Appendix 3:
VARIOUS INDUSTRIAL ACTIVITIES AND CONTAMINANTS OF POTENTIAL CONCERN

Master List of Contaminants of Potential Concern (COPCs)

Industrial Facility/Operation	Contaminants of Potential Concern
Abandoned Laboratory/Chemical Facilities	Metals, cyanide, ACM, pH changes, VOCs, PAHs, PCBs, solvents, site-specific chemicals used, stored or manufactured on-site
Adhesives Manufacturing and Storage	Variable depending on type; water-based, solvent-based, epoxy resin based, natural adhesives (e.g., rubber), solvents, PHCs, isocyanate or cyanocrylates
Agricultural Operations	Pesticides, metals (as components of pesticides), microbiologicals, nitrates
Airstrips/Hangars Operations	PHCs, BTEX, PAHs, ethylene glycol, VOCs (notably degreasing solvents), metals
Antifreeze bulk storage or recycling	Glycols
Ash from Incinerators or other Thermal Facilities	Metals, pH change, PAHs, PCBs, dioxins/furans (depending on feedstock)
Asbestos Mining, Milling, Wholesale Bulk Storage or Shipping	ACM
Automotive Repair, Maintenance, Autobody Shops	Metals (notably aluminum, cadmium, chromium, lead, mercury), VOCs, PHCs, BTEX, PAHs, acetone, carbon tetrachloride, PCE and degradation products, TCE and degradation products, ethylene glycol, CFCs, pH changes
Battery Recycling, Disposal	Metals (notably arsenic, cadmium, chromium, copper, lead, mercury, nickel, zinc), pH changes
Coal Gasification Plants/Coal Tar Sites	PAHs, BTEX, cyanide, phenols, ammonia, metals (notably aluminum, chromium, iron, lead, nickel), pH changes
Drum and Barrel Recycling	Cyanide, pH changes, pesticides, PHCs, BTEX, PAHs, solvents
Dry Cleaning	PCE and degradation products, some new dry cleaners used hydrocarbon based cleaners
Dye Facilities	PAHs, benzene, toluene, metals (notably cadmium, chromium, copper, lead, mercury, nickel, zinc), anilines, amines, quinolines, pH changes
Electrical Equipment/Transformers	PCBs, PHCs (mineral oils), possibly PAH and metals
Explosives or Ammunition Manufacturing	Metals, nitrates
Electroplating	Metals (notably cadmium, chromium, copper, nickel, zinc), cyanide, TCE and degradation products, TCA, pH changes
Electronic/Computer Equipment Manufacturing	Solvents, TCE, TCA and degradation products, PHCs, metals
Fertilizer Manufacturing and Storage	Nitrate, chloride, sulphur, metals
Fire Training Areas	PHCs, PAHs, VOCs (notably, solvents), lead, MTBE, PFOS, PFOA
Fire Retardant Manufacturing	Metals (notably antimony and brominated compounds such polybrominated diphenyl ether), PFOS, PFOA
Firing Range	PAHs, metals (notably arsenic, antimony, lead), possible ordnance (see "ordnance sites"), herbicides
Foundries and Scrap Metal Smelting	Metals
Glass Manufacturing	Metals (notably arsenic, cobalt, thorium, uranium and zinc),

