US EPA RECORDS CENTER REGION 5
466347

GROUNDWATER

Final Remediation Levels			Corresponding Risk	
Chemical	Remediation Level ug/L	Basis	Cancer	NonCancer
Benzene	5.0	MCL	6.5E-07	NA
Vinyl Chloride	0.25	Risk	1.0E-06	NA
PCBs	0.06	Risk	1.0E-06	NA
bis(2-Chloroethyl)ether	21.0	Risk	1.0E-06	NA
Arsenic	8.8	Risk	1.0E-06	<.01
PCE	5.0	MCL	6.2E-07	NA
Methylene Chloride	5.0	MCL	5.4E-07	NA
Chloromethane	8.4	Risk	1.0E-06	NA
Beryllium	0.02	Risk	1.0E-06	NA
Trichloroethene	5.0	MCL	2.1E-07	NA
bis(2-Ethylhexyl)phthalate	5.8	Risk	1.0E-06	NA
Cyclic Ketones	5.8	Risk	1.0E-06	NA
Pentachlorophenol	1.0	MCL	1.5E-06	NA

n.d. K.7

GROUNDWATER (Continued)

Final Remediation Levels			Corresponding Risk	
Chemical	Remediation Level ug/L	Basis	Cancer	NonCancer
1,4-Dichlorobenzene	3.3	Risk	1.0E-06	NA
Isphorone	19	Risk	1.0E-06	NA
2-Butanone	24,000-2,000	HI	NA	1.0-0.08
4-Methyl-2-pentanone	640-53	HI	NA	1.0-0.08
Non-Cyclic Acids	280-23	HI	NA	1.0-0.08
Acetone	2,300-192	HI	NA	1.0-0.08
Branched Alkanes	210-18	HI	NA	1.0-0.08
Ethylbenzene	390-33	HI	NA	1.0-0.08
Thallium	2.4-0.2	HI	NA	1.0-0.08
Dimethyl Ethyl Benzenes	250-21	HI	NA	1.0-0.08
(cis) 1,2-Dichloroethene	330-28	HI	NA	1.0-0.08
Manganese	3,300-275	HI	NA	1.0-0.08
4-Methylphenol	1,700-142	HI	NA	1.0-0.08
1,1-Dichloroethane	2,200-183	HI	NA	1.0-0.08

SOIL

Final Remediation Levels			Corresponding Risk	
Chemical	Remediation Level mg/kg	Basis	Cancer	NonCancer
CPAHs	0.0026	Risk	1.0E-06	NA
Tetrachloroethene	1.1	Risk	1.0E-06	NA
bis(2-Ethylhexyl)phthalate	1.1	Risk	1.0E-06	NA
Aldrin	0.002	Risk	1.0E-06	NA
Tricholorethene	5.3	Risk	1.0E-06	NA
Isophorone	7.2	Risk	1.0E-06	NA
Styrene	1.7	Risk	1.0E-06	NA
Pentachlorophenol	0.43	Risk	1.0E-06	NA
Benzene	1.0	Risk	1.0E-06	NA
4,4'-DDD	0.12	Risk	1.0E-06	NA
2,4-Dinitrotoluene	0.044	Risk	1.0E-06	NA
1,1-Dichloroethene	0.098	Risk	1.0E-06	NA
Carbon Tetrachloride	0.38	Risk	1.0E-06	NA
bis(2-Chloroethyl)ether	0.0278	Risk	1.0E-06	NA

SOIL (Cont.)

Final Remediation Levels			Corresponding Risk	
Chemical	Remediation Level ug/L	Basis	Cancer	NonCancer
4,4'-DDT	0.088	Risk	1.0E-06	NA
Chloroform	9.5	Risk	1.0E-06	NA
Hexachlorobutadiene	0.36	Risk	1.0E-06	NA
1,2-Dichloroethane	0.64	Risk	1.0E-06	NA
Methylene Chloride	6.2	Risk	1.0E-06	NA
1,2-Dichloropropane	0.42	Risk	1.0E-06	NA
Hexachlorobenzene	0.018	Risk	1.0E-06	NA
gamma-BHC (Lindane)	0.046	Risk	1.0E-06	NA
Cyclic Ketones	7.3	Risk	1.0E-06	NA
1,1,2-Trichloroethane	0.51	Risk	1.0E-06	NA
n-Nitrosodiphenylamine	12.0	Risk	1.0E-06	NA
1,1,2,2-Tetrachloroethane	0.28	Risk	1.0E-06	NA
Vinyl Chloride	0.031	Risk	1.0E-06	NA
alpha-BHC	0.0047	Risk	1.0E-06	NA

SOIL (Cont.)

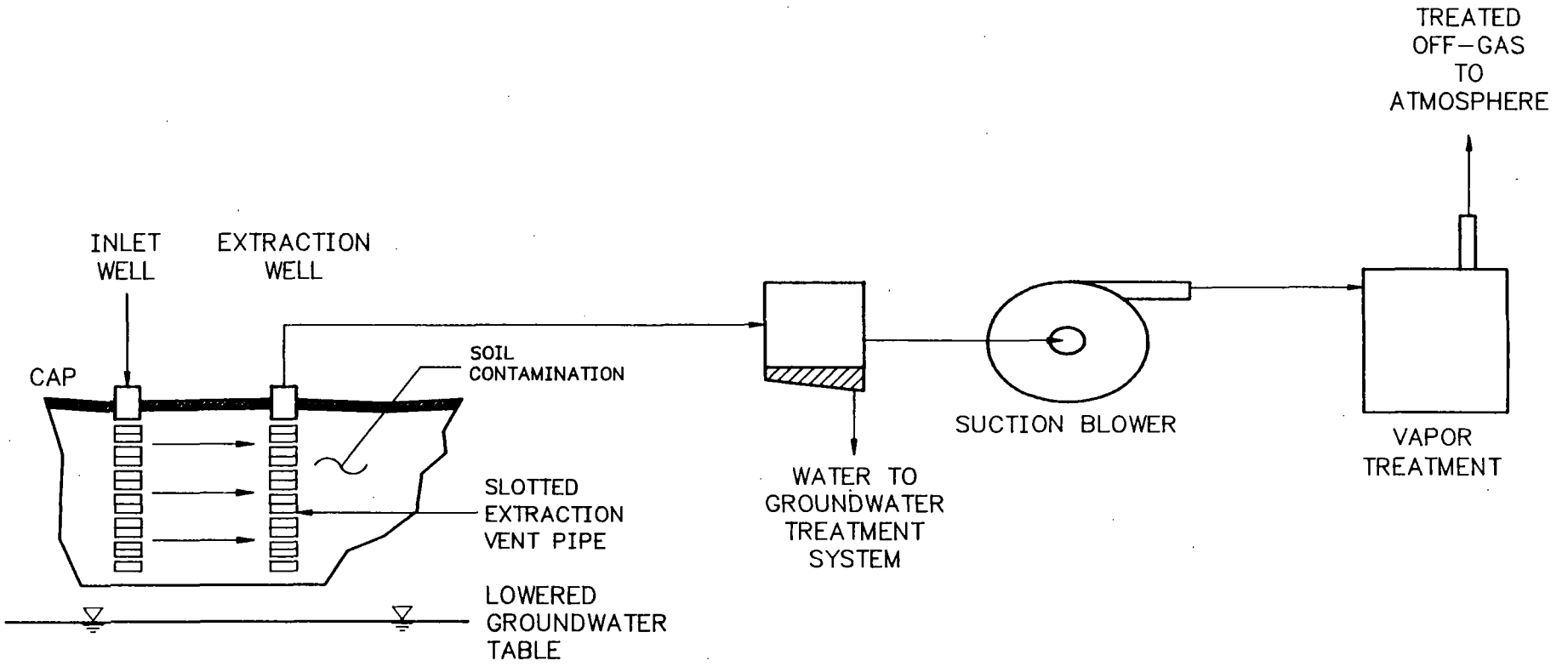
Final Remediation Levels			Corresponding Risk	
Chemical	Remediation Level ug/L	Basis	Cancer	NonCancer
beta-BHC	0.016	Risk	1.0E-06	NA
2,6-Dinitrotoluene	0.044	Risk	1.0E-06	NA
4,4'-DDE	0.16	Risk	1.0E-06	NA
1,4-Dichlorobenzene	2.4	Risk	1.0E-06	NA
Heptachlor Epoxide	0.0033	Risk	1.0E-06	NA
Antimony	15-0.5	HI	NA	1.0-0.03
Toluene	5,000-167	HI	NA	1.0-0.03
Cadmium	51-2	HI	NA	1.0-0.03
Ethylbenzene	1,300-43	HI	NA	1.0-0.03
Barium	2,600-87	HI	NA	1.0-0.03
Chromium (VI)	1,400-47	HI	NA	1.0-0.03
Naphthalene	82-3	HI	NA	1.0-0.03
Nitrogenated Benzenes	6.2-0.2	HI	NA	1.0-0.03
n-Chain Alkanes	760-25	HI	NA	1.0-0.03

SOIL (Cont.)

