TABLE 4.7.2.1–2.—*Estimated[a] Maximum Fence Line Concentration of Air Pollutants for the 2,000, 1,000, and 500 Weapons Levels at Pantex Plant*-Continued

POLLUTANT	AVERAGING TIME	ESL μg/m^3	MAXIMUM FENCE LINE CONCENTRATION (μg/m^3)		
			2,000 LEVEL	1,000 LEVEL	500 LEVEL
Ester Glycol Ethers	Annual	NA	1.50×10^{-1}	7.45×10^{-2}	3.72×10^{-2}
	30-minute	NA	3.59×10^{1}	1.79×10^{1}	8.95
Ethyl Acetate	Annual	1.44×10^{3}	6.93	6.79	6.71
	30-minute	1.44×10^{4}	1.99×10^{3}	1.99×10^{3}	1.99×10^{3}
Ethyl Benzene	Annual	4.34×10^{2}	1.29×10^{-1}	6.47×10^{-2}	3.24×10^{-2}
	30-minute	2.00×10^{3}	3.11×10^{1}	1.56×10^{1}	7.78
Ethylene Dichloride	Annual	4.00	3.99×10^{-2}	1.95×10^{-2}	9.74×10^{-3}
	30-minute	1.60×10^{2}	9.58	4.62	2.31
Formaldehyde - 45.4 kg (100 lb) HE	Annual	1.50	4.03×10^{-3}	4.03×10^{-3}	4.01×10^{-3}
	30-minute	1.50×10^{1}	3.66×10^{-1}	3.66×10^{-1}	3.66×10^{-1}
Formaldehyde - 363 kg (800 lb) HE	Annual	1.50	4.03×10^{-3}	4.03×10^{-3}	4.01×10^{-3}
	30-minute	1.50×10^{1}	3.66×10^{-1}	3.66×10^{-1}	3.66×10^{-1}
Hydrogen chloride - 45.4 kg (100 lb) HE	Annual	1.00×10^{-1}	7.59×10^{-2}	7.59×10^{-2}	7.59×10^{-2}
	30-minute	7.50×10^{1}	5.19	5.19	5.19
Hydrogen chloride - 363 kg (800 lb) HE	Annual	1.00×10^{-1}	3.06×10^{-2}	3.06×10^{-2}	3.06×10^{-2}
	30-minute	7.50×10^{1}	3.24	3.24	3.24
Hydrogen chloride - BGU	Annual	1.00×10^{-1}	6.89×10^{-2}	6.89×10^{-2}	6.89×10^{-2}
	30-minute	7.50×10^{1}	6.17	6.17	6.17
Hydrogen cyanide - BGU	Annual	5.50	1.00×10^{-5}	1.00×10^{-5}	1.00×10^{-5}
	30-minute	5.50×10^{1}	7.70×10^{-4}	7.70×10^{-4}	7.70×10^{-4}
Hydrogen fluoride - 45.4 kg (100 lb) HE	3-hour	4.90	4.21	4.21	4.21
	12-hour	3.68	1.05	1.05	1.05
	24-hour	2.86	7.46×10^{-1}	7.46×10^{-1}	7.46×10^{-1}
Hydrogen fluoride - 363 kg (800 lb) HE	3-hour	4.90	2.94×10^{-1}	2.94×10^{-1}	2.94×10^{-1}
	12-hour	3.68	7.36×10^{-2}	7.36×10^{-2}	7.36×10^{-2}
	24-hour	2.86	5.73×10^{-2}	5.73×10^{-2}	5.73×10^{-2}
Hydrogen fluoride - BGU	3-hour	4.90	3.59	3.59	3.59
	12-hour	3.68	1.32	1.32	1.32
	24-hour	2.86	7.49×10^{-1}	7.49×10^{-1}	7.49×10^{-1}
Mercury	Annual	5.00×10^{-2}	0.00[e]	0.00[e]	0.00[e]
	24-hour	2.50×10^{-1}	0.00[e]	0.00[e]	0.00[e]
	30-minute	5.00×10^{-1}	0.00[e]	0.00[e]	0.00[e]
Methanol	Annual	2.62×10^{2}	5.75×10^{-1}	5.58×10^{-1}	5.50×10^{-1}
	30-minute	2.62×10^{3}	2.45×10^{2}	2.45×10^{2}	2.45×10^{2}

