

**TABLE 4**  
**Noncarcinogenic Critical Health Effects for the**  
**MO-1 and Appendix H MO-2 Risk-Based RECAP Standards <sup>1</sup>**

CONSTITUENT	CAS #	NONCARCINOGENIC CRITICAL EFFECT(S)
Acenaphthene	83-32-9	Liver toxicity
Acetone	67-64-1	Kidney toxicity
Aldrin	309-00-2	NA <sup>2</sup>
Aniline	62-53-3	MBA <sup>3</sup> (Spleen toxicity; Hematological effects)
Anthracene	120-12-7	No observed adverse effects
Antimony	7440-36-0	Decreased longevity; Decreased blood glucose; Altered blood cholesterol levels
Arsenic	7440-38-2	Skin effects (hyperpigmentation and keratosis); Vascular effects
Barium	7440-39-3	Kidney toxicity
Benzene	71-43-2	NA
Benz(a)anthracene	56-55-3	NA
Benzo(a)pyrene	50-32-8	NA
Benzo(b)fluoranthene	205-99-2	NA
Benzo(k)fluoranthene	207-08-9	NA
Beryllium	7440-41-7	Gastrointestinal effects (erosion and inflammatory lesions); Beryllium sensitization; Respiratory system (chronic beryllium disease - chronic inflammatory lung disease)
Biphenyl,1,1-	92-52-4	NA
Bis(2-chloroethyl)ether	111-44-4	NA
Bis(2-chloroisopropyl)ether	108-60-1	Hematological system effects (red blood cell toxicity/destruction and decreased hemoglobin)
Bis(2-ethyl-hexyl)phthalate	117-81-7	NA
Bromodichloromethane	75-27-4	NA
Bromoform	75-25-2	NA
Bromomethane	74-83-9	Gastrointestinal effects (epithelial hyperplasia of stomach); Nasal cavity effects (degeneration and proliferative lesions of the olfactory epithelium)
Butyl benzyl phthalate	85-68-7	NA
Cadmium	7440-43-9	Kidney effects (proteinuria)
Carbon Disulfide	75-15-0	Fetal toxicity (malformations); Peripheral nervous system dysfunction
Carbon Tetrachloride	56-23-5	NA
Chlordane	57-74-9	NA
Chloroaniline,p-	106-47-8	Spleen effects (capsular lesions)
Chlorobenzene	108-90-7	Liver and kidney effects
Chlorodibromomethane	124-48-1	NA
Chloroethane (Ethylchloride)	75-00-3	NA
Chloroform	67-66-3	Liver effects (fatty cyst formation; increased SGPT)
Chloromethane (Methyl chloride)	74-87-3	NA
Chloronaphthalene,2-	91-58-7	Liver (increased weight); Respiratory effects (dyspnea)
Chlorophenol,2-	95-57-8	Reproductive effects (increased conceptions, increased stillbirths, decreased litter size)
Chromium(III) (insoluble salts)	16065-83-1	No observed effects
Chromium(VI)	18540-29-97	Aerosols: Nasal cavity effects (septum atrophy); Dusts: Lower respiratory system toxicity
Chrysene	218-01-9	NA
Cobalt	7440-48-4	Thyroid effects; Respiratory system effects