Final Remediation Levels			Corresponding Risk	
Chemical	Remediation Level ug/L	Basis	Cancer	NonCancer
1,1,1-Trichloroethane	2,300-77	HI	NA	1.0-0.03
Branches Alkanes	770-26	HI	NA	1.0-0.03
4-Methyl-2-pentanone	630-21	HI	NA	1.0-0.03
Methyl Propyl Benzenes	490-16	HI	NA	1.0-0.03
Halogenated Alkanes	2,300-77	HI	NA	1.0-0.03
Endosulfan I	0.63-0.02	HI	NA	1.0-0.03
Dimethyl Ethyl Benzenes	1,300-43	HI	NA	1.0-0.03
1,2-(cis)Dichloroethene	250-8.3	HI	NA	1.0-0.03
2-Butanone	620-21	HI	NA	1.0-0.03
Non-Cyclic Acids	1,000-33	HI	NA	1.0-0.03
Methylated Naphthalenes	85-3	HI	NA	1.0-0.03
Acetone	2,400-80	HI	NA	1.0-0.03
Chlorobenzene	150-5	HI	NA	1.0-0.03
Xylenes (mixed)	26,000-867	HI	NA	1.0-0.03

SOIL (Cont.)

Final Remediation Levels			Corresponding Risk	
Chemical	Remediation Level ug/L	Basis	Cancer	NonCancer
Oxygenated Benzenes	1,200-40	HI	NA	1.0-0.03
Diethyl Benzenes	1,300-43	HI	NA	1.0-0.03
Propenyl Benzenes	320-11	HI	NA	1.0-0.03
Di-n-butylphthalate	2,300-77	HI	NA	1.0-0.03
Ethyl Methyl Benzenes	4,900-163	HI	NA	1.0-0.03
1,2,4-Trichlorobenzene	16-0.5	HI	NA	1.0-0.03
Chloroethane	2700	HI	NA	1.0-0.03



IN SITU SOIL VAPOR EXTRACTION SCHEMATIC

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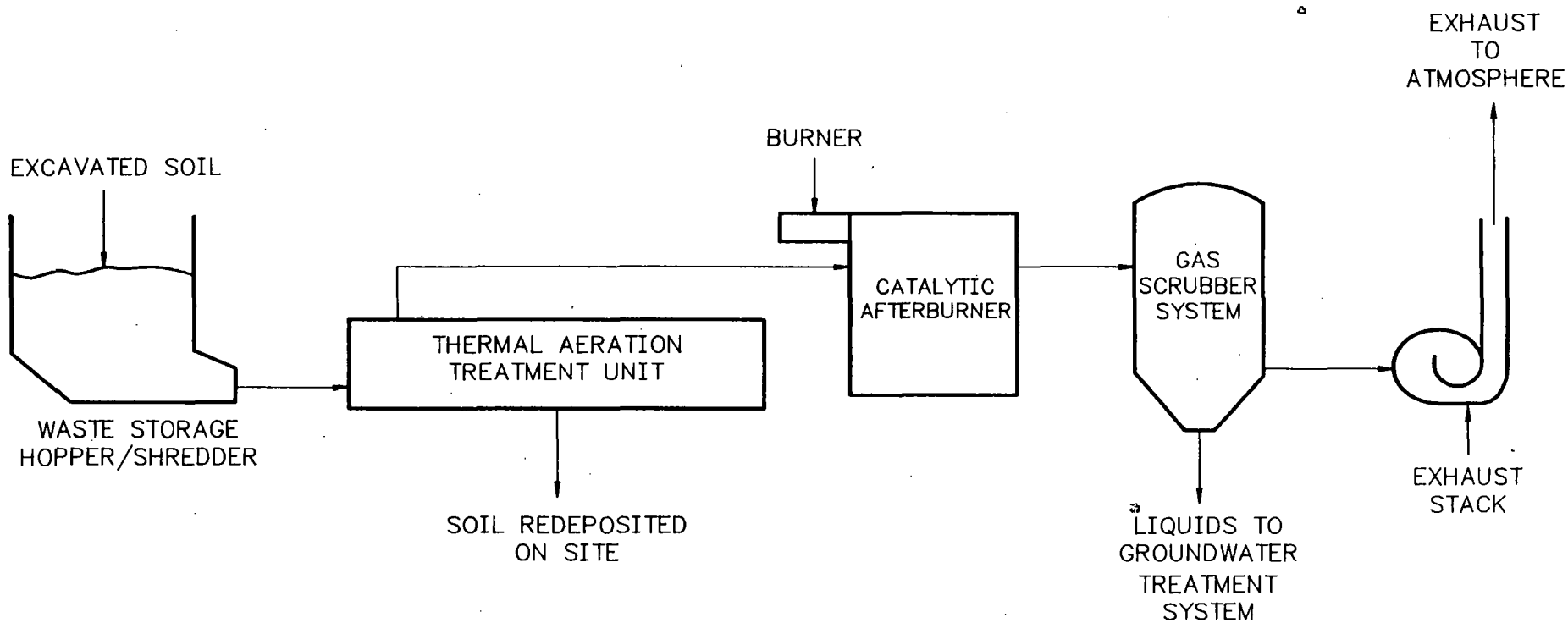

ON-SITE LOW TEMPERATURE THERMAL TREATMENT SCHEMATIC

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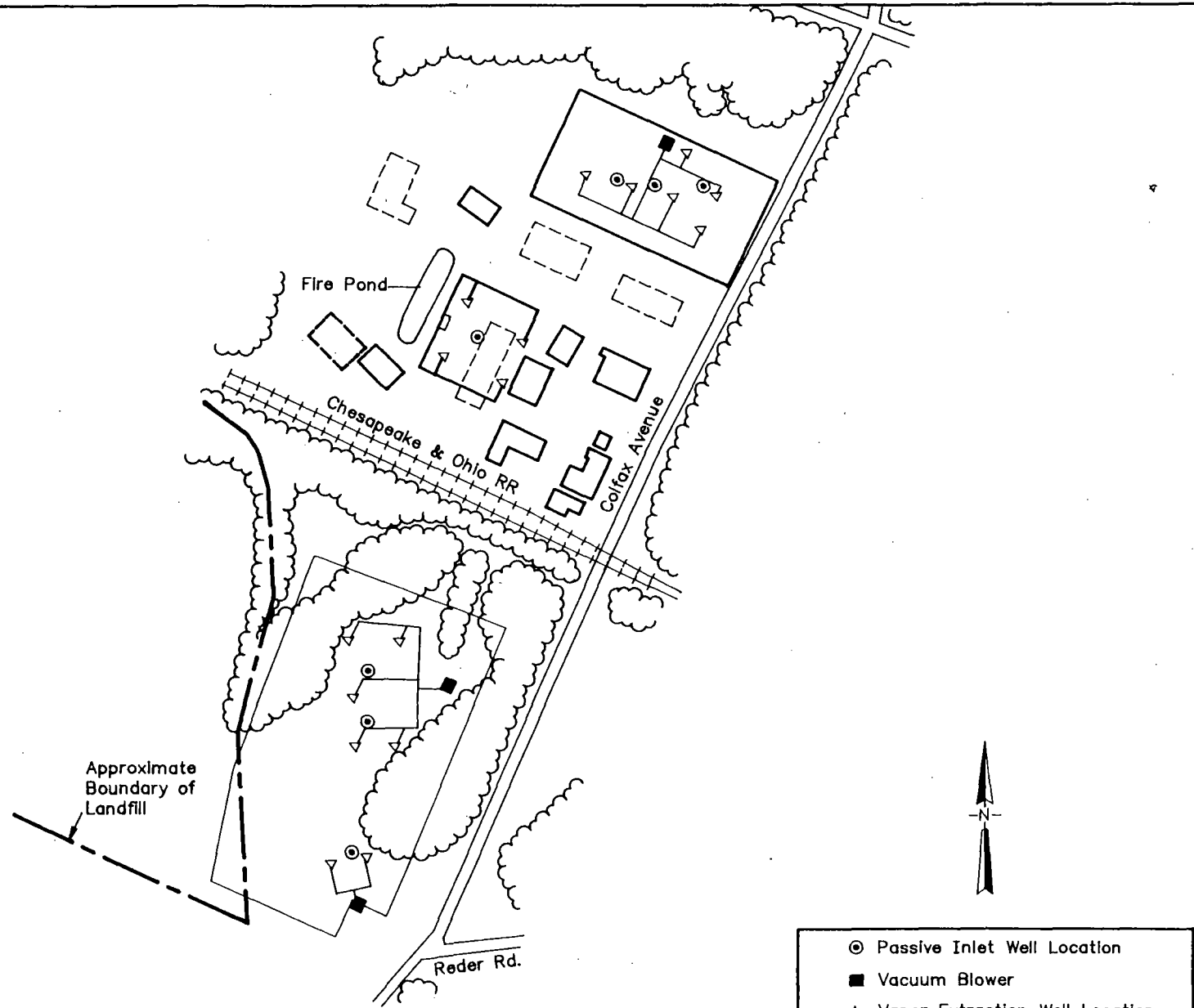