TABLE 4.7.2.1–2.—*Estimated[a] Maximum Fence Line Concentration of Air Pollutants for the 2,000, 1,000, and 500 Weapons Levels at Pantex Plant*-Continued

POLLUTANT	AVERAGING TIME	ESL μg/m^3	MAXIMUM FENCE LINE CONCENTRATION (μg/m^3)		
			2,000 LEVEL	1,000 LEVEL	500 LEVEL
Methyl Cyanide - 45.4 kg (100 lb) HE	Annual	NA	0.00[e]	0.00[e]	0.00[e]
	30-minute	NA	0.00[e]	0.00[e]	0.00[e]
Methyl Cyanide - 363 kg (800 lb) HE	Annual	NA	0.00[e]	0.00[e]	0.00[e]
	30-minute	NA	0.00[e]	0.00[e]	0.00[e]
Methyl Ethyl Ketone	Annual	5.90×10^{2}	5.10	4.89	4.78
	30-minute	3.90×10^{3}	1.40×10^{3}	1.40×10^{3}	1.40×10^{3}
Methyl Isobutyl Ketone	Annual	2.05×10^{2}	1.85×10^{-2}	9.16×10^{-3}	4.58×10^{-3}
	30-minute	2.05×10^{3}	4.45	2.20	1.10
Methylene Chloride	Annual	2.60×10^{1}	7.37×10^{-1}	6.69×10^{-1}	6.69×10^{-1}
	30-minute	2.60×10^{2}	1.80×10^{2}	1.80×10^{2}	1.80×10^{2}
Naphthalene - 45.4 kg (100 lb) HE	Annual	5.00×10^{1}	1.10×10^{-4}	1.10×10^{-4}	1.10×10^{-4}
	30-minute	4.40×10^{2}	5.48×10^{-3}	5.48×10^{-3}	5.48×10^{-3}
Naphthalene - 363 kg (800 lb) HE	Annual	5.00×10^{1}	0.00[e]	0.00[e]	0.00[e]
	30-minute	4.40×10^{2}	4.30×10^{-4}	4.30×10^{-4}	4.30×10^{-4}
Nickel - BGU	Annual	1.50×10^{-2}	2.40×10^{-4}	2.40×10^{-4}	2.40×10^{-4}
	30-minute	1.50×10^{-1}	2.16×10^{-2}	2.16×10^{-2}	2.16×10^{-2}
Nitrobenzene	Annual	5.00	2.14×10^{-3}	1.07×10^{-3}	5.35×10^{-4}
	30-minute	2.40×10^{1}	5.13×10^{-1}	2.56×10^{-1}	1.28×10^{-1}
Phenol - 45.4 kg (100 lb) HE	Annual	1.90×10^{1}	5.70×10^{-4}	5.70×10^{-4}	5.70×10^{-4}
	30-minute	1.54×10^{2}	2.92×10^{-2}	2.92×10^{-2}	2.92×10^{-2}
Phenol - 363 kg (800 lb) HE	Annual	1.90×10^{1}	2.00×10^{-5}	2.00×10^{-5}	2.00×10^{-5}
	30-minute	1.54×10^{2}	2.29×10^{-3}	2.29×10^{-3}	2.29×10^{-3}
Tetrachloroethylene	Annual	3.40×10^{1}	7.33×10^{-2}	3.67×10^{-2}	1.83×10^{-2}
	30-minute	3.40×10^{2}	1.76×10^{1}	8.81	4.41
Titanium - BGU	Annual	NA	6.50×10^{-4}	6.50×10^{-4}	6.50×10^{-4}
	30-minute	5.00×10^{2}	5.82×10^{-2}	5.82×10^{-2}	5.82×10^{-2}
Toluene	Annual	1.88×10^{2}	1.73	1.45	7.15×10^{-1}
	30-minute	1.88×10^{3}	5.58×10^{2}	5.41×10^{2}	2.66×10^{2}
Trichloroethylene	Annual	1.35×10^{2}	2.12×10^{-1}	1.06×10^{-1}	5.27×10^{-2}
	30-minute	1.35×10^{3}	5.11×10^{1}	2.55×10^{1}	1.26×10^{1}
Triethylamine	Annual	4.00	2.38×10^{-3}	2.38×10^{-3}	2.38×10^{-3}
	30-minute	4.00×10^{1}	1.08	1.08	1.08
Xylene	Annual	4.34×10^{2}	4.74×10^{-1}	2.34×10^{-1}	1.17×10^{-1}
	30-minute	3.70×10^{3}	1.45×10^{2}	7.26×10^{1}	3.62×10^{1}

