05	7.66E-01						
46	1,1-Dichloethylene	75-35-4	C	5.00E-05	1.23E-04	8.11E-05	1.29E+00						
47	1,1,2,2-Tetrachloroethane	79-34-5	C	5.80E-05	1.43E-04	6.99E-05	1.11E+00						
48	1,1,1,2-Tetrachloroethane	630-20-6	C	7.40E-06	1.82E-05	5.48E-04	8.70E+00						
49	1,1,2-Trichloroethane	79-00-5	C	1.60E-05	3.94E-05	2.54E-04	4.02E+00	1.66E+00	2.42E+00				2.42E+00
50	1,2-Dibromo-3-Chloropropane	96-12-8	B2	6.90E-07	1.70E-06	5.88E-03	9.33E+01						

TABLE 2 (PART A).—*Annual SLEVs of the Carcinogenic Pollutants from TA–3 Facilities*-Continued

NO.	CARCINOGENIC POLLUTANTS	CAS NUMBER	CAR. CLASS	UNIT RISK FACTOR (URF)	MAXIMUM CANCER RISK (C_{an} X URF)	ANNUAL SLEVS		RAPS 1990 DATA		NEW EMISSION RATE DATA			THE SMALLER (R^1) OR (R^2) RATIO
								ANNUAL EMISSION RATE FROM RAPS (Q^{aR})	RATIO SLEVS/ Q^{aR} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS	ESTIMATED ANNUAL EMISSION RATES (Q^{aA})	RATIO SLEVS/Q^{aA} (R^2)	
				($\mu g/m^3$)$^{-1}$		g/sec	lb/yr	lb/yr		lb/year	lb/hr		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
51	2-Nitropropane	79-46-9	B2	2.70E-03	6.66E-03	1.50E-06	2.38E-02						

Note: The highest ISC–3 estimated annual concentration at sensitive receptors set was found to be 2.465 µg/m3 when emission rate is 1 g/sec.
Note: ACIS and RAPS databases (LANL 1995a and LANL 1990) indicated that 51 carcinogens had been used in the past. Site information now shows 35 carcinogens in use (Attachment 6, Table C).

TABLE 2 (PART B).—*Annual SLEVs of Potentially Sensitive Carcinogenic Pollutants from TA–3*

NO.	CARCINOGENIC POLLUTANTS	CAS NUMBER	CAR. CLASS	UNIT RISK FACTOR (URF)	MAXIMUM CANCER RISK (C_{an} X URF)	ANNUAL SLEVS		RAPS 1990 DATA		NEW EMISSION RATE DATA			THE SMALLER (R^1) OR (R^2) RATIO
								ANNUAL EMISSION RATE FROM RAPS (Q^{aR})	RATIO SLEVS/Q^{aR} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS	ESTIMATED ANNUAL EMISSION RATES (Q^{aA})	RATIO SLEVS/Q^{aA} (R^2)	
				$(\mu g/m^3)^{-1}$		g/sec	lb/yr	lb/yr		lb/year	lb/hr		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Benzene	71-43-2	A	8.30E-06	2.05E-05	4.89E-04	7.76E+00				2.37E+00	3.27E+00	3.27E+00
2	Beryllium	7440-41-7	B2	2.40E-03	5.92E-03	1.69E-06	2.68E-02				1.10E-01	2.44E-01	2.44E-01
3	Carbon Tetrachloride	56-23-5	B2	1.50E-05	3.70E-05	2.70E-04	4.29E+00	5.00E-01	8.58E+00	1.41E+01	4.94E+00	8.70E-01	8.70E-01
4	Chloroform	67-66-3	B2	2.30E-05	5.67E-05	1.76E-04	2.80E+00	4.50E-01	6.22E+00		4.52E+00	6.19E-01	6.19E-01
5	Ethylene Dichloride	107-06-2	B2	2.60E-05	6.41E-05	1.56E-04	2.48E+00			2.60E+00	9.10E-01	2.72E+00	2.72E+00
6	Formaldehyde	50-00-0	B1	1.30E-05	3.20E-05	3.12E-04	4.95E+00	5.46E+00	9.07E-01				9.07E-01
7	Methylene Chloride	75-09-2	B2	4.70E-07	1.16E-06	8.63E-03	1.37E+02	1.50E+01	9.11E+00		7.42E+02	1.85E-01	1.85E-01
8	Nickel, metal (dust)	NA	A	2.40E-04	5.92E-04	1.69E-05	2.68E-01	7.36E-02	3.65E+00	5.25E+01	1.58E-03	1.70E+02	3.65E+00
9	Propylene Dichloride	78-87-5	B2	7.20E-07	1.78E-06	5.63E-03	8.94E+01	5.50E+00	1.63E+01				1.63E+01
10	Tetrachlorethylene	127-18-4	B2	1.40E-05	3.45E-05	2.90E-04	4.60E+00	1.00E+00	4.60E+00				4.60E+00
11	Trichloroethylene	79-01-6	B2	1.00E-05	2.47E-05	4.06E-04	6.44E+00	4.15E+00	1.55E+00		1.12E-01	5.75E+01	1.55E+00
12	1,1,2-Trichloroethane	79-00-5	C	1.60E-05	3.94E-05	2.54E-04	4.02E+00	1.66E+00	2.42E+00				2.42E+00

TABLE 2 (PART C).—*Annual SLEVs of Potentially Sensitive Carcinogenic Pollutants from Building 16 of TA–3*

NO.	CARCINOGENIC POLLUTANTS	CAS NUMBER	CAR. CLASS	UNIT RISK FACTOR (URF)	MAXIMUM CANCER RISK (C_{an} X URF)	ANNUAL SLEVS		RAPS 1990 DATA		NEW EMISSION RATE DATA			THE SMALLER (R^1) OR (R^2) RATIO
								ANNUAL EMISSION RATE FROM RAPS (Q^{aR})	RATIO SLEVS/Q^{aR} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS	ESTIMATED ANNUAL EMISSION RATES (Q^{aA})	RATIO SLEVS/Q^{aA} (R^2)	
				$(\mu g/m^3)^{-1}$		g/sec	lb/yr	lb/yr		lb/year	lb/hr		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Chloroform	67-66-3	B2	2.30E-05	5.67E-05	1.76E-04	2.80E+00	4.50E-01	6.22E+00				6.22E+00
2	Chromium VI	18540-29-9	A	1.20E-02	2.96E-02	3.38E-07	5.37E-03	2.00E-02	2.68E-01				2.68E-01
3	Formaldehyde	50-00-0	B1	1.30E-05	3.20E-05	3.12E-04	4.95E+00	6.00E-01	8.25E+00				8.25E+00

TABLE 2 (PART D).—*Annual SLEVs of Potentially Sensitive Carcinogenic Pollutants from Building 29 of TA–3*

NO.	CARCINOGENIC POLLUTANTS	CAS NUMBER	CAR. CLASS	UNIT RISK FACTOR (URF)	MAXIMUM CANCER RISK (C_{an} X URF)	ANNUAL SLEVS		RAPS 1990 DATA		NEW EMISSION RATE DATA			THE SMALLER (R^1) OR (R^2) RATIO
								ANNUAL EMISSION RATE FROM RAPS (Q^{aR})	RATIO SLEVS/ Q^{aR} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS	ESTIMATED ANNUAL EMISSION RATES (Q^{aA})	RATIO SLEVS/ Q^{aA} (R^2)	
				$(\mu g/m^3)^{-1}$		g/sec	lb/yr	lb/yr		lb/year	lb/hr		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Beryllium	7440-41-7	B2	2.40E-03	5.92E-03	1.69E-06	2.68E-02				3.60E-06	7.45E+03	7.45E+03
2	Formaldehyde	50-00-0	B1	1.30E-05	3.20E-05	3.12E-04	4.95E+00	1.00E-02	4.95E+02				4.95E+02
3	Methylene Chloride	75-09-2	B2	4.70E-07	3.24E-07	3.09E-02	4.90E+02				7.00E+02	7.00E-01	7.00E-01
4	Nickel, metal (dust)	NA	A	2.40E-04	5.92E-04	1.69E-05	2.68E-01	1.10E-03	2.44E+02				2.44E+02

TABLE 2 (PART E).—*Annual SLEVs of Potentially Sensitive Carcinogenic Pollutants from Building 30 of TA–3*

NO.	CARCINOGENIC POLLUTANTS	CAS NUMBER	CAR. CLASS	UNIT RISK FACTOR (URF)	MAXIMUM CANCER RISK (C_{an} X URF)	ANNUAL SLEVS		RAPS 1990 DATA		NEW EMISSION RATE DATA			THE SMALLER (R^1) OR (R^2) RATIO
								ANNUAL EMISSION RATE FROM RAPS (Q^{aR})	RATIO SLEVS/ Q^{aR} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS	ESTIMATED ANNUAL EMISSION RATES (Q^{aA})	RATIO SLEVS/ Q^{aA} (R^2)	
				$(\mu g/m^3)^{-1}$		g/sec	lb/yr	lb/yr		lb/year	lb/hr		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Methylene Chloride	75-09-2	B2	4.70E-07	1.16E-06	8.63E-03	1.37E+02	8.25E+00	1.66E+01			1.66E+01	1.66E+01

TABLE 2 (PART F).—*Annual SLEVs of Potentially Sensitive Carcinogenic Pollutants from Building 34 of TA–3*

NO.	CARCINOGENIC POLLUTANTS	CAS NUMBER	CAR. CLASS	UNIT RISK FACTOR (URF)	MAXIMUM CANCER RISK (C_{an} X URF)	ANNUAL SLEVS		RAPS 1990 DATA		NEW EMISSION RATE DATA			THE SMALLER (R^1) OR (R^2) RATIO
								ANNUAL EMISSION RATE FROM RAPS (Q^{aR})	RATIO SLEVS/ Q^{aR} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS	ESTIMATED ANNUAL EMISSION RATES (Q^{aA})	RATIO SLEVS/ Q^{aA} (R^2)	
				$(\mu g/m^3)^{-1}$		g/sec	lb/yr	lb/yr		lb/year	lb/hr		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Formaldehyde	50-00-0	B1	1.30E-05	3.20E-05	3.12E-04	4.95E+00	1.56E-01	3.17E+01				3.17E+01
2	Methylene Chloride	75-09-2	B2	4.70E-07	1.16E-06	8.63E-03	1.37E+02			8.21E+01	2.87E+01	4.77E+00	4.77E+00
3	Nickel, metal (dust)	NA	A	2.40E-04	5.92E-04	1.69E-05	2.68E-01	2.50E-02	1.07E+01				1.07E+01

TABLE 2 (PART G).—*Annual SLEVs of Potentially Sensitive Carcinogenic Pollutants from Building 37 of TA–3*

NO.	CARCINOGENIC POLLUTANTS	CAS NUMBER	CAR. CLASS	UNIT RISK FACTOR (URF)	MAXIMUM CANCER RISK (C_{an} X URF)	ANNUAL SLEVS		RAPS 1990 DATA		NEW EMISSION RATE DATA			THE SMALLER (R^1) OR (R^2) RATIO
								ANNUAL EMISSION RATE FROM RAPS (Q^{aR})	RATIO SLEVS/ Q^{aR} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS	ESTIMATED ANNUAL EMISSION RATES (Q^{aA})	RATIO SLEVS/ Q^{aA} (R^2)	
				$(\mu g/m^3)^{-1}$		g/sec	lb/yr	lb/yr		lb/year	lb/hr		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Tetrachlorethylene	127-18-4	B2	1.40E-05	3.45E-05	2.90E-04	4.60E+00	1.00E+00	4.60E+00				4.60E+00

TABLE 2 (PART H).—*Annual SLEVs of Potentially Sensitive Carcinogenic Pollutants from Building 38 of TA–3*

NO.	CARCINOGENIC POLLUTANTS	CAS NUMBER	CAR. CLASS	UNIT RISK FACTOR (URF)	MAXIMUM CANCER RISK (C_{an} X URF)	ANNUAL SLEVS		RAPS 1990 DATA		NEW EMISSION RATE DATA			THE SMALLER (R^1) OR (R^2) RATIO
								ANNUAL EMISSION RATE FROM RAPS (Q^{aR})	RATIO SLEVS/ Q^{aR} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS	ESTIMATED ANNUAL EMISSION RATES (Q^{aA})	RATIO SLEVS/ Q^{aA} (R^2)	
				$(\mu g/m^3)^{-1}$		g/sec	lb/yr	lb/yr		lb/year	lb/hr		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Benzene	71-43-2	A	8.30E-06	2.05E-05	4.89E-04	7.76E+00				2.28E+00	3.40E+00	3.40E+00
2	Methylene Chloride	75-09-2	B2	4.70E-07	1.16E-06	8.63E-03	1.37E+02	2.78E+00	4.94E+01				4.94E+01
3	Propylene Dichloride	78-87-5	B2	7.20E-07	1.78E-06	5.63E-03	8.94E+01	5.50E+00	1.63E+01				1.63E+01
4	Tetrachlorethylene	127-18-4	B2	1.40E-05	3.45E-05	2.90E-04	4.60E+00	1.48E-08	3.11E+08				3.11E+08
5	Trichloroethylene	79-01-6	B2	1.00E-05	2.47E-05	4.06E-04	6.44E+00	4.50E-02	1.43E+02				1.43E+02

TABLE 2 (PART I).—*Annual SLEVs of Potentially Sensitive Carcinogenic Pollutants from Building 39 of TA–3*

NO.	CARCINOGENIC POLLUTANTS	CAS NUMBER	CAR. CLASS	UNIT RISK FACTOR (URF)	MAXIMUM CANCER RISK (C_{an} X URF)	ANNUAL SLEVS		RAPS 1990 DATA		NEW EMISSION RATE DATA			THE SMALLER (R^1) OR (R^2) RATIO
								ANNUAL EMISSION RATE FROM RAPS (Q^{aR})	RATIO SLEVS/ Q^{aR} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS	ESTIMATED ANNUAL EMISSION RATES (Q^{aA})	RATIO SLEVS/ Q^{aA} (R^2)	
				$(\mu g/m^3)^{-1}$		g/sec	lb/yr	lb/yr		lb/year	lb/hr		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Benzene	71-43-2	A	8.30E-06	2.05E-05	4.89E-04	7.76E+00				9.10E-02	8.52E+01	8.52E+01
2	Formaldehyde	50-00-0	B1	1.30E-05	3.20E-05	3.12E-04	4.95E+00	1.00E-02	4.95E+02				4.95E+02

TABLE 2 (PART J).—*Annual SLEVs of Potentially Sensitive Carcinogenic Pollutants from Building 40 of TA–3*

NO.	CARCINOGENIC POLLUTANTS	CAS NUMBER	CAR. CLASS	UNIT RISK FACTOR (URF)	MAXIMUM CANCER RISK (C_{an} X URF)	ANNUAL SLEVS		RAPS 1990 DATA		NEW EMISSION RATE DATA			THE SMALLER (R^1) OR (R^2) RATIO
								ANNUAL EMISSION RATE FROM RAPS (Q^{aR})	RATIO SLEVS/ Q^{aR} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS	ESTIMATED ANNUAL EMISSION RATES (Q^{aA})	RATIO SLEVS/ Q^{aA} (R^2)	
				$(\mu g/m^3)^{-1}$		g/sec	lb/yr	lb/yr		lb/year	lb/hr		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Carbon Tetrachloride	56-23-5	B2	1.50E-05	3.70E-05	2.70E-04	4.29E+00	5.00E-01	8.58E+00				8.58E+00
2	Chromium VI	18540-29-9	A	1.20E-02	2.96E-02	3.38E-07	5.37E-03	5.75E-02	9.33E-02				9.33E-02
3	Formaldehyde	50-00-0	B1	1.30E-05	3.20E-05	3.12E-04	4.95E+00	3.06E-01	1.62E+01				1.62E+01
4	Methylene Chloride	75-09-2	B2	4.70E-07	1.16E-06	8.63E-03	1.37E+02	5.00E-01	2.74E+02	2.93E+01	1.03E+01	1.33E+01	1.33E+01
5	Nickel, metal (dust)	NA	A	2.40E-04	5.92E-04	1.69E-05	2.68E-01	4.75E-02	5.65E+00				5.65E+00
6	Trichloroethylene	79-01-6	B2	1.00E-05	2.47E-05	4.06E-04	6.44E+00	2.50E+00	2.58E+00				2.58E+00

TABLE 2 (PART K).—*Annual SLEVs of Potentially Sensitive Carcinogenic Pollutants from Building 43 of TA–3*

NO.	CARCINOGENIC POLLUTANTS	CAS NUMBER	CAR. CLASS	UNIT RISK FACTOR (URF)	MAXIMUM CANCER RISK (C_{an} X URF)	ANNUAL SLEVS		RAPS 1990 DATA		NEW EMISSION RATE DATA			THE SMALLER (R^1) OR (R^2) RATIO
								ANNUAL EMISSION RATE FROM RAPS (Q^{aR})	RATIO SLEVS/ Q^{aR} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS	ESTIMATED ANNUAL EMISSION RATES (Q^{aA})	RATIO SLEVS/ Q^{aA} (R^2)	
				$(\mu g/m^3)^{-1}$		g/sec	lb/yr	lb/yr		lb/year	lb/hr		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Formaldehyde	50-00-0	B1	1.30E-05	3.20E-05	3.12E-04	4.95E+00	5.20E-01	9.52E+00				9.52E+00
2	Methylene Chloride	75-09-2	B2	4.70E-07	1.16E-06	8.63E-03	1.37E+02	3.00E+00	4.57E+01				4.57E+01

TABLE 2 (PART L).—*Annual SLEVs of Potentially Sensitive Carcinogenic Pollutants from Building 43 510 of TA–3*

NO.	CARCINOGENIC POLLUTANTS	CAS NUMBER	CAR. CLASS	UNIT RISK FACTOR (URF)	MAXIMUM CANCER RISK (C_{an} X URF)	ANNUAL SLEVS		RAPS 1990 DATA		NEW EMISSION RATE DATA			THE SMALLER (R^1) OR (R^2) RATIO
								ANNUAL EMISSION RATE FROM RAPS (Q^{aR})	RATIO SLEVS/ Q^{aR} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS	ESTIMATED ANNUAL EMISSION RATES (Q^{aA})	RATIO SLEVS/ Q^{aA} (R^2)	
				$(\mu g/m^3)^{-1}$		g/sec	lb/yr	lb/yr		lb/year	lb/hr		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Formaldehyde	50-00-0	B1	1.30E-05	3.20E-05	3.12E-04	4.95E+00	2.17E+00	2.28E+00				2.28E+00

TABLE 2 (PART M).—*Annual SLEVs of Potentially Sensitive Carcinogenic Pollutants from Building 65 of TA–3*

NO.	CARCINOGENIC POLLUTANTS	CAS NUMBER	CAR. CLASS	UNIT RISK FACTOR (URF)	MAXIMUM CANCER RISK (C_{an} X URF)	ANNUAL SLEVS		RAPS 1990 DATA		NEW EMISSION RATE DATA			THE SMALLER (R^1) OR (R^2) RATIO
								ANNUAL EMISSION RATE FROM RAPS (Q^{aR})	RATIO SLEVS/ Q^{aR} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS	ESTIMATED ANNUAL EMISSION RATES (Q^{aA})	RATIO SLEVS/ Q^{aA} (R^2)	
				$(\mu g/m^3)^{-1}$		g/sec	lb/yr	lb/yr		lb/year	lb/hr		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Trichloroethylene	79-01-6	B2	1.00E-05	2.47E-05	4.06E-04	6.44E+00	1.60E+00	4.02E+00				4.02E+00

TABLE 2 (PART N).—*Annual SLEVs of Potentially Sensitive Carcinogenic Pollutants from Building 66 of TA–3*

NO.	CARCINOGENIC POLLUTANTS	CAS NUMBER	CAR. CLASS	UNIT RISK FACTOR (URF)	MAXIMUM CANCER RISK (C_{an} X URF)	ANNUAL SLEVS		RAPS 1990 DATA		NEW EMISSION RATE DATA			THE SMALLER (R^1) OR (R^2) RATIO
								ANNUAL EMISSION RATE FROM RAPS (Q^{aR})	RATIO SLEVS/ Q^{aR} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS	ESTIMATED ANNUAL EMISSION RATES (Q^{aA})	RATIO SLEVS/ Q^{aA} (R^2)	
				$(\mu g/m^3)^{-1}$		g/sec	lb/yr	lb/yr		lb/year	lb/hr		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Carbon Tetrachloride	56-23-5	B2	1.50E-05	3.70E-05	2.70E-04	4.29E+00			1.06E+01	3.71E+00	1.16E+00	1.16E+00
2	Chloroform	67-66-3	B2	2.30E-05	5.67E-05	1.76E-04	2.80E+00			6.60E+01	6.60E-01	4.24E+00	4.24E+00
3	Formaldehyde	50-00-0	B1	1.30E-05	3.20E-05	3.12E-04	4.95E+00	5.00E-02	9.91E+01				9.91E+01
4	Methylene Chloride	75-09-2	B2	4.70E-07	1.16E-06	8.63E-03	1.37E+02	5.00E-01	2.74E+02				2.74E+02
5	Trichloroethylene	79-01-6	B2	1.00E-05	2.47E-05	4.06E-04	6.44E+00			3.20E-01	1.12E-01	5.75E+01	5.75E+01
6	1,1,2-Trichloroethane	79-00-5	C	1.60E-05	3.94E-05	2.54E-04	4.02E+00	1.66E+00	2.42E+00				2.42E+00

TABLE 2 (PART O).—*Annual SLEVs of Potentially Sensitive Carcinogenic Pollutants from Building 70 of TA–3*

NO.	CARCINOGENIC POLLUTANTS	CAS NUMBER	CAR. CLASS	UNIT RISK FACTOR (URF)	MAXIMUM CANCER RISK (C_{an} X URF)	ANNUAL SLEVS		RAPS 1990 DATA		NEW EMISSION RATE DATA			THE SMALLER (R^1) OR (R^2) RATIO
								ANNUAL EMISSION RATE FROM RAPS (Q^{aR})	RATIO SLEVS/ Q^{aR} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS	ESTIMATED ANNUAL EMISSION RATES (Q^{aA})	RATIO SLEVS/ Q^{aA} (R^2)	
				$(\mu g/m^3)^{-1}$		g/sec	lb/yr	lb/yr		lb/year	lb/hr		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Formaldehyde	50-00-0	B1	1.30E-05	3.20E-05	3.12E-04	4.95E+00	1.93E-01	2.57E+01				2.57E+01

TABLE 2 (PART P).—*Annual SLEVs of Potentially Sensitive Carcinogenic Pollutants from Building 73 of TA–3*

NO.	CARCINOGENIC POLLUTANTS	CAS NUMBER	CAR. CLASS	UNIT RISK FACTOR (URF)	MAXIMUM CANCER RISK (C_{an} X URF)	ANNUAL SLEVS		RAPS 1990 DATA		NEW EMISSION RATE DATA			THE SMALLER (R^1) OR (R^2) RATIO
								ANNUAL EMISSION RATE FROM RAPS (Q^{aR})	RATIO SLEVS/ Q^{aR} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS	ESTIMATED ANNUAL EMISSION RATES (Q^{aA})	RATIO SLEVS/ Q^{aA} (R^2)	
				$(\mu g/m^3)^{-1}$		g/sec	lb/yr	lb/yr		lb/year	lb/hr		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Formaldehyde	50-00-0	B1	1.30E-05	3.20E-05	3.12E-04	4.95E+00	5.84E-01	8.49E+00				8.49E+00

TABLE 2 (PART Q).—*Annual SLEVs of Potentially Sensitive Carcinogenic Pollutants from Building 102 of TA–3*

NO.	CARCINOGENIC POLLUTANTS	CAS NUMBER	CAR. CLASS	UNIT RISK FACTOR (URF)	MAXIMUM CANCER RISK (C_{an} X URF)	ANNUAL SLEVS		RAPS 1990 DATA		NEW EMISSION RATE DATA			THE SMALLER (R^1) OR (R^2) RATIO
								ANNUAL EMISSION RATE FROM RAPS (Q^{aR})	RATIO SLEVS/ Q^{aR} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS	ESTIMATED ANNUAL EMISSION RATES (Q^{aA})	RATIO SLEVS/ Q^{aA} (R^2)	
				$(\mu g/m^3)^{-1}$		g/sec	lb/yr	lb/yr		lb/year	lb/hr		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Beryllium	7440-41-7	B2	2.40E-03	5.92E-03	1.69E-06	2.68E-02				1.40E-04	1.92E+02	1.92E+02
2	Nickel, metal (dust)	NA	A	2.40E-04	5.92E-04	1.69E-05	2.68E-01			5.25E+01	1.58E-03	1.70E+02	1.70E+02

TABLE 2 (PART R).—*Annual SLEVs of Potentially Sensitive Carcinogenic Pollutants from Building 105 of TA–3*

NO.	CARCINOGENIC POLLUTANTS	CAS NUMBER	CAR. CLASS	UNIT RISK FACTOR (URF)	MAXIMUM CANCER RISK (C_{an} X URF)	ANNUAL SLEVS		RAPS 1990 DATA		NEW EMISSION RATE DATA			THE SMALLER (R^1) OR (R^2) RATIO
								ANNUAL EMISSION RATE FROM RAPS (Q^{aR})	RATIO SLEVS/ Q^{aR} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS	ESTIMATED ANNUAL EMISSION RATES (Q^{aA})	RATIO SLEVS/ Q^{aA} (R^2)	
				$(\mu g/m^3)^{-1}$		g/sec	lb/yr	lb/yr		lb/year	lb/hr		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Formaldehyde	50-00-0	B1	1.30E-05	3.20E-05	3.12E-04	4.95E+00	2.50E-01	1.98E+01				1.98E+01

TABLE 2 (PART S).—*Annual SLEVs of Potentially Sensitive Carcinogenic Pollutants from Building 103 of TA–3*

NO.	CARCINOGENIC POLLUTANTS	CAS NUMBER	CAR. CLASS	UNIT RISK FACTOR (URF)	MAXIMUM CANCER RISK (C_{an} X URF)	ANNUAL SLEVS		RAPS 1990 DATA		NEW EMISSION RATE DATA			THE SMALLER (R^1) OR (R^2) RATIO
								ANNUAL EMISSION RATE FROM RAPS (Q^{aR})	RATIO SLEVS/ Q^{aR} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS	ESTIMATED ANNUAL EMISSION RATES (Q^{aA})	RATIO SLEVS/ Q^{aA} (R^2)	
				$(\mu g/m^3)^{-1}$		g/sec	lb/yr	lb/yr		lb/year	lb/hr		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Beryllium	7440-41-7	B2	2.40E-03	5.92E-03	1.69E-06	2.68E-02				1.10E-01	2.44E-01	2.44E-01

TABLE 2 (PART T).—*Annual SLEVs of Potentially Sensitive Carcinogenic Pollutants from Building 218 of TA–3*

NO.	CARCINOGENIC POLLUTANTS	CAS NUMBER	CAR. CLASS	UNIT RISK FACTOR (URF)	MAXIMUM CANCER RISK (C_{an} X URF)	ANNUAL SLEVS		RAPS 1990 DATA		NEW EMISSION RATE DATA			THE SMALLER (R^1) OR (R^2) RATIO
								ANNUAL EMISSION RATE FROM RAPS (Q^{aR})	RATIO SLEVS/ Q^{aR} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS	ESTIMATED ANNUAL EMISSION RATES (Q^{aA})	RATIO SLEVS/ Q^{aA} (R^2)	
				$(\mu g/m^3)^{-1}$		g/sec	lb/yr	lb/yr		lb/year	lb/hr		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Trichloroethylene	79-01-6	B2	1.00E-05	2.47E-05	4.06E-04	6.44E+00	5.38E-04	1.20E+04				1.20E+04

TABLE 2 (PART U).—*Annual SLEVs of Potentially Sensitive Carcinogenic Pollutants from Building 287 of TA–3*

NO.	CARCINOGENIC POLLUTANTS	CAS NUMBER	CAR. CLASS	UNIT RISK FACTOR (URF)	MAXIMUM CANCER RISK (C_{an} X URF)	ANNUAL SLEVS		RAPS 1990 DATA		NEW EMISSION RATE DATA			THE SMALLER (R^1) OR (R^2) RATIO
								ANNUAL EMISSION RATE FROM RAPS (Q^{aR})	RATIO SLEVS/ Q^{aR} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS	ESTIMATED ANNUAL EMISSION RATES (Q^{aA})	RATIO SLEVS/ Q^{aA} (R^2)	
				$(\mu g/m^3)^{-1}$		g/sec	lb/yr	lb/yr		lb/year	lb/hr		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Formaldehyde	50-00-0	B1	1.30E-05	3.20E-05	3.12E-04	4.95E+00	3.00E-01	1.65E+01				1.65E+01

TABLE 2 (PART V).—*Annual SLEVs of Potentially Sensitive Carcinogenic Pollutants from Building 1698 of TA–3*

NO.	CARCINOGENIC POLLUTANTS	CAS NUMBER	CAR. CLASS	UNIT RISK FACTOR (URF)	MAXIMUM CANCER RISK (C_{an} X URF)	ANNUAL SLEVS		RAPS 1990 DATA		NEW EMISSION RATE DATA			THE SMALLER (R^1) OR (R^2) RATIO
								ANNUAL EMISSION RATE FROM RAPS (Q^{aR})	RATIO SLEVS/ Q^{aR} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS	ESTIMATED ANNUAL EMISSION RATES (Q^{aA})	RATIO SLEVS/ Q^{aA} (R^2)	
				$(\mu g/m^3)^{-1}$		g/sec	lb/yr	lb/yr		lb/year	lb/hr		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Carbon Tetrachloride	56-23-5	B2	1.50E-05	3.70E-05	2.70E-04	4.29E+00			3.50E+00	1.23E+00	3.50E+00	3.50E+00
2	Chloroform	67-66-3	B2	2.30E-05	5.67E-05	1.76E-04	2.80E+00			1.15E+02	1.38E+00	2.03E+00	2.03E+00
3	Ethylene Dichloride	107-06-2	B2	2.60E-05	6.41E-05	1.56E-04	2.48E+00			2.60E+00	9.10E-01	2.72E+00	2.72E+00
4	Methylene Chloride	75-09-2	B2	4.70E-07	1.16E-06	8.63E-03	1.37E+02			5.80E+00	2.03E+00	6.75E+01	6.75E+01
5	Styrene	100-42-5	B2	5.70E-07	1.41E-06	7.12E-03	1.13E+02			1.00E-01	3.50E-02	3.23E+03	3.23E+03

TABLE 2 (PART W).—*Annual SLEVs of Potentially Sensitive Carcinogenic Pollutants from Building 495 of TA–3*

NO.	CARCINOGENIC POLLUTANTS	CAS NUMBER	CAR. CLASS	UNIT RISK FACTOR (URF)	MAXIMUM CANCER RISK (C_{an} X URF)	ANNUAL SLEVS		RAPS 1990 DATA		NEW EMISSION RATE DATA			THE SMALLER (R^1) OR (R^2) RATIO
								ANNUAL EMISSION RATE FROM RAPS (Q^{aR})	RATIO SLEVS/ Q^{aR} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS	ESTIMATED ANNUAL EMISSION RATES (Q^{aA})	RATIO SLEVS/ Q^{aA} (R^2)	
				$(\mu g/m^3)^{-1}$		g/sec	lb/yr	lb/yr		lb/year	lb/hr		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Formaldehyde	50-00-0	B1	1.30E-05	3.20E-05	3.12E-04	4.95E+00	3.00E-01	1.65E+01				1.65E+01

TABLE 2 (PART X).—*Annual SLEVs of Potentially Sensitive Carcinogenic Pollutants from Building 1819 of TA–3*

NO.	CARCINOGENIC POLLUTANTS	CAS NUMBER	CAR. CLASS	UNIT RISK FACTOR (URF)	MAXIMUM CANCER RISK (C_{an} X URF)	ANNUAL SLEVS		RAPS 1990 DATA		NEW EMISSION RATE DATA			THE SMALLER (R^1) OR (R^2) RATIO
								ANNUAL EMISSION RATE FROM RAPS (Q^{aR})	RATIO SLEVS/Q^{aR} (R^1)	PURCHASED AMOUNT OF CHEMICALS FROM ACIS	ESTIMATED ANNUAL EMISSION RATES (Q^{aA})	RATIO SLEVS/ Q^{aA} (R^2)	
				$(\mu g/m^3)^{-1}$		g/sec	lb/yr	lb/yr		lb/year	lb/hr		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Chloroform	67-66-3	B2	2.30E-05	5.67E-05	1.76E-04	2.80E+00			1.16E+02	2.48E+00	1.13E+00	1.13E+00
2	Methylene Chloride	75-09-2	B2	4.70E-07	1.16E-06	8.63E-03	1.37E+02			2.93E+00	1.03E+00	1.33E+02	1.33E+02

ATTACHMENT 6
ADDITIVE IMPACT ANALYSIS ASSOCIATED WITH THE COMBINED RELEASES OF CARCINOGENIC POLLUTANTS FROM ALL TECHNICAL AREAS

Technical Area(s): TA–00, TA–2, TA–3, TA–5, TA–8, TA–9, TA–11, TA–15, TA–16, TA–18, TA–21, TA–22, TA–33, TA–35, TA–36, TA–39, TA–40, TA–41, TA–43, TA–46, TA–48, TA–50, TA–51, TA–53, TA–54, TA–55, TA–59, TA–60, TA–61, and TA–64

Emission Sources

Releases of Noncarcinogenic and Carcinogenic Air Pollutants From All LANL TAs

Title III of the *Clean Air Act* (CAA) Amendments of 1990 sets a framework for regulating sources of toxic air pollutants. According to the provisions of the CAA, "after the implementation of the maximum achievable control technology, it is necessary to assess the residual risks due to toxic air emissions to the population near each source of emissions."