SOIL VAPOR EXTRACTION AND TREATMENT SYSTEM

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SOIL CONTAMINANTS

Volatiles

Vinyl Chloride
Chloroethane
Methylene Chloride
Acetone
1,1-Dichloroethene
1,2-(cis)Dichloroethene
Chloroform
1,2-Dichloroethane
2-Butanone
1,1,1-Trichloroethane
Carbon Tetrachloride
1,2-Dichloropropane
1,1,2-Trichloroethane
Benzene
4-Methyl-2-Pentanone
Tetracholorethene
1,1,2,2-Tetrachloroethane
Toluene
Chlorobenzene
Ethylbenzene
Styrene
Xylenes (Mixed)

Semivolatiles

Hexachlorobutadiene
2,6-Dinitrotoluene
2,4-Dinitrotoluene
n-Nitrosodiphenylamine
Hexachlorobenzene
Pentachlorophenol
Di-n-Butylphthalate
Bis(2-Ethylhexyl)phthalate
Total CPAHs
Bis(2-Chloroethyl)ether
1,4-Dichlorobenzene
Isophorone
1,2,4-Trichlorophenol
Naphthalene

SOIL CONTAMINANTS (Continued)

Inorganics

Antimony
Barium
Cadmium
Chromium (VI)

Pesticides/PCBs

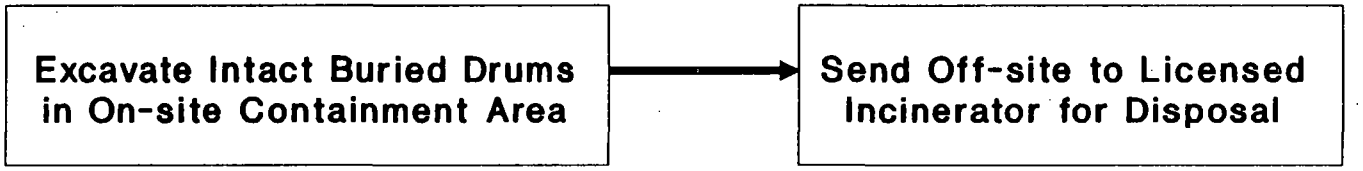
Alpha-BHC
Beta-BHC
Gamma-BHC (Lindane)
Aldrin
Heptachlor epoxide
Endosulfan I
4,4' - DDE
4,4' - DDD
4,4' - DDT
Total PCBs

TIC Groups

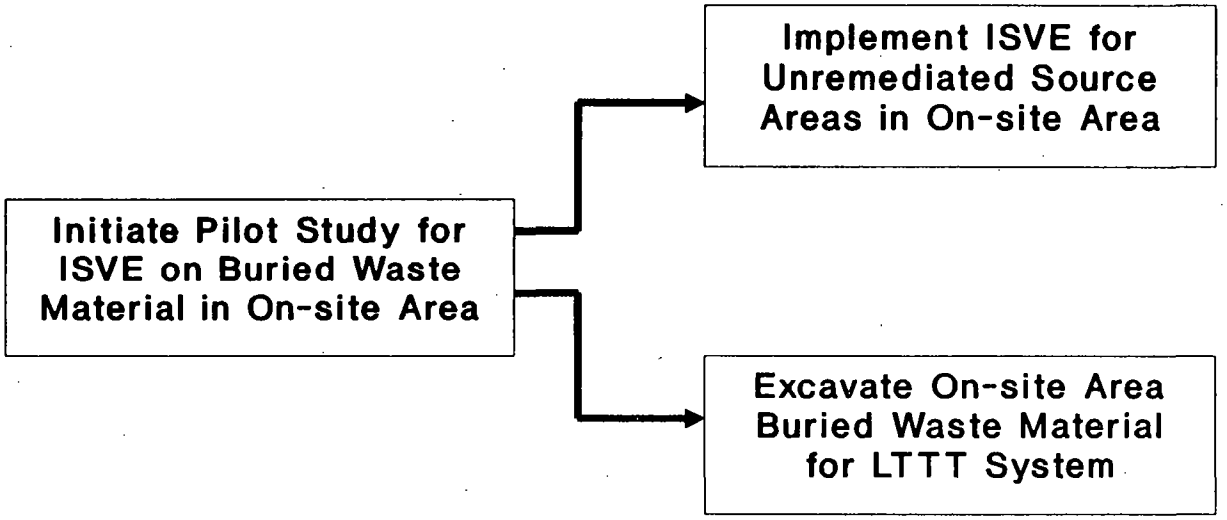
Non-Cyclic Acids
Cyclic Ketones
Methyl Propyl Benzenes
Dimethyl Ethyl Benzenes
Nitrogenated Benzenes
Propenyl Benzenes
Ethyl Methyl Benzenes
Diethyl Benzenes
Oxygenated Benzenes
Methylated Naphthalenes
Halogenated Alkanes
n-Chain Alkanes
Branched Alkanes
PCB

UPPER AQUIFER GROUNDWATER CONTAMINANTS

SOURCE AREA/CONTAMINATED SOIL REMEDIATION



SOURCE AREA/CONTAMINATED SOIL REMEDIATION



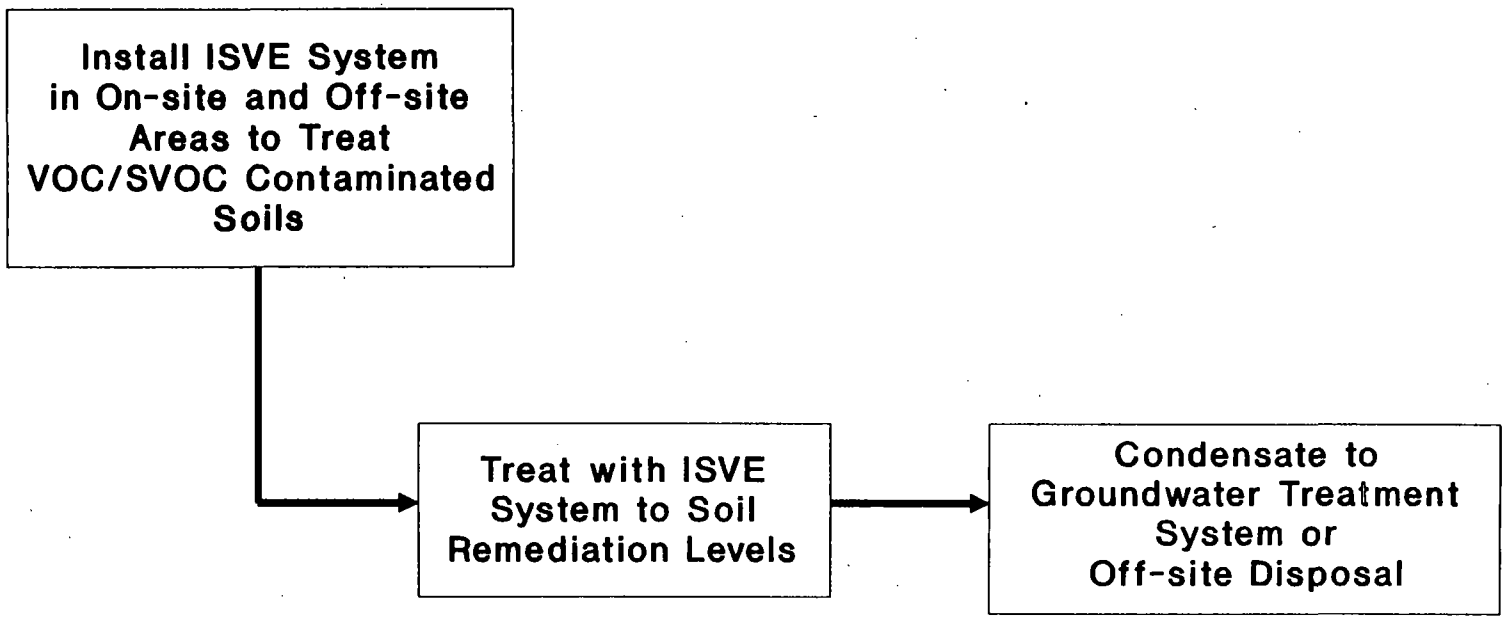
SOURCE AREA/CONTAMINATED SOIL REMEDIATION

Excavated Miscellaneous Debris Steamcleaned and Sent Off-site for Subtitle D Disposal

