Table 14 -- Wood-Treating Facility (Spill or Release)

Instrument Guidance							Regulatory Guidance							Reference		
							Occupational Action Levels		AEGL-1			TEEL-0	ERPG-1	Air Sampling		
Target Compound[1]	Instrument	Detection Level	Intrinsically Safe (Y/N)	IP	PID CF (ISO)	Conversion	TWA	IDLH	1-hr	4-hr	8-hr	15-min TWA	1-hr	Media	Method	Flow Rate/ Total Volume
VOCs and Gases																
Hydrochloric Acid (Hydrogen Chloride)	AreaRAE HCl Sensor	2-15 ppm	Y	12.74 eV	NA	1 ppm = 1.49 mg/m^3	PEL = C 5 ppm REL = C 5 ppm TLV = C 5 ppm	50 ppm	1.8 ppm	1.8 ppm	1.8 ppm	0.5 ppm	NA	Silica Gel Tube, 226-10-03	NIOSH 7903	0.2-0.5 L/min; 48 L
	MultiRAE Pro HCl Sensor	0-15 ppm	Y													
	Dräger Tube	≥1-10 ppm	Y													
	Dräger Chip	≥1-25 ppm	N (Y w/option)													
	pH Paper	NA	Y													
	SPM	0.5-15 ppm	N (Y w/option)													
	Dräger Pac III	0-30 ppm	Y													
	GFG Inc. Micro IV	0-30 ppm	Y													
Nitric Acid	Dräger Tube	≥1-50 ppm	Y	11.95 eV	NA	1 ppm = 2.58 mg/m^3	PEL = 2 ppm REL = 2 ppm, ST 4 ppm TLV = 2 ppm, ST 4 ppm	25 ppm	0.53 ppm	0.53 ppm	0.53 ppm	0.53 ppm	1 ppm	Silica Gel Tube, 226-10-03	NIOSH 7903	0.2-0.5 L/min; 48 L
	pH Paper	NA	Y													
	SPM	0.2-6 ppm	N (Y w/option)													
Sulfuric Acid	Dräger Tube	1-5 mg/m^3	Y	12.4 eV	NA	NA	PEL = 1 mg/m^3 REL = 1 mg/m^3 TLV = 1 mg/m^3, ST 3 mg/m^3	15 mg/m^3	0.2 mg/m^3	0.2 mg/m^3	0.2 mg/m^3	0.2 mg/m^3	2 mg/m^3	Silica Gel Tube, 226-10-03	NIOSH 7903	0.2-0.5 L/min; 48 L
	pH Paper	NA	Y													
	SPM	26-750 ppb	N (Y w/option)													
Hydrocyanic Acid (Hydrogen Cyanide)	MultiRAE/AreaRAE HCN Sensor	0-100 ppm	Y	13.6 eV	NA	1 ppm = 1.1 mg/m^3	PEL = 10 ppm S REL = ST 4.7 ppm S TLV = C 10 ppm S	50 ppm	2.0 ppm	1.3 ppm	1 ppm	1.9 ppm	NA	Soda Lime Tube, 226-28	NIOSH 6010	0.05-0.2 L/min; 2-90 L
	MultiRAE Pro HCN Sensor	0-50 ppm	Y													
	Dräger Tube	2-30 ppm	Y													
	Dräger Chip	2-50 ppm	N (Y w/option)													
	pH Paper	NA	Y													
	ToxiRAE II HCN	0-100 ppm	Y													
	SPM	1.1-30 ppm	N (Y w/option)													
	Dräger Pac III	0-50 ppm	Y													
	GFG Inc. Micro IV	0-50 ppm	Y													
Naphthalene	MultiRAE/AreaRAE PID***	0-2000 ppm	Y	8.12 eV	0.42 (10.6 lamp)	1 ppm = 5.24 mg/m^3	REL = 10 ppm ST, 15 ppm PEL = 10 ppm	250 ppm	NA	NA	NA	10 ppm	15 ppm*	Sorbent Tube, 226-110	NIOSH 1501	0.02 L.min; 10 L
	TVA 1000B***	0.5-2,000 ppm (PID) 1-50,000 ppm (FID)	Y		NA											
PAHs - as particulates																
PAHs*****	Personal DataRAM****	0.001-400 mg/m^3	N	NA	NA	NA	PEL = 0.2 mg/m^3 REL = 0.1 mg/m^3	80 mg/m^3	NA	NA	NA	0.075 mg/m^3	0.25 mg/m^3*	PTFE Cassette, 226-30-04	NIOSH 5506	2 L/min; 480 L
	DataRAM 4****	0.001-400 mg/m^3	N													
Pentachlorophenol and Dioxin-Furans - as particulates																
Pentachlorophenol	Personal DataRAM****	0.001-400 mg/m^3	N	NA	NA	NA	PEL = 0.5 mg/m^3 REL = 0.5 mg/m^3 S	2.5 mg/m^3	NA	NA	NA	0.5 mg/m^3	2 mg/m^3*	Styrene Cassette, 225-3LF	NIOSH 5512	0.5-1 L/min; 480 L
	DataRAM 4****	0.001-400 mg/m^3	N													