TABLE 4.7.2.1–2.—*Estimated[a] Maximum Fence Line Concentration of Air Pollutants for the 2,000, 1,000, and 500 Weapons Levels at Pantex Plant*-Continued

POLLUTANT	AVERAGING TIME	ESL μg/m^3	MAXIMUM FENCE LINE CONCENTRATION (μg/m^3)		
			2,000 LEVEL	1,000 LEVEL	500 LEVEL
TNRCC LISTED AIR POLLUTANTS[d]					
1,1,1-chloroethane	Annual 30-minute	5.00×10^{1} 5.00×10^{2}	5.28×10^{-1} 1.27×10^{-2}	The maximum estimated fence line concentrations of these air pollutants for these operation levels would be lower than those concentrations estimated for the 2,000 weapons operation level.	
1,3,5-trinitrobenzene - 45.4 kg (100 lb) HE	Annual 30-minute	NA 2.00	0.00[e] 3.00×10^{-5}		
1,3,5-trinitrobenzene - 363 kg (800 lb) HE	Annual 30-minute	NA 2.00	0.00[e] 0.00[e]		
1-butanol	Annual 30-minute	7.60×10^{1} 7.60×10^{2}	1.99×10^{-2} 4.79		
2,4,6-trinitrotoluene - 45.4 kg (100 lb) HE	Annual 30-minute	NA 5.00	0.00[e] 3.30×10^{-4}		
2,4,6-trinitrotoluene - 363 kg (800 lb) HE	Annual 30-minute	NA 5.00	0.00[e] 2.00×10^{-5}		
2,4-dinitrotoluene - 45.4 kg (100 lb) HE	Annual 30-minute	1.50×10^{-1} 1.50×10^{1}	0.00[e] 5.00×10^{-5}		
2,4-dinitrotoluene - 363 kg (800 lb) HE	Annual 30-minute	1.50×10^{-1} 1.50×10^{1}	0.00[e] 3.00×10^{-5}		
2,6-dinitrotoluene - 45.4 kg (100lb) HE	Annual 30-minute	NA 1.50×10^{1}	0.00 5.00×10^{-4}		
2,6-dinitrotoluene - 363 kg (800 lb) HE	Annual 30-minute	NA 1.50×10^{1}	0.00[e] 4.00×10^{-5}		
2-ethoxyethanol	Annual 30-minute	NA 1.80×10^{2}	3.91×10^{-1} 9.42		
2-nitronaphthalene - 45.4 kg (100 lb) HE	Annual 30-minute	NA 5.00×10^{2}	1.00×10^{-5} 4.20×10^{-4}		
2-nitronaphthalene - 363 kg (800 lb) HE	Annual 30-minute	NA 5.00×10^{2}	0.00[e] 2.00×10^{-5}		
Acetone	Annual 30-minute	5.90×10^{2} 5.90×10^{3}	3.39 5.19×10^{2}		
Acetylene - 45.4 kg (100 lb) HE	Annual 30-minute	2.66×10^{3} 2.66×10^{4}	3.33×10^{-3} 1.11		
Acetylene - 363 kg (800 lb) HE	Annual 30-minute	2.66×10^{3} 2.66×10^{4}	3.33×10^{3} 1.11		
Aluminum - 45.4 kg (100 lb) HE	Annual 30-minute	5.00 5.00×10^{1}	1.28×10^{-3} 5.22×10^{-2}		
Aluminum - 363 kg (800 lb) HE	Annual 30-minute	5.00 5.00×10^{1}	1.17×10^{-3} 4.94×10^{-2}		
Ammonia	Annual 30-minute	1.70×10^{1} 1.70×10^{2}	2.89×10^{-2} 1.31×10^{1}		
Barium	Annual 30-minute	5.00×10^{-1} 5.00	1.25×10^{-3} 2.93×10^{-3}		