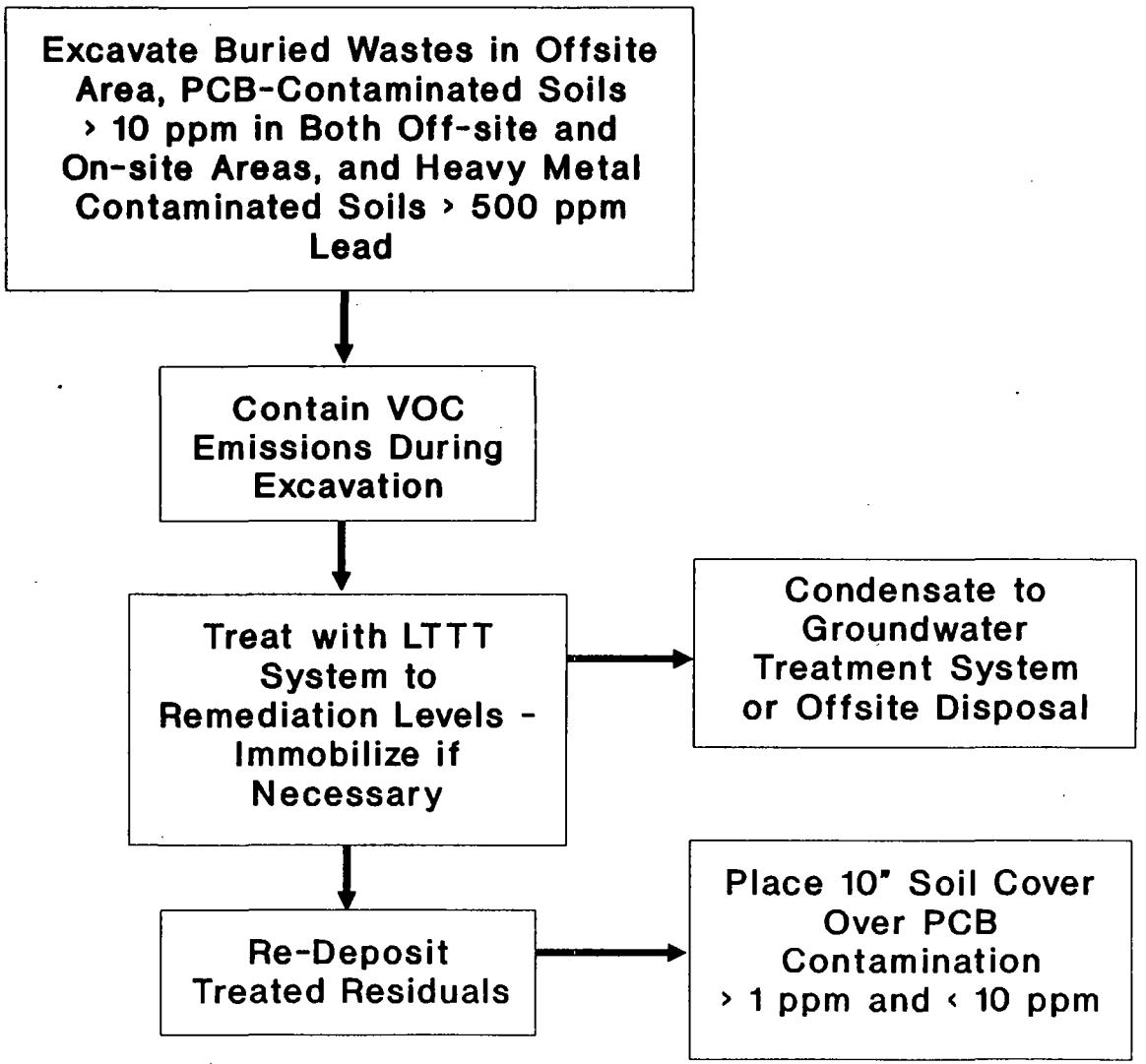
→

Collected Solids to LTTT System
Wash Waters to Groundwater Treatment System

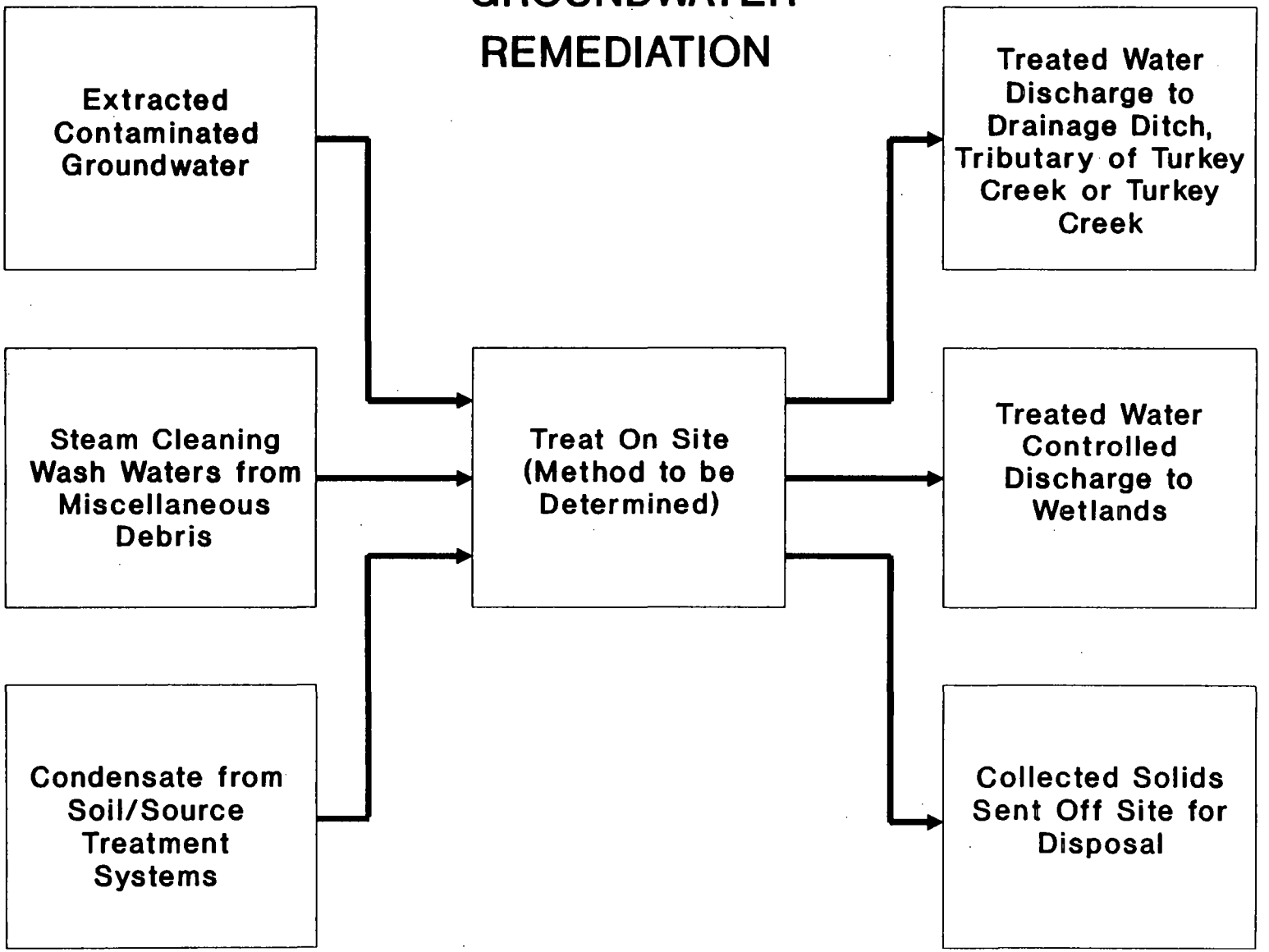
SOURCE AREA/CONTAMINATED SOIL REMEDIATION



SOURCE AREA/CONTAMINATED SOIL REMEDIATION



GROUNDWATER REMEDIATION



KAPICA/PAZMEY AREA
DETECTED RANGE (ug/kg)

BETX	1	-	46,300,000
Chlorinated Benzenes	18	-	27,000
Chlorinated Ethenes	2	-	960,000
Chlorinated Ethanes	5	-	1,350
Ketones	2	-	367,000
Phthalates	177	-	698,100
PAHs	54	-	157,300
Phenols	280	-	34,300
PCBs	4,200	-	329,000
Lead	5,000	-	16,200,000

OFF-SITE CONTAINMENT AREA
DETECTED RANGE (ug/kg)