This assessment includes the determination of noncancer health effects of noncarcinogenic air pollutants based on the estimation of long-term and short-term ambient concentrations of these pollutants, and the determination of lifetime cancer risk exposure of carcinogenic air pollutants based on the estimation of long-term ambient concentrations of these pollutants. The determination involves performing analytical (modeling) simulations of the air pollutants dispersion for all emission sources of concern. Such simulations are then coupled with health effects information and compared to available population data to quantify human exposure, noncancer health risk, cancer risk, and ecological risks.

For carcinogenic air pollutants, the level of concern is the risk of an individual contracting cancer by being exposed to ambient concentrations of that pollutant over the course of a lifetime, or lifetime cancer risk. The criteria specified in the CAA is 1.0×10^{-6} (1 in 1,000,000) lifetime cancer risk for the individual exposed to the highest predicted concentration of a pollutant. Lifetime cancer risk is estimated by multiplying the predicted annual ambient concentration (in micrograms per cubic meter) of a specific pollutant by the unit risk factor for that pollutant, where the unit risk factor is equal to the upper bound lifetime cancer risk associated with inhaling a unit concentration (1 microgram per cubic meter) of that pollutant.

EPA has developed unit risk factors for a number of possible, probable, or known human carcinogens, which are available from its Integrated Risk Information System (IRIS) database.

According to EPA 1992f, "cancer risks resulting from exposure to mixtures of multiple carcinogenic pollutants are to be assessed by summing the incremental cancer risks due to each individual pollutant, regardless of the type of cancer that may be associated with any particular carcinogen. Thus, this approach assumes that all cancer risks are additive and all worst-case impacts occur at the same location. While this assumption may not be very realistic, it does help to insure that results are conservative, and, therefore protective to the public."

Pollutant(s) Considered

Noncarcinogenic Pollutants

An analysis of potential short-term impacts at a TA's fence line receptors showed that the 8-hour impacts from the releases of that TA were significantly greater (i.e., more then two orders of magnitude) than the impacts from the releases of a nearby TA. This is because the TAs are relatively far apart in comparison to the distances between the emission sources of a TA and its fence line receptors. Therefore, it is unlikely that the additive short-term impacts of noncarcinogenic pollutants at the fence line receptors of a TA would be significantly different from the maximum concentrations previously estimated for that TA.

An analysis of annual potential impacts at sensitive receptors showed that these impacts were significantly less (i.e., less then two orders of magnitude) relative to the appropriate Guideline Values (GVs) than the corresponding short-term impacts at the fence line receptors. Therefore, it is unlikely that the additive annual impacts of the noncarcinogenic pollutants at the sensitive receptors would be significant.

Carcinogenic Pollutants

All carcinogenic air pollutants that are currently being used at LANL or are anticipated to be used under the future alternatives were included in the additive impact analysis.

TA–2, TA–5, TA–11, TA–36, TA–40, TA–41, and TA–64 do not currently use carcinogenic pollutants and do not anticipate using them under the future alternatives. As such, these TAs were not included in the additive impact evaluation.

Emission Rates of Pollutants Considered

Annual emission rates of the carcinogenic pollutants used were those developed for both key and non-key facilities for each pollutant that had an SLEV/Q ratio less than one, based on process knowledge and chemical usage for the Expanded Operations Alternative. For those carcinogenic pollutants released from key or non-key facilities, within both key and non-key TAs, for which such emission data were not specifically developed for this analysis, emission rates were estimated based on data either from the RAPS Report or ACIS database, or were assumed to be at SLEV levels.

Beryllium emissions from all LANL sources (i.e., TA–3 CMR Building 29, TA–3 Machine Shops Complex, TA–35 Building 213, and TA–55 Building 15 Chemical Laboratory) were modeled using LANL's permitted emission rates.

Estimated emission rates of each of the carcinogenic pollutants considered in the additive impacts analysis for releases of all carcinogenic pollutants from all TAs are presented in Table A.

Dispersion Modeling Analysis

The additive impact analysis was conducted with the EPA's ISC–3 Model using 5 years of on-site meteorological data. All buildings near emission sources within the zone of influence at each TA were included in the downwash effects evaluation.

The incremental cancer risk from the release of a pollutant was estimated by multiplying the maximum ISC–3-estimated annual average concentration of that pollutant by its unit risk factor.

Major Assumptions Used in the Dispersion Analysis

- Emissions would be released simultaneously from LANL operations over 8,760 hours a year.
- Incremental cancer risks are additive.
- There is no reduction of the ambient concentrations by entry into buildings and deposition within them.

Results

Releases of Each Carcinogenic Pollutant from All TAs

The potential additive impact of the emissions of each of the carcinogenic pollutants from all of the TAs was estimated by assuming that each pollutant was emitted from all of the TAs at the SLEV levels. The maximum receptor for the release from each TA was added to the maximum receptor from each of the other TAs. This analysis was conducted for one of the pollutants, and the results were applied to each of the other pollutants. This approach is legitimate because the relationship between SLEVs and GVs are identical for all of the pollutants for each TA due to the fact that they are based on the same dispersion-related X/Q (concentration related to the emissions) ratio.

Results of the analysis are presented in Table B. For illustrational purposes, the cancer risk associated with the releases of three pollutants (arsenic, benzene, and formaldehyde) at their SLEV release rates are shown in Table B.

As shown, the combined cancer risk associated with releases of each of these pollutants from all TAs is 1.23×10^{-7}, which is below the GV of 1.0×10^{-6}.

Releases of All Carcinogenic Pollutants from All TAs

A total of 35 carcinogenic pollutants were considered in the additive impacts analysis of emissions of all carcinogenic pollutants from all of the TAs. These are the carcinogenic pollutants that are currently being used at LANL or are anticipated to be used under the site's future alternatives. The annual average concentrations of each pollutant were estimated assuming that all pollutants were emitted simultaneously from all of the TAs.

The maximum concentration of each pollutant from the simultaneous release from all TAs was determined by modeling the emission rates from Table A and recording the highest concentration from a listing of 180 receptors. The combined cancer risk was then estimated by summing up the cancer risk of each individual pollutant at these (maximum) concentrations, even though the receptors may

have been different. This value was then compared with an allowable incremental cancer risk of 1.0×10^{-6}. Results of this analysis are presented in Table C. As shown, the potential combined incremental cancer risk associated with releases of all carcinogenic pollutants from all TAs is above the GV of 1.0×10^{-6}.

Because the predicted combined additive impact of all carcinogenic pollutants released from all TAs is above the specified GV of 1.0×10^{-6}, a more detailed analysis that considered the impact at each receptor locations was conducted. This more refined analysis estimated the combined cancer risk at each of the 180 sensitive receptor locations with a focus on the pollutants with the greatest contribution to the combined cancer risk from the previous step.

For each of these critical pollutants (chloroform, formaldehyde, methylene chloride, and trichloethylene), the maximum cancer risk was estimated at each of the 180 receptor locations using the highest values of the annual concentrations estimated using 5 years of meteorological data for that receptor. Cancer risk values at receptors #28 and #175 through #180 (the highest values) were computed for all the other chemicals, also using the highest value of the annual concentration estimated using 5 years of meteorological data for those receptors. For receptors other than those just mentioned, default values of the maximum concentration of any of the receptors were recorded in Table D for each of the chemicals other than the four critical pollutants.

As shown in Table D, the combined incremental cancer risk associated with releases of all carcinogenic pollutants from all TAs at the receptor locations where these impacts actually occur are above the GV of 1.0×10^{-6} at the two locations within the LANL Medical Center, 1.17×10^{-6} at Receptor #175 (air intake duct at a height of 3.7 feet [12.2 meters]) and 1.07×10^{-6} at Receptor #180 (an operable window at a height of 0.46 feet [1.5 meters]).

The major contributors to the estimated combined cancer risk values are pollutants primarily released from TA–43, the Health Research Laboratory (HRL). The critical pollutants are chloroform, formaldehyde, and trichloethylene from the HRL and methylene chloride from multiple sources (TA–3, TA–9, TA–16, TA–35, TA–46, and TA–48). The estimated maximum cancer risk for each of these individual pollutants is 8.74×10^{-7}, 5.17×10^{-8}, 6.73×10^{-8}, and 6.84×10^{-8}, respectively. Of these, the relative contribution of chloroform emissions alone to the combined cancer risk value is more than 87 percent.

The impacts of TA–43 emissions are due to a combination of relatively high emission rates, close proximity between receptors and sources, and the elevation of the receptors. Receptors at or near the Medical Center, where these impacts are estimated, are #28 and #175 through 180 in attachment 3, Sensitive Receptors. Receptor #28 is a ground level receptor. Receptors #175 through 180 are elevated (i.e., air intakes at a height of up to 3.7 feet [12 meters] and operable windows at a height of 0.46 feet [1.5 meters] above the ground) and are at the distance of less than 30.5 feet (100 meters) from the nearest stack on the roof of the HRL.

Because the estimated cancer risk at these two receptor locations is above the GV of 1.0×10^{-6}, these results are subject to a risk assessment analysis.

TABLE A (PART 1).—*Emission Rates of the Carcinogenic Pollutants Considered in the Additive Impact Analysis*

NO.	POLLUTANTS	KEY BUILDINGS OF THE TA–3 FACILITY															
		TA–3 SIGMA (BLDG. 66)				TA–3 CMR (BLDG. 29)				TA–3 MSL (BLDG. 1698)				TA–3 SHOP COMPLEX (BLDG. 102 & 141)			
		SLEV/Q RATIOS		EMISSION RATES		SLEV/Q RATIOS		EMISSION RATES		SLEV/Q RATIOS		EMISSION RATES		EMISSION RATES USED IN THE ANALYSIS			
		ORIGINAL	REVISED	AT THE SLEV LEVEL	USED IN THE ANALYSIS	ORIGINAL	REVISED	AT THE SLEV LEVEL	USED IN THE ANALYSIS	ORIGINAL	REVISED	AT THE SLEV LEVEL	USED IN THE ANALYSIS	BLDG. 102	BLDG. 141		
				g/sec	g/sec			g/sec	g/sec			g/sec	g/sec	g/sec	g/sec		
1	1,1,1,2-Tetrachloroethane																
2	1,1,2,2-Tetrachloroethane																
3	1,1,2-Trichloroethane																
4	1,3-Butadiene																
5	2,3,7,8-Tetrachlorodibenzo(p)dioxin																
6	2-Nitropropane																
7	Acetaldehyde																
8	Acrylamide																
9	Allyl Chloride																
10	Arsenic																
11	Benzene																
12	Benzo(p)pyrene																
13	Benzyl Chloride																
14	Beryllium[a]								5.18E-11					2.02E-09	1.58E-06		
15	Cadmium																
16	Carbon Tetrachloride	3.23E-01	1.16E+00		5.34E-05						3.50E+00		1.77E-05				
17	Chloroform	3.06E-01	4.23E+00		9.50E-06						2.00E+00		1.99E-05				
18	Chromium VI																
19	Diethanolamine																
20	Epichlorhydrin																
21	Ethyl Acrylate																
22	Ethylene Dichloride										2.70E+00		1.31E-05				
23	Ethylene Oxide																
24	Formaldehyde																
25	Hexachlorobutadiene																
26	Hexachloroethane																
27	Hydrazine																
28	Methyl Chloride																

TABLE A (PART 1).—*Emission Rates of the Carcinogenic Pollutants Considered in the Additive Impact Analysis*-Continued

NO.	POLLUTANTS	KEY BUILDINGS OF THE TA–3 FACILITY															
		TA–3 SIGMA (BLDG. 66)				TA–3 CMR (BLDG. 29)				TA–3 MSL (BLDG. 1698)				TA–3 SHOP COMPLEX (BLDG. 102 & 141)			
		SLEV/Q RATIOS		EMISSION RATES		SLEV/Q RATIOS		EMISSION RATES		SLEV/Q RATIOS		EMISSION RATES		EMISSION RATES USED IN THE ANALYSIS			
		ORIGINAL	REVISED	AT THE SLEV LEVEL	USED IN THE ANALYSIS	ORIGINAL	REVISED	AT THE SLEV LEVEL	USED IN THE ANALYSIS	ORIGINAL	REVISED	AT THE SLEV LEVEL	USED IN THE ANALYSIS	BLDG. 102	BLDG. 141		
				g/sec	g/sec			g/sec	g/sec			g/sec	g/sec	g/sec	g/sec		
29	Methylene Chloride					8.34E+00	7.03E-01		1.01E-02	3.34E+01	6.70E+01		2.92E-05				
30	Nickel, metal (dust)													2.27E-08			
31	Propylene Dichloride																
32	Styrene																
33	Tetrachlorethylene																
34	Trichloroethylene	1.71E-01	5.75E+01		1.61E-06												
35	Vinyl Chloride																
19	Diethanolamine																
20	Epichlorhydrin																
21	Ethyl Acrylate			8.11E-03													
22	Ethylene Dichloride													3.61E+00	--	5.35E-04	5.35E-04
23	Ethylene Oxide																
24	Formaldehyde			7.86E-05	15 Bldgs.					1.16E+02	--	5.49E-04	5.49E-04				
25	Hexachlorobutadiene																
26	Hexachloroethane																
27	Hydrazine													4.51E-02	2.04E+01		3.17E-08
28	Methyl Chloride																
29	Methylene Chloride			7.85E-04	7 Bldgs.	7.70E+01	--	9.70E-03	9.70E-03					6.66E+01	--	2.96E-02	2.96E-02
30	Nickel, metal (dust)			1.06E-06	3 Bldgs.												
31	Propylene Dichloride			5.63E-03													
32	Styrene			7.12E-03													
33	Tetrachlorethylene		--	2.90E-04													
34	Trichloroethylene			5.97E-05	4 Bldgs.									2.21E+02	--	1.39E-03	1.39E-03
35	Vinyl Chloride																

TABLE A (PART 2).—*Emission Rates of the Carcinogenic Pollutants Considered in the Additive Impact Analysis*

NO.	POLLUTANTS	NON-KEY BUILDINGS TA–3				TA–00				TA–8				TA–9			
		EMISSION RATES USED IN THE ANALYSIS				SLEV/Q RATIOS		EMISSION RATES		SLEV/Q RATIOS		EMISSION RATES		SLEV/Q RATIOS		EMISSION RATES	
		BY BUILDING	BY BUILDING	TA TOTAL	BUILDING(S) CONSIDERED	ORIGINAL	REVISED	AT THE SLEV LEVEL	USED IN THE ANALYSIS	ORIGINAL	REVISED	AT THE SLEV LEVEL	USED IN THE ANALYSIS	ORIGINAL	REVISED	AT THE SLEV LEVEL	USED IN THE ANALYSIS
		g/sec	g/sec	g/sec				g/sec	g/sec			g/sec	g/sec			g/sec	g/sec
1	1,1,1,2-Tetrachloroethane																
2	1,1,2,2-Tetrachloroethane																
3	1,1,2-Trichloroethane			2.39E-05	Bldg. 66									1.38E+02	--	8.70E-04	8.70E-04
4	1,3-Butadiene																
5	2,3,7,8-Tetrachlorodibenzo(p) dioxin																
6	2-Nitropropane																
7	Acetaldehyde			1.84E-03													
8	Acrylamide																
9	Allyl Chloride																
10	Arsenic			9.43E-07													
11	Benzene	3.2825E-05	1.3101E-06	3.4135E-05	Bldg. 38[b] Bldg. 39[c]									1.06E+04	--	1.68E-03	1.68E-03
12	Benzo(p)pyrene																
13	Benzyl Chloride																
14	Beryllium[a]																
15	Cadmium																
16	Carbon Tetrachloride	7.20E-06			Bldg. 40									2.94E+04	--	9.28E-04	9.28E-04
17	Chloroform	6.48E-06	3.57E-05	4.2183E-05	Bldg. 16[b] Bldg. 1819[c]									1.40E+00	--	6.05E-04	6.05E-04
18	Chromium VI																
19	Diethanolamine																
20	Epichlorhydrin																
21	Ethyl Acrylate			8.11E-03													
22	Ethylene Dichloride													3.61E+00	--	5.35E-04	5.35E-04
23	Ethylene Oxide																
24	Formaldehyde			7.86E-05	15 Bldgs.					1.16E+02	--	5.49E-04	5.49E-04				
25	Hexachlorobutadiene																
26	Hexachloroethane																
27	Hydrazine													4.51E-02	2.04E+01		3.17E-08

TABLE A (PART 2).—*Emission Rates of the Carcinogenic Pollutants Considered in the Additive Impact Analysis*-Continued

NO.	POLLUTANTS	NON-KEY BUILDINGS TA–3				TA–00				TA–8				TA–9			
		EMISSION RATES USED IN THE ANALYSIS				SLEV/Q RATIOS		EMISSION RATES		SLEV/Q RATIOS		EMISSION RATES		SLEV/Q RATIOS		EMISSION RATES	
		BY BUILDING	BY BUILDING	TA TOTAL	BUILDING(S) CONSIDERED	ORIGINAL	REVISED	AT THE SLEV LEVEL	USED IN THE ANALYSIS	ORIGINAL	REVISED	AT THE SLEV LEVEL	USED IN THE ANALYSIS	ORIGINAL	REVISED	AT THE SLEV LEVEL	USED IN THE ANALYSIS
		g/sec	g/sec	g/sec				g/sec	g/sec			g/sec	g/sec			g/sec	g/sec
28	Methyl Chloride																
29	Methylene Chloride			7.85E-04	7 Bldgs.	7.70E+01	--	9.70E-03	9.70E-03					6.66E+01	--	2.96E-02	2.96E-02
30	Nickel, metal (dust)			1.06E-06	3 Bldgs.												
31	Propylene Dichloride			5.63E-03													
32	Styrene			7.12E-03													
33	Tetrachlorethylene		--	2.90E-04													
34	Trichloroethylene			5.97E-05	4 Bldgs.									2.21E+02	--	1.39E-03	1.39E-03
35	Vinyl Chloride																

TABLE A (PART 3).—*Emission Rates of the Carcinogenic Pollutants Considered in the Additive Impact Analysis*

NO.	POLLUTANTS	TA–15				TA–16				TA–21				TA–22			
		SLEV/Q RATIOS		EMISSION RATES		SLEV/Q RATIOS		EMISSION RATES		SLEV/Q RATIOS		EMISSION RATES		SLEV/Q RATIOS		EMISSION RATES	
		ORIGINAL	REVISED	AT THE SLEV LEVEL	USED IN THE ANALYSIS	ORIGINAL	REVISED	AT THE SLEV LEVEL	USED IN THE ANALYSIS	ORIGINAL	REVISED	AT THE SLEV LEVEL	USED IN THE ANALYSIS	ORIGINAL	REVISED	AT THE SLEV LEVEL	USED IN THE ANALYSIS
				g/sec	g/sec			g/sec	g/sec			g/sec	g/sec			g/sec	g/sec
1	1,1,1,2-Tetrachloroethane																
2	1,1,2,2-Tetrachloroethane									1.42E+02	--	4.35E-05	4.35E-05				
3	1,1,2-Trichloroethane						new pol.		2.16E-05					3.37E+00	--	1.06E-03	1.06E-03
4	1,3-Butadiene																
5	2,3,7,8-Tetrachlorodibenzo(p)dioxin						new pol. fr. incinerator		4.68E-11								
6	2-Nitropropane																
7	Acetaldehyde											1.15E-03					
8	Acrylamide																
9	Allyl Chloride											4.59E-02					
10	Arsenic							1.06E-08									
11	Benzene									9.65E+00	--	3.04E-04	3.04E-04				
12	Benzo(p)pyrene								4.61E-07								
13	Benzyl Chloride																

TABLE A (PART 3).—*Emission Rates of the Carcinogenic Pollutants Considered in the Additive Impact Analysis*-Continued

NO.	POLLUTANTS	TA–15				TA–16				TA–21				TA–22			
		SLEV/Q RATIOS		EMISSION RATES		SLEV/Q RATIOS		EMISSION RATES		SLEV/Q RATIOS		EMISSION RATES		SLEV/Q RATIOS		EMISSION RATES	
		ORIGINAL	REVISED	AT THE SLEV LEVEL	USED IN THE ANALYSIS	ORIGINAL	REVISED	AT THE SLEV LEVEL	USED IN THE ANALYSIS	ORIGINAL	REVISED	AT THE SLEV LEVEL	USED IN THE ANALYSIS	ORIGINAL	REVISED	AT THE SLEV LEVEL	USED IN THE ANALYSIS
				g/sec	g/sec			g/sec	g/sec			g/sec	g/sec			g/sec	g/sec
14	Beryllium[a]																
15	Cadmium						new pol. fr. incinerator		3.83E-08								
16	Carbon Tetrachloride									2.67E+01	--	1.68E-04	1.68E-04				
17	Chloroform					3.07E+00	--	5.52E-04	5.52E-04	8.70E+00	--	1.10E-04	1.10E-04				
18	Chromium VI						new pol. fr. incinerator		1.58E-08								
19	Diethanolamine																
20	Epichlorhydrine																
21	Ethyl Acrylate											5.04E-03					
22	Ethylene Dichloride	9.73E+00	--	1.23E-03	1.23E-03					1.54E+01	--	9.70E-05	9.70E-05				
23	Ethylene Oxide											2.52E-05					
24	Formaldehyde					7.57E+00	--	9.77E-04	9.77E-04	5.13E+01	--	1.94E-04	1.94E-04				
25	Hexachlorobutadiene																
26	Hexachloroethane																
27	Hydrazine									4.08E+00	--	5.15E-07	5.15E-07				
28	Methyl Chloride																
29	Methylene Chloride					1.12E+01	--	2.70E-02	2.70E-02	2.84E+01	--	5.37E-03	5.37E-03				
30	Nickel, metal (dust)						new pol. fr. incinerator		8.75E-08								
31	Propylene Dichloride											3.50E-03					
32	Styrene																
33	Tetrachlorethylene																
34	Trichloroethylene	3.37E+00	--	3.19E-03	3.19E-03					4.21E+01	--	2.52E-04	2.52E-04				
35	Vinyl Chloride																

TABLE A (PART 4).—*Emission Rates of the Carcinogenic Pollutants Considered in the Additive Impact Analysis*

NO.	POLLUTANTS	TA–35				TA–39				TA–43				TA–46			
		SLEV/Q RATIOS		EMISSION RATES		SLEV/Q RATIOS		EMISSION RATES		EMISSION RATES USED IN THE ANALYSIS				SLEV/Q RATIOS		EMISSION RATES	
		ORIGINAL	REVISED	AT THE SLEV LEVEL	USED IN THE ANALYSIS	ORIGINAL	REVISED	AT THE SLEV LEVEL	USED IN THE ANALYSIS	BLDG. 247	BLDG. 124/126	N.SIDE	S.SIDE	ORIGINAL	REVISED	AT THE SLEV LEVEL	USED IN THE ANALYSIS
				g/sec	g/sec			g/sec	g/sec	g/sec	g/sec	g/sec	g/sec			g/sec	g/sec
1	1,1,1,2-Tetrachloroethane																
2	1,1,2,2-Tetrachloroethane	2.08E+01	--	2.62E-04	2.62E-04												
3	1,1,2-Trichloroethane																
4	1,3-Butadiene	new pol.	8.61E+01		1.44E-07									2.72E+00	--	5.39E-05	5.39E-05
5	2,3,7,8-Tetrachlorodibenzo(p)dioxin																
6	2-Nitropropane	new pol.	4.47E+01		2.88E-08									1.16E+00	--	5.59E-06	5.59E-06
7	Acetaldehyde																
8	Acrylamide	new pol.			6.62E-08					8.44E-08	8.44E-08	8.44E-08	8.44E-08				
9	Allyl Chloride																
10	Arsenic			3.53E-06													
11	Benzene	1.45E+02	-	1.83E-03	1.83E-03									4.25E+02	--	1.82E-03	1.82E-03
12	Benzo(p)pyrene																
13	Benzyl Chloride			1.27E-03													
14	Beryllium[a]				1.15E-08												
15	Cadmium																
16	Carbon Tetrachloride	1.61E+02	--	1.01E-03	1.01E-03									1.30E+01	--	1.01E-03	1.01E-03
17	Chloroform	5.36E-01	1.95E+01		7.75E-06	1.41E+02	--	1.42E-04	1.42E-04	3.17E-05	3.07E-04	3.07E-04	3.07E-04	6.29E-01	2.21E+01		6.80E-06
18	Chromium VI																
19	Diethanolamine															1.37E-01	
20	Epichlorohydrin																
21	Ethyl Acrylate																
22	Ethylene Dichloride	1.94E+00	--	5.84E-04	5.84E-04									9.64E+00	--	5.81E-04	5.81E-04
23	Ethylene Oxide																
24	Formaldehyde									2.49E-06	2.42E-05	2.42E-05	2.42E-05	1.48E+01	--	1.16E-03	1.16E-03
25	Hexachlorobutadiene																
26	Hexachloroethane																
27	Hydrazine																
28	Methyl Chloride					1.87E+04	--	6.95E-03	6.95E-03					8.33E+02	--	8.39E-03	8.39E-03
29	Methylene Chloride	2.04E+01	--	3.23E-02	3.23E-02							1.36E-05	1.36E-05	1.66E+01	--	3.21E-02	3.21E-02
30	Nickel, metal (dust)													2.27E+05	--	6.29E-05	6.29E-05

TABLE A (PART 4).—*Emission Rates of the Carcinogenic Pollutants Considered in the Additive Impact Analysis*-Continued

NO.	POLLUTANTS	TA–35				TA–39				TA–43				TA–46			
		SLEV/Q RATIOS		EMISSION RATES		SLEV/Q RATIOS		EMISSION RATES		EMISSION RATES USED IN THE ANALYSIS				SLEV/Q RATIOS		EMISSION RATES	
		ORIGINAL	REVISED	AT THE SLEV LEVEL	USED IN THE ANALYSIS	ORIGINAL	REVISED	AT THE SLEV LEVEL	USED IN THE ANALYSIS	BLDG. 247	BLDG. 124/126	N.SIDE	S.SIDE	ORIGINAL	REVISED	AT THE SLEV LEVEL	USED IN THE ANALYSIS
				g/sec	g/sec			g/sec	g/sec	g/sec	g/sec	g/sec	g/sec			g/sec	g/sec
31	Propylene Dichloride																
32	Styrene			2.67E-02													
33	Tetrachlorethylene	1.72E+02	--	1.09E-03	1.09E-03												
34	Trichloroethylene	5.62E-01	3.05E+00		5.27E-05	8.30E+01	--	3.27E-04	3.27E-04				1.47E-04	1.08E+01	--	1.51E-03	1.51E-03
35	Vinyl Chloride			1.81E-04													

TABLE A (PART 5).—*Emission Rates of the Carcinogenic Pollutants Considered in the Additive Impact Analysis*

NO.	POLLUTANTS	TA–48				TA–50				TA–53				TA–54			
		SLEV/Q RATIOS		EMISSION RATES		SLEV/Q RATIOS		EMISSION RATES		SLEV/Q RATIOS		EMISSION RATES		SLEV/Q RATIOS		EMISSION RATES	
		ORIGINAL	REVISED	AT THE SLEV LEVEL	USED IN THE ANALYSIS	ORIGINAL	REVISED	AT THE SLEV LEVEL	USED IN THE ANALYSIS	ORIGINAL	REVISED	AT THE SLEV LEVEL	USED IN THE ANALYSIS	ORIGINAL	REVISED	AT THE SLEV LEVEL	USED IN THE ANALYSIS
				g/sec	g/sec			g/sec	g/sec			g/sec	g/sec			g/sec	g/sec
1	1,1,1,2-Tetrachloroethane			4.58E-04													
2	1,1,2,2-Tetrachloroethane		1.47E+02		9.07E-08												
3	1,1,2-Trichloroethane	7.22E+01	--	2.21E-04	2.21E-04												
4	1,3-Butadiene		8.74E+00		3.17E-07												
5	2,3,7,8-Tetrachlorodibenzo(p)dioxin																
6	2-Nitropropane																
7	Acetaldehyde																
8	Acrylamide																
9	Allyl Chloride																
10	Arsenic																
11	Benzene	9.55E-01	3.34E+01		2.79E-06					7.73E-01	5.41E+00		2.10E-05	5.96E+00	--	1.53E-03	1.53E-03
12	Benzo(p)pyrene																
13	Benzyl Chloride																
14	Beryllium[a]																

TABLE A (PART 5).—*Emission Rates of the Carcinogenic Pollutants Considered in the Additive Impact Analysis*-Continued

NO.	POLLUTANTS	TA–48				TA–50				TA–53				TA–54			
		SLEV/Q RATIOS		EMISSION RATES		SLEV/Q RATIOS		EMISSION RATES		SLEV/Q RATIOS		EMISSION RATES		SLEV/Q RATIOS		EMISSION RATES	
		ORIGINAL	REVISED	AT THE SLEV LEVEL	USED IN THE ANALYSIS	ORIGINAL	REVISED	AT THE SLEV LEVEL	USED IN THE ANALYSIS	ORIGINAL	REVISED	AT THE SLEV LEVEL	USED IN THE ANALYSIS	ORIGINAL	REVISED	AT THE SLEV LEVEL	USED IN THE ANALYSIS
				g/sec	g/sec			g/sec	g/sec			g/sec	g/sec			g/sec	g/sec
15	Cadmium					1.70E+01	--	8.56E-06	8.56E-06								
16	Carbon Tetrachloride		2.93E+00		1.77E-05					1.74E+02	--	2.75E-04	2.75E-04	2.19E+01	--	8.47E-04	8.47E-04
17	Chloroform	2.56E-01	8.97E+00		3.76E-06					2.24E-01	--		2.35E-04	1.92E-01	5.48E+00		2.30E-05
18	Chromium VI																
19	Diethanolamine																
20	Epichlorohydrin											3.43E-03					
21	Ethyl Acrylate																
22	Ethylene Dichloride	4.33E+00	--	1.30E-04	1.30E-04					5.25E+00	--	1.58E-04	1.58E-04	8.10E+00	--	4.88E-04	4.88E-04
23	Ethylene Oxide																
24	Formaldehyde	1.03E+01	--	2.61E-04	2.61E-04												
25	Hexachlorobutadiene			1.54E-04													
26	Hexachloroethane			8.48E-04													
27	Hydrazine																
28	Methyl Chloride																
29	Methylene Chloride	1.15E+03	--	7.22E-03	7.22E-03					3.87E+00	--	8.76E-03	8.76E-03	8.36E-01	3.57E+03		1.73E-06
30	Nickel, metal (dust)	2.34E-01	3.74E+01		8.78E-08					1.45E+00	--	1.72E-05	1.72E-05				
31	Propylene Dichloride																
32	Styrene			5.95E-03													
33	Tetrachlorethylene	3.08E+01	--	2.42E-04	2.42E-04												
34	Trichloroethylene	4.78E+01	--	3.39E-04	3.39E-04	1.63E+01	--	1.54E-03	1.54E-03								
35	Vinyl Chloride																

TABLE A (PART 6).—*Emission Rates of the Carcinogenic Pollutants Considered in the Additive Impact Analysis*

NO.	POLLUTANTS	TA–55				TA–59				TA–60				TA– 61			
		SLEV/Q RATIOS		EMISSION RATES		SLEV/Q RATIOS		EMISSION RATES		SLEV/Q RATIOS		EMISSION RATES		SLEV/Q RATIOS		EMISSION RATES	
		ORIGINAL	REVISED	AT THE SLEV LEVEL	USED IN THE ANALYSIS	ORIGINAL	REVISED	AT THE SLEV LEVEL	USED IN THE ANALYSIS	ORIGINAL	REVISED	AT THE SLEV LEVEL	USED IN THE ANALYSIS	ORIGINAL	REVISED	AT THE SLEV LEVEL	USED IN THE ANALYSIS
				g/sec	g/sec			g/sec	g/sec			g/sec	g/sec			g/sec	g/sec
1	1,1,1,2-Tetrachloroethane																
2	1,1,2,2-Tetrachloroethane																
3	1,1,2-Trichloroethane	3.88E+01	--	9.30E-04	9.30E-04												
4	1,3-Butadiene																
5	2,3,7,8-Tetrachlorodibenzo(p)dioxin																
6	2-Nitropropane																
7	Acetaldehyde																
8	Acrylamide	8.24E+02	--	1.15E-05	1.15E-05												
9	Allyl Chloride																
10	Arsenic																
11	Benzene	8.38E+01	2.94E+04		1.40E-08					new. pol			1.73E-05				
12	Benzo(p)pyrene																
13	Benzyl Chloride																
14	Beryllium[a]				1.04E-07												
15	Cadmium	3.97E+03	--	8.27E-06	8.27E-06					2.03E+00	--	1.54E-06	1.54E-06				
16	Carbon Tetrachloride	1.54E+01	1.29E+01		1.77E-05	5.63E+01	--	3.55E-04	3.55E-04								
17	Chloroform	5.62E-01	8.90E+00		1.67E-05												
18	Chromium VI	8.93E+00	--	1.24E-06	1.24E-06												
19	Diethanolamine																
20	Epichlorohydrin																
21	Ethyl Acrylate																
22	Ethylene Dichloride					3.40E+01	--	2.05E-04	2.05E-04								
23	Ethylene Oxide																
24	Formaldehyde	1.82E+04	--	1.15E-03	1.15E-03	1.62E+01	--	4.09E-04	4.09E-04								
25	Hexachlorobutadiene																
26	Hexachloroethane																
27	Hydrazine	4.33E+00	--	3.04E-06	3.04E-06												
28	Methyl Chloride													7.87E+00	--	1.36E-03	1.36E-03
29	Methylene Chloride	3.06E+01	4.95E+02		1.47E-05	8.64E-02	1.53E+03		1.68E-06								
30	Nickel, metal (dust)	3.28E+04	--	6.20E-05	6.20E-05												

TABLE A (PART 6).—*Emission Rates of the Carcinogenic Pollutants Considered in the Additive Impact Analysis*-Continued

NO.	POLLUTANTS	TA–55				TA–59				TA–60				TA– 61			
		SLEV/Q RATIOS		EMISSION RATES		SLEV/Q RATIOS		EMISSION RATES		SLEV/Q RATIOS		EMISSION RATES		SLEV/Q RATIOS		EMISSION RATES	
		ORIGINAL	REVISED	AT THE SLEV LEVEL	USED IN THE ANALYSIS	ORIGINAL	REVISED	AT THE SLEV LEVEL	USED IN THE ANALYSIS	ORIGINAL	REVISED	AT THE SLEV LEVEL	USED IN THE ANALYSIS	ORIGINAL	REVISED	AT THE SLEV LEVEL	USED IN THE ANALYSIS
				g/sec	g/sec			g/sec	g/sec			g/sec	g/sec			g/sec	g/sec
31	Propylene Dichloride																
32	Styrene																
33	Tetrachlorethylene	1.13E+01	1.34E+01		1.81E-05												
34	Trichloroethylene	9.23E-02	2.11E+01		1.61E-05	5.63E+00	--	5.32E-04	5.32E-04	4.39E+00	--	2.77E-04	2.77E-04				
35	Vinyl Chloride																

Notes: TA–2, TA–5, TA–11, TA–36, TA–40, TA–41, and TA–64, which are not currently using any of the carcinogenic pollutants or are anticipated to use them under future alternatives, were not included in the analysis.