CONSTITUENT	CAS #	NONCARCINOGENIC CRITICAL EFFECT(S)
Cyanide (free)	57-12-5	Testicular effects (decreased epididymus weight)
DDD	72-54-8	NA
DDE	72-55-9	NA
DDT	50-29-3	NA
Dibenz(a,h)anthracene	53-70-3	NA
Dibromo-3-chloropropane,1,2-	96-12-8	NA
Dibromoethane, 1,2-	106-93-4	NA
Dichlorobenzene,1,2-	95-50-1	No observed effects
Dichlorobenzene,1,4-	106-46-7	Liver effects (increased weight)
Dichlorobenzidine,3,3-	91-94-1	NA
Dichloroethane, 1,1-	75-34-3	Kidney effects
Dichloroethane, 1,2-	107-06-2	NA
Dichloroethene, 1,1-	75-35-4	Liver toxicity (fatty change)
Dichloroethene,cis,1,2-	156-59-2	Kidney effects ( increased weight)
Dichloroethene,trans,1,2-	156-60-5	Immunological effects; Lung effects; Liver effects
Dichlorophenol,2,4-	120-83-2	Immune system effects (altered immune function)
Dichloropropane, 1,2-	78-87-5	Nasal cavity effects (epithelial hyperplasia)
Dichloropropene, 1,3-	542-75-6	NA
Dieldrin	60-57-1	NA
Diethylphthalate	84-66-2	Decreased growth rate; Decreased food consumption; Altered organ weights
Dimethylphenol,2,4-	105-67-9	Hematological effects; Clinical signs of toxicity (lethargy, ataxia, and prostration)
Dinitrobenzene, 1,3-	99-65-0	Spleen effects (increased weight)
Dinitrophenol,2,4-	51-28-5	Ocular effects (cataract formation)
Dinitrotoluene,2,4-	121-14-2	Central nervous system toxicity; Liver effects (biliary system); Hematological system effects
Dinitrotoluene, 2,6-	606-20-2	NA
Dinoseb	88-85-7	Fetal effects (decreased weight)
Endosulfan	115-29-7	Decreased growth rate; Kidney effects (glomerulonephrosis); Vascular system effects (aneurysms)
Endrin	72-20-8	Liver effects; Central nervous system effects (convulsions)
Ethyl benzene	100-41-4	Liver toxicity; Kidney toxicity; Fetal effects (skeletal abnormalities)
Ethylene glycol	107-21-1	Kidney effects
Fluoranthene	206-44-0	Kidney effects; Liver effects
Fluorene	86-73-7	Hematological effects
Heptachlor	76-44-8	NA
Heptachlor epoxide	1024-57-3	NA
Hexachlorobenzene	118-74-1	NA
Hexachlorobutadiene	87-68-3	MBA <sup>3</sup> (Kidney effects)
Hexachlorocyclohexane,alpha	319-84-6	NA
Hexachlorocyclohexane,beta	319-85-7	NA
Hexachlorocyclohexane,gamma	58-89-9	Liver effects; Kidney effects
Hexachlorocyclopentadiene	77-47-4	Gastrointestinal effects (chronic irritation); Suppurative inflammation of nose
Hexachloroethane	67-72-1	MBA <sup>3</sup> (Kidney effects; Neurotoxicity)
Indeno(1,2,3-cd)pyrene	193-39-5	NA
Isobutyl alcohol	78-83-1	Central nervous system effects (hypoactivity and ataxia)
Isophorone	78-59-1	NA
Lead (inorganic)	7439-92-1	NA <sup>4</sup>
Mercury (inorganic salts)	7487-94-7	Immunological effects (autoimmune effects)