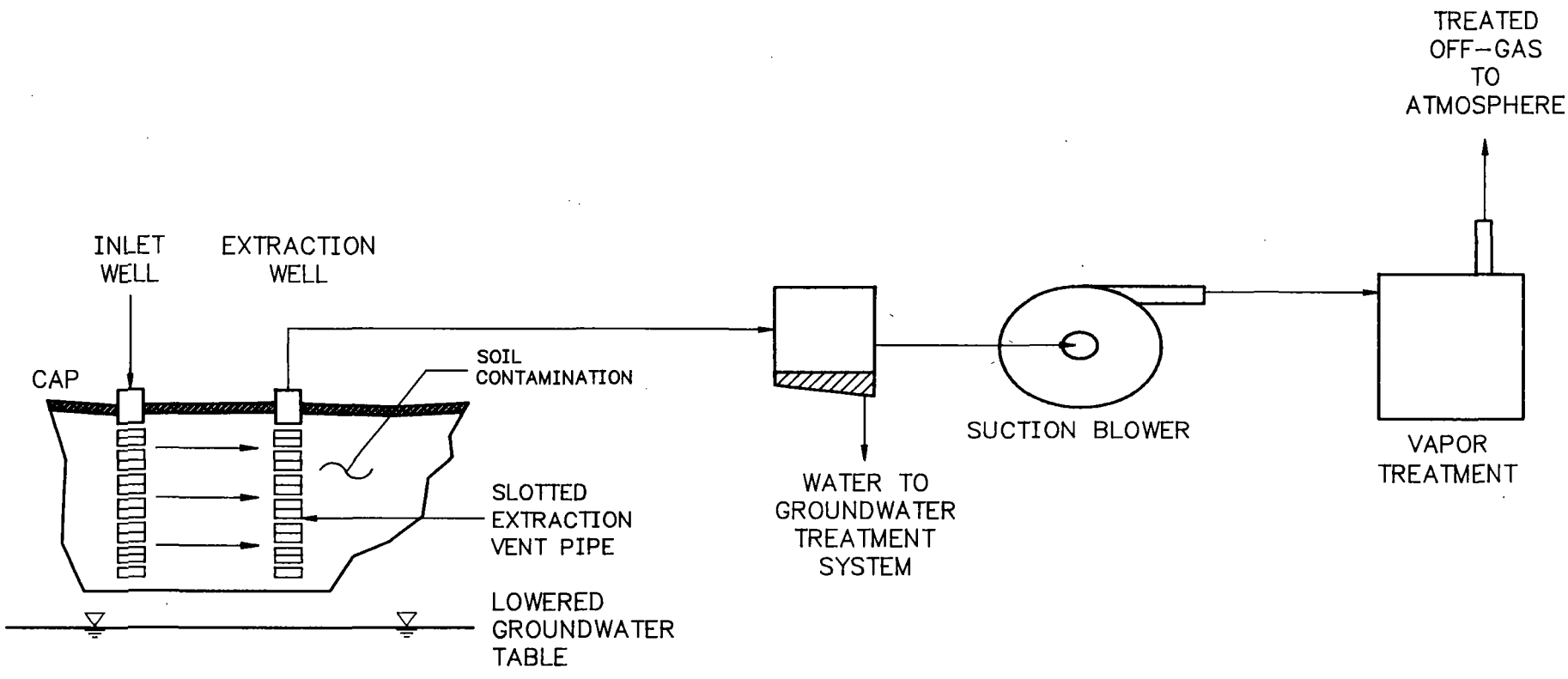
BETX	17	-	254,000,000
Chlorinated Benzenes	3	-	1,000,000
Chlorinated Ethenes	44	-	65,000,000
Chlorinated Ethanes	8	-	151,000,000
Ketones	52	-	197,000,000
Phthalates	54	-	19,136,000
PAHs	273	-	3,487,700
Phenols	180	-	1,054,000
PCBs	96	-	1,400,000
Lead	2,300	-	17,200,000

STILL BOTTOMS/TREATMENT LAGOON DETECTED RANGE (ug/kg)

BETX	66	-	34,670,000
Chlorinated Benzenes	45	-	62,500
Chlorinated Ethenes	31	-	2,000,000
Chlorinated Ethanes	8	-	21,000,000
Ketones	55	-	4,100,000
Phthalates	456	-	4,694,000
PAHs	351	-	1,057,900
Phenols	429	-	19,400
PCBs	330	-	158,000
Lead	21,900	-	3,300,000

ON-SITE CONTAINMENT AREA
DETECTED RANGE (ug/kg)

BETX	11	-	3,002,000
Chlorinated Benzenes	2	-	10,790
Chlorinated Ethenes	2	-	1,110,000
Chlorinated Ethanes	1	-	11,000
Ketones	4	-	7,400
Phthalates	39	-	15,086
PAHs	50	-	121,338
Phenols	93	-	2,270
PCBs	130	-	26,000
Lead	2,900	-	1,440,000



IN SITU SOIL VAPOR EXTRACTION SCHEMATIC

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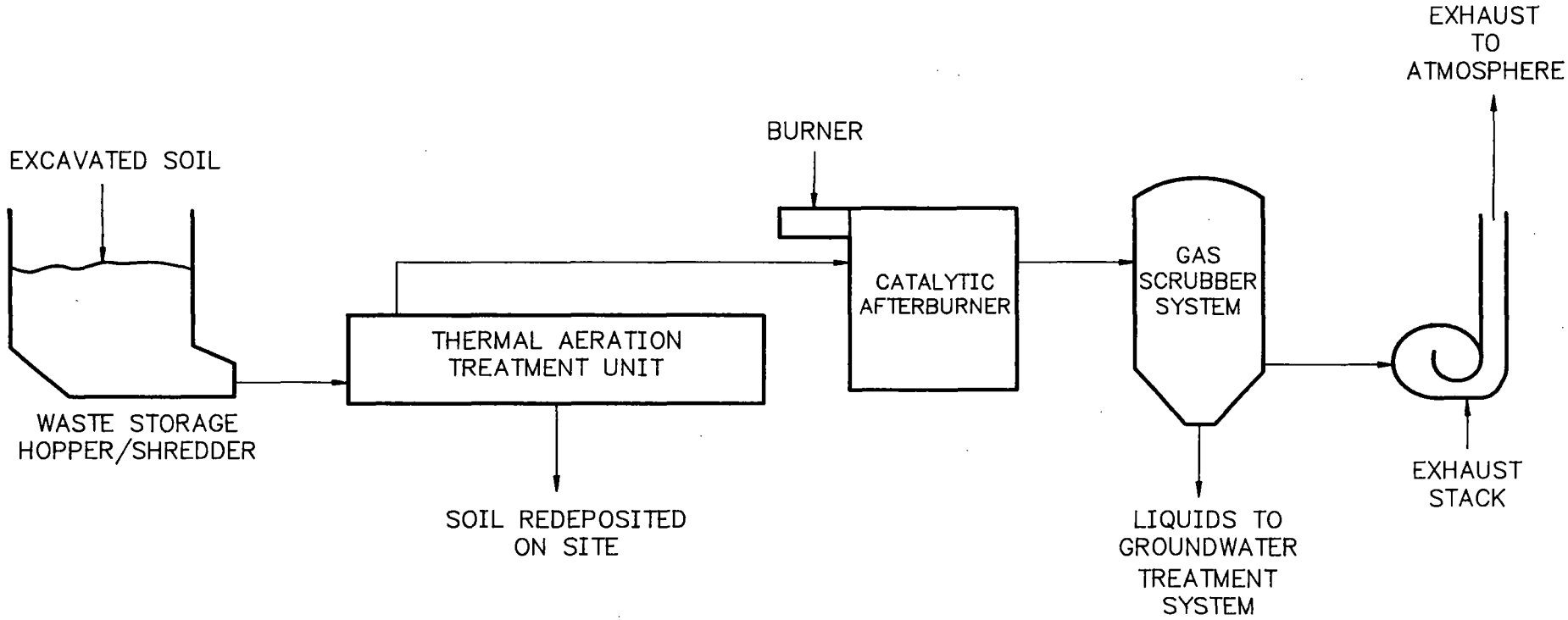

ON-SITE LOW TEMPERATURE THERMAL TREATMENT SCHEMATIC

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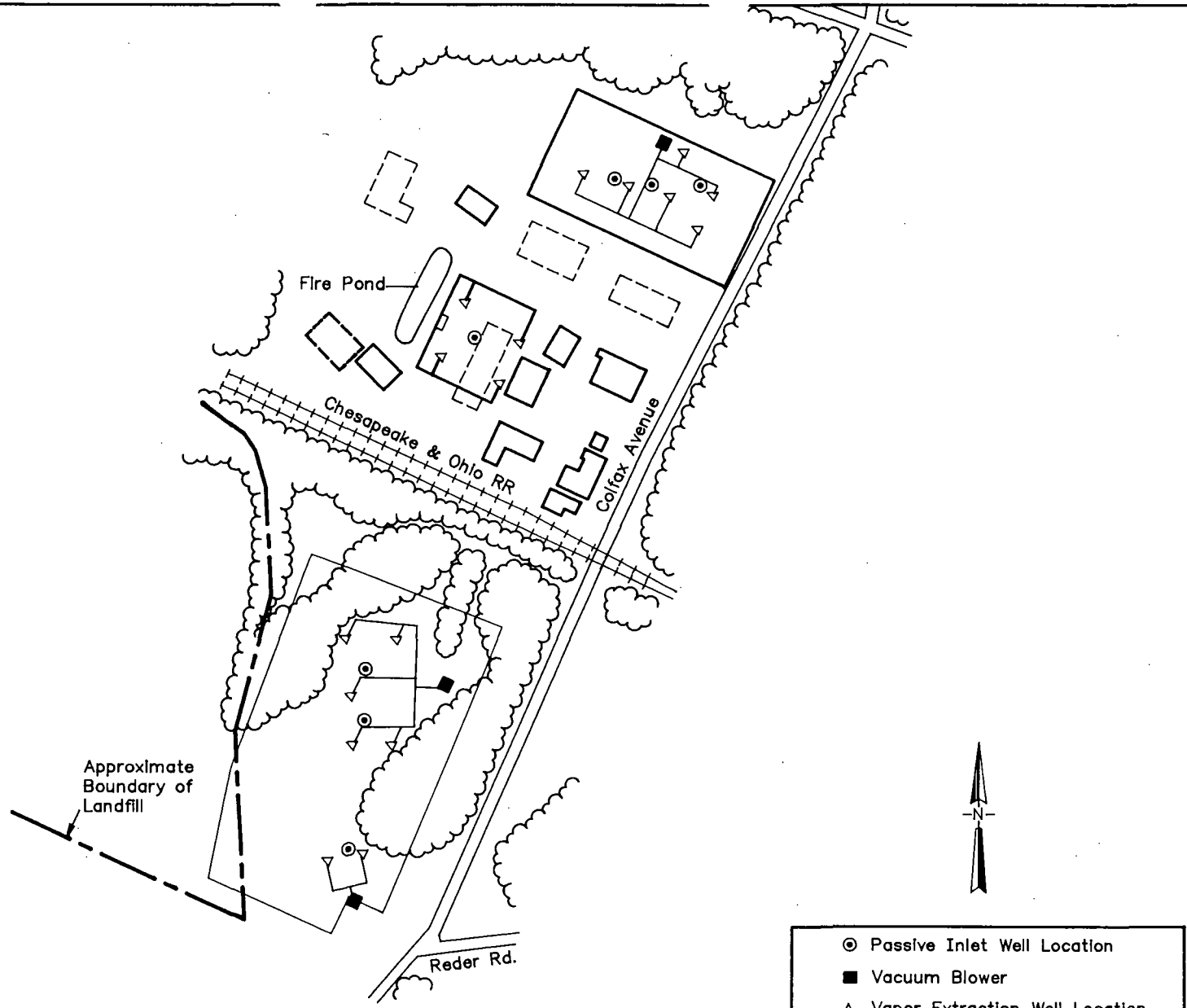