[a] Beryllium emissions from all sources (i.e., TA–3 CMR Building 29, TA–3 Shop Complex, TA–35 Building 213, and TA–55 Building 15 Chemical Lab.), were modeled using LANL's permitted emission rates.

[b] Annual emission rates of carcinogenic pollutants were estimated based on detailed evaluation of actual operating conditions. These revised emission rates were developed for both key and non-key buildings, within key and non-key TAs, for each pollutant that had an SLEV/Q ratio less than 1. For those pollutants released from key or non-key buildings, within both key and non-key TAs, for which such emission data were not developed, emission rates were estimated based on data either from the RAPS–90 (LANL 1990) Report or ACIS 1996 database (LANL 1995a), or were assumed to be at SLEV levels.

[c] It was assumed that emissions would be released simultaneously over 8,760 hours a year.

TABLE B.—*Results of the Additive Impact Analysis of the Cancer Risk Associated with Releases of Each Carcinogenic Pollutant from All TAs Combined*

NO.	LANL TAs	ANNUAL SLEVS[a]		
		ARSENIC	BENZENE	FORMALDEHYDE
		g/sec	g/sec	g/sec
1	TA–00	1.06E-06	5.49E-04	3.15E-04
2	TA–2	4.67E-07	2.42E-04	1.54E-04
3	TA–3	9.43E-07	4.89E-04	3.12E-04
4	TA–5	3.03E-06	1.57E-03	1.00E-03
5	TA–8	1.66E-06	8.59E-04	5.49E-04
6	TA–9	3.24E-06	1.68E-03	1.07E-03
7	TA–11	2.70E-06	1.40E-03	8.92E-04
8	TA–15	7.42E-06	3.84E-03	2.45E-03
9	TA–16	2.95E-06	1.53E-03	9.77E-04
10	TA–18	4.68E-06	2.41E-03	1.54E-03
11	TA–21	5.86E-07	3.04E-04	1.94E-04
12	TA–22	3.95E-06	2.05E-03	1.31E-03
13	TA–33	2.09E-06	1.08E-03	6.92E-04
14	TA–35	3.53E-06	1.83E-03	1.17E-03
15	TA–36	5.85E-06	3.03E-03	1.93E-03
16	TA–39	7.60E-07	3.94E-04	2.51E-04
17	TA–40	3.84E-06	1.99E-03	1.27E-03
18	TA–41	4.31E-07	2.23E-04	1.42E-04
19	TA–43	1.38E-08	7.13E-06	4.55E-06
20	TA–46	3.51E-06	1.82E-03	1.16E-03
21	TA–48	7.89E-07	4.09E-04	2.61E-04
22	TA–50	3.59E-06	1.86E-03	1.19E-03
23	TA–51	3.24E-06	1.68E-03	1.07E-03

TABLE B.—*Results of the Additive Impact Analysis of the Cancer Risk Associated with Releases of Each Carcinogenic Pollutant from All TAs Combined*-Continued

NO.	LANL TAs	ANNUAL SLEVS[a]		
		ARSENIC	BENZENE	FORMALDEHYDE
		g/sec	g/sec	g/sec
24	TA–53	9.58E-07	4.96E-04	3.17E-04
25	TA–54	2.95E-06	1.53E-03	9.77E-04
26	TA–55	3.46E-06	1.79E-03	1.15E-03
27	TA–59	1.24E-06	6.41E-04	4.09E-04
28	TA–60	6.43E-07	3.33E-04	2.13E-04
29	TA–61	5.71E-07	2.96E-04	1.89E-04
30	TA–64	1.50E-06	7.79E-04	4.97E-04
SUMMARY				
Estimated Annual Concentration[b] from Releases of Each Pollutant from All TAs, (C_{an}), µg/m^3		2.82E-05	1.49E-02	9.49E-03
Unit Risk Factors[c] (URF), (µg/m^3)$^{-1}$		4.35E-03	8.30E-06	1.30E-05
Maximum Incremental Cancer Risk[d] (C_{an} x URF)		1.23E-07	1.23E-07	1.23E-07
Guideline Value[e]		1.00E-06	1.00E-06	1.00E-06

Major Assumptions:

[a] Annual emission rates at the SLEV levels were used in the additive impacts analysis.

[b] Annual average concentration (C_{an}) is the highest concentration estimated by the ISC–3model at any of the sensitive receptor locations using 5 years of on-site meteorological data.

[c] Unit risk factors are from the EPA's Integrated Risk Information System (IRIS) database (EPA 1993b).

[d] Maximum cancer risk of each pollutant was estimated by multiplying the annual concentration of that pollutant by its unit risk factor (EPA 1992f and EPA 1993b). Total combined incremental cancer risk was estimated by summing the cancer risks due to each individual pollutant released from all TAs.

[e] The guideline value of 1.0E-06 (1.0 x 10^{-6}), established by Title III of the *Clean Air Act Amendments of 1990* (CAAA) as a level of concern, is associated with a life time exposure to carcinogenic pollutants (EPA 1992f).

TABLE C.—*Total Combined Cancer Risks of All Carcinogenic Pollutants from All TAs (Regardless of the Receptor Locations Where Maximum Values Are Estimated)*

NO.	CARCINOGENIC POLLUTANTS[a]	ISC–3 ESTIMATED HIGHEST ANNUAL POLLUTANT CONCENTRATION (C_{an})[b]	UNIT RISK FACTORS (URF)[c]	MAXIMUM CANCER RISK DUE TO EACH POLLUTANT (C_{an} x URF)[d]
		$\mu g/m^3$	$(\mu g/m^3)^{-1}$	
1	1,1,1,2-Tetrachloroethane	1.32E-03	7.40E-06	9.77E-09
2	1,1,2,2-Tetrachloroethane	3.10E-04	5.80E-05	1.80E-08
3	1,1,2-Trichloroethane	2.44E-03	1.60E-05	3.90E-08
4	1,3-Butadiene	3.00E-05	2.80E-04	8.40E-09
5	2-Nitropropane	4.00E-05	2.70E-03	1.08E-07
6	Acetaldehyde	5.16E-03	2.20E-06	1.14E-08
7	Acrylamide	1.56E-05	1.30E-03	2.02E-08
8	Allyl Chloride	1.79E-01	5.50E-08	9.86E-09
9	Arsenic	2.84E-06	4.30E-03	1.22E-08
10	Benzene	3.67E-03	8.30E-06	3.05E-08
11	Benzo(p)pyrene	1.70E-07	1.70E-03	2.89E-10
12	Benzyl Chloride	8.40E-04	1.20E-05	1.01E-08
13	Beryllium	1.10E-06	2.40E-03	2.64E-09
14	Cadmium	1.59E-05	1.80E-03	2.86E-08
15	Carbon Tetrachloride	2.56E-03	1.50E-05	3.84E-08
16	2,3,7,8-tetrachlorodibezo(p)dioxin	1.70E-11	3.30E+01	5.61E-10
17	Chloroform	3.80E-02	2.30E-05	8.74E-07
18	Chromium VI	8.35E-07	1.20E-02	1.00E-08
19	Diethanolamine	7.64E-02	1.10E-07	8.40E-09
20	Epichlorohydrin	8.33E-03	1.20E-06	1.00E-08
21	Ethyl Acrylate	2.73E-02	5.00E-07	1.37E-08
22	Ethylene Dichloride	1.83E-03	2.60E-05	4.76E-08

TABLE C.—*Total Combined Cancer Risks of All Carcinogenic Pollutants from All TAs (Regardless of the Receptor Locations Where Maximum Values Are Estimated)*-Continued

NO.	CARCINOGENIC POLLUTANTS[a]	ISC–3 ESTIMATED HIGHEST ANNUAL POLLUTANT CONCENTRATION (C_{an})[b]	UNIT RISK FACTORS (URF)[c]	MAXIMUM CANCER RISK DUE TO EACH POLLUTANT (C_{an} x URF)[d]
		µg/m^3	(µg/m^3)$^{-1}$	
23	Ethylene Oxide	1.00E-04	1.00E-04	1.00E-08
24	Formaldehyde	3.98E-03	1.30E-05	5.17E-08
25	Hexachlorobutadiene	4.30E-04	2.20E-05	9.46E-09
26	Hexachloroethane	2.45E-03	4.00E-06	9.80E-09
27	Hydrazine	3.30E-06	4.90E-03	1.62E-08
28	Methyl Chloride	2.22E-02	1.80E-06	3.99E-08
29	Methylene Chloride	1.45E-01	4.70E-07	6.84E-08
30	Nickel, metal (dust)	9.95E-05	2.40E-04	2.39E-08
31	Propylene Dichloride	1.57E-02	7.20E-07	1.13E-08
32	Styrene	3.45E-02	5.70E-07	1.97E-08
33	Tetrachloroethylene	1.41E-03	1.40E-05	1.97E-08
34	Trichloroethylene	6.73E-03	1.00E-05	6.73E-08
35	Vinyl Chloride	1.20E-04	8.40E-05	1.01E-08
Total Combined Cancer Risk of All Pollutants[e]				1.67E-06
Guideline Value[f]				1.00E-06

Notes:

Major Assumptions:

[a] The total of 35 carcinogenic pollutants that have the potential to be released from LANL operations were considered in the additive impact analysis. Emission rates of these pollutants are presented in Table A.

[b] ISC–3 estimated annual concentration is the highest concentration at any of the sensitive receptor locations using 5 years on-site of meteorological data.

[c] Unit risk factors are from the EPA's Integrated Risk Information System (IRIS) database (EPA 1993b).

[d] Maximum cancer risk was obtained by multiplying of the estimated annual concentration of a specific pollutant by its unit risk factor (EPA 1992f and EPA 1993b).

[e] The total potential combined cancer risks were estimated by summing the cancer risks due to each individual pollutant released from LANL operations, regardless of the location where maximum values are estimated.

[f] The guideline value of 1.0E-06 (1.0 x 10^{-6}), established by Title III of the *Clean Air Act Amendments of 1990* (CAAA) as a level of concern, is associated with a life time exposure to carcinogenic pollutants (EPA 1992f).

TABLE D (PART 1).—*Total Combined Cancer Risk of All Pollutants from All TAs*

NO.	1	2	3	4	5	6	7	8	9	10	11	12
REC. #	CHLF	FORM	TRCE	MECH	Be	MTCH	ETDC	CCL4	Ni	BENZ	ACAL	ETAC
	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR
1	2.58E-08	2.09E-08	2.70E-08	3.48E-08	7.37E-10	6.59E-09	3.82E-08	3.12E-08	2.39E-08	3.05E-08	1.14E-08	1.37E-08
2	2.55E-08	2.87E-08	3.49E-08	3.52E-08	1.03E-09	6.66E-09	3.28E-08	2.73E-08	2.39E-08	3.05E-08	1.14E-08	1.37E-08
3	2.05E-08	2.18E-08	2.91E-08	2.98E-08	1.15E-09	5.92E-09	2.78E-08	2.01E-08	2.39E-08	3.05E-08	1.14E-08	1.37E-08
4	2.19E-08	2.09E-08	2.88E-08	2.89E-08	1.25E-09	5.18E-09	2.47E-08	1.79E-08	2.39E-08	3.05E-08	1.14E-08	1.37E-08
5	2.39E-08	2.26E-08	3.12E-08	3.15E-08	1.35E-09	5.31E-09	2.60E-08	1.86E-08	2.39E-08	3.05E-08	1.14E-08	1.37E-08
6	2.53E-08	2.17E-08	3.03E-08	3.01E-08	1.40E-09	5.04E-09	2.39E-08	1.70E-08	2.39E-08	3.05E-08	1.14E-08	1.37E-08
7	2.90E-08	2.41E-08	3.37E-08	3.39E-08	1.56E-09	5.22E-09	2.55E-08	1.76E-08	2.39E-08	3.05E-08	1.14E-08	1.37E-08
8	2.69E-08	2.04E-08	2.82E-08	2.96E-08	1.37E-09	4.68E-09	2.24E-08	1.52E-08	2.39E-08	3.05E-08	1.14E-08	1.37E-08
9	2.74E-08	1.87E-08	2.55E-08	2.67E-08	1.30E-09	4.30E-09	2.05E-08	1.38E-08	2.39E-08	3.05E-08	1.14E-08	1.37E-08
10	3.45E-08	2.12E-08	2.99E-08	3.89E-08	1.61E-09	4.97E-09	2.16E-08	1.44E-08	2.39E-08	3.05E-08	1.14E-08	1.37E-08
11	4.12E-08	2.04E-08	3.01E-08	4.87E-08	1.68E-09	5.44E-09	2.13E-08	1.37E-08	2.39E-08	3.05E-08	1.14E-08	1.37E-08
12	3.80E-08	1.96E-08	2.87E-08	4.23E-08	1.60E-09	5.04E-09	2.03E-08	1.31E-08	2.39E-08	3.05E-08	1.14E-08	1.37E-08
13	3.66E-08	1.79E-08	2.61E-08	3.38E-08	1.48E-09	4.57E-09	1.85E-08	1.20E-08	2.39E-08	3.05E-08	1.14E-08	1.37E-08
14	3.17E-08	1.66E-08	2.40E-08	2.66E-08	1.34E-09	4.48E-09	1.77E-08	1.16E-08	2.39E-08	3.05E-08	1.14E-08	1.37E-08
15	3.29E-08	1.65E-08	2.38E-08	2.65E-08	1.36E-09	4.48E-09	1.74E-08	1.14E-08	2.39E-08	3.05E-08	1.14E-08	1.37E-08
16	3.45E-08	1.65E-08	2.40E-08	2.91E-08	1.38E-09	4.52E-09	1.74E-08	1.14E-08	2.39E-08	3.05E-08	1.14E-08	1.37E-08
17	4.07E-08	1.95E-08	2.84E-08	4.79E-08	1.66E-09	5.22E-09	2.00E-08	1.29E-08	2.39E-08	3.05E-08	1.14E-08	1.37E-08
18	4.67E-08	2.13E-08	3.15E-08	6.22E-08	1.83E-09	6.14E-09	2.24E-08	1.46E-08	2.39E-08	3.05E-08	1.14E-08	1.37E-08
19	4.69E-08	1.90E-08	2.80E-08	6.84E-08	1.70E-09	5.56E-09	1.95E-08	1.31E-08	2.39E-08	3.05E-08	1.14E-08	1.37E-08
20	4.49E-08	1.87E-08	2.74E-08	5.34E-08	1.66E-09	5.26E-09	1.92E-08	1.25E-08	2.39E-08	3.05E-08	1.14E-08	1.37E-08
21	4.74E-08	1.70E-08	2.53E-08	4.45E-08	1.66E-09	5.06E-09	1.82E-08	1.25E-08	2.39E-08	3.05E-08	1.14E-08	1.37E-08
22	4.58E-08	1.64E-08	2.44E-08	3.52E-08	1.65E-09	4.84E-09	1.74E-08	1.19E-08	2.39E-08	3.05E-08	1.14E-08	1.37E-08
23	3.84E-08	1.43E-08	2.09E-08	2.19E-08	1.53E-09	3.74E-09	1.51E-08	1.04E-08	2.39E-08	3.05E-08	1.14E-08	1.37E-08
24	5.98E-08	1.79E-08	2.71E-08	3.05E-08	1.89E-09	6.19E-09	1.79E-08	1.26E-08	2.39E-08	3.05E-08	1.14E-08	1.37E-08
25	1.13E-07	1.72E-08	2.41E-08	1.76E-08	1.87E-09	9.09E-09	1.38E-08	1.07E-08	2.39E-08	3.05E-08	1.14E-08	1.37E-08
26	9.94E-08	1.50E-08	2.09E-08	1.49E-08	1.50E-09	5.92E-09	1.17E-08	9.15E-09	2.39E-08	3.05E-08	1.14E-08	1.37E-08

TABLE D (PART 1).—*Total Combined Cancer Risk of All Pollutants from All TAs*-Continued

NO.	1	2	3	4	5	6	7	8	9	10	11	12
REC. #	CHLF	FORM	TRCE	MECH	Be	MTCH	ETDC	CCL4	Ni	BENZ	ACAL	ETAC
	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR
27	2.22E-07	2.24E-08	2.87E-08	1.80E-08	1.83E-09	9.95E-09	1.35E-08	1.08E-08	2.39E-08	3.05E-08	1.14E-08	1.37E-08
28	5.17E-07	3.61E-08	4.42E-08	2.03E-08	1.78E-09	1.07E-08	1.43E-08	1.14E-08	3.16E-08	7.47E-09	1.01E-08	8.92E-09
29	2.67E-07	2.29E-08	2.98E-08	1.67E-08	1.39E-09	5.76E-09	1.25E-08	9.60E-09	2.39E-08	3.05E-08	1.14E-08	1.37E-08
30	1.87E-07	1.85E-08	2.42E-08	1.61E-08	1.27E-09	4.90E-09	1.20E-08	9.15E-09	2.39E-08	3.05E-08	1.14E-08	1.37E-08
31	1.15E-07	1.47E-08	1.99E-08	1.52E-08	1.14E-09	4.10E-09	1.12E-08	8.55E-09	2.39E-08	3.05E-08	1.14E-08	1.37E-08
32	1.13E-07	1.50E-08	2.07E-08	1.49E-08	1.39E-09	5.15E-09	1.12E-08	8.70E-09	2.39E-08	3.05E-08	1.14E-08	1.37E-08
33	3.82E-08	1.00E-08	1.33E-08	1.30E-08	6.26E-10	1.73E-09	1.09E-08	8.55E-09	2.39E-08	3.05E-08	1.14E-08	1.37E-08
34	4.81E-08	1.07E-08	1.53E-08	1.18E-08	1.08E-09	3.28E-09	9.88E-09	7.20E-09	2.39E-08	3.05E-08	1.14E-08	1.37E-08
35	3.20E-08	8.58E-09	1.24E-08	1.02E-08	8.74E-10	2.32E-09	8.84E-09	6.75E-09	2.39E-08	3.05E-08	1.14E-08	1.37E-08
36	2.94E-08	8.71E-09	1.26E-08	9.91E-09	8.86E-10	2.38E-09	9.36E-09	6.75E-09	2.39E-08	3.05E-08	1.14E-08	1.37E-08
37	2.44E-08	9.62E-09	1.36E-08	1.10E-08	9.96E-10	2.65E-09	9.62E-09	6.75E-09	2.39E-08	3.05E-08	1.14E-08	1.37E-08
38	2.83E-08	1.25E-08	1.84E-08	1.79E-08	1.28E-09	3.10E-09	1.35E-08	9.15E-09	2.39E-08	3.05E-08	1.14E-08	1.37E-08
39	2.00E-08	7.41E-09	9.90E-09	9.05E-09	5.74E-10	1.49E-09	8.06E-09	6.00E-09	2.39E-08	3.05E-08	1.14E-08	1.37E-08
40	1.56E-08	6.37E-09	8.80E-09	7.98E-09	5.04E-10	1.35E-09	7.02E-09	5.10E-09	2.39E-08	3.05E-08	1.14E-08	1.37E-08
41	1.63E-08	6.50E-09	9.10E-09	7.85E-09	5.88E-10	1.40E-09	7.02E-09	5.25E-09	2.39E-08	3.05E-08	1.14E-08	1.37E-08
42	1.01E-08	5.20E-09	7.30E-09	6.32E-09	3.74E-10	1.01E-09	6.24E-09	4.35E-09	2.39E-08	3.05E-08	1.14E-08	1.37E-08
43	1.61E-08	7.28E-09	1.07E-08	8.78E-09	7.22E-10	1.80E-09	8.06E-09	5.70E-09	2.39E-08	3.05E-08	1.14E-08	1.37E-08
44	1.13E-08	7.28E-09	1.06E-08	9.10E-09	6.82E-10	1.89E-09	8.58E-09	5.55E-09	2.39E-08	3.05E-08	1.14E-08	1.37E-08
45	1.27E-08	8.71E-09	1.24E-08	1.09E-08	7.87E-10	2.25E-09	1.01E-08	6.60E-09	2.39E-08	3.05E-08	1.14E-08	1.37E-08
46	1.54E-08	1.03E-08	1.43E-08	1.28E-08	8.57E-10	2.43E-09	1.17E-08	7.80E-09	2.39E-08	3.05E-08	1.14E-08	1.37E-08
47	1.89E-08	1.18E-08	1.68E-08	1.53E-08	9.48E-10	2.84E-09	1.33E-08	8.85E-09	2.39E-08	3.05E-08	1.14E-08	1.37E-08
48	1.54E-08	1.08E-08	1.56E-08	1.39E-08	7.99E-10	2.75E-09	1.27E-08	8.70E-09	2.39E-08	3.05E-08	1.14E-08	1.37E-08
49	1.40E-08	1.34E-08	1.80E-08	1.68E-08	7.42E-10	3.76E-09	1.77E-08	1.29E-08	2.39E-08	3.05E-08	1.14E-08	1.37E-08
50	1.15E-08	8.58E-09	1.19E-08	1.06E-08	6.65E-10	2.20E-09	1.01E-08	6.75E-09	2.39E-08	3.05E-08	1.14E-08	1.37E-08
51	1.08E-08	9.36E-09	1.33E-08	1.14E-08	5.86E-10	2.88E-09	1.22E-08	8.55E-09	2.39E-08	3.05E-08	1.14E-08	1.37E-08
52	1.08E-08	9.49E-09	1.36E-08	1.18E-08	6.00E-10	2.93E-09	1.25E-08	8.85E-09	2.39E-08	3.05E-08	1.14E-08	1.37E-08

TABLE D (PART 1).—*Total Combined Cancer Risk of All Pollutants from All TAs*-Continued

NO.	1	2	3	4	5	6	7	8	9	10	11	12
REC. #	CHLF	FORM	TRCE	MECH	Be	MTCH	ETDC	CCL4	Ni	BENZ	ACAL	ETAC
	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR
53	1.10E-08	1.04E-08	1.41E-08	1.37E-08	5.30E-10	3.35E-09	1.43E-08	1.02E-08	2.39E-08	3.05E-08	1.14E-08	1.37E-08
54	6.44E-09	8.32E-09	1.21E-08	1.04E-08	3.29E-10	4.21E-09	1.48E-08	1.07E-08	2.39E-08	3.05E-08	1.14E-08	1.37E-08
55	7.13E-09	9.49E-09	1.37E-08	1.19E-08	3.67E-10	4.75E-09	1.69E-08	1.23E-08	2.39E-08	3.05E-08	1.14E-08	1.37E-08
56	7.13E-09	9.88E-09	1.42E-08	1.23E-08	3.86E-10	4.88E-09	1.74E-08	1.28E-08	2.39E-08	3.05E-08	1.14E-08	1.37E-08
57	7.36E-09	1.07E-08	1.51E-08	1.30E-08	4.10E-10	5.02E-09	1.85E-08	1.35E-08	2.39E-08	3.05E-08	1.14E-08	1.37E-08
58	7.59E-09	1.08E-08	1.54E-08	1.33E-08	4.18E-10	5.04E-09	1.92E-08	1.41E-08	2.39E-08	3.05E-08	1.14E-08	1.37E-08
59	7.82E-09	1.20E-08	1.70E-08	1.41E-08	4.37E-10	5.63E-09	2.05E-08	1.52E-08	2.39E-08	3.05E-08	1.14E-08	1.37E-08
60	7.82E-09	1.17E-08	1.77E-08	1.38E-08	4.37E-10	6.17E-09	2.03E-08	1.52E-08	2.39E-08	3.05E-08	1.14E-08	1.37E-08
61	7.36E-09	1.09E-08	1.66E-08	1.28E-08	4.10E-10	6.23E-09	1.85E-08	1.40E-08	2.39E-08	3.05E-08	1.14E-08	1.37E-08
62	6.90E-09	9.23E-09	1.37E-08	1.12E-08	3.58E-10	4.72E-09	1.51E-08	1.10E-08	2.39E-08	3.05E-08	1.14E-08	1.37E-08
63	6.90E-09	9.62E-09	1.49E-08	1.14E-08	3.74E-10	5.47E-09	1.61E-08	1.20E-08	2.39E-08	3.05E-08	1.14E-08	1.37E-08
64	6.90E-09	9.88E-09	1.54E-08	1.16E-08	3.79E-10	5.67E-09	1.66E-08	1.23E-08	2.39E-08	3.05E-08	1.14E-08	1.37E-08
65	7.59E-09	1.11E-08	1.73E-08	1.27E-08	4.13E-10	6.53E-09	1.87E-08	1.35E-08	2.39E-08	3.05E-08	1.14E-08	1.37E-08
66	7.13E-09	9.36E-09	1.51E-08	1.08E-08	3.65E-10	6.43E-09	1.59E-08	1.07E-08	2.39E-08	3.05E-08	1.14E-08	1.37E-08
67	7.82E-09	9.75E-09	1.62E-08	1.15E-08	3.62E-10	7.04E-09	1.61E-08	1.05E-08	2.39E-08	3.05E-08	1.14E-08	1.37E-08
68	8.05E-09	1.07E-08	1.78E-08	1.26E-08	3.91E-10	7.24E-09	1.82E-08	1.17E-08	2.39E-08	3.05E-08	1.14E-08	1.37E-08
69	7.13E-09	7.67E-09	1.49E-08	8.85E-09	2.83E-10	8.89E-09	1.43E-08	8.55E-09	2.39E-08	3.05E-08	1.14E-08	1.37E-08
70	6.67E-09	6.89E-09	1.35E-08	7.95E-09	2.59E-10	8.71E-09	1.25E-08	7.50E-09	2.39E-08	3.05E-08	1.14E-08	1.37E-08
71	1.84E-08	6.89E-09	9.50E-09	8.32E-09	6.17E-10	1.51E-09	7.28E-09	5.40E-09	2.39E-08	3.05E-08	1.14E-08	1.37E-08
72	1.96E-08	7.28E-09	1.03E-08	8.69E-09	6.94E-10	1.75E-09	8.06E-09	6.15E-09	2.39E-08	3.05E-08	1.14E-08	1.37E-08
73	1.54E-08	1.25E-08	1.78E-08	1.60E-08	8.21E-10	3.53E-09	1.56E-08	1.10E-08	2.39E-08	3.05E-08	1.14E-08	1.37E-08
74	1.56E-08	6.63E-09	9.30E-09	7.73E-09	5.93E-10	1.53E-09	7.54E-09	5.40E-09	2.39E-08	3.05E-08	1.14E-08	1.37E-08
75	7.13E-09	1.03E-08	1.48E-08	1.24E-08	3.89E-10	5.20E-09	1.72E-08	1.25E-08	2.39E-08	3.05E-08	1.14E-08	1.37E-08
76	2.21E-08	2.25E-08	3.01E-08	3.05E-08	1.24E-09	5.53E-09	2.68E-08	1.94E-08	2.39E-08	3.05E-08	1.14E-08	1.37E-08
77	8.28E-09	7.80E-09	1.11E-08	9.55E-09	4.58E-10	2.36E-09	1.04E-08	7.35E-09	2.39E-08	3.05E-08	1.14E-08	1.37E-08
78	5.13E-08	3.93E-08	5.76E-08	4.01E-08	2.65E-09	6.05E-09	3.77E-08	2.31E-08	2.39E-08	3.05E-08	1.14E-08	1.37E-08

TABLE D (PART 1).—*Total Combined Cancer Risk of All Pollutants from All TAs*-Continued