TABLE 4.7.2.1–2.—*Estimated[a] Maximum Fence Line Concentration of Air Pollutants for the 2,000, 1,000, and 500 Weapons Levels at Pantex Plant*-Continued

POLLUTANT	AVERAGING TIME	ESL μg/m^3	MAXIMUM FENCE LINE CONCENTRATION (μg/m^3)		
			2,000 LEVEL	1,000 LEVEL	500 LEVEL
Benzo(a)anthracene - 45.4 kg (100 lb) HE	Annual 30-minute	NA 5.00×10^{-1}	1.00×10^{-5} 5.00×10^{-4}	The maximum estimated fence line concentrations of these air pollutants for these operation levels would be lower than those concentrations estimated for the 2,000 weapons operation level.	
Benzo(a)anthracene - 363 kg (800 lb) HE	Annual 30-minute	NA 5.00×10^{-1}	0.00[e] 4.00×10^{-5}		
Benzo(a)pyrene - 45.4 kg (100 lb) HE	Annual 30-minute	3.00×10^{-3} 3.00×10^{-2}	1.00×10^{-5} 4.10×10^{-4}		
Benzo(a)pyrene - 363 kg (800 lb) HE	Annual 30-minute	3.00×10^{-3} 3.00×10^{-2}	0.00[e] 2.00×10^{-5}		
Bismuth	Annual 30-minute	5.00 5.00×10^{2}	3.00×10^{-5} 1.13×10^{-3}		
Butane	Annual 30-minute	1.90×10^{3} 1.90×10^{4}	2.98×10^{-2} 1.12×10^{1}		
Butene	Annual 30-minute	NA 1.60×10^{2}	2.81×10^{-1} 1.18×10^{1}		
Calcium	Annual 30-minute	5.00 5.00×10^{1}	5.00×10^{-5} 1.90×10^{-3}		
Chlorinated Fluorocarbon	Annual 30-minute	NA 1.80×10^{4}	2.90×10^{-1} 6.93×10^{1}		
Copper	Annual 30-minute	1.00 1.00×10^{1}	3.08×10^{-3} 1.25×10^{-1}		
Cyanogen - 45.4 kg (100 lb) HE	Annual 30-minute	2.10×10^{1} 2.10×10^{2}	1.00×10^{-5} 2.00×10^{-4}		
Cyanogen - 363 kg (800 lb) HE	Annual 30-minute	2.10×10^{1} 2.10×10^{2}	0.00[e] 2.00×10^{-5}		
Cyclohexane	Annual 30-minute	3.40×10^{2} 1.44×10^{3}	3.68×10^{-1} 9.41×10^{1}		
Cyclohexanone	Annual 30-minute	1.00×10^{2} 4.81×10^{2}	6.09×10^{-2} 1.44		
Dioxane	Annual 30-minute	9.00×10^{1} 9.00×10^{2}	7.88×10^{-1} 3.57×10^{1}		
Ethyl Ether	Annual 30-minute	NA 9.27×10^{2}	3.33×10^{-1} 7.96×10^{1}		
Ethylene - 45.4 kg (100 lb) HE	Annual 30-minute	NA 1.17×10^{3}	6.04×10^{-1} 2.53×10^{2}		
Ethylene - 363 kg (800 lb) HE	Annual 30-minute	NA 1.17×10^{3}	6.04×10^{-1} 2.44×10^{2}		
Formic Acid - 45.4 kg (100 lb) HE	Annual 30-minute	9.40 9.40×10^{1}	0.00[e] 8.00×10^{-5}		
Formic Acid - 363 kg (800 lb) HE	Annual 30-minute	9.40 9.40×10^{1}	0.00[e] 2.00×10^{-5}		
Iron - 45.4 kg (100 lb) HE	Annual 30-minute	NA 5.00×10^{1}	4.99×10^{-2} 1.82		

