THE SUPERFUND REMEDIAL ACTION DECISION PROCESS: DATABASE FOR SELECTED FY87 RECORDS OF DECISION

ORNL/M--781

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1.0 INTRODUCTION

This report was prepared by Oak Ridge National Laboratory's Office of Risk Analysis (ORNL/ORA) for the Regulatory Integration Division of EPA's Office of Policy Analysis (OPA). The purpose of the report is to present data compiled for analysis of the Superfund decision-making process and characterization of the role of risk assessment in this process. Data presented are compiled from FY87 Records of Decision (RODs) and their corresponding support documents.

The present report includes data from a total of 50 RODs from all EPA regions. These data are summarized and analyzed in a complementary report (Doty and Travis, 1989). In addition, although no computerized database has been developed, the data presented will be useful for addressing further research questions related to the Superfund remedial action decision process.

2.0 RODs DATA SUMMARY

TABLE 2.1
REGION 1 FY87 RODs

Site	Type of Facility	Baseline Risk	Alternative Selected	Capital Cost
Davis Liquid, RI	Hazardous waste disposal	Current: 6×10^{-3} Future: 1×10^{-1}	Incineration with backfilling/on-site disposal of soils; pump and treat ground water; alt. water supply	$27.4M[b]
Ottati & Goss, NH	Hazardous waste processing	Current: Assessed Qualitatively[a] Future: 1.3×10^{-3}[d,c]	Excavate, incinerate, and aerate soil and sediments; pump and treat ground water	$14M
Re-Solve, MA	Waste chemical reclamation	Current: 8×10^{-3}[a,e] Future: 5×10^{-1}	Dechlorination of PCB contaminated soils/sediments with immobilization of remaining PCBs; pump and treat ground water	$20M[b]

(a) No current pathways of exposure for ground water
(b) Present worth
(c) All other pathways assessed qualitatively
(d) For ground water only
(e) Risk attributable to fish ingestion pathway

TABLE 2.2
REGION 2 FY87 RODs

Site	Type of Facility	Baseline Risk	Alternative Selected	Capital Cost
Chemical Control, NJ	Hazardous waste	Current: 2.1×10^{-4} (h) Future: Assessed qualitatively	In-situ fixation soils	$7.2M
Cooper Road, NJ	Dump	No current or future risk	No further action	
Diamond Alkali, NJ	Pesticide manufacturing	Potential: 8×10^{-3} (d,e)	Containment by means of slurry wall, stabilization, cap, and ground water treatment	$8M
Endicott Village, NJ	Municipal wellfield	Current: 2.5×10^{-5} (d)	Pump and treat ground water (i,j)	$1.2M
GE Moreau, NY	Industrial waste	No quantitative risk assessment; risk present	Capping of PCB contaminated soils pump and treat ground water and surface water; alternate water supply	$16.4M

Haviland Complex, NY	Municipal water supply	Current: 7.6×10^{-4} (d,g)	Source control; pump and treat ground water; alt. water supply	$1.3M
Katonah Well, NY	Municipal wellfield	Current: 2×10^{-7} (a,b) Future: 1×10^{-2} (d,e)	Pump and treat ground water (i)	$1.4M
Montgomery Twp, NJ	Municipal wellfield	Current: 2×10^{-2} (d)	Alternate water supply (i)	$319,000
Renora, NJ	Waste oil collection and hazardous waste storage	Current: 5×10^{-5} (a,b,e) Future: 1×10^{-3} (a,e)	Off-site disposal and on-site biodegradation of soils; treat gw via use as medium for bio-remediation system	$1.4M
South Brunswick, NJ	Landfill	No quantitative risk assessment conducted	No further action	No cost given
Suffern Wellfield, NY	Municipal wellfield	Current: Standards are met Future: 6×10^{-3} (d)	No action with monitoring	$319,000 (f)

Vega Alta, PR	Municipal wellfield	Current: 1.5×10^{-4} (d,e)	Pump and treat ground water; alternate water supply (i,j)	$3.7M
Volney Municipal, NY	Landfill	Potential: 3.71×10^{-2} (d)	Slurry wall, capping, and leachate collection (c)	$12.8M
Waldick Aerospace, NJ	Industrial facility	Current: 3×10^{-5} (a,b) Future: Assessed qualitatively	In-situ air stripping and off-site disposal of soils (c)	$2.6M
Williams Property, NJ	Chemical waste dump	Potential: 3.3×10^{-3} (b,d)	Pump and treat ground water; incinerate soils; alternate water supply	$513,750

(a) For soils only
(b) No current pathways of exposure for ground water
(c) Ground water addressed in second operable unit
(d) For ground water only
(e) All other pathways assessed qualitatively
(f) Present worth
(g) Based on mean concentrations
(h) For surface water only; no pathways for soils or ground water
(i) Operable unit for ground water only
(j) Source to be addressed in subsequent operable unit.