NO.	1	2	3	4	5	6	7	8	9	10	11	12
REC. #	CHLF	FORM	TRCE	MECH	Be	MTCH	ETDC	CCL4	Ni	BENZ	ACAL	ETAC
	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR
79	1.61E-09	1.56E-09	2.10E-09	1.77E-09	8.16E-11	2.70E-10	2.08E-09	1.35E-09	2.39E-08	3.05E-08	1.14E-08	1.37E-08
80	1.84E-09	1.43E-09	2.00E-09	1.81E-09	9.36E-11	3.06E-10	1.82E-09	1.35E-09	2.39E-08	3.05E-08	1.14E-08	1.37E-08
81	5.75E-09	4.81E-09	5.30E-09	5.77E-09	1.97E-10	5.40E-10	5.20E-09	3.90E-09	2.39E-08	3.05E-08	1.14E-08	1.37E-08
82	9.89E-09	1.11E-08	1.54E-08	1.47E-08	3.98E-10	4.39E-09	1.92E-08	1.44E-08	2.39E-08	3.05E-08	1.14E-08	1.37E-08
83	1.01E-08	1.17E-08	1.67E-08	1.52E-08	3.79E-10	5.09E-09	2.16E-08	1.64E-08	2.39E-08	3.05E-08	1.14E-08	1.37E-08
84	2.44E-08	2.37E-08	3.05E-08	3.53E-08	5.86E-10	9.86E-09	4.76E-08	3.84E-08	2.39E-08	3.05E-08	1.14E-08	1.37E-08
85	1.17E-08	1.17E-08	1.62E-08	1.63E-08	4.70E-10	4.10E-09	1.79E-08	1.37E-08	2.39E-08	3.05E-08	1.14E-08	1.37E-08
86	2.30E-09	2.34E-09	3.40E-09	2.93E-09	1.22E-10	9.36E-10	3.64E-09	2.55E-09	2.39E-08	3.05E-08	1.14E-08	1.37E-08
87	1.75E-08	1.24E-08	1.46E-08	1.67E-08	4.27E-10	9.90E-10	1.33E-08	1.16E-08	2.39E-08	3.05E-08	1.14E-08	1.37E-08
88	1.06E-08	1.57E-08	1.04E-08	1.09E-08	2.28E-10	7.20E-10	1.01E-08	8.55E-09	2.39E-08	3.05E-08	1.14E-08	1.37E-08
89	2.30E-10	1.30E-10	2.00E-10	1.65E-10	9.60E-12	3.60E-11	2.60E-10	1.50E-10	2.39E-08	3.05E-08	1.14E-08	1.37E-08
90	2.30E-10	3.90E-10	5.00E-10	4.23E-10	1.68E-11	1.08E-10	5.20E-10	3.00E-10	2.39E-08	3.05E-08	1.14E-08	1.37E-08
91	2.30E-10	1.30E-10	3.00E-10	2.40E-10	1.20E-11	5.40E-11	2.60E-10	1.50E-10	2.39E-08	3.05E-08	1.14E-08	1.37E-08
92	4.60E-10	5.20E-10	9.00E-10	6.72E-10	2.64E-11	2.16E-10	7.80E-10	4.50E-10	2.39E-08	3.05E-08	1.14E-08	1.37E-08
93	9.20E-10	1.04E-09	1.60E-09	1.27E-09	5.28E-11	5.22E-10	1.56E-09	1.05E-09	2.39E-08	3.05E-08	1.14E-08	1.37E-08
94	2.30E-10	2.60E-10	4.00E-10	3.34E-10	9.60E-12	5.40E-11	5.20E-10	3.00E-10	2.39E-08	3.05E-08	1.14E-08	1.37E-08
95	2.30E-10	3.90E-10	5.00E-10	4.14E-10	9.60E-12	7.20E-11	5.20E-10	3.00E-10	2.39E-08	3.05E-08	1.14E-08	1.37E-08
96	2.30E-10	2.60E-10	4.00E-10	3.34E-10	9.60E-12	7.20E-11	5.20E-10	3.00E-10	2.39E-08	3.05E-08	1.14E-08	1.37E-08
97	4.60E-10	3.90E-10	5.00E-10	4.28E-10	9.60E-12	9.00E-11	5.20E-10	4.50E-10	2.39E-08	3.05E-08	1.14E-08	1.37E-08
98	4.60E-10	3.90E-10	6.00E-10	4.79E-10	1.92E-11	1.08E-10	7.80E-10	4.50E-10	2.39E-08	3.05E-08	1.14E-08	1.37E-08
99	4.60E-10	5.20E-10	9.00E-10	6.77E-10	2.40E-11	1.98E-10	7.80E-10	6.00E-10	2.39E-08	3.05E-08	1.14E-08	1.37E-08
100	6.90E-10	7.80E-10	1.20E-09	9.45E-10	3.12E-11	4.32E-10	1.04E-09	7.50E-10	2.39E-08	3.05E-08	1.14E-08	1.37E-08
101	1.38E-09	1.56E-09	2.50E-09	1.89E-09	6.96E-11	9.54E-10	2.34E-09	1.50E-09	2.39E-08	3.05E-08	1.14E-08	1.37E-08
102	1.38E-09	1.82E-09	2.80E-09	2.18E-09	8.16E-11	7.56E-10	2.60E-09	1.80E-09	2.39E-08	3.05E-08	1.14E-08	1.37E-08
103	1.61E-09	1.69E-09	2.60E-09	2.12E-09	7.92E-11	7.38E-10	2.60E-09	1.80E-09	2.39E-08	3.05E-08	1.14E-08	1.37E-08
104	1.38E-09	1.56E-09	2.10E-09	1.85E-09	7.68E-11	6.48E-10	2.34E-09	1.50E-09	2.39E-08	3.05E-08	1.14E-08	1.37E-08

TABLE D (PART 1).—*Total Combined Cancer Risk of All Pollutants from All TAs*-Continued

NO.	1	2	3	4	5	6	7	8	9	10	11	12
REC. #	CHLF	FORM	TRCE	MECH	Be	MTCH	ETDC	CCL4	Ni	BENZ	ACAL	ETAC
	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR
105	1.38E-09	1.43E-09	2.10E-09	1.76E-09	7.20E-11	5.22E-10	2.08E-09	1.35E-09	2.39E-08	3.05E-08	1.14E-08	1.37E-08
106	2.76E-09	3.12E-09	4.40E-09	3.91E-09	1.37E-10	1.17E-09	4.94E-09	3.75E-09	2.39E-08	3.05E-08	1.14E-08	1.37E-08
107	2.53E-09	2.86E-09	4.20E-09	3.61E-09	1.25E-10	1.15E-09	4.68E-09	3.30E-09	2.39E-08	3.05E-08	1.14E-08	1.37E-08
108	2.07E-09	2.47E-09	3.50E-09	2.99E-09	1.03E-10	9.90E-10	3.90E-09	2.85E-09	2.39E-08	3.05E-08	1.14E-08	1.37E-08
109	1.84E-09	2.08E-09	3.00E-09	2.51E-09	8.88E-11	7.92E-10	3.38E-09	2.40E-09	2.39E-08	3.05E-08	1.14E-08	1.37E-08
110	1.84E-09	2.08E-09	3.20E-09	2.61E-09	9.84E-11	9.18E-10	3.64E-09	2.55E-09	2.39E-08	3.05E-08	1.14E-08	1.37E-08
111	9.20E-10	9.10E-10	1.40E-09	1.14E-09	4.56E-11	5.04E-10	1.30E-09	9.00E-10	2.39E-08	3.05E-08	1.14E-08	1.37E-08
112	4.60E-10	5.20E-10	7.00E-10	5.64E-10	2.16E-11	1.98E-10	7.80E-10	6.00E-10	2.39E-08	3.05E-08	1.14E-08	1.37E-08
113	9.20E-10	7.80E-10	1.20E-09	1.02E-09	4.32E-11	3.24E-10	1.30E-09	7.50E-10	2.39E-08	3.05E-08	1.14E-08	1.37E-08
114	4.60E-10	3.90E-10	6.00E-10	4.98E-10	2.16E-11	1.80E-10	5.20E-10	4.50E-10	2.39E-08	3.05E-08	1.14E-08	1.37E-08
115	4.60E-10	5.20E-10	8.00E-10	6.11E-10	2.40E-11	1.80E-10	7.80E-10	6.00E-10	2.39E-08	3.05E-08	1.14E-08	1.37E-08
116	2.30E-10	2.60E-10	4.00E-10	3.34E-10	1.20E-11	1.08E-10	5.20E-10	3.00E-10	2.39E-08	3.05E-08	1.14E-08	1.37E-08
117	4.60E-10	5.20E-10	7.00E-10	5.55E-10	2.16E-11	1.80E-10	5.20E-10	4.50E-10	2.39E-08	3.05E-08	1.14E-08	1.37E-08
118	1.61E-09	1.82E-09	2.80E-09	2.24E-09	8.40E-11	7.20E-10	3.38E-09	2.10E-09	2.39E-08	3.05E-08	1.14E-08	1.37E-08
119	1.61E-09	1.82E-09	2.80E-09	2.17E-09	7.92E-11	9.18E-10	3.12E-09	2.10E-09	2.39E-08	3.05E-08	1.14E-08	1.37E-08
120	1.61E-09	1.82E-09	2.70E-09	2.23E-09	8.88E-11	6.66E-10	2.60E-09	1.80E-09	2.39E-08	3.05E-08	1.14E-08	1.37E-08
121	2.30E-10	3.90E-10	5.00E-10	3.95E-10	1.44E-11	1.44E-10	5.20E-10	3.00E-10	2.39E-08	3.05E-08	1.14E-08	1.37E-08
122	3.22E-09	3.64E-09	5.30E-09	4.54E-09	1.56E-10	1.44E-09	5.98E-09	4.35E-09	2.39E-08	3.05E-08	1.14E-08	1.37E-08
123	1.15E-09	1.17E-09	1.90E-09	1.44E-09	3.84E-11	2.70E-10	2.08E-09	1.20E-09	2.39E-08	3.05E-08	1.14E-08	1.37E-08
124	4.60E-10	5.20E-10	8.00E-10	6.44E-10	1.92E-11	1.26E-10	7.80E-10	6.00E-10	2.39E-08	3.05E-08	1.14E-08	1.37E-08
125	2.30E-10	2.60E-10	5.00E-10	3.90E-10	1.20E-11	7.20E-11	5.20E-10	3.00E-10	2.39E-08	3.05E-08	1.14E-08	1.37E-08
126	2.30E-10	2.60E-10	3.00E-10	2.49E-10	9.60E-12	7.20E-11	2.60E-10	1.50E-10	2.39E-08	3.05E-08	1.14E-08	1.37E-08
127	2.30E-10	2.60E-10	4.00E-10	3.29E-10	9.60E-12	5.40E-11	2.60E-10	3.00E-10	2.39E-08	3.05E-08	1.14E-08	1.37E-08
128	4.60E-10	6.50E-10	9.00E-10	7.33E-10	2.16E-11	1.08E-10	1.04E-09	6.00E-10	2.39E-08	3.05E-08	1.14E-08	1.37E-08
129	2.30E-10	2.60E-10	5.00E-10	3.81E-10	9.60E-12	7.20E-11	5.20E-10	3.00E-10	2.39E-08	3.05E-08	1.14E-08	1.37E-08
130	2.30E-10	2.60E-10	4.00E-10	3.06E-10	1.20E-11	1.08E-10	2.60E-10	3.00E-10	2.39E-08	3.05E-08	1.14E-08	1.37E-08

TABLE D (PART 1).—*Total Combined Cancer Risk of All Pollutants from All TAs*-Continued

NO.	1	2	3	4	5	6	7	8	9	10	11	12
REC. #	CHLF	FORM	TRCE	MECH	Be	MTCH	ETDC	CCL4	Ni	BENZ	ACAL	ETAC
	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR
131	0.00E+00	1.30E-10	1.00E-10	8.46E-11	2.40E-12	3.60E-11	0.00E+00	0.00E+00	2.39E-08	3.05E-08	1.14E-08	1.37E-08
132	0.00E+00	1.30E-10	2.00E-10	1.27E-10	2.40E-12	1.80E-11	2.60E-10	1.50E-10	2.39E-08	3.05E-08	1.14E-08	1.37E-08
133	2.30E-10	2.60E-10	3.00E-10	2.44E-10	4.80E-12	5.40E-11	2.60E-10	1.50E-10	2.39E-08	3.05E-08	1.14E-08	1.37E-08
134	0.00E+00	1.30E-10	1.00E-10	8.93E-11	2.40E-12	1.80E-11	0.00E+00	0.00E+00	2.39E-08	3.05E-08	1.14E-08	1.37E-08
135	2.30E-10	3.90E-10	5.00E-10	4.75E-10	1.44E-11	1.08E-10	5.20E-10	3.00E-10	2.39E-08	3.05E-08	1.14E-08	1.37E-08
136	1.15E-09	1.30E-09	2.10E-09	1.60E-09	5.04E-11	4.14E-10	2.34E-09	1.50E-09	2.39E-08	3.05E-08	1.14E-08	1.37E-08
137	2.30E-10	2.60E-10	5.00E-10	3.85E-10	1.68E-11	9.00E-11	5.20E-10	3.00E-10	2.39E-08	3.05E-08	1.14E-08	1.37E-08
138	7.59E-09	1.11E-08	1.57E-08	1.32E-08	4.15E-10	5.17E-09	1.87E-08	1.38E-08	2.39E-08	3.05E-08	1.14E-08	1.37E-08
139	2.30E-10	2.60E-10	3.00E-10	2.44E-10	7.20E-12	5.40E-11	2.60E-10	3.00E-10	2.39E-08	3.05E-08	1.14E-08	1.37E-08
140	2.30E-10	2.60E-10	4.00E-10	3.29E-10	9.60E-12	5.40E-11	5.20E-10	3.00E-10	2.39E-08	3.05E-08	1.14E-08	1.37E-08
141	4.60E-10	3.90E-10	7.00E-10	5.45E-10	1.44E-11	1.08E-10	7.80E-10	4.50E-10	2.39E-08	3.05E-08	1.14E-08	1.37E-08
142	4.83E-09	5.59E-09	1.05E-08	6.77E-09	2.04E-10	2.20E-09	1.07E-08	6.45E-09	2.39E-08	3.05E-08	1.14E-08	1.37E-08
143	6.90E-10	7.80E-10	1.30E-09	9.64E-10	3.12E-11	2.34E-10	1.30E-09	9.00E-10	2.39E-08	3.05E-08	1.14E-08	1.37E-08
144	0.00E+00	1.30E-10	1.00E-10	8.46E-11	2.40E-12	1.80E-11	0.00E+00	0.00E+00	2.39E-08	3.05E-08	1.14E-08	1.37E-08
145	2.30E-10	2.60E-10	4.00E-10	2.91E-10	9.60E-12	9.00E-11	2.60E-10	1.50E-10	2.39E-08	3.05E-08	1.14E-08	1.37E-08
146	2.30E-10	2.60E-10	4.00E-10	3.62E-10	1.44E-11	9.00E-11	5.20E-10	3.00E-10	2.39E-08	3.05E-08	1.14E-08	1.37E-08
147	7.13E-09	9.10E-09	1.31E-08	1.14E-08	3.38E-10	4.39E-09	1.59E-08	1.14E-08	2.39E-08	3.05E-08	1.14E-08	1.37E-08
148	7.36E-09	1.09E-08	1.66E-08	1.28E-08	4.13E-10	6.19E-09	1.85E-08	1.40E-08	2.39E-08	3.05E-08	1.14E-08	1.37E-08
149	6.67E-09	8.45E-09	1.37E-08	9.72E-09	3.31E-10	5.92E-09	1.38E-08	9.15E-09	2.39E-08	3.05E-08	1.14E-08	1.37E-08
150	7.82E-09	8.45E-09	1.61E-08	9.72E-09	3.10E-10	1.03E-08	1.56E-08	9.60E-09	2.39E-08	3.05E-08	1.14E-08	1.37E-08
151	9.89E-09	9.23E-09	1.95E-08	1.14E-08	3.00E-10	1.43E-08	1.79E-08	1.05E-08	2.39E-08	3.05E-08	1.14E-08	1.37E-08
152	1.59E-08	7.67E-09	2.17E-08	9.11E-09	2.45E-10	3.99E-08	1.25E-08	7.80E-09	2.39E-08	3.05E-08	1.14E-08	1.37E-08
153	5.98E-09	6.37E-09	1.10E-08	7.75E-09	2.28E-10	3.42E-09	1.20E-08	7.20E-09	2.39E-08	3.05E-08	1.14E-08	1.37E-08
154	6.44E-09	7.93E-09	1.38E-08	9.42E-09	2.47E-10	2.39E-09	1.46E-08	8.55E-09	2.39E-08	3.05E-08	1.14E-08	1.37E-08
155	5.52E-09	6.63E-09	1.19E-08	7.91E-09	2.09E-10	2.30E-09	1.17E-08	7.05E-09	2.39E-08	3.05E-08	1.14E-08	1.37E-08
156	5.75E-09	6.89E-09	1.16E-08	7.84E-09	2.06E-10	1.57E-09	1.20E-08	6.45E-09	2.39E-08	3.05E-08	1.14E-08	1.37E-08

TABLE D (PART 1).—*Total Combined Cancer Risk of All Pollutants from All TAs*-Continued

NO.	1	2	3	4	5	6	7	8	9	10	11	12
REC. #	CHLF	FORM	TRCE	MECH	Be	MTCH	ETDC	CCL4	Ni	BENZ	ACAL	ETAC
	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR
157	6.44E-09	7.15E-09	1.24E-08	8.24E-09	2.38E-10	1.51E-09	1.27E-08	6.45E-09	2.39E-08	3.05E-08	1.14E-08	1.37E-08
158	7.82E-09	8.84E-09	1.74E-08	1.02E-08	2.86E-10	1.62E-09	1.77E-08	7.95E-09	2.39E-08	3.05E-08	1.14E-08	1.37E-08
159	8.97E-09	9.49E-09	1.73E-08	1.06E-08	2.93E-10	1.17E-09	1.69E-08	7.35E-09	2.39E-08	3.05E-08	1.14E-08	1.37E-08
160	8.05E-09	8.45E-09	1.31E-08	1.01E-08	2.45E-10	1.06E-09	1.17E-08	6.00E-09	2.39E-08	3.05E-08	1.14E-08	1.37E-08
161	1.22E-08	1.12E-08	1.86E-08	1.32E-08	2.83E-10	1.22E-09	1.72E-08	7.80E-09	2.39E-08	3.05E-08	1.14E-08	1.37E-08
162	1.31E-08	1.31E-08	1.58E-08	1.57E-08	3.00E-10	1.10E-09	1.56E-08	7.95E-09	2.39E-08	3.05E-08	1.14E-08	1.37E-08
163	1.59E-08	1.57E-08	1.61E-08	1.95E-08	3.07E-10	8.64E-10	1.46E-08	8.55E-09	2.39E-08	3.05E-08	1.14E-08	1.37E-08
164	5.06E-09	4.42E-09	5.40E-09	5.10E-09	1.22E-10	5.04E-10	5.46E-09	3.75E-09	2.39E-08	3.05E-08	1.14E-08	1.37E-08
165	4.37E-09	4.55E-09	5.90E-09	5.76E-09	1.37E-10	5.76E-10	4.68E-09	3.30E-09	2.39E-08	3.05E-08	1.14E-08	1.37E-08
166	5.06E-09	5.46E-09	7.00E-09	6.68E-09	1.46E-10	5.58E-10	5.20E-09	3.90E-09	2.39E-08	3.05E-08	1.14E-08	1.37E-08
167	5.98E-09	5.46E-09	6.30E-09	6.13E-09	1.94E-10	6.12E-10	6.24E-09	4.80E-09	2.39E-08	3.05E-08	1.14E-08	1.37E-08
168	1.79E-08	9.36E-09	1.20E-08	1.24E-08	3.91E-10	1.15E-09	1.09E-08	8.85E-09	2.39E-08	3.05E-08	1.14E-08	1.37E-08
169	4.58E-08	1.56E-08	2.32E-08	2.70E-08	1.64E-09	4.57E-09	1.64E-08	1.13E-08	2.39E-08	3.05E-08	1.14E-08	1.37E-08
170	2.53E-08	1.70E-08	2.28E-08	2.21E-08	1.15E-09	4.07E-09	1.77E-08	1.20E-08	2.39E-08	3.05E-08	1.14E-08	1.37E-08
171	1.91E-08	1.82E-08	2.47E-08	2.45E-08	1.01E-09	5.22E-09	2.39E-08	1.71E-08	2.39E-08	3.05E-08	1.14E-08	1.37E-08
172	1.84E-08	2.04E-08	2.55E-08	2.49E-08	8.50E-10	5.94E-09	2.47E-08	2.00E-08	2.39E-08	3.05E-08	1.14E-08	1.37E-08
173	1.66E-08	1.85E-08	2.36E-08	2.38E-08	7.13E-10	5.71E-09	2.55E-08	2.00E-08	2.39E-08	3.05E-08	1.14E-08	1.37E-08
174	1.61E-08	1.48E-08	1.99E-08	2.11E-08	5.76E-10	5.20E-09	2.52E-08	2.01E-08	2.39E-08	3.05E-08	1.14E-08	1.37E-08
175	8.74E-07	5.17E-08	6.73E-08	1.94E-08	1.71E-09	8.08E-09	1.38E-08	1.08E-08	3.06E-09	7.22E-09	9.50E-09	8.53E-09
176	6.90E-07	4.34E-08	5.94E-08	2.02E-08	1.91E-09	1.18E-08	1.43E-08	1.14E-08	3.14E-09	7.47E-09	9.46E-09	8.82E-09
177	5.65E-07	3.76E-08	4.93E-08	1.97E-08	1.89E-09	1.12E-08	1.40E-08	1.11E-08	3.07E-09	7.39E-09	9.09E-09	8.37E-09
178	5.96E-07	3.94E-08	4.93E-08	1.97E-08	1.71E-09	8.96E-09	1.40E-08	1.11E-08	3.11E-09	7.39E-09	9.79E-09	8.65E-09
179	4.51E-07	3.28E-08	4.33E-08	2.05E-08	1.98E-09	1.36E-08	1.46E-08	1.17E-08	3.19E-09	7.64E-09	9.48E-09	9.31E-09
180	7.71E-07	4.80E-08	5.39E-08	2.13E-08	1.80E-09	1.01E-08	1.46E-08	1.16E-08	3.26E-09	7.72E-09	1.12E-08	9.87E-09

TABLE D (PART 2).—*Total Combined Cancer Risk of All Pollutants from All TAs*

NO.	13	14	15	16	17	18	19	20	21	22	23	24
REC. #	TECE	PRDI	STYR	CDDF	As	Cd	BNZP	Cr Vi	ACAM	1,3-BUT	2-NTP	1,1,1,2-TCE
	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR
1	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
2	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
3	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
4	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
5	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
6	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
7	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
8	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
9	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
10	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
11	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
12	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
13	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
14	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
15	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
16	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
17	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
18	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
19	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
20	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
21	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
22	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
23	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
24	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
25	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
26	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09

TABLE D (PART 2).—*Total Combined Cancer Risk of All Pollutants from All TAs*-Continued

NO.	13	14	15	16	17	18	19	20	21	22	23	24
REC. #	TECE	PRDI	STYR	CDDF	As	Cd	BNZP	Cr Vi	ACAM	1,3-BUT	2-NTP	1,1,1,2-TCE
	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR
27	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
28	1.11E-08	1.01E-08	1.10E-08	3.30E-11	1.08E-08	4.04E-09	1.70E-10	1.28E-09	1.16E-08	0.00E+00	0.00E+00	5.18E-10
29	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
30	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
31	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
32	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
33	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
34	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
35	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
36	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
37	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
38	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
39	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
40	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
41	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
42	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
43	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
44	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
45	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
46	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
47	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
48	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
49	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
50	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
51	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
52	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09

TABLE D (PART 2).—*Total Combined Cancer Risk of All Pollutants from All TAs*-Continued

NO.	13	14	15	16	17	18	19	20	21	22	23	24
REC. #	TECE	PRDI	STYR	CDDF	As	Cd	BNZP	Cr Vi	ACAM	1,3-BUT	2-NTP	1,1,1,2-TCE
	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR
53	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
54	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
55	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
56	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
57	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
58	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
59	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
60	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
61	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
62	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
63	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
64	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
65	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
66	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
67	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
68	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
69	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
70	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
71	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
72	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
73	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
74	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
75	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
76	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
77	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
78	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09

TABLE D (PART 2).—*Total Combined Cancer Risk of All Pollutants from All TAs*-Continued

NO.	13	14	15	16	17	18	19	20	21	22	23	24
REC. #	TECE	PRDI	STYR	CDDF	As	Cd	BNZP	Cr Vi	ACAM	1,3-BUT	2-NTP	1,1,1,2-TCE
	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR
79	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
80	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
81	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
82	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
83	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
84	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
85	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
86	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
87	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
88	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
89	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
90	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
91	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
92	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
93	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
94	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
95	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
96	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
97	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
98	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
99	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
100	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
101	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
102	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
103	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
104	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09

TABLE D (PART 2).—*Total Combined Cancer Risk of All Pollutants from All TAs*-Continued

NO.	13	14	15	16	17	18	19	20	21	22	23	24
REC. #	TECE	PRDI	STYR	CDDF	As	Cd	BNZP	Cr Vi	ACAM	1,3-BUT	2-NTP	1,1,1,2-TCE
	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR
105	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
106	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
107	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
108	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
109	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
110	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
111	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
112	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
113	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
114	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
115	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
116	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
117	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
118	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
119	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
120	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
121	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
122	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
123	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
124	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
125	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
126	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
127	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
128	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
129	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
130	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09

TABLE D (PART 2).—*Total Combined Cancer Risk of All Pollutants from All TAs*-Continued

NO.	13	14	15	16	17	18	19	20	21	22	23	24
REC. #	TECE	PRDI	STYR	CDDF	As	Cd	BNZP	Cr Vi	ACAM	1,3-BUT	2-NTP	1,1,1,2-TCE
	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR
131	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
132	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
133	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
134	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
135	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
136	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
137	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
138	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
139	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
140	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
141	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
142	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
143	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
144	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
145	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
146	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
147	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
148	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
149	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
150	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
151	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
152	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
153	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
154	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
155	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
156	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09

TABLE D (PART 2).—*Total Combined Cancer Risk of All Pollutants from All TAs*-Continued

NO.	13	14	15	16	17	18	19	20	21	22	23	24
REC. #	TECE	PRDI	STYR	CDDF	As	Cd	BNZP	Cr Vi	ACAM	1,3-BUT	2-NTP	1,1,1,2-TCE
	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR
157	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
158	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
159	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
160	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
161	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
162	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
163	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
164	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
165	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
166	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
167	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
168	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
169	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
170	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
171	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
172	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
173	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
174	1.97E-08	1.13E-08	1.97E-08	5.61E-10	1.22E-08	2.86E-08	2.89E-10	1.00E-08	2.02E-08	8.40E-09	1.08E-07	9.77E-09
175	1.04E-08	9.53E-09	1.03E-08	2.97E-10	9.55E-09	3.76E-09	1.53E-10	1.24E-09	1.92E-08	0.00E+00	0.00E+00	5.18E-10
176	1.08E-08	9.47E-09	1.07E-08	3.30E-11	1.03E-08	4.17E-09	1.70E-10	1.30E-09	1.51E-08	0.00E+00	0.00E+00	5.18E-10
177	1.04E-08	9.10E-09	1.03E-08	3.33E-11	9.89E-09	4.19E-09	1.70E-10	1.28E-09	1.34E-08	0.00E+00	0.00E+00	5.18E-10
178	1.06E-08	9.79E-09	1.06E-08	2.97E-10	9.98E-09	3.87E-09	1.53E-10	1.26E-09	1.38E-08	0.00E+00	0.00E+00	5.18E-10
179	1.11E-08	9.50E-09	1.10E-08	3.30E-11	1.02E-08	4.46E-09	1.70E-10	1.33E-09	9.49E-09	0.00E+00	0.00E+00	5.92E-10
180	1.20E-08	1.12E-08	1.20E-08	6.60E-11	1.19E-08	3.90E-09	1.70E-10	1.27E-09	2.02E-08	0.00E+00	0.00E+00	5.18E-10

TABLE D (PART 3).—*Total Combined Cancer Risk of All Pollutants from All TAs*

NO.	25	26	27	28	29	30	31	32	33	34	35	TOTAL COMBINED CR
REC. #	1,1,2,2-TCE	1,1,2-TCE	HECE	HECB	VINC	DIEA	EPCH	ALCH	ETOX	BNCH	HDRZ	
	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	
1	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	6.67E-07
2	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	6.73E-07
3	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	6.38E-07
4	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	6.31E-07
5	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	6.42E-07
6	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	6.36E-07
7	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	6.52E-07
8	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	6.30E-07
9	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	6.20E-07
10	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	6.48E-07
11	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	6.64E-07
12	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	6.50E-07
13	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	6.32E-07
14	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	6.15E-07
15	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	6.16E-07
16	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	6.20E-07
17	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	6.58E-07
18	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	6.88E-07
19	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	6.83E-07
20	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	6.64E-07
21	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	6.53E-07
22	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	6.39E-07
23	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	6.08E-07
24	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	6.55E-07
25	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	6.89E-07
26	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	6.60E-07

TABLE D (PART 3).—*Total Combined Cancer Risk of All Pollutants from All TAs*-Continued

NO.	25	26	27	28	29	30	31	32	33	34	35	TOTAL COMBINED CR
REC. #	1,1,2,2-TCE	1,1,2-TCE	HECE	HECB	VINC	DIEA	EPCH	ALCH	ETOX	BNCH	HDRZ	
	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	
27	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	8.08E-07
28	1.74E-09	2.35E-08	5.20E-10	4.40E-10	8.40E-10	5.56E-10	1.20E-10	1.64E-10	0.00E+00	8.40E-10	1.45E-09	8.05E-07
29	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	8.47E-07
30	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	7.54E-07
31	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	6.72E-07
32	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	6.71E-07
33	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.78E-07
34	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.89E-07
35	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.63E-07
36	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.61E-07
37	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.60E-07
38	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.85E-07
39	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.44E-07
40	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.34E-07
41	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.35E-07
42	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.22E-07
43	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.41E-07
44	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.36E-07
45	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.46E-07
46	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.57E-07
47	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.70E-07
48	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.62E-07
49	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.79E-07
50	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.44E-07
51	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.50E-07
52	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.52E-07

TABLE D (PART 3).—*Total Combined Cancer Risk of All Pollutants from All TAs*-Continued

NO.	25	26	27	28	29	30	31	32	33	34	35	TOTAL COMBINED CR
REC. #	1,1,2,2-TCE	1,1,2-TCE	HECE	HECB	VINC	DIEA	EPCH	ALCH	ETOX	BNCH	HDRZ	
	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	
53	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.59E-07
54	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.49E-07
55	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.58E-07
56	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.60E-07
57	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.65E-07
58	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.67E-07
59	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.74E-07
60	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.74E-07
61	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.68E-07
62	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.54E-07
63	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.58E-07
64	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.60E-07
65	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.69E-07
66	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.57E-07
67	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.61E-07
68	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.68E-07
69	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.52E-07
70	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.45E-07
71	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.39E-07
72	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.44E-07
73	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.74E-07
74	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.36E-07
75	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.61E-07
76	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	6.39E-07
77	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.39E-07
78	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	7.39E-07

TABLE D (PART 3).—*Total Combined Cancer Risk of All Pollutants from All TAs*-Continued

NO.	25	26	27	28	29	30	31	32	33	34	35	TOTAL COMBINED CR
REC. #	1,1,2,2-TCE	1,1,2-TCE	HECE	HECB	VINC	DIEA	EPCH	ALCH	ETOX	BNCH	HDRZ	
	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	
79	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	4.92E-07
80	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	4.92E-07
81	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.13E-07
82	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.71E-07
83	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.79E-07
84	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	6.92E-07
85	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.73E-07
86	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.00E-07
87	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.69E-07
88	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.49E-07
89	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	4.83E-07
90	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	4.84E-07
91	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	4.83E-07
92	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	4.85E-07
93	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	4.89E-07
94	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	4.83E-07
95	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	4.84E-07
96	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	4.83E-07
97	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	4.84E-07
98	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	4.85E-07
99	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	4.86E-07
100	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	4.87E-07
101	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	4.94E-07
102	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	4.95E-07
103	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	4.95E-07
104	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	4.93E-07

TABLE D (PART 3).—*Total Combined Cancer Risk of All Pollutants from All TAs*-Continued

NO.	25	26	27	28	29	30	31	32	33	34	35	TOTAL COMBINED CR
REC. #	1,1,2,2-TCE	1,1,2-TCE	HECE	HECB	VINC	DIEA	EPCH	ALCH	ETOX	BNCH	HDRZ	
	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	
105	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	4.92E-07
106	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.06E-07
107	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.04E-07
108	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.00E-07
109	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	4.97E-07
110	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	4.98E-07
111	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	4.88E-07
112	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	4.85E-07
113	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	4.88E-07
114	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	4.84E-07
115	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	4.85E-07
116	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	4.84E-07
117	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	4.85E-07
118	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	4.96E-07
119	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	4.96E-07
120	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	4.95E-07
121	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	4.84E-07
122	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.10E-07
123	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	4.91E-07
124	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	4.85E-07
125	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	4.84E-07
126	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	4.83E-07
127	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	4.83E-07
128	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	4.86E-07
129	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	4.84E-07
130	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	4.83E-07

TABLE D (PART 3).—*Total Combined Cancer Risk of All Pollutants from All TAs*-Continued

NO.	25	26	27	28	29	30	31	32	33	34	35	TOTAL COMBINED CR
REC. #	1,1,2,2-TCE	1,1,2-TCE	HECE	HECB	VINC	DIEA	EPCH	ALCH	ETOX	BNCH	HDRZ	
	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	
131	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	4.82E-07
132	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	4.82E-07
133	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	4.83E-07
134	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	4.82E-07
135	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	4.84E-07
136	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	4.92E-07
137	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	4.84E-07
138	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.67E-07
139	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	4.83E-07
140	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	4.83E-07
141	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	4.85E-07
142	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.29E-07
143	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	4.88E-07
144	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	4.82E-07
145	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	4.83E-07
146	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	4.84E-07
147	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.54E-07
148	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.68E-07
149	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.49E-07
150	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.59E-07
151	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.74E-07
152	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.96E-07
153	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.35E-07
154	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.45E-07
155	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.35E-07
156	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.34E-07

TABLE D (PART 3).—*Total Combined Cancer Risk of All Pollutants from All TAs*-Continued

NO.	25	26	27	28	29	30	31	32	33	34	35	TOTAL COMBINED CR
REC. #	1,1,2,2-TCE	1,1,2-TCE	HECE	HECB	VINC	DIEA	EPCH	ALCH	ETOX	BNCH	HDRZ	
	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	
157	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.37E-07
158	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.53E-07
159	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.53E-07
160	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.40E-07
161	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.63E-07
162	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.64E-07
163	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.73E-07
164	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.11E-07
165	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.11E-07
166	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.15E-07
167	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.17E-07
168	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	5.54E-07
169	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	6.27E-07
170	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	6.03E-07
171	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	6.15E-07
172	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	6.22E-07
173	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	6.16E-07
174	2.03E-08	3.90E-08	9.80E-09	9.46E-09	1.01E-08	8.41E-09	1.00E-08	9.85E-09	1.00E-08	1.01E-08	1.62E-08	6.04E-07
175	1.74E-09	2.19E-08	5.20E-10	4.40E-10	8.40E-10	5.40E-10	1.20E-10	1.61E-10	0.00E+00	8.40E-10	1.40E-09	1.17E-06
176	1.74E-09	2.30E-08	5.60E-10	4.40E-10	8.40E-10	5.59E-10	1.20E-10	1.65E-10	0.00E+00	8.40E-10	1.46E-09	9.73E-07
177	1.74E-09	2.24E-08	5.20E-10	4.40E-10	8.40E-10	5.62E-10	1.20E-10	1.65E-10	0.00E+00	8.40E-10	1.45E-09	8.26E-07
178	1.74E-09	2.26E-08	5.20E-10	4.40E-10	8.40E-10	5.48E-10	1.20E-10	1.62E-10	0.00E+00	8.40E-10	1.42E-09	8.59E-07

TABLE D (PART 3).—*Total Combined Cancer Risk of All Pollutants from All TAs*-Continued

NO.	25	26	27	28	29	30	31	32	33	34	35	TOTAL COMBINED CR
REC. #	1,1,2,2-TCE	1,1,2-TCE	HECE	HECB	VINC	DIEA	EPCH	ALCH	ETOX	BNCH	HDRZ	
	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	Max. CR	
179	1.74E-09	2.32E-08	5.60E-10	4.40E-10	8.40E-10	5.74E-10	1.20E-10	1.68E-10	0.00E+00	8.40E-10	1.49E-09	7.07E-07
180	1.74E-09	2.50E-08	5.20E-10	4.40E-10	8.40E-10	5.43E-10	1.20E-10	1.62E-10	0.00E+00	8.40E-10	1.45E-09	1.07E-06

Receptor ID Numbers:
1. CHLF = Chloroform; 2. FORM = Formaldehyde; 3. TRCE = Trichloethylene; 4. MECH = Methylene Chloride; 5. Be = Beryllium; 6. MTCH = Methyl Chloride; 7. ETDC = Ethylene Dichloride; 8. CCL4 = Carbon Tetrachloride; 9. NI = Nickel; 10. BENZ = Benzene; 11. ACAL = Acetaldehyde; 12. ETAC = Ethyl Acrylate; 13. TECE = Tetrachloethylene; 14. PRDI = Propylene Dichloride; 15. STYR = Styrene; 16. CDDF = 2,3,7,8-Tetrachlorodibenzo(p)dioxin; 17. As = Arsenic; 18. Cd = Cadmium; 19. BNZP = Benzo(p)pyrene; 20. Cr VI = Hexavalent Chromium; 21. ACAM = Acrylamide; 22. 1.3-BUT = 1,3-Butadiene; 23. 2-NTP = 2-Nitropropane; 24. 1,1,1,2-TCE = 1,1,1,2-Tetrachloroethane; 25. 1,1,2,2-TCE = 1,1,2,2-Tetrachloroethane; 26. 1,1,2-Trichloroethane; 27. HECE = Hexachloroethane; 28. HECB = Hexachlobutadiene; 29. VINC = Vinyl Chloride; 30. DIEA = Diethanolamine; 31. EPCH = Epichlorhydrine; 32. ALCH = Allyl Chloride; 33. ETOX = Ethylene Oxide; 34. BNCH = Benzyl Chloride; 35. HDRZ = Hydrazine.