SOIL VAPOR EXTRACTION AND TREATMENT SYSTEM

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SOIL CONTAMINANTS

Volatiles

Vinyl Chloride
Chloroethane
Methylene Chloride
Acetone
1,1-Dichloroethene
1,2-(cis)Dichloroethene
Chloroform
1,2-Dichloroethane
2-Butanone
1,1,1-Trichloroethane
Carbon Tetrachloride
1,2-Dichloropropane
1,1,2-Trichloroethane
Benzene
4-Methyl-2-Pentanone
Tetracholorethene
1,1,2,2-Tetrachloroethane
Toluene
Chlorobenzene
Ethylbenzene
Styrene
Xylenes (Mixed)

Semivolatiles

Hexachlorobutadiene
2,6-Dinitrotoluene
2,4-Dinitrotoluene
n-Nitrosodiphenylamine
Hexachlorobenzene
Pentachlorophenol
Di-n-Butylphthalate
Bis(2-Ethylhexyl)phthalate
Total CPAHs
Bis(2-Chloroethyl)ether
1,4-Dichlorobenzene
Isophorone
1,2,4-Trichlorophenol
Naphthalene

SOIL CONTAMINANTS (Continued)

Inorganics

Antimony
Barium
Cadmium
Chromium (VI)

Pesticides/PCBs

Alpha-BHC
Beta-BHC
Gamma-BHC (Lindane)
Aldrin
Heptachlor epoxide
Endosulfan I
4,4' - DDE
4,4' - DDD
4,4' - DDT
Total PCBs

TIC Groups

Non-Cyclic Acids
Cyclic Ketones
Methyl Propyl Benzenes
Dimethyl Ethyl Benzenes
Nitrogenated Benzenes
Propenyl Benzenes
Ethyl Methyl Benzenes
Diethyl Benzenes
Oxygenated Benzenes
Methylated Naphthalenes
Halogenated Alkanes
n-Chain Alkanes
Branched Alkanes
PCB

UPPER AQUIFER GROUNDWATER CONTAMINANTS

GROUNDWATER

Final Remediation Levels			Corresponding Risk	
Chemical	Remediation Level ug/L	Basis	Cancer	NonCancer
Benzene	5.0	MCL	6.5E-07	NA
Vinyl Chloride	0.25	Risk	1.0E-06	NA
PCBs	0.06	Risk	1.0E-06	NA
bis(2-Chloroethyl)ether	21.0	Risk	1.0E-06	NA
Arsenic	8.8	Risk	1.0E-06	<.01
PCE	5.0	MCL	6.2E-07	NA
Methylene Chloride	5.0	MCL	5.4E-07	NA
Chloromethane	8.4	Risk	1.0E-06	NA
Beryllium	0.02	Risk	1.0E-06	NA
Trichloroethene	5.0	MCL	2.1E-07	NA
bis(2-Ethylhexyl)phthalate	5.8	Risk	1.0E-06	NA
Cyclic Ketones	5.8	Risk	1.0E-06	NA
Pentachlorophenol	1.0	MCL	1.5E-06	NA

GROUNDWATER (Continued)

Final Remediation Levels			Corresponding Risk	
Chemical	Remediation Level ug/L	Basis	Cancer	NonCancer
1,4-Dichlorobenzene	3.3	Risk	1.0E-06	NA
Isphorone	19	Risk	1.0E-06	NA
2-Butanone	24,000-2,000	HI	NA	1.0-0.08
4-Methyl-2-pentanone	640-53	HI	NA	1.0-0.08
Non-Cyclic Acids	280-23	HI	NA	1.0-0.08
Acetone	2,300-192	HI	NA	1.0-0.08
Branched Alkanes	210-18	HI	NA	1.0-0.08
Ethylbenzene	390-33	HI	NA	1.0-0.08
Thallium	2.4-0.2	HI	NA	1.0-0.08
Dimethyl Ethyl Benzenes	250-21	HI	NA	1.0-0.08
(cis) 1,2-Dichloroethene	330-28	HI	NA	1.0-0.08
Manganese	3,300-275	HI	NA	1.0-0.08
4-Methylphenol	1,700-142	HI	NA	1.0-0.08
1,1-Dichloroethane	2,200-183	HI	NA	1.0-0.08

SOIL

Final Remediation Levels			Corresponding Risk	
Chemical	Remediation Level mg/kg	Basis	Cancer	NonCancer
CPAHs	0.0026	Risk	1.0E-06	NA
Tetrachloroethene	1.1	Risk	1.0E-06	NA
bis(2-Ethylhexyl)phthalate	1.1	Risk	1.0E-06	NA
Aldrin	0.002	Risk	1.0E-06	NA
Tricholorethene	5.3	Risk	1.0E-06	NA
Isophorone	7.2	Risk	1.0E-06	NA
Styrene	1.7	Risk	1.0E-06	NA
Pentachlorophenol	0.43	Risk	1.0E-06	NA
Benzene	1.0	Risk	1.0E-06	NA
4,4'-DDD	0.12	Risk	1.0E-06	NA
2,4-Dinitrotoluene	0.044	Risk	1.0E-06	NA
1,1-Dichloroethene	0.098	Risk	1.0E-06	NA
Carbon Tetrachloride	0.38	Risk	1.0E-06	NA
bis(2-Chloroethyl)ether	0.0278	Risk	1.0E-06	NA

SOIL (Cont.)

Final Remediation Levels			Corresponding Risk	
Chemical	Remediation Level ug/L	Basis	Cancer	NonCancer
4,4'-DDT	0.088	Risk	1.0E-06	NA
Chloroform	9.5	Risk	1.0E-06	NA
Hexachlorobutadiene	0.36	Risk	1.0E-06	NA
1,2-Dichloroethane	0.64	Risk	1.0E-06	NA
Methylene Chloride	6.2	Risk	1.0E-06	NA
1,2-Dichloropropane	0.42	Risk	1.0E-06	NA
Hexachlorobenzene	0.018	Risk	1.0E-06	NA
gamma-BHC (Lindane)	0.046	Risk	1.0E-06	NA
Cyclic Ketones	7.3	Risk	1.0E-06	NA
1,1,2-Trichloroethane	0.51	Risk	1.0E-06	NA
n-Nitrosodiphenylamine	12.0	Risk	1.0E-06	NA
1,1,2,2-Tetrachloroethane	0.28	Risk	1.0E-06	NA
Vinyl Chloride	0.031	Risk	1.0E-06	NA
alpha-BHC	0.0047	Risk	1.0E-06	NA

SOIL (Cont.)