TABLE 2.3
REGION 4 FY87 RODs

Site	Type of Facility	Baseline Risk	Alternative Selected	Capital Cost
Geiger, SC	Waste oil incineration	Current: 4×10^{-6} (a,b) Future: 4×10^{-4}	Pump and treat gw; on-site thermal incineration and s/s soils	$6M
Gold Coast, FL	Solvent reclamation	No quantitative risk assessment; potential risk exists (b)	Pump and treat gw; off-site disposal and s/s soils	$3.7M
Independent Nail, SC	Metallic screw manufacturing	Current: 7×10^{-6} (a,c) Future: 1×10^{-3}	Excavate and s/s soils (h)	$1M
Newport Dump, KY	Landfill	Current: 7.4×10^{-6} (a,b) Future: 8.6×10^{-3}	Monitoring, leachate collection	$1M

NW 58th Street, FL	Landfill	Current: 4.45×10^{-2} (d,e) Future: Assessed qualitatively	Capping; alt. water supply (g)	$5.5M
Palmetto Wood, SC	Wood preserving	Current: 5×10^{-3} (a,b,e) Future: 3×10^{-2} (a,e)	Pump and treat gw; soil flushing	$3M
Parramore Surplus, FL	Government surplus	Current: 1.3×10^{-10}; PCBs above standards (a) Future: 3.5×10^{-8} (a)	No action (monitoring)	$40,000
Powersville LF, GA	Landfill	Current: 2×10^{-4} Future: 1×10^{-2}	Capping; alt. water supply	$4M
Sodyeco, NC	Chemical dye manufacturing	Current: 8.76×10^{-6} (a,b) Future: 2.13×10^{-3}	Pump and treat gw; Off-site incineration and on-site treatment of soils	$3M (f)

Tower Chemical, FL	Pesticide manufacturing	Current: 1×10^{-5}(a,b) Future: 9×10^{-1}	Pump and treat gw; incineration soils; alternate water supply	$6.8M
Tri-City Oil, FL	Heating oil service	No risk assessment conducted	No action	--

(a) For soils only
(b) No current pathways of exposure for ground water
(c) Ground water addressed in second operable unit
(d) For ground water only
(e) All other pathways assessed qualitatively
(f) Present worth
(g) Ground water treatment Biscayne Aquifer ROD
(h) Operable unit for source only

TABLE 2.4
SELECTED FY87 RODs

Region	Site	Type of Facility	Total Baseline Risk	Alternative Selected	Cost
3	Kane and Lombard, MD	Hazardous and solid waste disposal	Potential risk exists; risk data not available	Source control includes capping, slurry wall, and removal of hot spots[c]	$4.5M
5	Liquid Disposal, MI	Hazardous waste disposal	Current: 1×10^{-5}[b] Future: 4×10^{-4}	Slurry wall and cap; s/s soils; pump and treat ground water	$21.2M
5	Rose Township, MI	Hazardous waste dump	Current: 7×10^{-1}[b] Future: 4×10^{-3}	Incinerate soils; pump and treat ground water	$32.5M
5	Seymour Recycling, IN	Hazardous waste processing	Potential: 1×10^{0}[b]	Soil vapor extraction; cap; excavate sediments; pump and treat ground water[i]	$10.5M
5	New Brighton, MN	Wellfield	Assessed qualitatively; current risk exists	Ground water treatment; alt. water supply[h,i]	$1.2M

5	Industrial Excess, OH	Landfill	Current: 1×10^{-2} Future: 4×10^{-5} (d,e)	Alternate water supply (i)	$2M (f)
5	Northern Engraving, WI	Industrial	No current risk Future: 4.77×10^{-4}	Capping and s/s soils and sludge; Ground water monitoring	$250K
6	Cleve Reber, LA	Landfill	Current: 1×10^{-4} (b) Future: 6×10^{-2}	Incinerate, s/s sludges; capping; ground water monitoring	$25M
6	Highlands Acid Pit, TX	Hazardous waste dump	Assessed qualitatively; no significant risk	No action with monitoring	$4,700
6	Petro Chemical, TX	Waste oil disposal	Assessed qualitatively; Current and future risk exists	Excavation; interim on-site disposal of soils; temporarily relocate residents (i)	$1.2M
6	Compass Industries, OK	Landfill	Assessed qualitatively; potential risk exists	Capping; treat ground water if necessary	$9.3M