TABLE 4.7.2.1–2.—*Estimated[a] Maximum Fence Line Concentration of Air Pollutants for the 2,000, 1,000, and 500 Weapons Levels at Pantex Plant*-Continued

POLLUTANT	AVERAGING TIME	ESL μg/m^3	MAXIMUM FENCE LINE CONCENTRATION (μg/m^3)		
			2,000 LEVEL	1,000 LEVEL	500 LEVEL
Iron - 363 kg (800 lb) HE	Annual 30-minute	NA 5.00×10^{1}	2.44×10^{-2} 1.02	The maximum estimated fence line concentrations of these air pollutants for these operation levels would be lower than those estimated concentrations for the 2,000 weapons operation level.	
Isobutane	Annual 30-minute	1.90×10^{3} 4.84×10^{3}	4.01×10^{-2} 1.39×10^{1}		
Isobutanol	Annual 30-minute	1.52×10^{2} 1.52×10^{3}	2.27×10^{-2} 5.46		
Ketene - 45.4 kg (100 lb) HE	Annual 30-minute	9.00×10^{-1} 9.00	0.00[e] 0.00[e]		
Ketene - 363 kg (800 lb) HE	Annual 30-minute	9.00×10^{-1} 9.00	0.00[e] 0.00[e]		
Ketone	Annual 30-minute	NA 1.00×10^{2}	1.39×10^{-1} 3.34×10^{1}		
Lithium	Annual 30-minute	NA 1.00×10^{1}	4.00×10^{-5} 1.84×10^{-3}		
Magnesium	Annual 30-minute	NA 5.00×10^{1}	1.05×10^{-3} 4.41×10^{-2}		
Methane - 45.4 kg (100 lb) HE	Annual 30-minute	NA 3.00×10^{4}	7.16×10^{-1} 2.64×10^{1}		
Methane - 363 kg (800 lb)	Annual 30-minute	NA 3.00×10^{4}	7.16×10^{-1} 2.61×10^{1}		
N-butyl Alcohol	Annual 30-minute	7.60×10^{1} 7.60×10^{2}	1.35×10^{-1} 3.25		
Non-F Listed Solvents	Annual 30-minute	NA 1.00×10^{1}	9.40×10^{-4} 2.26×10^{-1}		
Ortho-dichlorobenzene	Annual 30-minute	NA 1.50×10^{3}	6.36×10^{-1} 1.53×10^{2}		
Propane	Annual 30-minute	1.80×10^{3} 1.80×10^{4}	4.21×10^{-2} 1.32×10^{1}		
Propene	Annual 30-minute	NA 3.00×10^{4}	3.71×10^{-1} 1.56×10^{2}		
Pyrene - 45.4 kg (100 lb) HE	Annual 30-minute	5.00×10^{-2} 5.00×10^{-1}	5.00×10^{-4} 1.57×10^{-3}		
Pyrene - 363 kg (800 lb) HE	Annual 30-minute	5.00×10^{-2} 5.00×10^{-1}	0.00[e] 9.00×10^{-5}		
Pyridine	Annual 30-minute	1.50×10^{1} 6.90×10^{1}	3.78×10^{-1} 9.08		
Silicon	Annual 30-minute	5.00 5.00×10^{2}	0.00[e] 2.90×10^{-4}		
Silver	Annual 30-minute	1.00×10^{-2} 1.00×10^{-1}	1.45×10^{-3} 6.22×10^{-2}		
Tetrahydrofuran	Annual 30-minute	5.90×10^{2} 5.90×10^{3}	7.55×10^{-1} 3.42×10^{2}		