Table 14 -- Wood-Treating Facility (Spill or Release)

Target Compound[1]	Instrument	Detection Level	Intrinsically Safe (Y/N)	IP	PID CF (ISO)	Conversion	Occupational Action Levels		AEGL-1			TEEL-0	ERPG-1	Air Sampling		
							TWA	IDLH	1-hr	4-hr	8-hr	15-min TWA	1-hr	Media	Method	Flow Rate/ Total Volume
Pentachlorophenol and Dioxin-Furans - as particulates (continued)																
Dioxin-Furan	Personal DataRAM****	0.001-400 mg/m^3	N	NA	NA	NA	NA	NA	NA	NA	NA	1E-8 mg/m^3	0.0015 mg/m^3*	PUF Tube Filter	EPA TO-9A	225-280 L/min; NA
	DataRAM 4****	0.001-400 mg/m^3	N													
Metals - as particulates																
Arsenic (inorganic compounds)	Personal DataRAM****	0.001-400 mg/m^3	N	9.81 eV	NA	NA	PEL = 0.01 mg/m^3 REL = C 0.002 mg/m^3 (15 mins) TLV = 0.01 mg/m^3	5 mg/m^3 Ca	NA	NA	NA	0.025 mg/m^3	NA	MCE Cassette, 225-3-01	NIOSH 7900	1-3 L/min; 30 L
	DataRAM 4****	0.001-400 mg/m^3	N													
	MultiRAE/AreaRAE PID***	0-2000 ppm	Y													
	TVA 1000B***	0.5-2,000 ppm (PID) 1-50,000 ppm (FID)	Y			NA										
Arsenic (organic compounds)	Dräger Tube	0-3 mg organic arsenic/m^3	Y	NA	NA	NA	PEL = 0.5 mg/m^3 TLV = 0.2 mg/m^3	NA	NA	NA	NA	0.025 mg/m^3	NA	PTFE Filter, 225-17-01	NIOSH 5022	1-3 L/min; 960 L
Copper	Personal DataRAM****	0.001-400 mg/m^3	N	NA	NA	NA	PEL = 0.1 mg/m^3 (fume), 1 mg/m^3 (dust) REL = 0.1 mg/m^3 (fume), 1 mg/m^3 (dust) TLV = 0.2 mg/m^3 (fume), 1 mg/m^3 (dust, mist)	100 mg/m^3	NA	NA	NA	1 mg/m^3	NA	MCE Cassette, 225-3-01	NIOSH 7029	1-3 L/min; 480 L
	DataRAM 4****	0.001-400 mg/m^3	N													
Chromium (VI)	Personal DataRAM****	0.001-400 mg/m^3	N	NA	NA	NA	PEL = 0.005 mg/m^3 REL = 0.001 mg/m^3 TLV = 0.05 mg/m^3	15 mg/m^3	NA	NA	NA	NA	NA	PVC Cassette, 225-802	NIOSH 7600	1-4 L/min; 240 L
	DataRAM 4****	0.001-400 mg/m^3	N													
Lead	Personal DataRAM****	0.001-400 mg/m^3	N	NA	NA	NA	PEL = 0.05 mg/m^3 REL = 0.05 mg/m^3 TLV = 0.05 mg/m^3	100 mg/m^3	NA	NA	NA	0.05 mg/m^3	NA	MCE Cassette, 225-3-01	NIOSH 7300	1-4 L/min; 50-2000 L
	DataRAM 4****	0.001-400 mg/m^3	N													
Particulate																
Particulate	Personal DataRAM****	0.001-400 mg/m^3	N	NA	NA	NA	PEL = 15 mg/m^3 (total), 5 mg/m^3 (respirable) TLV = 10 mg/m^3 (total), 3 mg/m^3 (respirable)	NA	NA	NA	NA	10 mg/m^3	NA	Filter (total) Cyclone + Filter (resp)	NIOSH 0500 (total) NIOSH 0600 (resp)	1-2 L/min (total) 1.7-2.5 L/min (resp)
	DataRAM 4****	0.001-400 mg/m^3	N													
	eBAM	0-100 mg/m^3	N													

Instrument Guidance | Regulatory Guidance | Reference

Table 14 -- Wood-Treating Facility (Spill or Release)