Final Remediation Levels			Corresponding Risk	
Chemical	Remediation Level ug/L	Basis	Cancer	NonCancer
beta-BHC	0.016	Risk	1.0E-06	NA
2,6-Dinitrotoluene	0.044	Risk	1.0E-06	NA
4,4'-DDE	0.16	Risk	1.0E-06	NA
1,4-Dichlorobenzene	2.4	Risk	1.0E-06	NA
Heptachlor Epoxide	0.0033	Risk	1.0E-06	NA
Antimony	15-0.5	HI	NA	1.0-0.03
Toluene	5,000-167	HI	NA	1.0-0.03
Cadmium	51-2	HI	NA	1.0-0.03
Ethylbenzene	1,300-43	HI	NA	1.0-0.03
Barium	2,600-87	HI	NA	1.0-0.03
Chromium (VI)	1,400-47	HI	NA	1.0-0.03
Naphthalene	82-3	HI	NA	1.0-0.03
Nitrogenated Benzenes	6.2-0.2	HI	NA	1.0-0.03
n-Chain Alkanes	760-25	HI	NA	1.0-0.03

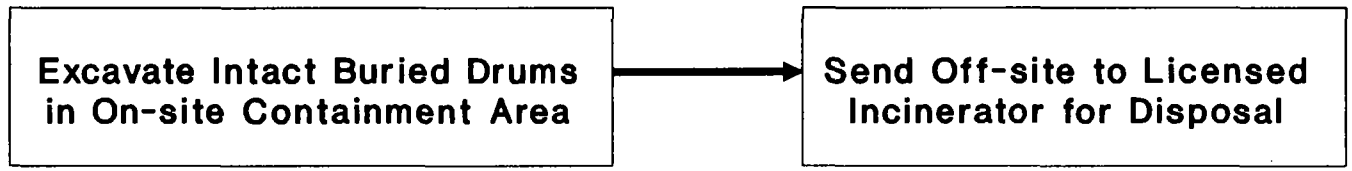
SOIL (Cont.)

Final Remediation Levels			Corresponding Risk	
Chemical	Remediation Level ug/L	Basis	Cancer	NonCancer
1,1,1-Trichloroethane	2,300-77	HI	NA	1.0-0.03
Branches Alkanes	770-26	HI	NA	1.0-0.03
4-Methyl-2-pentanone	630-21	HI	NA	1.0-0.03
Methyl Propyl Benzenes	490-16	HI	NA	1.0-0.03
Halogenated Alkanes	2,300-77	HI	NA	1.0-0.03
Endosulfan I	0.63-0.02	HI	NA	1.0-0.03
Dimethyl Ethyl Benzenes	1,300-43	HI	NA	1.0-0.03
1,2-(cis)Dichloroethene	250-8.3	HI	NA	1.0-0.03
2-Butanone	620-21	HI	NA	1.0-0.03
Non-Cyclic Acids	1,000-33	HI	NA	1.0-0.03
Methylated Naphthalenes	85-3	HI	NA	1.0-0.03
Acetone	2,400-80	HI	NA	1.0-0.03
Chlorobenzene	150-5	HI	NA	1.0-0.03
Xylenes (mixed)	26,000-867	HI	NA	1.0-0.03

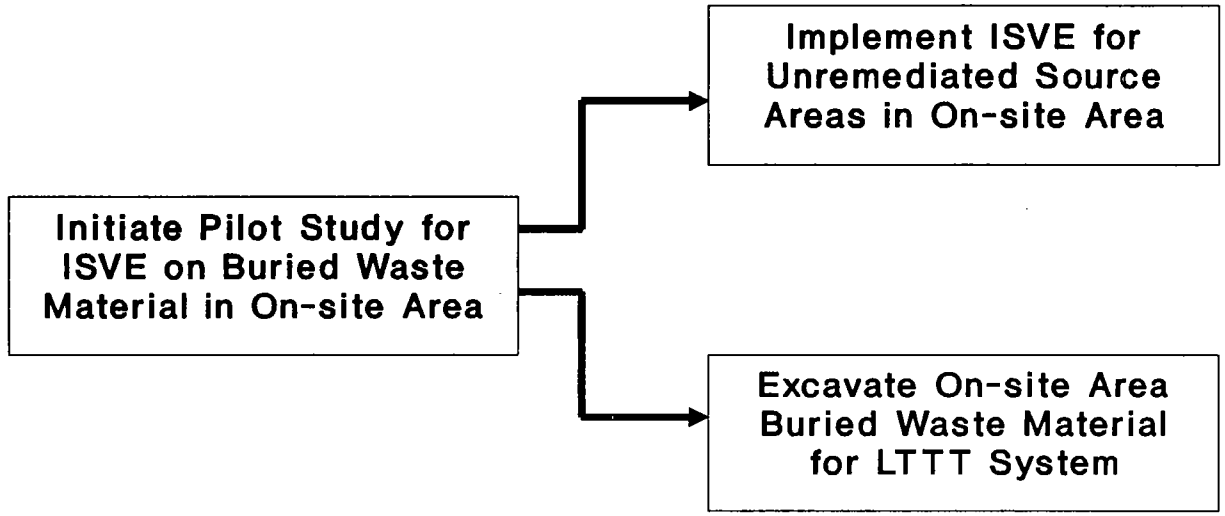
SOIL (Cont.)

Final Remediation Levels			Corresponding Risk	
Chemical	Remediation Level ug/L	Basis	Cancer	NonCancer
Oxygenated Benzenes	1,200-40	HI	NA	1.0-0.03
Diethyl Benzenes	1,300-43	HI	NA	1.0-0.03
Propenyl Benzenes	320-11	HI	NA	1.0-0.03
Di-n-butylphthalate	2,300-77	HI	NA	1.0-0.03
Ethyl Methyl Benzenes	4,900-163	HI	NA	1.0-0.03
1,2,4-Trichlorobenzene	16-0.5	HI	NA	1.0-0.03
Chloroethane	2700	HI	NA	1.0-0.03

SOURCE AREA/CONTAMINATED SOIL REMEDIATION



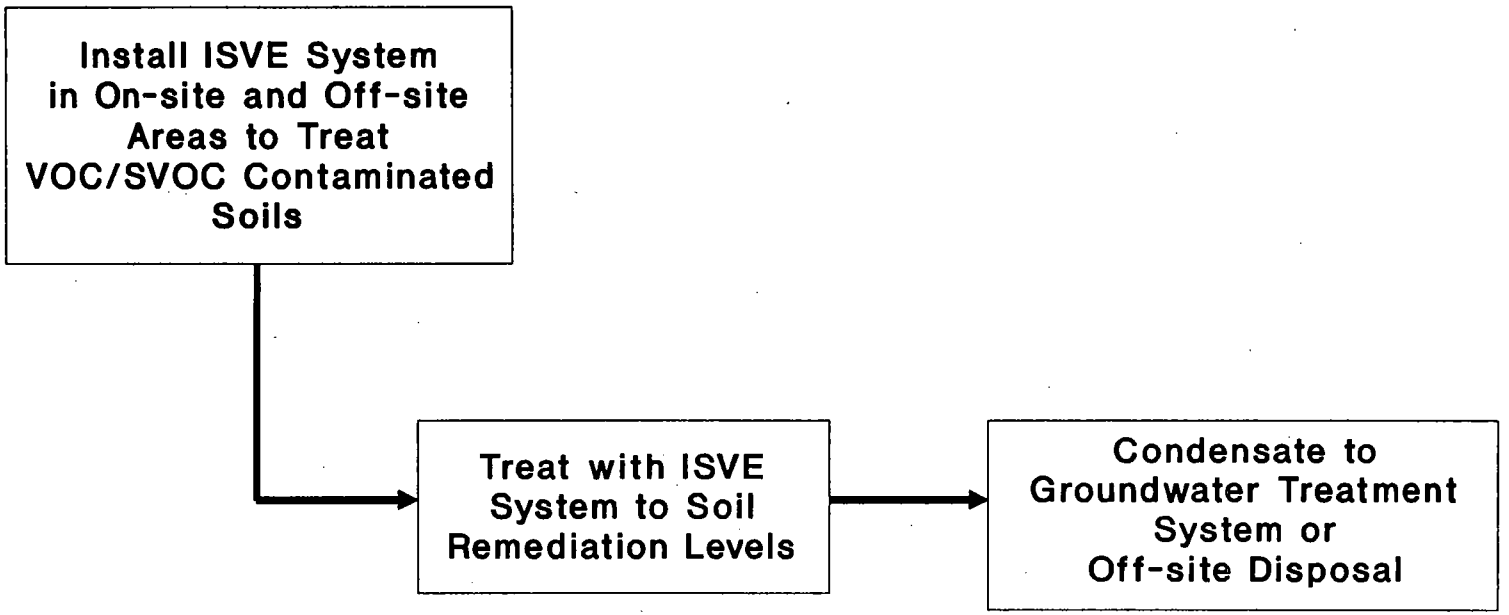
SOURCE AREA/CONTAMINATED SOIL REMEDIATION