TABLE 4.7.2.1–2.—*Estimated[a] Maximum Fence Line Concentration of Air Pollutants for the 2,000, 1,000, and 500 Weapons Levels at Pantex Plant*-Continued

POLLUTANT	AVERAGING TIME	ESL $\mu g/m^3$	MAXIMUM FENCE LINE CONCENTRATION ($\mu g/m^3$)		
			2,000 LEVEL	1,000 LEVEL	500 LEVEL
Trichlorofluoromethane	Annual 30-minute	5.62×10^{3} 2.80×10^{4}	4.21×10^{-1} 1.01×10^{2}	The maximum estimated fence line concentrations of these air pollutants for these operation levels would be lower than those estimated concentrations for the 2,000 weapons operation level.	
Trichlorotrifluoroethane	Annual 30-minute	NA 7.60×10^{4}	1.77 4.73×10^{2}		
Zinc	Annual 30-minute	5.00 5.00×10^{1}	1.32×10^{-3} 5.58×10^{-2}		

[a]EPA Model ISCST2 was used to calculate maximum fence line concentrations for all three operations levels.
[b]Hours of operations were taken into account for emissions from open burning and engine emissions for CAA listed air pollutants.
[c]The group of alcohols while not listed in CAA were estimated to exceed the conservative ESL used by TNRCC. Therefore, alcohols were included here for more complete presentation of results.
[d]Hours of operation were not taken into account and emissions were modeled for an entire year of meteorological data for TNRCC listed air pollutants.
[e]The ISCST2 air quality model returns a value of 0.00 for any concentration equal to or less than 1.00×10^{-5} $\mu g/m^3$ (i.e., less than one ten millionth of a part per billion or less than ten parts per quadrillion).
[f]Solvents that are not listed under 40 CFR 261.33.
BGU - Burning Ground Upgrade
NA - An ESL has not been established by TNRCC.
Sources: TNRCC 1996a; CAA as amended

The maximum concentrations of criteria pollutants and CAA listed air pollutants estimated to occur at the 11 residences located near the Pantex Plant boundary are below their respective ambient air standards or their respective ESLs. Appendix B presents tables of these concentrations for each of the 11 residences.

Alcohols exceeded the ESL at the boundary and at residence 10. These alcohols were modeled as a group and compared with the conservative ESL used by TNRCC. However, subsequent review of the inventories of the types of alcohols and quantities on hand at the plant showed that the use of the conservative ESL for the group of alcohols was excessively conservative. When the total concentrations of the individual alcohols were prorated, none of the individual alcohols exceeded their respective ESLs at or near the fence line. Table B.4.1–2 in appendix B shows the prorated concentrations of these alcohols.

Since ambient concentrations of all criteria pollutants and HAPs do not violate any of the ambient standards or ESLs beyond the Pantex Plant boundary, the air quality impacts from continued operations under the Proposed Action would be minor and would not be considered significant.

Criteria and VOC Pollutant Emissions

A summary of criteria and VOC pollutant emissions for the 2,000, 1,000 and 500 weapons levels are presented in Tables 4.7.2.1–3, 4.7.2.1–4, and 4.7.2.1–5, respectively. Emissions for the 2,000 weapons level would be about the same as those shown in Table 4.7.1.3–6 with the addition of emissions projected for the Burning Ground upgrade. In general, emissions for 1,000 and 500 levels are less than those for the 2,000 weapons. However, emission reductions are not directly proportional to weapons level reductions. This result occurs because some facility emissions would not be reduced when weapons levels are reduced (e.g., heating of buildings).