Notes:
Max. CR = Maximum cancer risk due to each pollutant.
Total Combined CR = total estimated cancer risk of all pollutants combined.

Dispersion Analysis:
- The additive impact analysis was conducted with the EPA's ISC–3 model using 5 years of on-site meteorological data.
- The total of 35 carcinogenic pollutants that have the potential to be released from LANL operations were considered in the analysis. Emission rates of these pollutants and the appropriate unit risk factors are presented in Tables A and C.
- Maximum cancer risk was obtained by multiplying of the estimated annual concentration of a specific pollutant by its unit risk factor (EPA 1992f and EPA 1993b).
- The total potential combined cancer risks were estimated by summing the cancer risks due to each individual pollutant at each of the 180 receptor locations.

Major Assumptions:
- Emissions would be released simultaneously from LANL operations over 8,760 hours a year.
- Incremental cancer risks are additive.

Other Assumptions Include:
- All chemicals are released to the atmosphere, rather than used in process or product or sent to waste disposal or recycling after use.
- There is no time spent indoors or inside automobiles; whereas, people actually spend more than 80% of their time indoors. Being inside would cut the concentration by half as a minimum.

ATTACHMENT 7
AIR QUALITY IMPACT ASSESSMENT OF THE TA–3 CHEMICAL AND METALLURGY RESEARCH FACILITY (CMR) METHYLENE CHLORIDE EMISSIONS

Technical Area: TA–3, CMR Facility

Emission Source(s)

An emission source of methylene chloride is located at the CMR Facility, Building 29 (Stack ID FE–20). Methylene chloride is used for analysis of soil samples. During the concentrating phase, the extracted methylene chloride is evaporated and emitted to the atmosphere.

Source Term Parameters

Stack parameters and their locations are provided in Table A.

Emission Rates of Pollutants Considered

The annual emission rate of methylene chloride was estimated to be 700 pounds a year under the Expanded Operations Alternative operating schedule (Table A). It was assumed that these emissions would be released over 8,760 hours of operation per year.

Dispersion Modeling Analysis

Air quality impacts analysis was conducted with the EPA's ISC–3 Model using 5 years of on-site meteorological data. All nearby buildings within the zone of plume influence were considered in the downwash analysis. The highest annual average concentration estimated by the ISC–3 Model at any of sensitive receptors was used to estimate the incremental cancer risk of the methylene chloride release using its unit risk factor.

Results

Results of the analysis are presented in Tables B and C. As shown in Table C, the maximum cancer risk associated with release of methylene chloride from Building 29 of the TA–3 CMR facility is below the Guideline Value of 1.0×10^{-8}.

TABLE A.—*Stack Parameters and Emission Rate of the Methylene Chloride Associated with the TA–3 CMR Facility (Building 29)*

NO.	EMISSION SOURCE	STACK ID	STACK PARAMETERS				ESTIMATED ANNUAL EMISSION RATE	
			UTM COORD. (X; Y)	HEIGHT	VELOCITY	DIAMETER		
			m	m	m/sec	m	lb/year	g/sec
1	TA–3 CMR Facility (Building 29)	Bldg 29 (FE–20)	380752; 3970257	15.90	17.20	1.10	700.0	0.0101

TABLE B.—*ISC–3 Estimated Annual Concentration of the Methylene Chloride Associated with Emission Source of the TA–3 CMR Facility Using 1991-1995 Meteorological Data*

EMISSION SOURCE	ISC–3 ESTIMATED ANNUAL AVERAGE CONCENTRATION ($\mu g/m^3$)				
	METEOROLOGICAL DATA				
	1991	1992	1993	1994	1995
TA–3 CMR Facility (Building 29)	6.80E-03	6.02E-03	7.35E-03	7.31E-03	6.91E-03

TABLE C.—*Results of the Dispersion Modeling Analysis of the Methylene Chloride Emissions from the CMR Facility of the TA–3*

NO.	EMISSION SOURCE	METHYLENE CHLORIDE UNIT RISK FACTOR (URF)	ISC–3 ESTIMATED ANNUAL CONCENTRATION (C_{an})	MAXIMUM CANCER RISK (C_{an} X URF)	GUIDELINE VALUE
		$(\mu g/m^3)^{-1}$	$\mu g/m^3$		
1	2	3	4	5	6
1	TA–3 CMR Facility (Building 29)	4.70E-07	7.35E-03	3.45E-09	1.00E-08

ATTACHMENT 8
AIR QUALITY IMPACT ASSESSMENT OF THE TA–3 BERYLLIUM EMISSIONS

Technical Area: TA–3, Buildings 102 and SM141

Emission Source(s)

Beryllium process development and machining operations at TA–3 are conducted in support of ongoing beryllium research and are currently being refurbished. Beryllium machining operations conducted at TA–3–39 will be relocated to the new Sigma beryllium TA–3–141 in order to consolidate the majority of the beryllium processing conducted at LANL. The permitted beryllium operations conducted at TA–3–102, TA–35–213, and TA–55, and the registered beryllium sources at TA–3–29 and TA–66 will remain in place. The modified SM141 beryllium facility also will incorporate operations and equipment from other DOE complexes.

Emissions from the two stacks, one on the TA–3 Building 102, and the other on the Building SM141, were considered in the analysis.

Source Term Parameters

Stack parameters and their locations are shown in Table A.

Emission Rates of Pollutants Considered

Annual emission rates of beryllium were estimated based on the draft permit application for SM141 and the existing air quality permit for the TA–3–102 facility. Emissions from these facilities are released to the atmosphere through a high efficiency particulate air (HEPA) filtration system, with a removal efficiency of 99.95 percent. Controlled emission rates are estimated to be 0.11 pounds per year for SM141 facility, and 1.4×10^{-4} pounds per year for the TA–3–102 facility.

Estimated annual emission rates of beryllium that were used in the analysis are shown in Table A. It was assumed that emissions would be released over 8,760 hours of operation per year.

Dispersion Modeling Analysis

An air quality impacts analysis was conducted using EPA's ISC–3 Model and 5 years of on-site meteorological data. All nearby buildings, including Buildings 102 and SM141, within the zone of stack plume influence were considered in the downwash analysis. The highest annual concentration estimated by the ISC–3 Model (Table B) was used to compute the maximum combined cancer risk of beryllium releases using its unit risk factor.

Results

Results of the analysis are presented in Tables B and C. As shown in Table C, the combined cancer risk associated with releases of beryllium from Buildings 102 and SM141 of the TA–3 facility is 2.41×10^{-9}, which is below the Guideline Value of 1.0×10^{-8}.

TABLE A.—*Stack Parameters and Beryllium Annual Emission Rate Associated with Buildings 102 and SM141 of the TA–3 Facility*

NO.	SOURCE	STACK ID	STACK PARAMETERS				ANNUAL PERMITTED EMISSION RATE	
			UTM COORD. (X; Y)	HEIGHT	VELOCITY	DIAMETER		
			m	m	m/sec	m	lb/year	g/sec
1	TA–3 Building 102	B102	380476; 3970171	13.70	5.88	0.91	1.40E-04	2.02E-09
2	TA–3 Building 141	B141	381219; 3970330	15.24	14.30	1.52	1.10E-01	1.58E-06

TABLE B.—*TA–3 ISC–3 Estimated Annual Average Concentration of the Beryllium Using 1991 to 1995 Meteorological Data*

EMISSION SOURCE	ISC–3 ESTIMATED ANNUAL AVERAGE CONCENTRATION ($\mu g/m^3$)				
	METEOROLOGICAL DATA				
	1991	1992	1993	1994	1995
TA–3 Buildings 102 & SM141	7.82E-07	8.48E-07	1.00E-06	8.88E-07	8.87E-07

TABLE C.—*Results of the Dispersion Modeling Analysis of the Beryllium Emissions from TA–3*

NO.	EMISSION SOURCE	BERYLLIUM UNIT RISK FACTOR (URF)	ISC–3 ESTIMATED ANNUAL CONC.[1] (C_{an})	COMBINED MAXIMUM CANCER RISK (C_{an} x URF)	GUIDELINE VALUE
		$(\mu g/m^3)^{-1}$	$\mu g/m^3$		
1	2	3	4	5	6
1	TA–3 Buildings 102 & SM141	2.40E-03	1.00E-06	2.41E-09	1.00E-08

ATTACHMENT 9
AIR QUALITY IMPACT ASSESSMENT OF THE TA–3 SHOPS COMPLEX NICKEL DUST EMISSIONS

Technical Area: TA–3, Shops Complex

Emission Source(s)

The Shops Complex contains machining and inspection equipment to support LANL. The missions supported include nuclear weapons technology, stockpile management, nuclear materials production, and general fabrication. Nickel is machined in Building 102 of the Shops Complex facility.

Source Term Parameters

Stack parameters and locations are provided in Table A.

Emission Rates of Pollutants Considered

The nickel dust generated from the machining process is exhausted through a series of in-line high efficiency particulate air (HEPA) filters before entering a common shops baghouse control system and exiting to the atmosphere. The HEPA filter has a rated control efficiency of 99.97 percent, and the baghouse has a measured control efficiency of 80 percent. The amount of nickel currently being machined is approximately 10 percent of what was machined in 1990. The estimated annual emission rate of the nickel dust used in the dispersion analysis is shown in Table A. It was assumed that annual emissions would be released over 8,760 hours of operation per year.

Dispersion Modeling Analysis

An air quality impacts analysis was conducted with EPA's ISC–3 Model using 5 years of on-site meteorological data. All nearby buildings within the zone of plume influence were considered in the downwash analysis. The highest annual average concentration estimated by the ISC–3 Model at any of sensitive receptors was used to estimate the incremental cancer risk of the nickel release using its unit risk factor.

Results

Results of the analysis are presented in Tables B and C. As shown in Table C, the maximum cancer risk associated with release of the nickel dust from Shops Complex Building 102 of the TA–3 facility is below the Guideline Value of 1.0×10^{-8}.

TABLE A.—*Stack Parameters and Emission Rate of the Nickel Dust Associated with TA–3 Shops Complex (Building 102)*

NO.	EMISSION SOURCE	STACK ID	STACK PARAMETERS				ESTIMATED ANNUAL EMISSION RATE	
			UTM COORD. (X; Y)	HEIGHT	VELOCITY	DIAMETER		
			m	m	m/sec	m	lb/year	g/sec
1	TA–3 Shops Complex (Building 102)	Building 102	380476; 3970171	13.70	5.88	0.91	1.58×10^{-3}	2.27×10^{-8}

TABLE B.—*ISC–3 Estimated Annual Concentration of the Nickel Dust Associated with Emission Source of the TA–3 Shops Complex Using Meteorological Data (1991 to 1995)*

EMISSION SOURCE	ISC–3 ESTIMATED ANNUAL AVERAGE CONCENTRATION ($\mu g/m^3$)				
	METEOROLOGICAL DATA				
	1991	1992	1993	1994	1995
TA–3 Shops Complex (Building 102)	2.70×10^{-8}	2.40×10^{-8}	3.00×10^{-8}	2.60×10^{-8}	2.70×10^{-8}

TABLE C.—*Results of the Dispersion Modeling Analysis of the Nickel Dust Emissions from Shops Complex (Building 102) of TA–3*

NO.	EMISSION SOURCE	NICKEL UNIT RISK FACTOR (URF)	ISC–3 ESTIMATED ANNUAL CONCENTRATION (C_{an})	MAXIMUM CANCER RISK (C_{an} X URF)	GUIDELINE VALUE
		$(\mu g/m^3)^{-1}$	$\mu g/m^3$		
1	TA–3 Shops Complex (Building 102)	2.40×10^{-4}	3.00×10^{-8}	7.20×10^{-12}	1.00×10^{-8}

ATTACHMENT 10
AIR QUALITY IMPACT ASSESSMENT OF PAINT BOOTH EMISSIONS

Technical Areas: TA–3, Building 38; TA–3, Building 39; and TA–60, Building 17

Emission Source: Paint Booth Operations

Paint booth operations occur at TA–3–38, TA–3–39, and TA–60–17.

Pollutant(s) Considered

There are seven toxic, noncarcinogenic pollutants and one carcinogenic air pollutant that have the potential to be released into the atmosphere from the paint booth located at TA–3–38. The noncarcinogenic pollutants are 2-butoxyethanol, isobutyl acetate, isopropyl alcohol, toluene, trimethyl benzene, xylene, and particulate matter. The carcinogenic pollutant is benzene. These chemicals are constituents of oil-based paint and paint thinner. Of these, toluene, trimethyl benzene, xylene, and benzene are constituents of oil-based paint. Isopropyl alcohol, 2-butoxyethanol, isobutyl acetate, and toluene are constituents of the paint thinner.

Because the chemical composition of the paints and thinner at TA–3–39 and TA–60–17 were not provided, it was assumed that paints and thinner compositions to be used at paint booths at TA–3–39 and TA–60–17 are similar to those used at the TA–3–38 paint booth.

Emission Rates of Pollutants Considered

To estimate annual emissions from painting operations from the paint booths, the information giving the quantity of paints and thinner used annually at each TA and their density was obtained. This information is presented in Tables A through E for each TA in the footnotes. It was assumed that type and duration of painting operations conducted at TA–60–17 in 1994 (i.e., 528 hours per year of operations consisted of 240 hours per year of rack painting, plus 288 hours per year of maintenance painting) would apply to all painting activities conducted at the TA–3–38 and TA–3–39 paint booths. Hourly emission rates were estimated for 528 hours of operations per year using a correction factor of five to approximate maximum hourly emission rates. That is, the hourly emission rates were estimated by dividing annual emission rates by 528 hours and then multiplying this value by five.

Estimated hourly and annual emission rates of toxic (noncarcinogenic and carcinogenic) air pollutants from paint booths at TA–3–38, TA–3–39, and TA–60–17 are presented in Tables A through F.

Emissions were modeled with EPA's ISC–3 Model as point sources located on specified buildings (TA–3 Buildings 38 and 39, TA–60 Building 17). The source terms were estimated based on engineering judgment (stack height = 32.8 feet [10 meters], building height = 31.17 feet [9.5 meters], stack diameter = 1.15 feet [0.35 meters], exit velocity = 16.41 feet per second [5 meters per second], and exit temperature = 293°K).

Two paint booth impact analyses were conducted, one to estimate short-term (8-hour) impacts of noncarcinogenic and carcinogenic pollutants, and one to estimate long-term annual impacts of carcinogenic pollutants.

Major Assumptions Used in the Analysis

- All paints and thinners used at TA–3–39 and TA–60–17 have similar composition and constituents as those identified for paints and thinner at TA–3–38.
- The type and duration of painting operations conducted at TA–60–17 would apply to all painting activities conducted at TA–3–38 and TA–3–39 paint booths.
- Content of fine particles (less than 10 micrometers in size) is 50 percent of the total particulate matter content.
- Five percent of PM_{10} content would be released into the atmosphere through the emission control equipment.

Results

Analysis of short-term (8-hour) impacts of noncarcinogenic air pollutants that have the potential to be released into the atmosphere under baseline conditions and under future alternatives show no impacts on ambient air quality. The $SLEV/Q^h$ ratios for all pollutants considered are all greater than one (Tables A, C, and E). That is, the estimated pollutant levels are below the established Guideline Values (GVs).

Results of the annual impacts analysis of the carcinogenic pollutant presented in Tables B, D, and F show that benzene emitted from TA–3–38 and TA–60–17 failed the analysis with an $SLEV/Q^{an}$ ratio less than one. That is, the estimated benzene level is greater then the established GV. This pollutant was further evaluated in the additive impact analysis.

TABLE A.—*8-Hour SLEV/Q Ratios of the Toxic (Noncarcinogenic and Carcinogenic) Air Pollutants from TA–3–38 Paint Booth*[1]

NO.	TOXIC AIR POLLUTANTS	CAS NUMBER	OEL[6]	1/100 OF THE OEL[7]	8-HR SLEV[8]		ESTIMATED HOURLY EMISSION RATE (Q^h)[2]	SLEV/Q^h RATIO
			µg/m³	µg/m³	g/sec	lb/hr	lb/hr	
1	2	3	4	5	6	7	8	9
NONCARCINOGENIC POLLUTANTS								
1	2-Butoxyethanol	111-76-2	120,000	1,200	4.54	36.1	0.366	98.5
2	Isobutyl Acetate	110-19-0	700,000	7,000	26.5	210.0	1.28	164.0
3	Isopropyl Alcohol	67-63-0	980,000	9,800	37.1	294.0	0.732	402.0
4	Particulate Matter, Respirable Dust[3,4,5]	NA	3,000	30.0	0.114	0.901	0.200	45.1
5	Toluene	108-88-3	188,000	1,880	7.12	56.5	1.44	39.1
6	Trimethyl Benzene	25551-13-7	125,000	1,250	4.73	37.6	1.08	34.9
7	Xylene (o-,m-,p-Isomers)	1330-20-7	434,000	4,340	16.4	130.0	6.46	20.2
CARCINOGENIC POLLUTANTS								
8	Benzene	71-43-2	32,000	320	1.21	9.62	0.0215	446.0

TABLE A.—*8-Hour SLEV/Q Ratios of the Toxic (Noncarcinogenic and Carcinogenic) Air Pollutants from TA–3–38 Paint Booth*[1]

Site Operations Data:

- The amount of oil-based paint used annually is 250 gal./year.
- The constituents of the paint are toluene (5% by weight), trimethyl benzene (5% by weight), xylene (30% by weight), and benzene (0.1% by weight).
- The highest density of the paint is 9.1 lb/gal.
- The amount of paint thinner used annually with a density of 6.9 lb/gal. is 56 gal.
- The constituents of the thinner are toluene (10% by weight), isopropyl alcohol (20% by weight), 2-Butoxyethanol (10% by weight), and isobutyl acetate (35% by weight).

Notes:

Major Assumptions:

[1] Type and duration of painting operations conducted at TA–60–17 in 1994 (528 hours of operation consisted of 240 hours/year of rack painting, plus 288 hours/year of maintenance painting) would apply to all painting activities conducted at TA–3–38 paint booth.

[2] Hourly emission rates were estimated based upon 528 hours/year of operation using a correction factor of five to approximate the maximum potential hourly emission rate.

[3] Particulate emissions of 10 micrometers in size (PM_{10}) were estimated based upon the solids content of a paint and amount of total particulates emitted from TA–3–38 paint booth (844 lb/year).

[4] Content of fine particles PM_{10} is 50% of the total particulate matter content.

[5] 5% of the PM_{10} content would be released into the atmosphere.

Guideline Value(s):

[6] OEL = occupational exposure limits established by the American Conference of Governmental Industrial Hygienists (ACGIH 1997).

[7] 1/100 of the OEL is 8-hour guideline value used in the analysis to estimate short-term impacts of the toxic air pollutants.

Dispersion Analysis Results:

[8] 5 years of meteorological data were used in the dispersion modeling analysis. The highest ISC–3 estimated 8-hour concentration at fence line receptors was found to be 264.1 $\mu g/m^3$ when emission rate is 1 g/sec.

NA = Not applicable

TABLE B.—*Annual SLEV/Q Ratios of the Carcinogenic Pollutants from TA–3–38 Paint Booth*

NO.	CARCINOGENIC POLLUTANT	CAS NUMBER	CAR CLASS	UNIT RISK FACTOR (URF)	MAXIMUM CANCER RISK (C_{an} x URF)[3]	ANNUAL SLEV[1]		ANNUAL EMISSION RATE (Q^a)[2]	RATIO SLEV/Q^a
				$(\mu g/m^3)^{-1}$		g/sec	lb/year	lb/year	
1	2	3	4	5	6	7	8	9	10
1	Benzene	71-43-2	A	8.30E-06	2.35E-05	4.25E-04	1.78E+00	2.28E+00	7.84E-01

Site Operations Data:

- The amount of oil-based paint used annually is 250 gal./year.
- The benzene content of the paint is 0.1% by weight.
- The highest density of the paint is 9.1 lb/gal.

Notes:

Major Assumptions:

[1] Type and duration of painting operations conducted at TA–60–17 in 1994 (528 hours of operation consisted of 240 hours/year of rack painting, plus 288 hours/year of maintenance painting) would apply to all painting activities conducted at TA–3–38 paint booth.

[2] Emission rate was estimated based upon amount of paint used annually and benzene content of the paint.

Dispersion Analysis Results:

[3] 5 years of meteorological data were used in the dispersion modeling analysis. The highest ISC–3 estimated annual concentration at sensitive receptors was found to be 2.83 $\mu g/m^3$ when emission rate is 1 g/sec.

TABLE C.—*8-Hour SLEV/Q Ratios of the Toxic (Noncarcinogenic and Carcinogenic) Air Pollutants from TA–3–38 Paint Booth*[1]

NO.	TOXIC AIR POLLUTANTS	CAS NUMBER	OEL[7]	1/100 OF THE OEL[8]	8-HR SLEV[9]		ESTIMATED HOURLY EMISSION RATE (Q^h)[2,6]	SLEVs/Q^h RATIO
			µg/m^3	µg/m^3	g/sec	lb/hr	lb/hr	
1	2	3	4	5	6	7	8	9
NONCARCINOGENIC POLLUTANTS								
1	2-Butoxyethanol	111-76-2	120,000	1,200	4.78	38.0	0.0327	1,160.0
2	Isobutyl Acetate	110-19-0	700,000	7,000	27.9	221.0	0.114	1,940.0
3	Isopropyl Alcohol	67-63-0	980,000	9,800	39.1	310.0	0.0653	4,740.0
4	Particulate Matter, Respirable Dust[3,4,5]	NA	3,000	30.0	0.120	0.949	0.00805	118.0
5	Toluene	108-88-3	188,000	1,880	7.49	59.5	0.0758	785.0
6	Trimethyl Benzene	25551-13-7	125,000	1,250	4.98	39.5	0.0431	918.0
7	Xylene (o-,m-,p-Isomers)	1330-20-7	434,000	4,340	17.3	137.0	0.259	531.0
CARCINOGENIC POLLUTANTS								
8	Benzene	71-43-2	32,000	320	1.28	10.0	0.000862	11,700.0

TABLE C.—*8-Hour SLEV/Q Ratios of the Toxic (Noncarcinogenic and Carcinogenic) Air Pollutants from TA–3–38 Paint Booth*[1]-Continued

Site Operations Data:

- The amount of oil-based paint used annually is 10 gal./year.
- The constituents of the paint are toluene (5% by weight), trimethyl benzene (5% by weight), xylene (30% by weight), and benzene (0.1% by weight).
- The highest density of the paint is 9.1 lb/gal.
- The amount of paint thinner used annually with a density of 6.9 lb/gal. is 5 gal.
- The constituents of the thinner are toluene (10% by weight), isopropyl alcohol (20% by weight), 2-Butoxyethanol (10% by weight), and isobutyl acetate (35% by weight).

Notes:

Major Assumptions:

[1] Type and duration of painting operations conducted at TA–60–17 in 1994 (528 hours of operation consisted of 240 hours/year of rack painting, plus 288 hours/year of maintenance painting) would apply to all painting activities conducted at TA–3–39 paint booth.

[2] Hourly emission rates were estimated based upon 528 hours/year of operation using a correction factor of five to approximate the maximum potential hourly emission rate.

[3] Particulate emissions of 10 micrometers in size (PM_{10}) were estimated based upon the solids content of a paint and amount of total particulates emitted from TA–3–38 paint booth (844 lb/year).

[4] Content of fine particles PM_{10} is 50% of the total particulate matter content.

[5] 5% of the PM_{10} content would be released into the atmosphere.

[6] The constituents of the paint and the thinner used at TA–3–39 paint booth are the same as for the paint booth at TA–3–38.

Guideline Value(s):

[7] OEL = occupational exposure limits established by the American Conference of Governmental Industrial Hygienists (ACGIH 1997).

[8] 1/100 of the OEL is 8-hour guideline value used in the analysis to estimate short-term impacts of the toxic air pollutants.

Dispersion Analysis Results:

[9] 5 years of meteorological data were used in the dispersion modeling analysis. The highest ISC–3 estimated 8-hour concentration at fence line receptors was found to be 250.9 $\mu g/m^3$ when emission rate is 1 g/sec.

TABLE D.—*Annual SLEV/Q Ratios of the Carcinogenic Pollutants from TA–3–38 Paint Booth*

NO.	CARCINOGENIC POLLUTANT	CAS NUMBER	CAR. CLASS	UNIT RISK FACTOR (URF)	MAXIMUM CANCER RISK (C_{an} x URF)[4]	ANNUAL SLEV[1]		ESTIMATED ANNUAL EMISSION RATE (Q^a)[2,3]	SLEV/Q^a RATIO
				$(\mu g/m^3)^{-1}$		g/sec	lb/year	lb/year	
1	2	3	4	5	6	7	8	9	10
1	Benzene	71-43-2	A	8.30E-06	1.59E-05	6.28E-04	2.63E+00	9.10E-02	2.89E+01

Site Operations Data:

- The amount of oil-based paint used annually is 10 gal./year.
- The highest density of the paint is 9.1 lb/gal.

Notes:

Major Assumptions:

[1] Type and duration of painting operations conducted at TA–60–17 in 1994 (528 hours of operation consisted of 240 hours/year of rack painting, plus 288 hours/year of maintenance painting) would apply to all painting activities conducted at TA–3–39 paint booth.

[2] Emission rate was estimated based upon amount of paint used annually and benzene content of the paint.

[3] The benzene content of the paint is the same as for the paint booth at TA–3–38 (0.1% by weight).

Dispersion Analysis Results:

[4] 5 years of meteorological data were used in the dispersion modeling analysis. The highest ISC–3 estimated annual concentration at sensitive receptors was found to be 1.92 $\mu g/m^3$ when emission rate is 1 g/sec.

TABLE E.—*8-Hour SLEV/Q Rations of the Toxic (Noncarcinogenic and Carcinogenic) Air Pollutants from TA–60–17 Paint Booth*[1]

NO.	TOXIC AIR POLLUTANTS	CAS NUMBER	OEL[7]	1/100 OF THE OEL[8]	8-HR SLEV[9]		ESTIMATED HOURLY EMISSION RATE (Q^h)[2,6]	SLEVs/Q^h RATIO
			µg/m^3	µg/m^3	g/sec	lb/hr	lb/hr	
1	2	3	4	5	6	7	8	9
NONCARCINOGENIC POLLUTANTS								
1	2-Butoxyethanol	111-76-2	120,000	1,200	8.46	67.1	0.288	233.0
2	Isobutyl Acetate	110-19-0	700,000	7,000	49.3	392.0	1.01	389.0
3	Isopropyl Alcohol	67-63-0	980,000	9,800	69.1	548.0	0.575	953.0
4	Particulate Matter, Respirable Dust[3,4,5]	NA	3,000	30.0	0.211	1.68	0.106	15.9
5	Toluene	108-88-3	188,000	1,880	13.3	105.0	0.856	123.0
6	Trimethyl Benzene	25551-13-7	125,000	1,250	8.81	69.9	0.569	123.0
7	Xylene (o-,m-,p-Isomers)	1330-20-7	434,000	4,340	30.6	243.0	3.41	71.1
CARCINOGENIC POLLUTANTS								
8	Benzene	71-43-2	32,000	320	2.26	17.9	0.114	1,570.0

TABLE E.—*8-Hour SLEV/Q Rations of the Toxic (Noncarcinogenic and Carcinogenic) Air Pollutants from TA–60–17 Paint Booth*[1]-Continued

Site Operations Data:

- The amount of oil-based paint used annually is 132 gal./year.
- The constituents of the paint are toluene (5% by weight), trimethyl benzene (5% by weight), xylene (30% by weight), and benzene (0.1% by weight).
- The highest density of the paint is 9.1 lb/gal.
- The amount of paint thinner used annually with a density of 6.9 lb/gal. is 44 gal.
- The constituents of the thinner are toluene (10% by weight), isopropyl alcohol (20% by weight), 2-Butoxyethanol (10% by weight), and isobutyl acetate (35% by weight).

Notes:

Major Assumptions:

[1] Type and duration of painting operations conducted at TA–60–17 in 1994 (528 hours of operation consisted of 240 hours/year of rack painting, plus 288 hours/year of maintenance painting) would apply to all current painting activities.

[2] Hourly emission rates were estimated based upon 528 hours/year of operation using a correction factor of five to approximate the maximum potential hourly emission rate.

[3] Particulate emissions of 10 micrometers in size (PM_{10}) were estimated based upon the solids content of a paint and amount of total particulates emitted from TA–3–38 paint booth (844 lb/year).

[4] Content of fine particles PM_{10} is 50% of the total particulate matter content.

[5] 5% of the PM_{10} content would be released into the atmosphere.