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Industrial Facility/Operation	Contaminants of Potential Concern
	radioactive material, PHCs, BTEX, PAHs
Ink Manufacturing	PHCs, BTEX, metals
Landfills	Metals (including iron, mercury, lead, zinc), PHCs, BTEX, PAHs, VOCs, phenols, cyanide, PCBs, PCDDs/DFs, pesticides, gases (including methane, carbon dioxide)
Machine Maintenance Shops, Metal Fabrication	Metals, VOCs, TCE and degradation products
Metal Plating or Finishing	Metals, pH changes, cyanide, chlorinated solvents if used for cleaning metal
Mining, Smelting, Ore processing, Tailings	Metals, pH changes, ACM, cyanide
Mining of Coal	Metals, pH changes, sulphur, PAHs
Ordnance Sites	Metals, nitro substituted phenols and benzenes, trinitrotoluene (TNT), nitroaromatics, cyclotrimethylene trinitramine (ROX), hexahydro- l,3,5-trinitro-1,3,5-triazine, nitroglycerin, VOCs and SVOCs (including formaldehyde), toluene, herbicides, perchlorate, cyclic nitramine explosive **HMX** (octahydro- l ,3,5,7-tetranitro-1,3,5,7- tetrazocine). Unexploded ordnance (UXO) may be viewed as a potential contaminant source, but not necessarily a contaminant in itself.
Paint Industry	Benzene, toluene, xylene, metals (notably cadmium, chromium, lead, mercury, zinc), herbicides/fungicides, VOCs
Pesticide Production and Use	Benzene, xylene, carbon tetrachloride, cyanide, metals (notably arsenic, cadmium, lead, mercury), CCA, VOCs, pesticides
Oil and Gas Downstream Petroleum Facilities (service stations, tank farms, cardlots)	PHC (notably Fl and F2), BTEX, PAHs (notably naphthalene), MTBE, organic lead compounds, glycols, other additives, redox changes (possible mobilization of certain metals)
Oil and Gas - Oil Refineries	PHC (Fl to F2), BTEX, VOCs, metals
Oil and Gas - Drilling & Exploration Sites (well-heads, sumps, flare pils)	Crude oil (PHCs (Fl to F4), PAHs, BTEX, metals), produced water (salinity, sodicity, chlorides, sulphates, soluble inorganics), workover fluids (pH, salinity, methanol, glycol, brocides), chemical additives (pH, sodium, potassium, salinity, chloride, sulphates), halogenated solvents
Oil and Gas Pipelines (transfer stations, pipeline leaks, cleanouts)	Crude oil and condensate (PHCs (F1 to F4), PAHs, BTEX, metals), waxes (F3 and F4), halogenated solvents to clear lines
Oil and Gas - Waste Oil (reprocessing, recycling or bulk storage)	PHC, VOCs, BTEX, metals
Photographic Facilities	Metals (notably chromium, lead, mercury), TCA
Plastic Manufacturing	PHes, BTEX, styrene, isocyanites, PBDEs
Print Shops	Metals, VOCs, toluene, xylene, pH changes
Pulp and Paper Mills	Metals (notably boron, cadmium, chromium, mercury, lead, zinc, silver, titanium), VOCs, phenols, dioxins/furans, PeBs, pH changes, cyanide
Quarry Sites	Metals, VOC
Rail Yards, Maintenance and Tracks	PHCs, BTEX, PAHs, VOCs (including solvents and degreasing agents), phenols, PCBs, metals (notably arsenic, cadmium, lead, mercury)
Salt Storage	Chloride, Sodium

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Industrial Facility/Operation	Contaminants of Potential Concern
Salvage/Junk Yards	Metals, VOCs, ACM, cyanide, PCBs, PHCs, BTEX, PAHs
Scrap Metal	Metals, ACM, BTEX, halogenated solvents (notably TCE, TCA and degradation products), PCBs
Snow from Street Removal Dumping	Metals, chloride, sodium
Steel Manufacturing/Coke Ovens	Metals, BTEX, PAH, PHCs, phenol
Tanneries	Metals, benzene, cyanide, VOCs, phenols, formaldehyde, pH changes, tannins and lignins
Wharves and Docks	Chlorophenols, PAHs, PHCs, TBT
Wood Treating/Preservation	Chlorophenols, phenols, PAHs, PHCs, BTEX, metals (CCA)

(adapted from CCME 2016)

ACM = asbestos containing material

BTEX = benzene, toluene, ethylbenzene, xylenes

CCA = chromated copper arsenate, a compound that contains arsenic, chromium and copper

CFCs = chlorofluorocarbons

F1 to F4 = Petroleum Hydrocarbon Fractions as defined in CCME (2008)