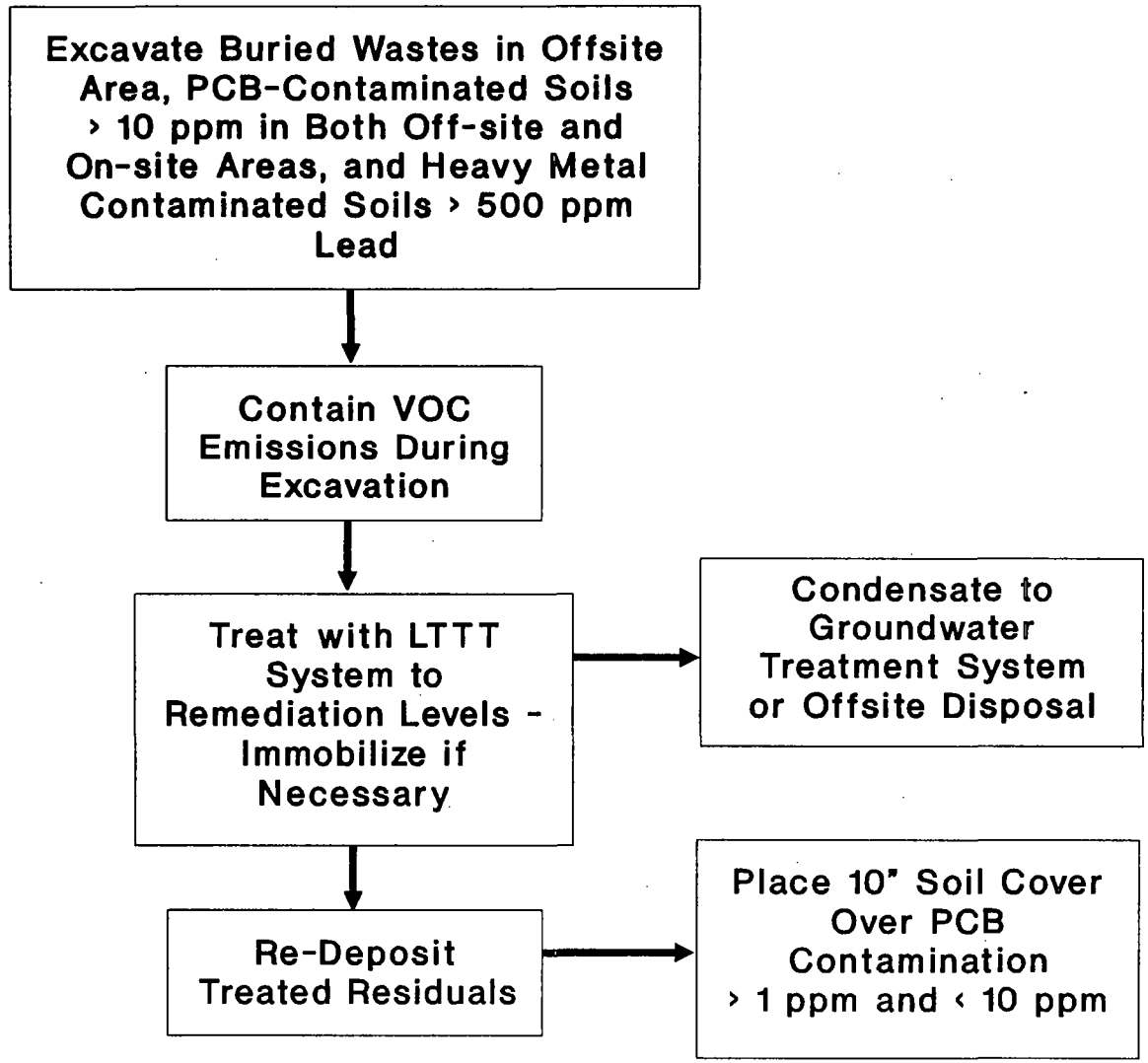
SOURCE AREA/CONTAMINATED SOIL REMEDIATION

Excavated Miscellaneous Debris Steamcleaned and Sent Off-site for Subtitle D Disposal → Collected Solids to LTTT System Wash Waters to Groundwater Treatment System

SOURCE AREA/CONTAMINATED SOIL REMEDIATION



SOURCE AREA/CONTAMINATED SOIL REMEDIATION



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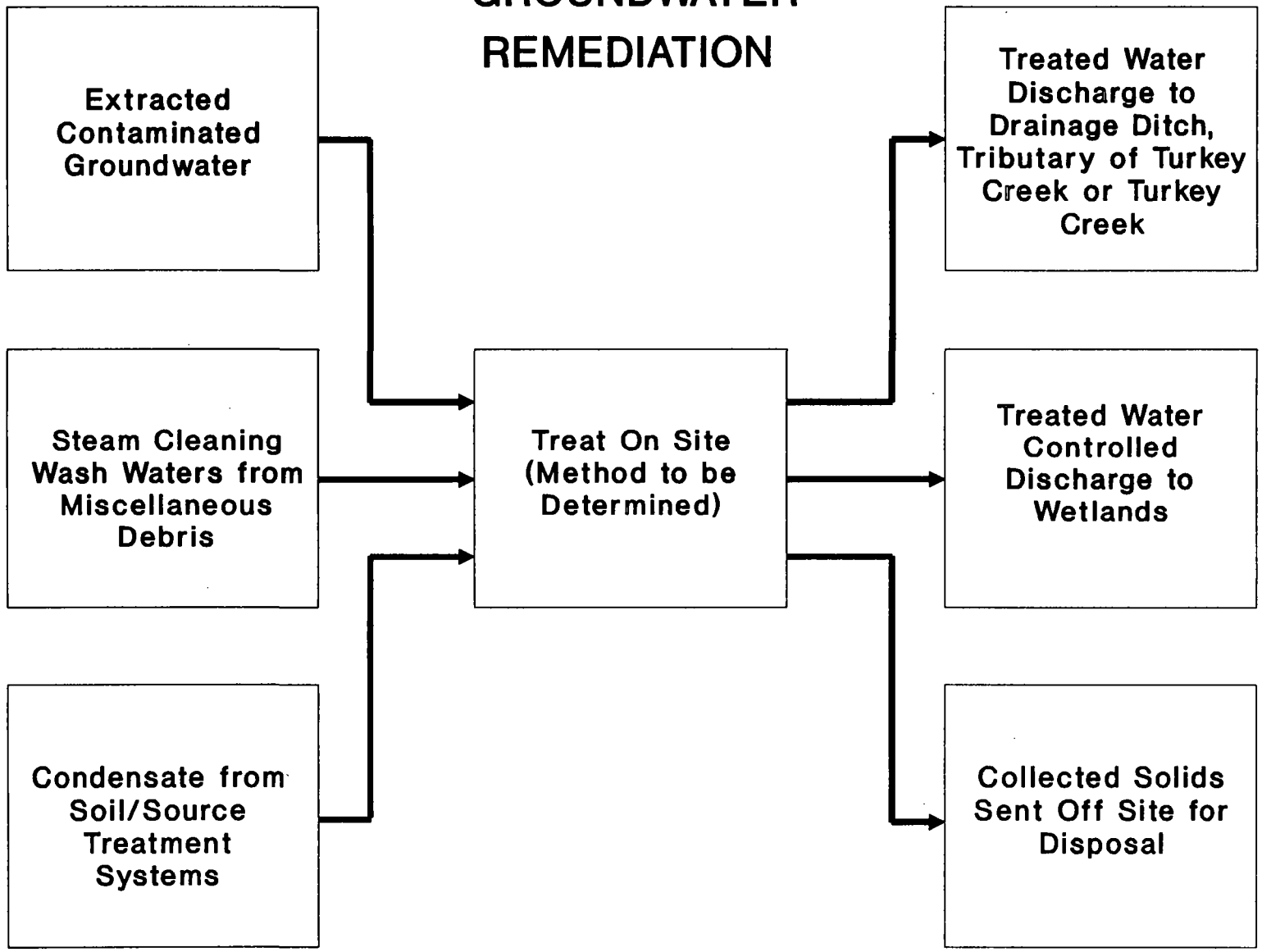
GROUNDWATER REMEDIATION



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KAPICA/PAZMEY AREA
DETECTED RANGE (ug/kg)

BETX	1	-	46,300,000
Chlorinated Benzenes	18	-	27,000
Chlorinated Ethenes	2	-	960,000
Chlorinated Ethanes	5	-	1,350
Ketones	2	-	367,000
Phthalates	177	-	698,100
PAHs	54	-	157,300
Phenols	280	-	34,300
PCBs	4,200	-	329,000
Lead	5,000	-	16,200,000

OFF-SITE CONTAINMENT AREA
DETECTED RANGE (ug/kg)

BETX	17	-	254,000,000
Chlorinated Benzenes	3	-	1,000,000
Chlorinated Ethenes	44	-	65,000,000
Chlorinated Ethanes	8	-	151,000,000
Ketones	52	-	197,000,000
Phthalates	54	-	19,136,000
PAHs	273	-	3,487,700
Phenols	180	-	1,054,000
PCBs	96	-	1,400,000
Lead	2,300	-	17,200,000

STILL BOTTOMS/TREATMENT LAGOON DETECTED RANGE (ug/kg)

BETX	66	-	34,670,000
Chlorinated Benzenes	45	-	62,500
Chlorinated Ethenes	31	-	2,000,000
Chlorinated Ethanes	8	-	21,000,000
Ketones	55	-	4,100,000
Phthalates	456	-	4,694,000
PAHs	351	-	1,057,900
Phenols	429	-	19,400
PCBs	330	-	158,000
Lead	21,900	-	3,300,000

ON-SITE CONTAINMENT AREA
DETECTED RANGE (ug/kg)

BETX	11	-	3,002,000
Chlorinated Benzenes	2	-	10,790
Chlorinated Ethenes	2	-	1,110,000
Chlorinated Ethanes	1	-	11,000
Ketones	4	-	7,400
Phthalates	39	-	15,086
PAHs	50	-	121,338
Phenols	93	-	2,270
PCBs	130	-	26,000
Lead	2,900	-	1,440,000