[6] The constituents of the paint and the thinner used at TA–60–17 paint booth are the same as for the paint booth at TA–3–38.

[7] OEL = occupational exposure limits established by the American Conference of Governmental Industrial Hygienists (ACGIH 1997).

Guideline Value(s):

[8] 1/100 of the OEL is 8-hour guideline value used in the analysis to estimate short-term impacts of the toxic air pollutants.

Dispersion Analysis Results:

[9] 5 years of meteorological data were used in the dispersion modeling analysis. The highest ISC–3 estimated 8-hour concentration at fence line receptors was found to be 141.9 $\mu g/m^3$ when emission rate is 1 g/sec.

TABLE F.—*Annual SLEV/Q Ratios of the Carcinogenic Pollutants from TA–60–17 Paint Booth*

NO.	CARCINOGENIC POLLUTANT	CAS NUMBER	CAR. CLASS	UNIT RISK FACTOR (URF)	MAXIMUM CANCER RISK (C_{an} x URF)[4]	ANNUAL SLEV[1]		ESTIMATED ANNUAL EMISSION RATE (Q^a)[2,3]	SLEV/Q^a RATIO
				$(\mu g/m^3)^{-1}$		g/sec	lb/year	lb/year	
1	2	3	4	5	6	7	8	9	10
1	Benzene	71-43-2	A	8.30E-06	4.03E-05	2.48E-04	1.04E+00	1.20E+00	8.66E-01

Site Operations Data:

- The amount of oil-based paint used annually is 132 gal./year.
- The highest density of the paint is 9.1 lb/gal.

Notes:

Major Assumptions:

[1] Type and duration of painting operations conducted at TA–60–17 in 1994 (528 hours of operation consisted of 240 hours/year of rack painting, plus 288 hours/year of maintenance painting) would apply to all current painting activities.

[2] Emission rate was estimated based upon amount of paint used annually and benzene content of the paint.

[3] The benzene content of the paint is the same as for the paint booth at TA–3–38 (0.1% by weight).

Dispersion Analysis Results:

[4] 5 years of meteorological data were used in the dispersion modeling analysis. The highest ISC–3 estimated annual concentration at sensitive receptors was found to be 4.85 $\mu g/m^3$ when emission rate is 1 g/sec.

ATTACHMENT 11
AIR QUALITY IMPACT ASSESSMENT OF INCINERATOR EMISSIONS

Technical Area: TA–16

Emission Source(s): Incineration of HE-Contaminated Paper and Oil

Two incinerator impact analyses were conducted, one for burning high explosives (HE)-contaminated paper waste and one for burning HE-contaminated oil.

Incineration of HE-Contaminated Paper Waste

Maximum Firing Rate

The maximum HE-contaminated paper waste firing rate was estimated to be 2,204.6 pounds (1,000 kilograms) per year in order to reflect the maximum amount of paper waste currently burned under baseline conditions and the expected maximum amount that is anticipated to be burned under any of the future alternatives.

Source Term Parameters (from incinerator specifications)

- Incinerator stack height above ground level = 28.15 feet (8.58 meters)
- Stack inner diameter = 1.83 feet (0.559 meters)
- Stack exit velocity = 22.97 feet per second (7 meters per second) (assumed based on engineering judgment)
- Stack exit temperature = 800°F (427°C) (assumed based on engineering judgment)
- Stack location = south-east corner of Building 1409 of TA–16

Pollutant(s) Considered

Pollutants usually associated with the combustion of paper and wood waste are metals, acid gases, toxic organics such as CDD/CDF (i.e., groups of chlorinated homologs of dioxins and furans), and criteria pollutants (CO, NO_x, SO_2, and PM_{10}). For conservativeness, only toxic pollutants with the highest toxicity and carcinogenicity, such as arsenic, hexavalent chromium, cadmium, nickel, and CDD/CDF were selected for evaluation.

Emission Rates of Pollutants Considered

Emission factors for toxic and criteria pollutants considered were obtained from EPA's "Compilation of Air Pollutant Emissions Factors" (EPA 1995) (Table 2.1-9) for modular starved air combustors burning solid waste. Emission factors for criteria pollutants were used for estimating long-term emission rates because they are based only on long-term monitoring data.

Estimated annual emission rates of the toxic and criteria pollutants that are based on the most recent AP–42 emission factors are shown in Tables A and B, respectively.

Major Assumptions

- Incinerator would operate 250 hours a year (one burn per day, 5 days per week, and 50 weeks per year).
- 30 percent of the total chromium would be released in the form of hexavalent chromium.
- Emissions would be released over 8,760 hours of operation per year.
- The content of fine particulates (less than 10 micrometers in size) is 50 percent of the total particulate matter emitted.

Results

Toxic Air Pollutants. Because all of the toxic pollutants to be considered in the analysis are carcinogenic and annual impacts from these pollutants on ambient air are much more significant than the short-term (8-hour) impacts, only annual impacts were considered. As shown in Table A, only one of the pollutants considered (CDD/CDF) had an estimated pollutant level greater than the established Guideline Value (GV) (i.e., the SLEV/Q^a ratio is less than 1). This pollutant will therefore be further evaluated as a part of the additive impact analysis. None of the releases of other toxic pollutants would result in air quality impacts.

Criteria Air Pollutants. As shown in Table C, estimated annual concentrations of the criteria pollutants (C^{an}) are below the NAAQS. That is, the NAAQS/C^{an} ratios are always greater than 1. None of the releases of criteria pollutants would result in air quality impacts.

Incineration of HE-Contaminated Oil

Maximum Firing Rate

The maximum HE-contaminated oil firing rate is 1,200 gallons (4,542.48 liters) annually and 10 gallons (37.85 liters) hourly.

Source Term Parameters

The source term parameters are the same as were used in the analysis of HE-contaminated paper waste.

Pollutant(s) Considered

HE-contaminated oil generated by the High Explosives Processing Facility (HEPF) is not a “traditional waste oil,” and many of the toxic air pollutants (such as metals) are not constituents of HE-contaminated oil. Therefore, metals were not considered in this analysis. The composition of VOCs were determined using EPA data (EPA 1995). Based on these data, it was assumed that, with the exception of metals, some specified organic compounds from VOCs, such as phenol, dichlorobenzene, naphthalene, and benzo(p)pyrene, may be formed as products of incomplete combustion. There also

are acid gases, such as hydrogen chloride that are usually detected in flue gases from waste oil combustion. Based on these findings, toxic pollutants from waste oil burning were considered.

Emission Rates of Pollutants Considered

Emission factors for toxic and criteria air pollutants were obtained from Tables 1.11-1, -2, -3, and -5 of EPA 1995 for waste oil combustors. Estimated maximum hourly emission rates of the toxic noncarcinogenic and criteria air pollutants are presented in Table D. Estimated annual emission rates of the toxic carcinogenic pollutants and criteria pollutants are shown in Tables E and F, respectively.

Major Assumptions

- Incinerator would operate 250 hours a year (one burn per day, 5 days per week, and 50 weeks per year).
- Emissions would be released over 8,760 hours of operation per year.
- Percent of chlorine in oil is 0.1 percent by weight.
- Percent of ash in oil is 1 percent by weight.
- Sulfur content in oil is 1 percent by weight.

Results

Toxic Air Pollutants. Both short-term (8-hour) and long-term (annual) impacts of the toxic (carcinogenic and noncarcinogenic) air pollutants from waste oil incineration were considered. No pollutants failed the analysis (i.e., the estimated pollutant levels are below the established GV). As shown in Tables D and E, the SLEV/Q ratios are always greater than 1. None of the releases of toxic pollutants would result in air quality impacts.

Criteria Air Pollutants. As shown in Table G, estimated annual concentrations of the criteria pollutants (C^{an}) are below the NAAQS (i.e., the NAAQS/C^{an} ratios are always greater than 1). None of the releases of criteria pollutants would result in air quality impacts.

TABLE A.—*Annual SLEV/Q Ratios for the Toxic Carcinogenic Air Pollutants from TA–16 Incinerator Burning HE-Contaminated Paper Waste*

NO.	CARCINOGENIC AIR POLLUTANT	CAS NUMBER	CAR CLASS	UNIT RISK FACTOR (URF)	MAXIMUM CANCER RISK (C_{an} x URF)[5]	ANNUAL SLEVs[3]		EMISSION FACTORS[1]	ANNUAL AVERAGE EMISSION RATES (Q^a)[2]	SLEV/Q^a RATIO
				$(\mu g/m^3)^{-1}$		g/sec	lb/year	lb/ton	lb/year	
1	2	3	4	5	6	7	8	9	10	11
1	Arsenic, el. & inorg., exc. Arsine, as As	7440-38-2	A	4.30E-03	1.57E-03	6.38E-06	1.27E-02	6.69E-04	7.37E-04	1.72E+01
2	Cadmium, el. & compounds, as Cd	7440-43-9	B1	1.80E-03	6.56E-04	1.53E-05	3.03E-02	2.41E-03	2.66E-03	1.14E+01
3	Chromium (Vl)[4]	18540-29-9	A	1.20E-02	4.37E-03	2.29E-06	4.54E-03	3.31E-03	1.09E-03	4.15E+00
4	Nickel, metal (dust)	NA	A	2.40E-04	8.74E-05	1.14E-04	2.27E-01	5.52E-03	6.08E-03	3.37E+01
5	2,3,7,8-Tetrachlorodibenzo(p) dioxin (CDD/CDF)	1746-01-6	B2	3.30E+01	1.20E+01	8.32E-10	1.65E-06	2.94E-06	3.24E-06	5.09E-01

Source Term Parameters:
Source term parameters obtained from incinerator specification were as follows:

- Incinerator stack height above ground level is 8.58 m.
- Stack inner diameter is 0.559 m.
- Stack exit velocity is 7 m/sec (assumed).
- Stack exit temperature is 427°C.
- Stack location is southeast corner of Building 1409 of TA–16.

Maximum Firing Emission Rate:
Maximum amount of the material burned is 1,000 kilograms on an annual basis.
Notes:
Major Assumptions:
[1] Emission factors were obtained from EPA's AP–42 (EPA 1995), Tables 2.1–9 for modular starved air combustors burning solid waste.
[2] Annual average emission rates were estimated based on EPA's AP–42 emission factors and the maximum amount of material burned annually (EPA 1995).
[3] Annual SLEVs (lb/yr) were estimated assuming that incinerator would be operating 250 hours/year (one burn/day, 5 days/week, and 50 weeks/year).
[4] 30% of the total chromium was assumed to be released in the form of hexavalent chromium.
Disperion Analysis Results:
[5] 5 years of meteorological data (1991 to 1995) were used in the dispersion modeling analysis. The highest annual concentration of 0.36 $\mu g/m^3$ was found to occur during 1991.

TABLE B.—*Annual Emission Rates for the Criteria Pollutants from TA–16 Incinerator Burning HE-Contaminated Paper Waste*

NO.	CRITERIA AIR POLLUTANTS	AMOUNT OF WASTE BURNED ANNUALLY[a]	EPA'S AP–42 EMISSION FACTORS[b]		ANNUAL EMISSION RATE[c]	
		lb/year	lb/ton	lb/lb	lb/year	g/sec
1	2	5	3	4	6	7
1	Particulate Matter (PM_{10})[d]	2.20E+03	3.43E+00	1.72E-03	1.89E+00	2.72E-05
2	Nitrogen Oxide	2.20E+03	3.16E+00	1.58E-03	3.48E+00	5.01E-05
3	Sulfur Dioxide	2.20E+03	3.23E+00	1.62E-03	3.56E+00	5.13E-05

Notes:
Maximum Firing Annual Emission Rate:
[a] Maximum amount of material burned is 1,000 kilograms on an annual basis.
Major Assumptions:
[b] Emission factors for criteria pollutants were obtained from EPA's AP–42 (EPA 1995), Tables 2.1–9 for modular starved air combustors burning solid waste. These emission factors are intended to be used for estimating long-term emission levels only.
[c] Annual average emission rates were estimated based on EPA's AP–42 emission factors, maximum amount of material burned annually, and assumption that the emissions would be released over 8,760 hours of operation per year (EPA 1995).
[d] The fraction of fine particulates (PM_{10}) is 50% of the total particulate matter.

TABLE C.—*Annual Impact Analysis of the Criteria Pollutants from TA–16 Incinerator Burning HE-Contaminated Paper Waste*

NO.	CRITERIA AIR POLLUTANTS	AVERAGING TIME PERIOD	ANNUAL EMISSION RATE[a]	ICS–3 ESTIMATED ANNUAL POLLUTANT CONCENTRATION (C^{an})[b]	NATIONAL AMBIENT AIR QUALITY STANDARD (NAAQS)	(NAAQS)/(C^{an}) RATIO
			g/sec	µg/m^3	µg/m^3	
1	2	3	4	5	6	7
1	Particulate Matter (PM_{10})	Annual	2.72E-05	1.00E-05	50	5.00E+06
2	Nitrogen Oxide	Annual	5.01E-05	2.00E-05	100	5.00E+06
3	Sulfur Dioxide	Annual	5.13E-05	2.00E-05	80	4.00E+06

Source Term Parameters:
Source term parameters obtained from incinerator specification were as follows:

- Incinerator stack height above ground level is 8.58 m.
- Stack inner diameter is 0.559 m.
- Stack exit velocity is 7 m/sec (assumed).
- Stack exit temperature is 427°C (assumed).
- Stack location is southeast corner of Building 1409 of TA–16.

Notes:
Annual Emission Rate:
[a] As presented in Table B, item 3.
Dispersion Analysis Results:
[b] 5 years of meteorological data (1991 to 1995) were used in the dispersion modeling analysis. The highest ISC–3 estimated annual concentration (C^{an}) was found to occur during 1991.

TABLE D.—*8-Hour SLEV/Q Ratios for the Toxic and Criteria Air Pollutants from TA–16 Incinerator Burning HE-Contaminated Oil*

NO.	TOXIC AND CRITERIA AIR POLLUTANTS	CAS NUMBER	OELs	1/100 OF THE OELs	8-HR SLEVs[f]		EMISSION FACTORS[a]	MAXIMUM HOURLY EMISSION RATE (Q^h)[e]	SLEVs/Q^h RATIO
			µg/m^3	µg/m^3	g/sec	lb/hr	lb/gal.	lb/hr	
1	2	3	4	5	6	7	8	10	11
TOXIC POLLUTANTS									
1	Hydrogen Chloride[b]	7647-01-0	7,000	70	5.91E-01	4.69E+00	6.60E-03	6.60E-02	7.11E+01
2	o-Dichlorobenzene	95-50-1	300,000	3,000	2.53E+01	2.01E+02	6.70E-09	6.70E-08	3.00E+09
3	Naphthalene	91-20-3	52,000	520	4.39E+00	3.48E+01	1.30E-05	1.30E-04	2.68E+05
4	Phenol	108-95-2	19,000	190	1.60E+00	1.27E+01	2.40E-06	2.40E-05	5.30E+05
CRITERIA POLLUTANTS									
5	Carbon Monoxide	638-08-1	29,000	290	2.45E+00	1.94E+01	5.00E-03	5.00E-02	3.89E+02
6	Nitrogen Dioxide	10102-44-0	5,600	56	4.73E-01	3.75E+00	1.90E-02	1.90E-01	1.98E+01
7	Particulate Matter (PM_{10})[c]	NA	3000	30	2.53E-01	2.01E+00	5.10E-02	5.10E-01	3.94E+00
8	Sulfur Dioxide[d]	7446-09-5	5,200	52	4.39E-01	3.48E+00	1.47E-01	1.47E+00	2.37E+00

NA = Not applicable

Source Term Parameters:

Source term parameters obtained from incinerator specification were as follows:

- Incinerator stack height above ground level is 8.58 m.
- Stack inner diameter is .559 m.
- Stack exit velocity is 7 m/sec (assumed).
- Stack exit temperature is 427°C (assumed).
- Stack location is southeast corner of Building 1409 of TA–16.

TABLE D.—*8-Hour SLEV/Q Ratios for the Toxic and Criteria Air Pollutants from TA–16 Incinerator Burning HE-Contaminated Oil*-Continued

Maximum Firing Emission Rate:
Maximum amount of oil burned (i.e.,10 gallons on an hourly basis) was obtained from EPA 1992f.
Notes:
Major Assumptions:
[a] Emission factors were obtained from EPA's AP–42, Tables 1.11–1, 2, 3, and 5 for waste oil combustors (EPA 1995). Toxic metal compounds such as arsenic, cadmium, chromium, etc., that are usually emitted from waste oil combustion, are not constituents of HE-contaminated oil. Therefore, toxic metals were not considered.
[b] Percent of chlorine in oil is 0.1% by weight,
[c] Percent of ash in oil is 1% by weight, and
[d] Sulfur content in oil is 1% by weight.
[e] Maximum hourly emission rates were estimated based on EPA's AP–42 emission factors and maximum amount of oil burned (EPA 1995).
Dispersion Analysis Results:
[f] 5 years of meteorological data (1991 to 1995) were used in the dispersion modeling analysis. The estimated maximum 8-hour concentration of 118.4 $\mu g/m^3$ was found to occur during 1992.

TABLE E.—*Annual SLEV/Q for the Toxic Carcinogenic Air Pollutants from TA–16 Incinerator Burning HE-Contaminated Oil*

NO	TOXIC CARCINOGENIC AIR POLLUTANTS	CAS NUMBER	CAR CLASS	UNIT RISK FACTOR (URF)	MAXIMUM CANCER RISK (C_{an} x URF)[e]	ANNUAL SLEVs[d]		EMISSION FACTORS[b]	AMOUNT OF OIL BURNED ON ANNUAL BASIS[a]	ANNUAL EMISSION RATE (Q_a)[c]	SLEVs/Q_a RATIO
				$(\mu g/m^3)^{-1}$		g/sec	lb/year 3	lb/gal.	gal./year	lb/year	
1	2	3	4	5	6	7	8	9	10	11	12
1	Benzo(a)pyrene	50-32-8	B2	1.70E-03	6.19E-04	1.62E-05	3.20E-02	4.00E-06	1.20E+03	4.80E-03	6.68E+00

Source Term Parameters:

Source term parameters obtained from incinerator specification were as follows:

- Incinerator stack height above ground level is 8.58 m.
- Stack inner diameter is 0.559 m.
- Stack exit velocity is 7 m/sec (assumed).
- Stack exit temperature is 427°C (assumed).
- Stack location is southeast corner of Building 1409 of TA–16.

Notes:

Maximum Firing Emission Rate:

[a] Maximum amount of oil burned (i.e., 1,200 gallons on an annual basis) was obtained from EPA 1992c.

Major Assumptions:

[b] Emission factors for benzo(p)pyrene were obtained from EPA's AP–42, Table 1.11–5 for waste oil combustors (EPA 1995).

[c] Annual average emission rate was estimated based on EPA's AP–42 (EPA 1995) emission factors and the maximum amount of oil burned annually (1,200 gallons), according to EPA 1992c.

[d] Annual SLEVs was estimated assuming that incinerator would be operating 250 hours/year (one burn/day, 5 days/week, and 50 weeks/year), according to EPA 1992f.

Dispersion Analysis Results:

[e] 5 years of meteorological data were used in the dispersion modeling analysis. The highest annual concentration of 0.36 $\mu g/m^3$ was found to occur during 1991.

TABLE F.—*Annual Emission Rates of the Criteria Pollutants from TA–16 Incinerator Burning HE-Contaminated Oil*

NO.	CRITERIA AIR POLLUTANTS	AMOUNT OF OILS BURNED ON AN ANNUAL BASIS[a]	EPA'S AP–42 EMISSION FACTORS[b]	ANNUAL EMISSION RATE[c]	
		lb/year	lb/gal.	lb/year	g/sec
1	2	3	4	5	6
1	Particulate Matter (PM_{10})[d]	1.20E+03	5.10E-02	6.12E+01	8.81E-04
2	Nitrogen Oxide	1.20E+03	1.90E-02	2.28E+01	3.28E-04
3	Sulfur Dioxide[e]	1.20E+03	1.47E-01	1.76E+02	2.54E-03

Notes:
Maximum Firing Annual Emission Rate:
[a] The maximum amount of oil burned (i.e., 1,200 gallons on an annual basis) was obtained from Table K of EPA 1992c.
Major Assumptions:
[b] Emission factors for air pollutants considered in the analysis (lb/gal.) were obtained from EPA's AP–42, Table 2.1–9 for waste oil combustors (EPA 1995).
[c] Annual average emission rates were estimated based on EPA's AP–42 emission factors, maximum amount of material burned annually, and assumption that the emissions would be released over 8,760 hours of operation per year (EPA 1995).
[d] Percent of the ash in oils is 1% by weight.
[e] Sulfur content in oil is 1% by weight.

TABLE G.—*Annual Impact Analysis of the Criteria Pollutants from TA–16 Incinerator Burning HE-Contaminated Oil*

NO.	CRITERIA AIR POLLUTANTS	AVERAGING TIME PERIOD	ANNUAL EMISSION RATE[a]	ICS–3 ESTIMATED ANNUAL POLLUTANT CONCENTRATION (C^{an})[b]	NATIONAL AMBIENT AIR QUALITY STANDARDS (NAAQS)	(NAAQS)/(C^{an}) RATIO
			g/sec	µg/m^3	µg/m^3	
1	2	3	4	5	6	7
1	Particulate Matter (PM_{10})	Annual	8.81E-04	3.19E-04	50	1.57E+05
2	Nitrogen Oxide	Annual	3.28E-04	1.20E-04	100	8.33E+05
3	Sulfur Dioxide	Annual	2.54E-03	9.30E-04	80	8.60E+04

Source Term Parameters:
Source term parameters obtained from incinerator specification were as follows:

- Incinerator stack height above ground level is 8.58 m.
- Stack inner diameter is 0.559 m.
- Stack exit velocity is 7 m/sec (assumed).
- Stack exit temperature is 427°C (assumed).
- Stack location is southeast corner of Building 1409 of TA–16.

Notes:
Annual Emission Rate:
[a] As presented in Table F, item 3.
Dispersion Analysis Results:
[b] 5 years of meteorological data (1991 to 1995) were used in the dispersion modeling analysis. The highest ISC–3 estimated annual concentration (C^{an}) was found to occur during 1991.

ATTACHMENT 12
AIR QUALITY IMPACT ASSESSMENT OF OPEN BURNING OPERATIONS AT HIGH EXPLOSIVES TREATMENT AND DISPOSAL FACILITY

Technical Area: TA–16

Emission Source: Open Burning Operations at High Explosives Treatment and Disposal Facility

There are three open burning emission sources at the High Explosive Processing Facilities (HEPF). These are all located at TA–16, High Explosives Treatment and Disposal Facility, and include the open burning of HE-contaminated solvents and oil, the open burning of scrap HE, and the flashing of HE-contaminated materials that cannot be burned.

Open Burning of HE-Contaminated Solvents and Oil at the Burn Pit Located at TA–16–394

Pollutant(s) Considered

There are two groups of emissions from open-burning operations of solvents and oil. These include toxic pollutants specified as volatile organics/hazardous air pollutants (VOC/HAP), and criteria pollutants—primarily carbon monoxide and PM_{10}. There are no significant NO_x emissions as a result of these activities because the relatively low temperatures associated with open burning suppress emissions of NO_x.

According to Tewerson (1985), some of the highly volatile chemicals associated with the burning solvents or oil include acetone, cyclohexane, ethanol, ethyl acetate, methyl alcohol, methyl ethyl ketone, butyl acetate, and toluene. These chemicals were therefore selected for evaluation.

Emission Rates of Pollutants Considered

Appropriate emission factors and fuel constituents were obtained from Tewerson (1985). The maximum amount of solvents and oil in a burn of 300 gallons (1,135.62 liters) and 1,200 gallons (4,542.48 liters) per year, respectively, was obtained from site data. Based on these values, the density of the fuel, and the assumption that the facility will operate 50 hours per year, an hourly emission rates of toxic and criteria air pollutants were estimated. They are presented in Tables A and B, respectively.

Major Assumptions

- 50 hours of burn operations a year (50 burns per year at 1-hour length of burn.
- Content of fine particulates (less than 10 micrometers in size) is 50 percent of the total particulate matter content.
- Emissions were modeled as surface-based volume sources using the EPA's ISC–3 Model with initial dispersion parameters estimated based on approximate burn tray dimensions.

- Following the conservative technique used for estimating short-term impacts from all emission sources, all fence line receptor locations, regardless of whether the public has access to these locations, were considered.
- Actual receptors will be considered for those sources where potential air quality impacts are likely to occur.

Results

Toxic Air Pollutants. Analysis of short-term (8-hour) impacts of the individual components comprising VOC/HAP emissions were considered at nearby fence line receptors. The analysis shows no impacts on ambient air quality; the SLEV/Q^h ratios are all greater than one (Tables C and D). That is, the estimated pollutant levels are below the established Guideline Values (GVs).

Criteria Air Pollutants. Two analyses were performed to estimate 8-hour SLEVs from open burning of HE-contaminated solvents and oil at the burn pit at TA–16–394.

Because potential impacts were predicted at all fence line receptors, including locations to which the public does not have access, the locations where the public does have access were considered. These locations are along the south border of TA–16 near State Road 4, bordering Bandelier National Monument, at 5,905.8 to 6,562 feet (1,800 to 2,000 meters) from the emission source. At these locations, the estimated 8-hour SLEV/Q^h ratios were all greater than one (Tables E and F).

Annual impacts of criteria pollutants from open burning of HE-contaminated solvents and oil at the burn pit at TA–16–394 were not considered due to the fact that the annual estimated emission rates (Tewerson 1985, Tables E and F) were too small to cause impacts.

Open Burning of Scrap HE at the Burn Pit Located at TA–16–388

Pollutant(s) Considered

The chemical constituents were selected for analysis based on information provided by Carter (1978). Due to uncertainty in identifying these constituents and their amounts in the scrap HE, chemicals of different toxicities were selected to represent the range of toxic emissions that may be emitted. These include hydrogen chloride, hydrogen fluoride, ammonia, ethanol, methyl alcohol, and acetylene.

Emission Rates of Pollutants Considered

Appropriate emission factors for selected VOC/HAP constituents were obtained from Table 3-5 of a document entitled “Air Emissions from Burning of Explosives” (Carter 1978). The maximum total amount of scrap HE burned per year, 106,526 pounds (48,320 kilograms), and the total estimated amount of VOC/HAP emissions per year (257 pounds [116.57 kilograms]) were obtained from site data. In order to estimate emissions associated with the burning of individual VOC/HAP components, it was assumed that the content of explosive components in scrap material is 1 percent. The major combustible components in scrap that account for at least 90 percent of composition are usually lumber or wood pallets. Estimated hourly and annual emission rates of toxic VOC/HAP pollutants, with the corresponding emission factors, are presented in Table G.

Major Assumptions

- The same assumptions that were used in the analysis of open-burning HE-contaminated solvents and oil at the Burn Pit Located at TA–16–394 are also made for this analysis.
- The content of explosive components in scrap material is 1 percent by weight.
- Emissions would be released over 8,760 hours of operations per year.

Results

Toxic Air Pollutants. Two analyses were performed to estimate 8-hour SLEVs of the toxic pollutants from open burning of scrap HE. Because potential impacts were predicted at fence line receptors to which the public does not have access, the locations where the public does have access were considered. The highest estimated 8-hour SLEV/Q ratios at receptor locations along the south border of TA–16 near State Road 4, bordering Bandelier National Monument, were found to be greater than one for all pollutants considered (Table H). That is, the estimated pollutant levels are below the established GV.

Annual impact analysis of toxic air pollutants from burning of HE scrap was performed at the sensitive receptor locations. Two toxic air pollutants for which inhalation reference concentrations (RfC) have been established were considered: hydrogen chloride and ammonia. The $SLEV/Q^{an}$ ratios were found to be greater than 1 for these toxic air pollutants (Table I). That is, the estimated pollutant levels are below the established GV. None of the releases of toxic pollutants would result in air quality impacts.

Criteria Pollutants. The same methodology that was used to estimate potential annual impact of the toxic air pollutants was utilized to evaluate annual impacts of criteria pollutants. Three criteria pollutants were considered in the analysis, PM_{10}, CO, and NO_2. Annual emission rates for these pollutants were obtained directly from site data. The $NAAQS/Q^{an}$ ratios were greater than one for all pollutants (Table J). That is, the estimated pollutant levels are below the NAAQS.

Annual impacts of criteria pollutants from the flashing of unburnable HE-contaminated materials were not considered because the quantities of emissions from these operations on an annual basis are much smaller than those from scrap HE-burning operations, and were too small to cause any impacts.

TABLE A.—*Emissions of HE-Contaminated Solvents from Open Burn at TA–16*

NO.	FUEL CON-STITUENTS	AMOUNT OF SOLVENTS BURNED[b,d]		AMOUNT OF FUEL CONSTITUENTS IN BURN	TOXIC POLLUTANTS		CRITERIA POLLUTANTS			
							CARBON MONOXIDE		PARTICULATE MATTER (PM_{10})[e]	
					YIELD OF COMPOUND[c]	HOURLY EMISSION RATE[a]	YIELD OF COMPOUND[c]	HOURLY EMISSION RATE[a]	YIELD OF COMPOUND[c]	HOURLY EMISSION RATE[a]
		gal./hr	lb/hr	lb/lb	lb/lb	lb/hr	lb/lb	lb/hr	lb/lb	lb/hr
1	2	3	4	5	6	7	8	9	10	11
1	Acetone	6.0	41.3	0.1196	0.0130	0.0642	0.0014	0.0069	0.0137	0.0338
2	Cyclohexane	6.0	41.3	0.1179	0.0460	0.2238	0.0100	0.0486	0.0369	0.0898
3	Ethanol	6.0	41.3	0.1195	0.0050	0.0247	0.0012	0.0059	0.0110	0.0271
4	Ethyl Acetate	6.0	41.3	0.1363	0.0069	0.0388	0.0024	0.0135	0.0120	0.0337
5	Methyl Alcohol	6.0	41.3	0.1198	0.0050	0.0247	0.0009	0.0044	0.0079	0.0195
6	Methyl Ethyl Ketone	6.0	41.3	0.1220	0.0060	0.0302	0.0031	0.0156	0.0153	0.0385
7	Butyl Acetate	6.0	41.3	0.1336	0.0465	0.2563	0.0051	0.0281	0.0199	0.0548
8	Toluene	6.0	41.3	0.1313	0.1070	0.5797	0.0639	0.3462	0.1735	0.4700
	Total							**0.4693**		**0.7673**

Emission Source:
Open burning of HE-contaminated solvents was considered at the pit located at TA–16–394.
Notes:
Hourly Emission Rate:
[a] Hourly emission rates in pounds per hour of each compound from burning fuel constituents were estimated using applicable emission factors, fuel constituents, and its amount in a burn.
[b] The maximum amount of solvents in a burn of 300 gallons per year was obtained from Tewerson 1985.
[c] Yield of compound is expressed in lb/lb of material combusted (Carter 1978).
Major Assumptions:
[d] 50 hours of burn operations a year (50 burns per year at 1 hour length of burn), according to Carter 1978.
[e] Content of fine particles PM_{10} (less than 10 micrometers in size) is 50% of the total particulate matter content.

TABLE B.—*Emissions of HE-Contaminated Oil from Open Burning at TA–16*

NO.	FUEL CON-STITUENTS	AMOUNT OF SOLVENTS BURNED[b,d]		AMOUNT OF FUEL CONSTITUENTS IN BURN	TOXIC POLLUTANTS		CRITERIA POLLUTANTS			
							CARBON MONOXIDE		PARTICULATE MATTER (PM_{10})[e]	
					YIELD OF COMPOUND[c]	HOURLY EMISSION RATE[a]	YIELD OF COMPOUND[c]	HOURLY EMISSION RATE[a]	YIELD OF COMPOUND[c]	HOURLY EMISSION RATE[a]
		gal./hr	lb/hr	lb/lb	lb/lb	lb/hr	lb/lb	lb/hr	lb/lb	lb/hr
1	2	3	4	5	6	7	8	9	10	11
1	Acetone	24.0	165.0	0.1196	0.0130	0.2566	0.0014	0.0276	0.0137	0.1352
2	Cyclohexane	24.0	165.0	0.1179	0.0460	0.8951	0.0100	0.1946	0.0369	0.3590
3	Ethanol	24.0	165.0	0.1195	0.0050	0.0986	0.0012	0.0237	0.0110	0.1085
4	Ethyl Acetate	24.0	165.0	0.1363	0.0069	0.1552	0.0024	0.0540	0.0120	0.1350
5	Methyl Alcohol	24.0	165.0	0.1198	0.0050	0.0989	0.0009	0.0178	0.0079	0.0781
6	Methyl Ethyl Ketone	24.0	165.0	0.1220	0.0060	0.1208	0.0031	0.0624	0.0153	0.1540
7	Butyl Acetate	24.0	165.0	0.1336	0.0465	1.0253	0.0051	0.1125	0.0199	0.2194
8	Toluene	24.0	165.0	0.1313	0.1070	2.3187	0.0639	1.3847	0.1735	1.8799
	Total							**1.8772**		**3.0690**

Emission Source:
Open burning of HE-contaminated solvents was considered at the pit located at TA–16–394.
Notes:
Hourly Emission Rate:
[a] Hourly emission rates in pounds per hour of each compound from burning fuel constituents were estimated using applicable emission factors, fuel constituents, and its amount in a burn.
[b] The maximum amount of solvents in a burn of 300 gallons per year was obtained from Tewerson 1985.
[c] Yield of compound is expressed in lb/lb of material combusted (Carter 1978).
Major Assumptions:
[d] 50 hours of burn operations a year (50 burns per year at 1 hour length of burn), according to Carter 1978.
[e] Content of fine particles PM_{10} (less than 10 micrometers in size) is 50% of the total particulate matter content.