MTBE = methyl tertiary butyl ether

PAHs = polycyclic aromatic hydrocarbons

PBDE = polybrominated diphenyl ether

PCBs = polychlorinated biphenyls

PCDDs/PCDFs = polychlorinated dibenzodioxins/furans

PCE = tetrachloroethylene

PFOA = perflorooctanoic acid

PFOS = perflourooctane sulphonate

PHCs = petroleum hydrocarbons compounds

SVOCs = semi-volatile organic compounds

TBT = tributyltin

TCA = trichloroethane

TCE = trichloroethylene

UXO = unexploded ordnance

VOCs = volatile organic compounds

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Parameter	CASRN[1]
Inorganics	
Antimony	7440-36-0
Arsenic	7440-38-2
Barium	7440-39-3
Beryllium	7440-41-7
Boron (total)	7440-42-8
Boron (hot water soluble)	7440-42-8
Cadmium	7440-43-9
Chromium (hexavalent)	18540-29-9
Chromium (total)	7440-47-3
Cobalt	7440-48-4
Copper	7440-50-8
Cyanide (free)	57-12-5
Lead	7439-92-1
Mercury (total)	7439-97-6
Molybdenum	7439-98-7
Nickel	7440-01-0
Selenium	7782-49-2
Silver	7440-22-4
Thallium	7440-28-0
Uranium	7440-61-1
Vanadium	7440-62-2
Zinc	7440-66-6
Petroleum Hydrocarbons (PHC)	
Benzene	71-43-2
Toluene	108-88-3
Ethylbenzene	100-41-4
Xylenes	Various
Styrene	100-42-5
CWS PHC F1	Various
CWS PHC F2	Various
CWS PHC F3	Various
CWS PHC F4	Various
MTBE	
Polycyclic Aromatic Hydrocarbons (PAH)	
Non-Carcinogenic PAHs	
Acenaphthene	83-32-9
Anthracene	120-12-7
Fluoranthene	120-12-7
Fluorene	206-44-0
Naphthalene	91-20-3
Phenanthrene	86-73-7
Pyrene	129-00-0

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Parameter	CASRN[1]
Carcinogenic PAHs	
Benz[a]anthracene	56-55-3
Benzo[a]pyrene	50-32-8
Benzo[b]fluoranthene isomers	205-99-2
Benzo[k]fluoranthene isomers	207-08-9
Benzo[g,h,i]perylene	191-24-2
Chrysene	218-01-9
Dibenz[a.h]anthracene	53-70-3
Indeno[1,2,3-c,d]pyrene	193-39-5
Benzo[a]pyrene (BaP) Total Potency Equivalents (Human Health – Carcinogenicity)	-
Volatile Organic Compounds (VOC)	
Chlorinated Aliphatics	
Carbon Tetrachloride (Tetrachloromethane)	56-23-5
Chloroform	67-66-3
Dibromochloromethane	124-48-1
1,2-Dichloroethane	107-06-2
1,1-Dichloroethylene	75-35-4
cis-1,2-Dichloroethylene	156-59-2
trans-1,2-Dichloroethylene	156-60-5
Dichloromethane (Methylene Chloride)	75-09-2
1,2-Dichloropropane	78-87-5
1,3-Dichloropropene	10061-01-5
1,1,1,2-Tetrachloroethane	630-20-6
1,1,2,2-Tetrachloroethane	79-34-5
Tetrachloroethylene	127-18-4
1,1,1-Trichloroethane	71-55-6
1,1,2-Trichloroethane	79-00-5
Trichloroethylene	79-01-6
Vinyl Chloride	75-01-4
Chlorinated Aromatics	
Chlorobenzene	108-90-7
1,2-Dichlorobenzene	95-50-1
1,4-Dichlorobenzene	106-46-7
1,2,3-Trichlorobenzene	87-61-6
1,2,4-Trichlorobenzene	120-82-1
1,3,5-Trichlorobenzene	108-70-3
1,2,3,4-Tetrachlorobenzene	634-66-2
1,2,3,5-Tetrachlorobenzene	634-90-2
1,2,4,5-Tetrachlorobenzene	95-94-3
Pentachlorobenzene	608-93-5
Hexachlorobenzene	118-74-1
2,4-Dichlorophenol	120-83-2
2,4,6-Trichlorophenol	88-06-2
2,3,4,6-Tetrachlorophenol	58-90-2
Pentachlorophenol (PCP)	87-86-5

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Parameter	CASRN[1]
Per- and Polyfluoroalkyl Substances (PFAS)	
Perfluorooctane sulfonate (PFOS)	45298-90-6
Perfluorooctanoic acid (PFOA)	335-67-1
Perfluorobutanoate (PFBA)	375-22-4
Perfluorobutanesulfonate (PFBS)	45187-15-3
Perfluorohexanesulfonate (PFHxS)	108427-53-8
Perfluoropentanoate (PFPeA)	2706-90-3
Perfluorohexanoate (PFHxA)	307-24-4
Perfluoroheptanoate (PFHpA)	20109-59-5
Perfluorononanoate (PFNA)	375-95-1
6:2 fluorotelomer sulfonate	
8:2 fluorotelomer sulfonate	
Other Parameters	
Polychlorinated Biphenyls (Total PCB)	Various
Dioxins and Furans (TEQ)	Various
Ethylene Glycol	107-21-1
Phenol	108-95-2

[1]: Chemical Abstract Service Registration Number. A unique identifier used to identify a chemical with a standardized name.