CONSTITUENT	CAS #	NONCARCINOGENIC CRITICAL EFFECT(S)
Methoxychlor	72-43-5	Reproductive effects (increased loss of litters)
Methylene chloride	75-09-2	NA
Methyl ethyl ketone	78-93-3	Fetal effects (decreased body weight; skeletal effects)
Methyl isobutyl ketone	108-10-1	Fetal effects (decreased body weight, skeletal effects, increased mortality)
Methyl tert-butyl ether (MTBE)	1634-04-4	Liver effects (increased weight); Kidney (increased weight); Ocular effects (swelling of periocular tissues)
Methylnaphthalene, 2-	91-57-6	Lung (alveolar proteinosis)
Naphthalene	91-20-3	Decreased body weight; Nasal cavity effects (epithelial hyperplasia and olfactory epithelial metaplasia)
Nickel	7440-02-0	Decreased body weight; Decreased organ weights
Nitrate	14797-55-8	Hematological system effects (methemoglobin formation in infants)
Nitrite	14797-65-0	Hematological system effects (methemoglobin formation in infants)
Nitroaniline,4-	100-01-6	NA
Nitrobenzene	98-95-3	NA
Nitrophenol,4-	100-02-7	NA
Nitrosodi-n-propylamine,n-	621-64-7	NA
N-nitrosodiphenylamine	86-30-6	NA
Octylphthalate, di-n-	117-84-0	Liver effects
Pentachlorophenol	87-86-5	NA
Phenol	108-95-2	Decreased maternal weight gain
Polychlorinated biphenyls	1336-36-3	NA
Pyrene	129-00-0	Kidney effects
Selenium	7782-49-2	Clinical Selenosis (integument effects - hair loss, nail loss, nail abnormalities, skin lesions; dental effects; hematological effects - decreased hemoglobin; central nervous system effects)
Silver	7440-22-4	Skin effects (argyria)
Styrene	100-42-5	Hematological system effects (heinz body formation); Liver effects; Central nervous system effects (decreased intellectual function; decreased memory; and decreased reaction time)
Tetrachlorobenzene,1,2,4,5-	95-94-3	Kidney effects
Tetrachlorodibenzo-p-dioxin,2,3,7,8- (Total TEQ)	1746-01-6	Testicular effects (decreased sperm count and motility); Thyroid hormone disruption
Tetrachloroethane,1,1,1,2-	630-20-6	NA
Tetrachloroethane,1,1,2,2-	79-34-5	NA
Tetrachloroethylene	127-18-4	MBA <sup>3</sup> (Neurological system toxicity)
Tetrachlorophenol,2,3,4,6-	58-90-2	Liver toxicity
Toluene	108-88-3	Kidney effects (increase in weight); Neurological effects
Toxaphene	8001-35-2	NA
Trichlorobenzene,1,2,4-	120-82-1	NA
Trichloroethane,1,1,1-	71-55-6	Reduced body weight; Liver effects
Trichloroethane,1,1,2-	79-00-5	NA
Trichloroethene	79-01-6	MBA <sup>3</sup> [Thymus effects; Immunotoxicity; fetal effects (cardiac malformations)]
Trichlorofluoromethane	75-69-4	Accelerated mortality
Trichlorophenol,2,4,5-	95-95-4	Liver effects; Kidney effects
Trichlorophenol,2,4,6-	88-06-2	MBA <sup>3</sup> [Reproductive effects (decreased litter size)]
Vinyl chloride	75-01-4	NA
Xylene (mixed)	1330-20-7	Neurological effects (impaired motor coordination); Decreased body weight; Increased mortality
Zinc	7440-66-6	Hematological system effects (decreased erythrocyte superoxide dismutase in red blood cells)

CONSTITUENT	CAS #	NONCARCINOGENIC CRITICAL EFFECT(S)
Aliphatics C6-C8	NA	Nasal effects
Aliphatics >C8-C16	NA	Nasal effects; Adrenal gland effects
Aliphatics >C16-C35	NA	Laxative effects
Aromatics >C8-C21	NA	Decreased body weight
Aromatics >C21-C35	NA	Kidney effects; Liver effects; Hematological system effects

<sup>1</sup>Data were obtained from EPA's Integrated Risk Information System and EPA's Provisional Peer-Reviewed Toxicity Values Electronic Library; includes noncarcinogenic critical effects for the chronic oral reference dose and chronic inhalation reference concentration (where available) (October 2013). These critical health effects shall be used to adjust MO-1 and Appendix H MO-2 RS when there is more than one COC with the same noncarcinogenic critical effect.

<sup>2</sup>Not applicable; the MO-1/Appendix H MO-2 RS is based on carcinogenic effects.

<sup>3</sup>May be applicable; the MO-1/Appendix H MO-2 RS is based on carcinogenic effects, however, if there are multiple COC present that have the same noncarcinogenic critical effect, the adjusted noncarcinogenic RS may be lower than the carcinogenic RS.

<sup>4</sup>Not applicable; RS based on EPA's IEUBL or adult lead model.