TABLE C.—*8-Hour SLEV/Q Ratios of the Toxic Air Pollutants from Open Burning of HE-Contaminated Solvents at TA–16*

NO.	TOXIC AIR POLLUTANTS	CAS NUMBER	OEL[c]	1/100 OF THE OEL[d]	8-HOUR SLEV[b]		ESTIMATED HOURLY EMISSION RATE[a] (Q^h)	SLEV/Q^h RATIO
			µg/m^3	µg/m^3	g/sec	lb/hr	lb/hr	
1	2	3	4	5	6	7	8	9
1	Acetone	67-64-1	1,780,000	17,800	3.89E+01	3.09E+02	0.0642	4.81E+03
2	Cyclohexane	110-82-7	1,050,000	10,500	2.29E+01	1.82E+02	0.2238	8.13E+02
3	Ethanol	64-17-5	1,880,000	18,800	4.11E+01	3.26E+02	0.0247	1.32E+04
4	Ethyl Acetate	141-78-6	1,400,000	14,000	3.06E+01	2.43E+02	0.0388	6.25E+03
5	Methyl Alcohol	67-56-1	262,000	2,620	5.72E+00	4.54E+01	0.0247	1.84E+03
6	Methyl Ethyl Ketone	78-93-3	590,000	5,900	1.29E+01	1.02E+02	0.0302	3.39E+03
7	n-Butyl Acetate	123-86-4	710,000	7,100	1.55E+01	1.23E+02	0.2563	4.80E+02
8	Toluene	108-88-3	188,000	1,880	4.11E+00	3.26E+01	0.5797	5.62E+01

Emission Source:
Open burning of HE-contaminated solvents was considered at the pit located at TA–16–394.
Notes:
Major Assumptions:
[a] Emission rates are presented in Table A. Emissions were modeled as surface-based volume source using EPA's ISC–3 Model with initial dispersion parameters estimated based on approximate tray dimensions. Initial lateral and vertical dimensions of the volume source was estimated based on the EPA Guideline, "Volume Source Inputs," EPA's User's Guide for the Industrial Source Complex (ISC–3) Dispersion Model, Volume 1 (EPA 1992b).
Dispersion Analysis Results:
[b] The highest ISC–3 estimated concentration at fence line receptors was found to be 457.9 µg/m^3 when emission rate is 1 g/sec.
Guideline Values
[c] OEL = occupational exposure limits established by the American Conference of Governmental Industrial Hygienists (ACGIH 1997).
[d] 1/100 of the OEL is 8-hour guideline value used in the analysis to estimate short-term (8-hour) impacts of the toxic air pollutants.

TABLE D.—*8-Hour SLEV/Q Ratios of the Toxic Air Pollutants from Open Burning of HE-Contaminated Oil at TA–16*

NO.	TOXIC AIR POLLUTANTS	CAS NUMBER	OEL[c]	1/100 OF THE OEL[d]	8-HOUR SLEV[b]		ESTIMATED HOURLY EMISSION RATE[a] (Q^h)	SLEV/Q^h RATIO
			µg/m^3	µg/m^3	g/sec	lb/hr	lb/hr	
1	2	3	4	5	6	7	8	9
1	Acetone	67-64-1	1,780,000	17,800	3.89E+01	3.09E+02	0.2566	1.20E+03
2	Cyclohexane	110-82-7	1,050,000	10,500	2.29E+01	1.82E+02	0.8951	2.03E+02
3	Ethanol	64-17-5	1,880,000	18,800	4.11E+01	3.26E+02	0.0986	3.30E+03
4	Ethyl Acetate	141-78-6	1,400,000	14,000	3.06E+01	2.43E+02	0.1552	1.56E+03
5	Methyl Alcohol	67-56-1	262,000	2,620	5.72E+00	4.54E+01	0.0989	4.59E+02
6	Methyl Ethyl Ketone	78-93-3	590,000	5,900	1.29E+01	1.02E+02	0.1208	8.46E+02
7	n-Butyl Acetate	123-86-4	710,000	7,100	1.55E+01	1.23E+02	1.0253	1.20E+02
8	Toluene	108-88-3	188,000	1,880	4.11E+00	3.26E+01	2.3187	1.41E+01

Emission Source:
Open burning of HE-contaminated oil was considered at the pit located at TA–16–394.
Notes:
Major Assumptions:
[a] Emission rates are presented in Table B. Emissions were modeled as surface-based volume source using EPA's ISC–3 Model with initial dispersion parameters estimated based on approximate tray dimensions. Initial lateral and vertical dimensions of the volume source was estimated based on the EPA Guideline, "Volume Source Inputs," EPA's User's Guide for the Industrial Source Complex (ISC–3) Dispersion Model, Volume 1 (EPA 1992b).
Dispersion Analysis Results:
[b] The highest ISC–3 estimated concentration at fence line receptors was found to be 457.9 µg/m^3 when emission rate is 1 g/sec.
Guideline Values
[c] OEL = occupational exposure limits established by the American Conference of Governmental Industrial Hygienists (ACGIH 1997).
[d] 1/100 of the OEL is 8-hour guideline value used in the analysis to estimate short-term (8-hour) impacts of the toxic air pollutants.

TABLE E.—*8-Hour SLEV/Q Ratios of the Criteria Pollutants from Open Burning of HE-Contaminated Solvents at TA–16*

NO.	CRITERIA AIR POLLUTANTS[a]	CAS NUMBER	OEL[d]	1/100 OF THE OEL[e]	8-HOUR SLEV[c]		ESTIMATED HOURLY EMISSION RATE[b] (Q^h)	SLEV/Q^h RATIO
			µg/m^3	µg/m^3	g/sec	lb/hr	lb/hr	
1	2	3	4	5	6	7	8	9
1	Particulate Matter (PM_{10})	NA	3,000	30	3.65	29.0	0.77	37.8
2	Carbon Monoxide	630-08-0	29,000	290	35.3	280.0	0.47	597.0

Emission Source:
Open burning of HE-contaminated oil was considered at the pit located at TA–16–394.
Notes:
Major Assumptions:
[a] The same modeling procedure that was used to estimate the air quality impacts of toxic air pollutants was applied to criteria pollutants that have the potential to be released from open burning operations at TA–16 under future alternatives. Two criteria pollutants (CO and PM_{10}) were considered from open burning operations of HE-contaminated oil at the burn pit located at TA–16–394. According to Tewerson 1985, there is no significant NO_x emissions as a result of these activities.
[b] Emission rates are presented in Table A. Emissions were modeled as surface-based volume source using EPA's ISC–3 Model with initial dispersion parameters estimated based on approximate tray dimensions. Initial lateral and vertical dimensions of the volume source was estimated based on the EPA Guideline, "Volume Source Inputs," EPA's User's Guide for the Industrial Source Complex (ISC–3), Dispersion Model, Volume 1 (EPA 1992b).
Dispersion Analysis Results:
[c] In this analysis, receptor locations to where the public could have access were considered. These are locations along the south border of TA–16 near State Road 4, bordering Bandelier National Monument. The highest ISC–3 estimated concentration at these receptor locations was found to be 8.2 µg/m^3 when emission rate is 1 g/sec.
Guideline Values
[d] OEL = occupational exposure limits established by the American Conference of Governmental Industrial Hygienists (ACGIH 1997).
[e] 1/100 of the OEL is 8-hour guideline value used in the analysis to estimate short-term (8-hour) impacts of the toxic air pollutants.
NA = Not applicable

TABLE F.—*8-Hour SLEV/Q Ratios of the Criteria Pollutants from Open Burning of HE-Contaminated Oil at TA–16*

NO.	CRITERIA AIR POLLUTANTS[a]	CAS NUMBER	OEL[d]	1/100 OF THE OEL[e]	8-HOUR SLEV[c]		ESTIMATED HOURLY EMISSION RATE[b] (Q^h)	SLEV/Q^h RATIO
			µg/m^3	µg/m^3	g/sec	lb/hr	lb/hr	
1	2	3	4	5	6	7	8	9
1	Particulate Matter (PM_{10})	NA	3,000	30	3.65	29.0	3.07	9.44
2	Carbon Monoxide	630-08-0	29,000	290	35.3	280.0	1.88	149.0

Emission Source:
Open burning of HE-contaminated oil was considered at the pit located at TA–16–394.
Notes:
Major Assumptions:
a The same modeling procedure that was used to estimate the air quality impacts of toxic air pollutants was applied to criteria pollutants that have the potential to be released from open burning operations at TA–16 under future alternatives. Two criteria pollutants (CO and PM_{10}) were considered from open burning operations of HE-contaminated oil at the burn pit located at TA–16–394. According to Tewerson 1985, there is no significant NO_x emissions as a result of these activities.
[b] Emission rates are presented in Table B. Emissions were modeled as surface-based volume source using EPA's ISC–3 Model with initial dispersion parameters estimated based on approximate tray dimensions. Initial lateral and vertical dimensions of the volume source was estimated based on the EPA Guideline, "Volume Source Inputs," EPA's User's Guide for the Industrial Source Complex (ISC–3), Dispersion Model, Volume 1 (EPA 1992b).
Dispersion Analysis Results:
[c] In this analysis, receptor locations where the public could have access to were considered. These are locations along the south border of TA–16 near State Road 4, bordering Bandelier National Monument. The highest ISC–3 estimated concentration at any of these receptor locations was 8.2 µg/m^3, when emission rate is 1 g/sec, and the SLEV/Q ratio was greater than 1.
Guideline Values
[d] OEL = occupational exposure limits established by the American Conference of Governmental Industrial Hygienists (ACGIH 1997).
[e] 1/100 of the OEL is 8-hour guideline value used in the analysis to estimate short-term (8-hour) impacts of the toxic air pollutants.
NA = Not applicable

TABLE G.—*VOC/HAP Emissions from Open Burning of Scrap HE at TA–16*

NO.	CONSTITUENTS[d]	AMOUNT OF SCRAP HE BURNED PER YEAR[c]	AMOUNT OF EXPLOSIVE COMPONENTS IN A BURN PRODUCING VOC/HAP[d,e]		EMISSION FACTORS[b]	VOC/HAP POLLUTANTS	
						ANNUAL EMISSION RATE[a]	HOURLY EMISSION RATE[a,f]
		kg/year	lb/year	tons/year	lb/ton	lb/year	lb/hr
1	2	3	4	5	6	7	8
1	Hydrogen Chloride	48,320	1,065	0.5	22.9	12.2	0.24
2	Hydrogen Fluoride	48,320	1,065	0.5	30.0	16.0	0.32
3	Ammonia	48,320	1,065	0.5	23.9	12.7	0.25
4	Ethanol	48,320	1,065	0.5	160.0	85.2	1.70
5	Methyl Alcohol	48,320	1,065	0.5	99.0	52.7	1.05
6	Acetylene	48,320	1,065	0.5	146.0	77.8	1.56
	Total					257	

Emission Source:
Open burning of scrap HE was considered at the pit located at TA–16–388.
Notes:
Annual and Hourly Emission Rates:
[a] Annual and hourly emission rates of each compound from burning scrap were estimated using applicable emission factors, scrap constituents, and their amount in scrap.
[b] Emission factors in lb/ton for the VOC/HAP constituents were obtained from Table 3–5 entitled, "Air Emissions From Burning of Explosives" (Carter 1978).
[c] The maximum total amount of scrap HE burned per year (48,320 kilograms) and the total estimated amount of VOC/HAP emissions per year (257 pounds) was obtained from Table G of Tewerson 1985.
Major Assumptions:
[d] Constituents of VOC/HAP emissions were selected based on Carter 1978. Due to uncertainty in identifying of typical composition of explosives and their amount in the scrap HE, chemicals of different toxicity were selected to represent the range of toxic emissions that may be emitted.
[e] The content of explosive components in scrap is 1% by weight.
[f] 50 hours of burn operations a year (50 burns per year at 1 hour length of burn).
VOC/HAP = volatile organic compound/hazardous air pollutant

TABLE H.—*8-Hour SLEV/Q Ratios of the Toxic Air Pollutants from Open Burning of Scrap HE at TA–16*

NO.	TOXIC AIR POLLUTANTS	CAS NUMBER	OEL[d]	1/100 OF THE OEL[e]	8-HOUR SLEV[b,c]		ESTIMATED HOURLY EMISSION RATE[a] (Q^h)	SLEV/Q^h RATIO
			µg/m^3	µg/m^3	g/sec	lb/hr	lb/hr	
1	2	3	4	5	6	7	8	9
1	Hydrogen Chloride	7647-01-0	7,000	70	1.44E+00	1.14E+01	0.24	4.75E+01
2	Hydrogen Fluoride	7664-39-3	2,490	25	5.11E-01	4.05E+00	0.32	1.27E+01
3	Ammonia	7664-41-7	18,000	180	3.69E+00	2.93E+01	0.25	1.17E+02
4	Acetylene	74-86-2	2,662,000	26,620	5.46E+02	4.33E+03	1.56	2.78E+03
5	Ethanol	64-17-5	1,880,000	18,800	3.86E+02	3.06E+03	1.70	1.80E+03
6	Methyl Alcohol	67-56-1	262,000	2,620	5.38E+01	4.27E+02	1.05	4.06E+02

Emission Source:
Open burning of scrap HE was considered at the pit located at TA–16–388.
Notes:
Major Assumptions:
[a] Emission rates are presented in Table G. Emissions were modeled as surface-based volume source using EPA's ISC–3 Model with initial dispersion parameters estimated based on approximate tray dimensions. Initial lateral and vertical dimensions of the volume source was estimated based on the EPA Guideline, "Volume Source Inputs," EPA's User's Guide for the Industrial Source Complex (ISC–3) Dispersion Model, Volume 1 (EPA 1992b)
Dispersion Analysis Results:
[b] In this analysis, receptor locations where the public could have access to were considered. These are locations along the south border of TA–16 near State Road 4, bordering Bandelier National Monument.
[c] The highest ISC–3 estimated concentration at fence line receptors was found to be 48.7 µg/m^3 when emission rate is 1 g/sec.
Guideline Values
[d] OEL = occupational exposure limits established by the American Conference of Governmental Industrial Hygienists (ACGIH 1997).
[e] 1/100 of the OEL is 8-hour guideline value used in the analysis to estimate short-term (8-hour) impacts of the toxic air pollutants.

TABLE I.—*Annual SLEV/Q Ratios of the Toxic Air Pollutants from Open Burning of Scrap HE at TA–16*

NO.	TOXIC AIR POLLUTANTS	CAS NUMBER	RfC[c]	ANNUAL SLEVs[b]		ESTIMATED ANNUAL EMISSION RATE[a] (Q^a)	SLEV/Q^a RATIO
			µg/m^3	g/sec	lb/year	lb/year	
1	2	3	4	5	6	7	8
1	Ammonia	7664-41-7	100	1.30E+02	5.14E+04	12.7	4.05E+03
2	Hydrogen Chloride	7647-01-0	20	2.59E+01	1.03E+04	12.2	8.43E+02

Emission Source:
Open burning of scrap HE was considered at the pit located at TA–16–388.
Notes:
Major Assumptions:
[a] Emission rates are presented in Table G. Emissions were modeled as surface-based volume source using EPA's ISC–3 Model with an initial dispersion parameters estimated based on an approximate tray dimensions. Initial lateral and vertical dimensions of the volume source was estimated based on the EPA Guideline, "Volume Source Inputs," EPA's User's Guide for the Industrial Source Complex (ISC–3) Dispersion Model, Volume 1 (EPA 1992b).
Dispersion Analysis Results:
[b] The ISC–3 estimated annual concentration used to compute annual SLEV was found to be 0.77 µg/m^3 at sensitive receptors when emission rate is 1 g/sec.
Guideline Value(s):
[c] RfC = Inhalation reference concentrations that represent the annual guideline value(s) used in the analysis to estimate annual impacts of the toxic air pollutants.

TABLE J.—*Annual SLEV/Q Ratios of the Toxic Air Pollutants from Open Burning of Scrap HE at TA–16*

NO.	TOXIC AIR POLLUTANTS	CAS NUMBER	RfC[c]	ANNUAL SLEVs[b]		ESTIMATED ANNUAL EMISSION RATE[a] (Q[a])	SLEV/Q[a] RATIO
			µg/m^3	g/sec	lb/year	lb/year	
1	2	3	4	5	6	7	8
1	Ammonia	7664-41-7	100	1.30E+02	5.14E+04	12.7	4.05E+03
2	Hydrogen Chloride	7647-01-0	20	2.59E+01	1.03E+04	12.2	8.43E+02

Emission Source:
Open burning of scrap HE was considered at the pit located at TA–16–388.
Notes:
Major Assumptions:
[a] Emission rates are presented in Table G. Emissions were modeled as surface-based volume source using EPA's ISC–3 Model with an initial dispersion parameters estimated based on an approximate tray dimensions. Initial lateral and vertical dimensions of the volume source was estimated based on the EPA Guideline, "Volume Source Inputs," EPA's User's Guide for the Industrial Source Complex (ISC–3) Dispersion Model, Volume 1 (EPA 1992b).
Dispersion Analysis Results:
[b] The ISC–3 estimated annual concentration used to compute annual SLEV was found to be 0.77 µg/m^3 at sensitive receptors when emission rate is 1 g/sec.
Guideline Value(s):
[c] RfC = Inhalation reference concentrations that represent the annual guideline value(s) used in the analysis to estimate annual impacts of the toxic air pollutants.

TABLE K.—*Annual Impact Analysis of the Criteria Pollutants from Open Burning of Scrap HE at TA–16–388*

NO.	CRITERIA AIR POLLUTANTS	AVERAGING TIME PERIOD	ANNUAL EMISSION RATE[a,c]	ICS–3 ESTIMATED ANNUAL POLLUTANT CONCENTRATION (C^{an})[b,d]	NATIONAL (NAAQS)	(NAAQS)/(C^{an}) RATIO
			g/sec	µg/m^3	µg/m^3	
1	2	3	4	5	6	7
1	Particulate Matter (PM_{10})	Annual	9.66E-02	7.49E-02	50	6.68E+02
2	Nitrogen Oxide	Annual	9.68E-02	7.50E-02	100	1.33E+03
3	Carbon Monoxide	Annual	3.73E-02	2.89E-02	80	2.77E+03

Emission Source:
Open burning of scrap HE was considered at the pit located at TA–16–388.
Notes:
Major Assumptions:
[a] Annual emission rates were estimated based on information provided in Table G of Tewerson 1985.
[b] Emissions were modeled as surface-based volume source using EPA's ISC–3 Model with initial dispersion parameters estimated based on approximate tray dimensions. Initial lateral and vertical dimensions of the volume source was estimated based on the EPA Guideline, "Volume Source Inputs," EPA's User's Guide for the Industrial Source Complex (ISC–3) Dispersion Model, Volume 1 (EPA 1992b).
[c] Emissions would be released over 8,760 hours of operations per year.
Dispersion Analysis Results:
[d] 5 years of meteorological data (1991 to 1995) were used in the dispersion modeling analysis. The highest ISC–3 estimated annual concentration (C^{an}) was found to occur during 1991.

ATTACHMENT 13
AIR QUALITY IMPACT ASSESSMENT OF EMISSIONS FROM FIRING SITES

Technical Area(s): TA–14, TA–15, TA–36, TA–39, and TA–40 of the High Explosives Firing Sites (HEFSs)

Emission Sources Detonation of High Explosives at HEFSs Testing Sites

Hydrodynamic experiments involving the detonation of high explosives are conducted at several areas within TA–14, TA–15, TA–36, TA–39, and TA–40. These experiments are used to gain information on the physical properties and dynamic behavior of materials used in nuclear weapons and to evaluate the effects of aging on the nuclear weapons remaining in stockpile. HEFSs combine the capability of testing explosives with the ability to evaluate explosion dynamics.

Screening Analysis

Pollutant(s) Considered

There are up to eight metals that may be emitted into the atmosphere in respirable form during HEFSs testing operations. These include depleted uranium, beryllium, lead, aluminum, copper, tantalum, tungsten, and iron. Two of these TAs (TA–15 and TA–36) have the potential to emit all of these metals; TA–39 may emit all of these metals with the exception of depleted uranium; TA–40 may emit aluminum, copper, tantalum, tungsten, and iron; and TA–14 may emit depleted uranium and lead.

Three of the metals that may be emitted from HEFSs operations, beryllium, lead, and depleted uranium, are highly toxic. The 8-hour Guideline Values (GVs) developed for these pollutants are 0.02 microgram per cubic meter, 0.5 microgram per cubic meter, and 2 micrograms per cubic meter, respectively. The toxicity of depleted uranium is assumed to be the same as for a natural uranium. The other pollutants, copper, tungsten, tantalum, and iron, are moderately toxic, with 8-hour GVs between 10 micrograms per cubic meter and 50 micrograms per cubic meter.

These pollutants were all considered in the air quality impacts analysis. Lithium hydride, another toxic pollutant released from HEFSs operations, was not considered because it is highly reactive and undergoes rapid chemical transformation to lithium hydroxide, which has a very low vapor pressure and no OEL.

Emission Rates of Pollutants Considered

Total amounts of material that are expected to be used for HEFSs activities at each TA, together with the maximum annual and 8-hour respirable release rates were estimated from site operations data. Annual release rates were estimated using the assumption that the release fractions are 10 percent of the total material exploded. The 8-hour release rates of respirable particles were estimated using a scale factor of 0.085. That is, the 8-hour release was estimated by multiplying annual respirable emission rate by a factor of 0.085. This factor was derived from a consideration of the number of tests

per year and the range in amount of material per shot, in order to best represent a release of this duration. The 8-hour emission rate is needed for a comparison with the appropriate SLEV.

Estimated emission rates of pollutants used in the dispersion modeling analysis for each TA are presented in Table A.

Dispersion Modeling Analysis

EPA's Puff Model

Total amount of materials released at each TA during HEFSs operations were modeled using the EPA's Puff Model.

Included in the EPA's TSCREEN Model, the Puff Model is designed to assess the impacts of toxic air pollutants from instantaneous releases. The model is applicable if the travel time to the receptor from the source exceeds the release duration and if the release duration is less than the averaging time of interest to the user.

It is assumed that a HEFSs explosion in the atmosphere reasonably simulates an instantaneous release, where all mass is released in less that 1 to 5 minutes.

The Puff Model conservatively uses worst-case meteorological conditions to determine the maximum concentrations at receptors located directly downwind under the plume centerline. The meteorological conditions that result in a maximum concentration at each of the downwind distances are usually a wind speed of 9.1×10^{-4} feet per second (1 meter per second), a low mixing height (984.24 to 1,640.40 feet [300 to 500 meters]), and stable atmospheric conditions.

The Puff Model assumes that all materials (emissions) are released during a very short period of time (i.e., 1 to 5 minutes), with zero emissions the rest of the averaging time. If the release duration is less than the selected averaging time, the model calculates a concentration reduction based on ratio of the duration time to the averaging time. That is, the estimated maximum instantaneous concentration is converted internally by the model to average 1-minute, 5-minute, 15-minute, and 60-minute concentrations. For this analysis, 60-minute concentrations were estimated and these values were then converted to 8-hour values using a factor 0.125.

Model Inputs Used in the Dispersion Analysis

- The total amount of material released projected from the index for this operation
- The initial dispersion parameters were Y = 76.11 feet (23.2 meters) for lateral dispersion and Z = 30.18 feet (9.2 meters) for vertical dispersion
- The downwind distances to the receptor locations were as follows:
  - TA–14: 7,496.63 feet (2,285 meters)
  - TA–15: 4,494.70 feet (1,370 meters)
  - TA–36: 1,640.40 feet (500 meters)

  - TA–39: 3,001.93 feet (915 meters)
  - TA–40: 4,215.83 feet (1,285 meters)
- Ground level release

Estimated emission rates of the pollutants are summarized in Table A.

Results

Estimated 8-hour pollutant concentrations ($C^{8\text{-hr}}$) were compared with the project's 8-hour GVs, 1/100 of the OEL, for each pollutant. Results of the analysis are presented in Table B.

The $GV/C^{8\text{-hr}}$ ratios are less than one (i.e., the estimated concentration of a pollutants is greater than its GV) for the following releases:

- Depleted uranium, beryllium, lead, aluminum, copper, tantalum, tungsten, and iron from TA–15
- Depleted uranium, beryllium, lead, copper, and iron from TA–36
- Beryllium, lead, aluminum, and copper from TA–39
- Depleted uranium and lead from TA–14
- Copper from TA–40

Based on the ratios, depleted uranium, beryllium, and lead are of particular concern. Additional information for a health risk analysis was therefore provided in a further analysis. Due to the fact that all releases from firing operations are short-term, the releases of these pollutants were not considered in the additive impact analysis, which is associated with long-term exposure.

Detailed Analysis

Detailed dispersion modeling was done for HEFSs for the pollutants that exceeded the short-term GVs using the screening analysis. This modeling was conducted using a combination of HOTSPOT 8.0 model and the ISCST3 model. HOTSPOT was used to calculate the effective release height and lateral and vertical dimensions of the volume. These calculated values were used in the ISCST3 modeling, which was run as a volume source model.

Modeling Assumptions

- Amount considered for each test = 154 pounds (70 kilograms)
- Using HOTSPOT, cloud top was calculated
- Cloud top = 76 $(w)^{0.25}$, where w is in pounds, and cloud top height is in meters
- Cloud top for 154-pound (70-kilogram) HE detonation = 76 $(154 \text{ pounds})^{0.25}$ = 878.3 feet (267.7 meters)
- Cloud radius = 0.2 x cloud top height
- Cloud radius = 0.2 x 267.7 meters
  = 175.7 feet (53.54 meters)
- Effective release height = 0.6 (76) $(w)^{0.25}$

- Effective release height = $0.6\ (76)\ (w)^{0.25}$
  = 0.6 x 267.7 meters
  = 524.9 feet (160 meters)
- Lateral dimension of the volume in meters, σ_y = 0.5 x cloud radius
- Vertical dimension of the volume in meters, σ_z= 0.2 x cloud top
- Lateral dimension of the volume in meters, σ_y = 0.5 x 53.54
  = 87.8 feet (26.77 meters)
- Vertical dimension of the volume in meters, σ_z= 0.2 x cloud top
  = 0.2 x 267.7
  = 175.7 feet (53.54 meters)

Emission Sources Modeled

TA	BERYLLIUM (Be)	DEPLETED URANIUM (DU)	LEAD (Pb)
TA–14	—	X	X
TA–15	X	X	X
TA–36	X	X	X
TA–39	X	—	X

Both the Expanded Operations and the No Action Alternatives were modeled.

Modeled Emission Rates—Expanded Operations Alternative

SOURCE NUMBER	POLLUTANT	ANNUAL RESPIRABLE EMISSION RATE (kg/yr)	HOURLY MODELED EMISSION RATE (g/sec)
TA–14	Depleted Uranium	3.1	0.0001
	Lead	3.1	0.0001
TA–15	Beryllium	3.0	0.0001
	Depleted Uranium	270.0	0.0086
	Lead	15.0	0.0005
TA–36	Beryllium	3.0	0.0001
	Depleted Uranium	120.0	0.0038
	Lead	3.0	0.0001
TA–39	Beryllium	3.0	0.0001
	Lead	3.0	0.0001

The No Action Alternative emission rates are one-third of the Expanded Operations Alternative emission rates. Therefore, modeling for the No Action Alternative was done using one-third of the emission rates stated in the above table.

Location of Sources and Receptors Modeled

SOURCES AND RECEPTORS	STATE PLANE COORDINATES, EAST (ft)	STATE PLANE COORDINATES, NORTH (ft)
TA–14	1,620,310	1,763,740
Receptor for TA–14	1,620,310	1,756,250
TA–15	1,624,875	1,758,375
Receptor for TA–15	1,622,500	1,754,000
TA–36	1,641,250	1,755,875
Receptor for TA–36	1,642,000	1,757,200
TA–39	1,637,875	1,745,500
Receptor for TA–39	1,636,500	1,742,500

Annual Average Modeled Concentrations

SOURCE NUMBER	POLLUTANT	NO ACTION ALTERNATIVE CONCENTRATION (µg/m^3)	EXPANDED OPERATIONS ALTERNATIVE CONCENTRATION (µg/m^3)
TA–14	Depleted Uranium	0.0	0.0
	Lead	0.0	0.0
TA–15	Beryllium	0.0	0.00001
	Depleted Uranium	0.00015	0.00043
	Lead	0.00001	0.00003
TA–36	Beryllium	0.0	0.00001
	Depleted Uranium	0.00013	0.00039
	Lead	0.0	0.00001
TA–39	Beryllium	0.0	0.00001
	Lead	0.0	0.00001

TABLE A.—*Estimated Emission Rates of the Pollutants That Have the Potential to be Released from High Explosives Firing Sites (HEFSs)*

NO.	TAS WITH HEFSs TESTING OPERATIONS[a]	POLLUTANTS THAT HAVE THE POTENTIAL TO BE RELEASED DURING TESTING OPERATIONS	ESTIMATED MAXIMUM AMOUNT OF MATERIAL THAT WILL BE USED DURING TESTING OPERATIONS[b]	ESTIMATED RESPIRABLE FRACTION RELEASE RATE		
				ANNUAL RATE[b]	8-HOUR RESPIRABLE RELEASE RATE[c]	
			kg/year	kg/year	kilograms	grams[d]
1	2	3	4	5	6	7
1	TA–14	Depleted Uranium	31.4	3.1	2.67E-01	2.67E+02
2		Lead	31.4	3.1	2.67E-01	2.67E+02
1	TA–15	Depleted Uranium	2,700	270.0	2.30E+01	2.30E+04
2		Beryllium	30	3.0	2.56E-01	2.56E+02
3		Lead	150	15.0	1.28E+00	1.28E+03
4		Aluminum	450	45.0	3.83E+00	3.83E+03
5		Copper	300	30.0	2.56E+00	2.56E+03
6		Tantalum	300	30.0	2.56E+00	2.56E+03
7		Tungsten	300	30.0	2.56E+00	2.56E+03
8		Iron	150	15.0	1.28E+00	1.28E+03
1	TA–36	Depleted Uranium	1,200	120.0	1.02E+01	1.02E+04
2		Beryllium	30	3.0	2.56E-01	2.56E+02
3		Lead	30	3.0	2.56E-01	2.56E+02
4		Aluminum	30	3.0	2.56E-01	2.56E+02
5		Copper	30	3.0	2.56E-01	2.56E+02
6		Tantalum	30	3.0	2.56E-01	2.56E+02
7		Tungsten	30	3.0	2.56E-01	2.56E+02
8		Iron	150	15.0	1.28E+00	1.28E+03

TABLE A.—*Estimated Emission Rates of the Pollutants That Have the Potential to be Released from High Explosives Firing Sites (HEFSs)*-Continued

NO.	TAS WITH HEFSs TESTING OPERATIONS[a]	POLLUTANTS THAT HAVE THE POTENTIAL TO BE RELEASED DURING TESTING OPERATIONS	ESTIMATED MAXIMUM AMOUNT OF MATERIAL THAT WILL BE USED DURING TESTING OPERATIONS[b]	ESTIMATED RESPIRABLE FRACTION RELEASE RATE		
				ANNUAL RATE[b]	8-HOUR RESPIRABLE RELEASE RATE[c]	
			kg/year	kg/year	kilograms	grams[d]
1	2	3	4	5	6	7
1	TA–39	Beryllium	30	3.0	2.56E-01	2.56E+02
2		Lead	30	3.0	2.56E-01	2.56E+02
3		Aluminum[e]	45,000	4,500.0	3.83E+02	3.83E+05
4		Copper[e]	45,000	4,500.0	3.83E+02	3.83E+05
5		Tantalum	30	3.0	2.56E-01	2.56E+02
6		Tungsten	30	3.0	2.56E-01	2.56E+02
7		Iron[e]	30,000	3,000.0	2.56E+02	2.56E+05
1	TA–40	Aluminum	240	24.0	2.04E+00	2.04E+03
2		Copper	300	30.0	2.56E+00	2.56E+03
3		Tantalum	90	9.0	7.67E-01	7.67E+02
4		Tungsten	30	3.0	2.56E-01	2.56E+02
5		Iron	60	6.0	5.11E-01	5.11E+02

Notes:

Emission Sources:

[a] Firing operations involve detonations of explosives at TA–14, TA–15, TA–36, TA–39, and TA–40. Particulate emissions released into the atmosphere due to detonation of high explosives contain bonded metal emissions in respirable form.