Instrument Guidance							Regulatory Guidance								Reference		
Target Compound[1]	Instrument	Detection Level	Intrinsically Safe (Y/N)	IP	PID CF (ISO)	Conversion	Occupational Action Levels		AEGL-1			TEEL-0	ERPG-1	Air Sampling		
							TWA	IDLH	1-hr	4-hr	8-hr	15-min TWA	1-hr	Media	Method	Flow Rate/ Total Volume
Radiation[2]																
Radiation	Ludlum Model 192	0-5,000 µR/hr	N	NA	NA	NA	60-100 µR/hr*	NA	NA	NA	NA	NA	NA	RADeCO Filter Paper (2")	RSSOP 209/501	α = 2500 ft^3 β/γ = 1250 ft^3
	Ludlum Model 2241-2 w/Pancake Probe	0-100,000 cpm or 0-200 mR/hr	N				300 cpm*									
	Ludlum Model 2241-3 w/Pancake Probe	0-100,000 cpm or 0-200 mR/hr	N				300 cpm*									
	*These are not TWA(s). Normal gamma radiation background is from 5-20 µR/hr; however, higher backgrounds may exist. If readings are 3 times background or greater than 60-100 µR/hr or greater than 300 cpm, then stop work and consult with a Health Physicist. Refer to Hazardous Evaluation Flow Chart for Unknowns in Attachment A.															

Table 14 -- Wood-Treating Facility (Spill or Release)

Notes:

For guidance only. These tables do not supersede a SSHASP at any time or on any response.

[1] Does not include all pollutants associated with this type of event, only the most common pollutants with the lowest action levels. Depending on the chemical of concern, certain Dräger tubes and chips can be used. In addition, single-gas instruments and sensors and/or a gas chromatography-mass spectrometry instrument may be used.

[2] Standard EPA Emergency Response Protocol is to screen for radiation with a Micro-R at all emergency responses. If readings are three times background, responders consult with a Health Physicist. Additional radiation equipment is available to monitor for Alpha, Beta and Gamma, but is not included in this table.

AEGL-1 is the airborne concentration of a substance above which it is predicted that the general population, including susceptible individuals, could experience notable discomfort, irritation, or certain asymptomatic non-sensory effects; however, the effects are not disabling and are transient and reversible upon cessation of exposure.

AEGL-2 is the airborne concentration (expressed as ppm or mg/m^3) of a substance above which it is predicted that the general population, including susceptible individuals, could experience irreversible or other serious, long-lasting adverse health effects or an impaired ability to escape.

TEEL-0 is the temporary level of concern derived according to a tiered, formula-like methodology; representing concentrations associated with no effects.

ERPG-1 is the acute exposure concentration of the general population for up to 1 hour associated with effects expected to be mild or transient.

PAC-1 is based on the applicable AEGL-1, ERPG-1, or TEEL-1 value

Data on tables are from the following sources:

http://www.epa.gov/oppt/aegl/pubs/chemlist.htm	EPA's website used to research AEGLs using the chemical's name or chemical abstracts service registry numbers.
http://www.cdc.gov/niosh/npg/npgsyn-a.html	CDC NIOSH Pocket Guide to Chemical Hazards website
http://wiser.nlm.nih.gov/	WISER website
http://www.skcinc.com/	SKC, Inc. website (Air Sampling Media Part No. is specific to SKC)

*AEGL-2--There are no AEGL-1 for this compound

*PAC-1--There are no ERPG-1 for this compound

**MIRAN SapphIRe has problems with complex mixtures (*e.g.;* distinguishing benzene from gasoline vapor)

***PIDs/FIDs are non-specific detectors and cannot differentiate between VOCs, even with CFs applied. See RAE PID CF Guidance Document TN-106 for information and TVA Response Factor document P/N 50039 THERMO.

****Personal DataRAMs/DataRAMs are non-specific detectors and cannot differentiate between particulates

*****PAHs are most conservative value (anthracene, benzo(a)pyrene, chrysene, naphthalene, phenanthrene, pyrene)

Acronyms:

≥ -- greater than or equal to
ACGIH -- American Conference of Governmental Industrial Hygienists
AEGL -- acute exposure guideline levels
C -- ceiling (concentrations that should not be exceeded during any part of work exposure)
CDC -- Centers for Disease Control and Prevention
CF -- conversion factor
cpm -- counts per minute
EPA -- U.S. Environmental Protection Agency
ERPG -- emergency response planning guideline
eV -- electron volt
FID -- flame ionization detector
IDLH -- immediately dangerous to life and health
IP -- ionization potential
ISO -- isobutylene
L/min -- liter per minute
mg/m^3 -- milligrams per cubic meter
µR/hr -- micro Roentgens per hour
NA -- not available/applicable
NIOSH -- National Institute for Occupational Safety and Health
OSHA -- Occupational Safety and Health Administration
PEL -- permissible exposure limit (OSHA)
PID -- photoionization detector
ppb -- parts per billion
ppm -- parts per million
R/hr -- Roentgens per hour
REL -- recommended exposure limit (NIOSH)
S -- skin notation (compound may be absorbed through the skin)
SPM -- single-point monitor
SSHASP -- site-specific health and safety plan
TEEL -- temporary emergency exposure limit
TLV -- time-limited value (ACGIH)
TWA -- time-weighted average
WISER -- Wireless Information System for Emergency Responders
Y w/option - yes with option; see manufacturer's instrument manual for information