Emission Rates of Pollutants Considered:

[b] The maximum amount of material that will be used during testing operations and the estimated maximum annual respirable release rates (in kilograms per year per TA) were obtained from Table B for TA–14, Table D for TA–15, Table E for TA–36, Table H for TA–39, and Table J for TA–40 of EPA 1992c. Respirable release rates were estimated based on the assumption that this fraction is 10% of total amount of material exploded.

[c] The total 8-hour respirable release rates (in kilograms), as a results of these operations, were estimated using the scale factor of 0.085.

Major Assumptions:

Lithium hydride was not considered because it is highly reactive and undergoes chemical transformations to lithium hydroxide that has very low vapor pressure and no OEL.

Dispersion Analysis:

[d] The total amount of material released, in grams, was used in dispersion analysis to estimate maximum 1-hour average concentration at specified receptor locations. Each release was modeled using the EPA's Puff Model as an instantaneous release.

[e] These quantities are dominated by the support structures constructed for tests. These structures, in actuality, are not expended in explosive tests and do not contribute to test air emissions.

TABLE B.—*Air Quality Impact Analysis of the Pollutants That Have the Potential to be Released from High Explosives Firing Sites (HEFSs)*

NO.	TAs WITH HEFSs TESTING OPERATIONS[a]	POLLUTANTS THAT HAVE THE POTENTIAL TO BE RELEASED DURING TESTING OPERATIONS	8-HR RELEASE RATE OF RESPIRABLE FRACTION OF METALS	ESTIMATED CONCENTRATION AT THE SPECIFIED DISTANCES[b,c]		GUIDELINE VALUE (GV) (1/100 OF THE OEL)	$GV/C^{8\text{-}hr}$ RATIO
				1-HOUR CONC.[c,e,f] ($C^{1\text{-}hr}$)	8-HOUR CONC.[c] ($C^{8\text{-}hr}$)		
			grams	µg/m^3	µg/m^3	µg/m^3	
1	2	3	4	5	6	7	8
1	TA–14	Depleted Uranium	2.67E+02	7.17E+01	8.96E+00	2	2.23E-01
2		Lead	2.67E+02	7.17E+01	8.96E+00	0.5	5.58E-02
1	TA–15	Depleted Uranium	2.30E+04	7.61E+03	9.51E+02	2	2.10E-03
2		Beryllium	2.56E+02	8.47E+01	1.06E+01	0.02	1.89E-03
3		Lead	1.28E+03	4.24E+02	5.29E+01	0.5	9.44E-03
4		Aluminum	3.83E+03	1.27E+03	1.58E+02	100	6.31E-01
5		Copper	2.56E+03	8.47E+02	1.06E+02	10	9.44E-02
6		Tantalum	2.56E+03	8.47E+02	1.06E+02	50	4.72E-01
7		Tungsten	2.56E+03	8.47E+02	1.06E+02	50	4.72E-01
8		Iron	1.28E+03	4.24E+02	5.29E+01	50	9.44E-01
1	TA–36	Depleted Uranium	1.02E+04	3.97E+03	4.97E+02	2	4.03E-03
2		Beryllium	2.56E+02	9.97E+01	1.25E+01	0.02	1.60E-03
3		Lead	2.56E+02	9.97E+01	1.25E+01	0.5	4.01E-02
4		Aluminum	2.56E+02	9.97E+01	1.25E+01	100	8.02E+00
5		Copper	2.56E+02	9.97E+01	1.25E+01	10	8.02E-01
6		Tantalum	2.56E+02	9.97E+01	1.25E+01	50	4.01E+00
7		Tungsten	2.56E+02	9.97E+01	1.25E+01	50	4.01E+00
8		Iron	1.28E+03	4.99E+02	6.23E+01	50	8.02E-01

TABLE B.—*Air Quality Impact Analysis of the Pollutants That Have the Potential to be Released from High Explosives Firing Sites (HEFSs)*-Continued

NO.	TAs WITH HEFSs TESTING OPERATIONS[a]	POLLUTANTS THAT HAVE THE POTENTIAL TO BE RELEASED DURING TESTING OPERATIONS	8-HR RELEASE RATE OF RESPIRABLE FRACTION OF METALS	ESTIMATED CONCENTRATION AT THE SPECIFIED DISTANCES[b,c]		GUIDELINE VALUE (GV) (1/100 OF THE OEL)	GV/$C^{8\text{-hr}}$ RATIO
				1-HOUR CONC.[c,e,f] ($C^{1\text{-hr}}$)	8-HOUR CONC.[c] ($C^{8\text{-hr}}$)		
			grams	µg/m^3	µg/m^3	µg/m^3	
1	2	3	4	5	6	7	8
1	TA–39	Beryllium	2.56E+02	9.30E+01	1.16E+01	0.02	1.72E-03
2		Lead	2.56E+02	9.30E+01	1.16E+01	0.5	4.30E-02
3		Aluminum	3.83E+05	1.39E+05	1.74E+04	100	5.75E-03
4		Copper	3.83E+05	1.39E+05	1.74E+04	10	5.75E-04
5		Tantalum	2.56E+02	9.30E+01	1.16E+01	50	4.30E+00
6		Tungsten	2.56E+02	9.30E+01	1.16E+01	50	4.30E+00
7		Iron	2.56E+02	9.30E+01	1.16E+01	50	4.30E+00
1	TA–40	Aluminum	2.04E+03	6.87E+02	8.59E+01	100	1.16E+00
2		Copper	2.56E+03	8.63E+02	1.08E+02	10	9.27E-02
3		Tantalum	7.67E+02	2.58E+02	3.23E+01	50	1.55E+00
4		Tungsten	2.56E+02	8.63E+01	1.08E+01	50	4.64E+00
5		Iron	5.11E+02	1.72E+02	2.15E+01	50	2.32E+00

Notes:

Emission Sources:

[a] Firing operations involve detonations of explosives at TA–14, TA–15, TA–36, TA–39, and TA–40. Particulate emissions released into the atmosphere due to detonation of high explosives contain bounded metal emissions in respirable form.

Emission Rates of Pollutants Considered:

[b] Emission rates of pollutants are from Table A.

Major Assumptions:

[c] Estimated 1-hour average concentrations was converted to 8-hour concentrations using a conversion factor of 0.125.

Dispersion Analysis:

[d] Total amounts of material released at each TA over 8-hour period were modeled using the EPA's PUFF Model as an instantaneous release scenario with assumed initial dispersion parameters. The lateral dispersion parameter (sigma Y) was assumed to be 23.2 meters; the vertical dispersion parameter (sigma Z) was assumed to be 9.2 meters.

[e] The conditions that produced the maximum concentrations at each of the downwind distances were: wind speed of 1 m/sec; mixing height of 320 meters; and stable atmospheric conditions.

[f] The downwind distances at which off-site concentrations were estimated were selected on TA by TA basis. These distances are as follows: TA–14, 2,285 meters; TA–15, 1,370 meters; TA–36, 500 meters; TA–39, 915 meters; and TA–40, 1,285 meters.

ATTACHMENT 14
AIR QUALITY IMPACT ASSESSMENT OF THE HEALTH RESEARCH LABORATORY (TA–43) EMISSIONS

Technical Area: TA–43

Emission Source(s)

There are four emission exhaust ducts located on the roof of the Health Research Laboratory (HRL) that emit carcinogenic pollutants from HRL operations. The pollutants of concern for this analysis are chloroform, trichloroethylene, methylene chloride, formaldehyde, and acrylamide.

The releases of pollutants may potentially impact nearby sensitive receptors (such as air intake shafts and/or operable windows) at the LANL Medical Center located in close proximity to HRL. Numerous receptor locations along the face and roof of the hospital were considered. Closest to HRL exhaust duct is an air intake shaft (#1) located within distance of 328 feet (100 meters) of stack B247 on the roof of the HRL.

Source Term Parameters

Annual pollutant emission rates were estimated were those projected for the Expanded Operations Alternative. Associated stack parameters and locations are presented in Table A. It was assumed that annual emissions would be released over 8,760 hours of operation per year.

Dispersion Modeling Analysis

An air quality impacts analysis was conducted using EPA's ISC–3 Model and 5 years of on-site meteorological data. All nearby buildings, including the Medical Center and HRL Building 1, within the zone of the stack plume influence were considered in the downwash analysis.

The highest annual average concentrations of these pollutants were found at the elevated receptors of the Medical Center. These values were then used to estimate the incremental cancer risk of these releases using appropriate unit risk factors.

Results

Results of the analysis are presented in Tables B and C. As shown in Table C, four of the five pollutants considered (chloroform, trichloroethylene, formaldehyde, and acrylamide) have the estimated maximum cancer risk values greater than Guideline Value of 1.0×10^{-8}.

The maximum annual concentration of 3.04×10^{-2} micrograms per cubic meter was estimated for chloroform, the most critical of these carcinogens, at one of the air intake shaft of the Medical Center located at a height of 40 feet (12.2 meters) above the ground level (Refer to the Receptor #175 of the LANL sensitive receptors). The maximum cancer risk of chloroform is estimated to be 6.99×10^{-7} at

this location, and sum of the cancer risks of all of these carcinogens combined is estimated to be 7.79×10^{-7}. These pollutants were further evaluated as a part of the additive impact analysis.

TABLE A.—*Stack Parameters and Estimated Annual Emission Rates of the Carcinogenic Pollutants That Have the Potential to be Released from the Health Research Laboratory of the TA–43 Facilities*

NO.	POLLUTANTS	STACK ID	STACK PARAMETERS				ANNUAL AVERAGE EMISSION RATES	
			UTM COORD. (X; Y)	HEIGHT	VELOCITY	DIAMETER		
			m	m	m/sec	m	lb/year	g/sec
1	Acrylamide	Bldg. 247	380883; 3971376	12.80	13.41	0.18	5.86E-03	8.44E-08
		Bldg. 124/126	380838; 3971363	14.02	13.41	0.18	5.86E-03	8.44E-08
		N. Side FH	380848; 3971377	16.61	13.41	0.18	5.86E-03	8.44E-08
		S. Side FH	380854; 3971340	12.80	13.41	0.18	5.86E-03	8.44E-08
2	Chloroform	Bldg. 247	380883; 3971376	12.80	13.41	0.18	2.20E+00	3.17E-05
		Bldg. 124/126	380838; 3971363	14.02	13.41	0.18	2.13E+01	3.07E-04
		N. Side FH	380848; 3971377	16.61	13.41	0.18	2.13E+01	3.07E-04
		S. Side FH	380854; 3971340	12.80	13.41	0.18	2.13E+01	3.07E-04
3	Formaldehyde	Bldg. 247	380883; 3971376	12.80	13.41	0.18	1.73E-01	2.50E-06
		Bldg. 124/126	380838; 3971363	14.02	13.41	0.18	1.68E+00	2.41E-05
		N. Side FH	380848; 3971377	16.61	13.41	0.18	1.68E+00	2.41E-05
		S. Side FH	380854; 3971340	12.80	13.41	0.18	1.68E+00	2.41E-05
4	Methylene Chloride	N. Side FH	380848; 3971377	16.61	13.41	0.18	9.46E-01	1.36E-05
		S. Side FH	380854; 3971340	12.80	13.41	0.18	9.46E-01	1.36E-05
5	Trichloethylene	N. Side FH	380848; 3971377	16.61	13.41	0.18	1.02E+01	1.47E-04

TABLE B.—*ISC–3 Estimated Annual Concentrations of the Carcinogenic Pollutants That Have the Potential to be Released from the Health Research Laboratory of the TA–43 Facilities Using 1991 to 1995 Meteorological Data*

NO.	POLLUTANTS	ANNUAL ISC–3 ESTIMATED CONCENTRATIONS ($\mu g/m^3$)				
		METEOROLOGICAL DATA				
		1991	1992	1993	1994	1995
1	Acrylamide	1.11E-05	1.04E-05	1.15E-05	1.13E-05	1.15E-05
2	Chloroform	2.89E-02	2.60E-02	2.99E-02	2.95E-02	3.04E-02
3	Formaldehyde	2.28E-03	2.04E-03	2.36E-03	2.32E-03	2.40E-03
4	Methylene Chloride	7.20E-04	6.40E-04	7.80E-04	7.60E-04	7.60E-04
5	Trichloroethylene	3.18E-03	2.82E-03	3.22E-03	3.30E-03	3.34E-03

TABLE C.—*Results of the Dispersion Modeling Analysis of the Carcinogenic Pollutants from the Health Research Laboratory at TA–43*

NO.	CARCINOGENIC POLLUTANTS	CAS NUMBER	CAR CLASS	UNIT RISK FACTORS (URF)	ISC–3 ESTIMATED ANNUAL CONCENTRATION1 (C_{an})	MAXIMUM CANCER RISK (C_{an} x URF)	GUIDELINE VALUE
				$(\mu g/m^3)^{-1}$	$\mu g/m^3$		
1	2	3	4	5	6	7	6
1	Acrylamide	79-06-1	B2	1.30E-03	1.15E-05	1.50E-08	
2	Chloroform	67-66-3	B2	2.30E-05	3.04E-02	6.99E-07	
3	Formaldehyde	50-00-0	B1	1.30E-05	2.40E-03	3.12E-08	
4	Methylene Chloride	75-09-2	B2	4.70E-07	7.80E-04	3.67E-10	
5	Trichloroethylene	79-01-6	B2	1.00E-05	3.34E-03	3.34E-08	
Total Combined Maximum Cancer Risk						7.79E-07	1.00E-08

ATTACHMENT 15
AIR QUALITY IMPACT ASSESSMENT OF THE TA–53 CHLOROFORM EMISSIONS

Technical Area: TA–53, Building MPF–15

Emission Source(s)

Chloroform is used for cleaning in preparation for surface chemistry studies using the LANSCE neutron beam. All of the chloroform used evaporates during this process.

There are two emission sources of the chloroform emissions at TA–53; both are located on Building MPF–15. One emission source is an exhaust duct from the clean room and the other is an exhaust duct from chemistry laboratory.

Source Term Parameters

Stack parameters and their locations are provided in Table A.

Emission Rates of Pollutants Considered

Estimated annual emission rates of chloroform from the two emission sources are shown in Table A. All chloroform used is assumed released into the atmosphere. It was assumed that emissions would be released over 8,760 hours of operation per year.

Dispersion Modeling Analysis

An air quality impacts analysis was conducted using EPA's ISC–3 Model and 5 years of on-site meteorological data. All nearby buildings within the zone of stack plume influence were considered in the downwash analysis. The highest annual concentration estimated by the ISC–3 Model (Table B) was used to estimate the maximum cancer risk of chloroform releases using its unit risk factor.

Results

Results of the analysis are presented in Tables B and C. As shown in Table C, the maximum combined cancer risk associated with releases of chloroform from two emission sources on building MPF–15 of the TA–53 facility is 1.29×10^{-8}, which is above the Guideline Value of 1.0×10^{-8}. This pollutant was, therefore, further evaluated as part of the additive impact analysis.

TABLE A.—*Stack Parameters and Emission Rate of the Chloroform Associated with TA–53 Building MPF–15*

NO.	EMISSIONS SOURCE	STACK ID	STACK PARAMETERS				ESTIMATED ANNUAL EMISSION RATE	
			UTM COORD. (X; Y)	HEIGHT	VELOCITY	DIAMETER		
			m	m	m/sec	m	lb/year	g/sec
1	TA–53 MPF–15 Clean Room	Bldg. 15	386592; 3969778	10.97	15.52	0.15	1.20E+01	1.73E-04
2	TA–53 MPF–15 Chemistry Lab.	Bldg. 15	386589; 3969789	9.30	5.41	0.36	4.00E+00	5.76E-05

TABLE B.—*ISC–3-Estimated Annual Concentration of the Chloroform Associated with Emission Source of the TA–53 MPF–15 Using 1991 to 1995 Meteorological Data*

EMISSION SOURCE	ISC–3 ESTIMATED ANNUAL AVERAGE CONCENTRATIONS ($\mu g/m^3$)				
	METEOROLOGICAL DATA				
	1991	1992	1993	1994	1995
TA–53 MPF–15 Chemistry Lab. & Clean Room	4.30E-04	5.60E-04	5.20E-04	5.20E-04	5.30E-04

TABLE C.—*Results of the Dispersion Modeling Analysis of the Chloroform Emissions from TA–53 Building MPF–15*

NO.	EMISSION SOURCE	CHLOROFORM UNIT RISK FACTOR (URF)	ISC–3 ESTIMATED ANNUAL CONCENTRATION (C_{an})	MAXIMUM CANCER RISK (C_{an} x URF)	GUIDELINE VALUE
		$(\mu g/m^3)^{-1}$	$\mu g/m^3$		
1	2	3	4	5	6
1	TA–53 MPF–15 Chemistry Lab. & Clean Room	2.30E-05	5.60E-04	1.29E-08	1.00E-08

ATTACHMENT 16
AIR QUALITY IMPACT ASSESSMENT OF THE TA–55 BERYLLIUM EMISSIONS

Technical Area: TA–55, Building PF–4

Emission Source(s)

There are two beryllium emission sources at TA–55, located on Building PF–4, TA–55 FE–15 and TA–55 FE–16.

Source Term Parameters

Stack parameters and their locations are shown in Table A.

Emission Rates of Pollutants Considered

Annual emission rates of the beryllium were estimated based on the existing permit application for TA–55. Emissions from these sources are released to the atmosphere through a HEPA filtration system, with a removal efficiency of 99.95 percent. Controlled emission rates are estimated to be 3.0×10^{-3} pounds per year for TA–55 FE–15 and 4.2×10^{-3} pounds per year for TA–55 FE–16.

Estimated annual emission rates of the beryllium that were used in the analysis are shown in Table A. It was assumed that emissions would be released over 8,760 hours of operation per year.

Dispersion Modeling Analysis

An air quality impacts analysis was conducted using EPA's ISC–3 Model and 5 years of on-site meteorological data. All nearby buildings within the zone of stack plume influence were considered in the downwash analysis. The highest annual concentration estimated by the ISC–3 Model (Table B) was used to compute the maximum combined cancer risk of beryllium releases using its unit risk factor.

Results

Results of the analysis are presented in Tables B and C. As shown in Table C, the combined cancer risk associated with releases of beryllium from emission sources on Building PF–4, TA–55 FE–15 and TA–55 FE–16, is 2.35×10^{-10}, which is below the Guideline Value of 1.0×10^{-8}.

TABLE A.—*Stack Parameters and Annual Beryllium Emission Rates Associated with TA–55 Building PF–4 Emission Sources FE–15 and FE–16*

NO.	EMISSION SOURCES	STACK ID	STACK PARAMETERS				PERMITTED ANNUAL EMISSION RATE	
			UTM COORD. (X; Y)	HEIGHT	VELOCITY	DIAMETER		
			m	m	m/sec	m	lb/year	g/sec
1	TA–55 FE–15	FE–15	382458; 3969439	15.24	19.20	0.91	3.00E-03	4.32E-08
2	TA–55 FE–16	FE–16	382416; 3969359	9.45	12.80	0.91	4.20E-03	6.05E-08

TABLE B.—*TA–55 ISC–3 Estimated Annual Concentrations of the Beryllium Using 1991 to 1995 Meteorological Data*

EMISSION SOURCE	ISC–3 ESTIMATED ANNUAL AVERAGE CONCENTRATION ($\mu g/m^3$)				
	METEOROLOGICAL DATA				
	1991	1992	1993	1994	1995
TA–55 Building PF–4 FE–15 & FE–16	9.00E-08	6.40E-08	9.90E-08	8.70E-08	9.60E-08

TABLE C.—*Results of the Dispersion Modeling Analysis of the Beryllium Emissions from TA–55 Sources FE–15 and FE–16*

NO.	EMISSION SOURCE	BERYLLIUM UNIT RISK FACTOR (URF)	ISC–3 ESTIMATED ANNUAL CONC (C_{an})	COMBINED MAXIMUM CANCER RISK (C_{an} X URF)	GUIDELINE VALUE
		$(\mu g/m^3)^{-1}$	$\mu g/m^3$		
1	2	3	4	5	6
1	TA–55 Building PF–4 FE–15 & FE–16	2.40E-03	9.90E-08	2.38E-10	1.00E-08

ATTACHMENT 17
AIR QUALITY IMPACT ASSESSMENT OF THE TA–55 HYDROCHLORIC AND NITRIC ACID EMISSIONS

Technical Area: TA–55, Building PF–4, Stacks FE–15 and FE–16

Emission Source(s)

The chemistry group at TA–59 uses nitric and hydrochloric acids for the recovery of plutonium. There are few emission sources of hydrochloric and nitric acid at TA–55. The two sources that were considered in the analysis include stacks FE–15 and FE–16, located on Building PF–4.

Source Term Parameters

Stack parameters and their locations are provided in Table A.

Emission Rates of Pollutants Considered

Estimated maximum hourly emission rates of nitric acid and hydrochloric acids associated with stacks FE–15 and FE–16 that were used in the analysis are shown in Table A. It was assumed that emissions would be released over 8,760 hours of operation per year.

Dispersion Modeling Analysis

An air quality impacts analysis was conducted using EPA's ISC–3 Model and 5 years of on-site meteorological data. All nearby buildings within the zone of stack plume influence were considered in the downwash analysis.

The ISC–3-estimated 8-hour concentrations of nitric and hydrochloric acids are shown in Table B. Using these values and appropriate 8-hour Guideline Values (GVs), 8-hour SLEVs were estimated and compared to hourly emission rates of these pollutants.

Results

Results of the analysis are presented in Table C. As shown in Table C, the 8-hour concentrations of both hydrochloric acid and nitric acid are below the 8-hour GVs. Accordingly, 8-hour SLEV/Q ratios are all greater than one. That is, the estimated nitric acid and hydrochloric acid levels are below the applicable GVs.

TABLE A.—*Stack Parameters and Emission Rate of Hydrochloric and Nitric Acid Associated with TA–55 Building PF–4*

NO.	EMISSION SOURCE/ POLLUTANT	STACK ID	STACK PARAMETERS				MAXIMUM HOURLY EMISSION RATE	
			UTM COORD. (X; Y)	HEIGHT	VELOCITY	DIAMETER		
			m	m	m/sec	m	lb/hour	g/sec
	TA–55 Building PF–4	FE–15	382458; 3969439	15.24	19.20	0.91		
1	Hydrochloric Acid						0.533	0.0672
2	Nitric Acid						0.360	0.0454
	TA–55 Building PF–4	FE–16	382416; 3969359	9.45	12.80	0.91		
1	Nitric Acid						2.42	0.305

TABLE B.—*ISC–3 Estimated 8-Hour Concentration of the Hydrochloric and Nitric Acid Associated with TA–55 Building PF–4 Using 1991 to 1995 Meteorological Data*

NO.	EMISSION SOURCE/POLLUTANT	ISC–3 ESTIMATED 8-HOUR CONCENTRATION ($\mu g/m^3$)				
		METEOROLOGICAL DATA				
		1991	1992	1993	1994	1995
1	TA–55 Building PF–4, Stack FE–15, Hydrochloric Acid	2.36	2.81	1.87	3.10	1.94
2	TA–55 Building PF–4, Stack FE–15/FE–16, Nitric Acid	39.8	35.9	41.5	41.8	33.0

TABLE C.—*Results of the Dispersion Modeling Analysis of the Hydrochloric and Nitric Acid Emission from TA–55 Building PF–4 Stack FE–15 and FE–16*

NO.	SOURCE	POLLUTANT	ISC–3 ESTIMATED 8-HOUR CONCENTRATION	GUIDELINE VALUE (1/100 OF THE OELS)	8-HOUR SLEVS	HOURLY EMISSION RATE (Q^h)	SLEVS/Q^h RATIO
			µg/m^3	µg/m^3	lb/hr	lb/hr	
1	2	3	4	5	6	7	8
1	TA–55 Building PF–4, Stack FE–15	Hydrochloric Acid	3.10	70.0	12.0	0.533	22.5
2	TA–55 Building PF–4, Stack FE–15/FE–16	Nitric Acid	41.8	52.0	3.46	2.78	1.25

ATTACHMENT 18
AIR QUALITY IMPACT ASSESSMENT OF THE TA–59 HYDROCHLORIC AND NITRIC ACIDS EMISSIONS

Technical Area: TA–59, Building 1

Emission Source(s)

The radio chemistry group at TA–59 uses large quantities of nitric and hydrochloric acid for the digestion and separation processes. One percent of each chemical is estimated to be released to the atmosphere due to container transfer.

There are two groups of emission sources of the hydrochloric and nitric acid at TA–59. They are both located on Building 1 and include exhaust fume hoods from laboratory rooms. One group of emission sources is associated with Hoods #102 through 106, and the other with Hoods #184 through 186. One representative stack with equivalent source parameters was used in the dispersion analysis for each group of these emissions sources.

Source Term Parameters

Stack parameters and their locations are provided in Table A.

Emission Rates of Pollutants Considered

Estimated maximum hourly emission rates of nitric acid and hydrochloric acids associated with two groups of emission sources that were used in the analysis are shown in Table A.

Dispersion Modeling Analysis

An air quality impacts analysis was conducted using EPA's ISC–3 Model and 5 years of on-site meteorological data. All nearby buildings within the zone of stack plume influence were considered in the downwash analysis.

Due to the fact that laboratory operating schedules are related to the daytime, the 8-hour concentration was computed for this time period. The highest daytime 8-hour concentration of hydrochloric and nitric acid was found to occur between 8:00 a.m. and 4:00 p.m. in 1991, at the receptor site located near boundary of TA–59 on Pajarito Road (Table B). These concentrations were compared to the appropriate 8-hour Guideline Values (GVs).

Results

Results of the analysis are presented in Table C. As shown in Table C, the 8-hour concentration of the nitric acid is above the 8-hour GV, and the 8-hour concentration of the hydrochloric acid is below the 8-hour GV. The results of the nitric acid analysis, therefore, were referred to the human health and ecological risk assessment process.

TABLE A.—*Stack Parameters and Emission Rate of the Hydrochloric and Nitric Acid Associated with Emission Sources of the TA–59 Building 1*

NO.	EMISSION SOURCE/ POLLUTANT[a]	STACK PARAMETERS					ESTIMATED MAXIMUM HOURLY EMISSION RATE	
		UTM COORD. (X; Y)	HEIGHT	AIRFLOW[b,c]	VELOCITY	DIAMETER		
		m	m	m^3/sec	m/sec	m	lb/hr	g/sec
1	TA–59 Rooms 102-106, Nitric Acid	381228; 3969886	18.29	8.73	14.06	0.89	5.00E+00	6.30E-01
2	TA–59 Rooms 184-186, Nitric Acid	381218; 3969911	12.27	0.54	5.80	0.34	2.50E+00	3.15E-01
3	TA–59 Rooms 102-106, Hydrogen Chloride	381228; 3969886	18.29	8.73	14.06	0.89	1.48E+00	1.86E-01
4	TA–59 Rooms 184-186, Hydrogen Chloride	381218; 3969911	12.27	0.54	5.80	0.34	7.20E-01	9.07E-02

Notes:

[a] All emission sources associated with a fume hoods on Building 1 were divided into the two categories: emission sources from Room 102-106 and emission sources from Room 184-186. A representative stack from each group of emissions sources was used in the dispersion modeling analysis.

[b] Due to the fact that fume hoods in Rooms 102, 103, 104, and 106 are connected to the central exhaust system, the total airflow rate of 18,500 cubic feet per minute going through the central system was used to estimate the average flow rate associated with a first group of emission sources.

[c] The average airflow rate associated with fume hoods of the second group of emission sources was estimated using the actual flow rate of each hood.

TABLE B.—*ISC–3 Estimated 8-Hour Concentration of the Hydrochloric and Nitric Acid Associated with Emission Source of the TA–59 Building 1 Using 1991 to 1995 Meteorological Data*[a]

EMISSION SOURCE/POLLUTANT	8-HOUR ESTIMATED CONCENTRATIONS (µg/m^3)				
	METEOROLOGICAL DATA				
	1991	1992	1993	1994	1995
TA–59 Building 1, Nitric Acid	83.8	87.4	120.0	91.8	83.2
TA–59 Building 1, Hydrogen Chloride	24.2	25.2	34.7	26.5	24.0

[a] The highest ISC–3 estimated 8-hour concentration of nitric and hydrochloric acid during daytime (between 8 a.m. and 4 p.m.) was found to occur in 1993.

TABLE C.—*Results of the Dispersion Modeling Analysis of the Hydrochloric and Nitric Acid Emissions from TA–59 Building 1*

NO.	POLLUTANT	ISC–3 ESTIMATED 8-HOUR CONCENTRATION	8-HOUR GUIDELINE VALUE (1/100 OF THE OELs)	GV/8-HOUR CONCENTRATION RATIO
		µg/m^3	µg/m^3	
1	2	3	4	5
1	Nitric Acid	120.0	52.0	0.433
2	Hydrogen Chloride	34.7	70.0	2.02

ATTACHMENT 19
AIR QUALITY IMPACT ASSESSMENT OF THE TA–53 OZONE EMISSIONS

Technical Area: TA–53, Building MPF–14

Emission Source(s)

Ozone is generated as a by-product from operation of the advanced free electron laser at TA–53. The source of ozone emissions is located at TA–53 Building MPF–14.

Source Term Parameters

Stack parameters, locations of emission sources, and the estimated maximum hourly emission rates of ozone are shown in Table A.

Dispersion Modeling Analysis

An air quality impacts analysis was conducted using EPA's ISC–3 Model and 5 years of on-site meteorological data. All nearby buildings within the zone of stack plume influence were considered in the downwash analysis.

The ISC–3-estimated 1-hour and 8-hour ozone concentrations are provided in Tables B and C, respectively. These values were compared with corresponding 1-hour National Ambient Air Quality Standards (NAAQS) ozone standard, and appropriate 8-hour Guideline Values (GVs).

Results

Results of the analysis are presented in Table D. As shown in Table D, the 1-hour and 8-hour ozone concentrations are below the applicable standards and GVs.

TABLE A.—*Stack Parameters and Emission Rate Associated with Ozone Emissions from TA–53 Building MPF–14*

NO.	EMISSION SOURCE	STACK ID	STACK PARAMETERS				MAXIMUM HOURLY EMISSION RATE	
			UTM COORD. (X; Y)	HEIGHT	VELOCITY	DIAMETER		
			m	m	m/sec	m	g/hr	g/sec
1	TA–53 MPF–14	B14	386180; 3969696	1.8	5.0	0.35	8.58E-01	2.38E-04

TABLE B.—*ISC–3 Estimated 1-Hour Concentration of the Ozone Associated with Emission Source of the TA–53 MPF–14 Using 1991 to 1995 Meteorological Data*

EMISSION SOURCE	ISC–3 ESTIMATED 1-HOUR CONCENTRATION ($\mu g/m^3$)[a]				
	METEOROLOGICAL DATA				
	1991	1992	1993	1994	1995
TA–53 Building MPF–14	0.858	0.332	0.608	0.503	0.343

Note:
[a] 5 years of meteorological conditions were used in the dispersion analysis. The ISC–3 estimated 1-hour ozone concentration was found to occur in 1991.

TABLE C.—*ISC–3 Estimated 8-Hour Ozone Concentration Associated with Emission Source of the TA–53 MPF–14 Using 1991 to 1995 Meteorological Data*

EMISSION SOURCE	ISC–3 ESTIMATED 8-HOUR CONCENTRATION ($\mu g/m^3$)				
	METEOROLOGICAL DATA				
	1991	1992	1993	1994	1995
TA–53 Building MPF–14	1.07E-01	5.85E-02	7.59E-02	6.41E-02	4.84E-02

TABLE D.—*Results of the Dispersion Modeling Analysis of the Ozone Emissions from TA–53 Building MPF–14*

EMISSION SOURCE	ISC–3 ESTIMATED CONCENTRATION		NAAQS[a] 1-HOUR CONCENTRATION	8-HOUR GUIDELINE VALUE (1/100 OF THE OELS)
	1-HOUR CONCENTRATION	8-HOUR CONCENTRATION		
	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$
1	2	3	4	5
TA–53, Building MPF–14	0.858	0.107	235	2

[a] NAAQS = National Ambient Air Quality Standards

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