6	Sand Springs, OK	Industrial	Assessed qualitatively potential risk exists	Off-site incineration and s/s sludges[c]	$37M
6	Bayou Sorrel, LA	Hazardous waste disposal	Assessed qualitatively; potential risk exists	Capping; slurry wall; ground water monitoring	$23.2M
6	Hardage-Criner, OK	Hazardous waste disposal	Current: Risk exists Future: 6×10^{-1}	Treatment and on-site disposal of solid wastes; Incinerate liquids[i]	$68M
6	Bayou Bonfouca, LA	Creosote works	Current: 3×10^{-4} Future: 2×10^{-1}	Incinerate waste piles and sediments; cap; pump and treat ground water	$60M
7	Conservation Chem., MO	Hazardous waste disposal	Qualitative assessment; no current risk; potential risk exists	Capping; pump and treat ground water; off-site ground water monitoring	$8.6M
8	Rocky Mtn. Arsenal, CO	Munitions and pesticide manufacturing	Current: 1.6×10^{-5}[d] Potential: 4.2×10^{-5}[d]	Permanent drinking water treatment plant; interim alternate supply[i]	$8.9M
9	San Fernando Valley, CA	Wellfield	No current risk; levels exceed MCLs	Pump and treat ground water[h,i]	$2M

9	Phoenix-Goodyear, AZ	Industrial	No current risk Future: 2×10^{-3}	Pump and treat ground water[h,i]	$2.4M
9	Stringfellow, CA	Hazardous waste disposal	No current risk; levels exceed MCLs	Pump and treat downgradient ground water[h,i]	$1M
10	Colbert Landfill, WA	Landfill	Qualitative assessment[g]; ground water concentrations exceed acceptable levels.	Ground water interception and treatment; alternate water supply; cap	$7M-$10M

(a) For soils only
(b) No current pathways of exposure for ground water
(c) Ground water addressed in second operable unit
(d) For ground water only
(e) All other pathways assessed qualitatively
(f) Present worth
(g) Based on calculated acceptable levels for carcinogens
(h) Source to be addresed in subsequent operable unit
(i) Operable unit part of a more comprehensive remedy

3.0 SELECTION OF INDICATOR CHEMICALS

TABLE 3.1

BASIS FOR SELECTION OF
INDICATOR CHEMICALS/CONTAMINANTS OF CONCERN
REGION 1

	Frequency of Detection	Concentration Above Background or ARARs	Use in Site Operations	Qualitative Assessment(1)	Indicator Scores
Davis Liquid Waste, RI(2)	X	X	X		X
Ottati & Goss, NH	X			X	
Re-Solve, MA(2)	X	X		X	X

(1) Comparison of toxicity, mobility, solubility, etc.
(2) Screening process used

BASIS FOR SELECTION OF
INDICATOR CHEMICALS/CONTAMINANTS OF CONCERN
REGION 2

	Frequency of Detection	Concentration Above Background or ARARs	Qualitative Assessment[1]	Indicator Scores	Screening Process Used
Chemical Control, NJ	X	X	X		X
Cooper Road, NJ	X	X			
Diamond Alkali, NJ		X	X		X
Endicott Village, NJ	X		X[2]		
GE Moreau, NY	X	X	X		
Haviland Complex, NY	X	X			
Katonah Well, NY	X	X	X[2]		X
Montgomery Township, NJ	X	X	X	X	X
Renora, NJ		X		X	X

South Brunswick, NJ	X	X		
Suffern Wellfield, NY	X	X	X	
Vega Alta, PR	X	X	X	
Volney Municipal, NY	X		X(2)	
Waldick Aerospace, NJ	X	X	X	X
Williams Property, NJ	X	X	X	X

(1) Comparison of toxicity, mobility, solubility, etc.
(2) Chemicals with no toxicity data were excluded.

BASIS FOR SELECTION OF
INDICATOR CHEMICALS/CONTAMINANTS OF CONCERN
REGION 4

	Frequency of Detection	Concentration Above Background or ARARs	Qualitative Assessment(1)	Indicator Scores	Screening Process Used
Geiger, SC		X		X	X
Gold Coast, FL	X	X	X		
Independent Nail, SC	X	X	X(3)		
Newport Dump, KY	X	X		X	
NW 58th Street LF, FL	X	X(2)	X		
Palmetto Wood, SC		X			(4)
Parramore Surplus, FL		X	X(3)		
Powersville LF, GA	X	X(2)	X		
Sodyeco, NC		X	X(3)		
Tower Chemical, FL	X		X(3)	X	
Tri-City, FL		X			(4)

(1) Comparison of toxicity, mobility, solubility, etc.
(2) Concentrations which exceed standards in at least two samples
(3) Chemicals due to lack of association with former site operations
(4) Screening process not applicable

BASIS FOR SELECTION OF
INDICATOR CHEMICALS/CONTAMINANTS OF CONCERN

Region	Site	Frequency of Detection	Concentration Above Background or ARARs	Qualitative Assessment[1]	Indicator Scores	Screening Process Used
3	Kane and Lombard, MD	X	X	X		
5	Liquid Disposal, MI	X	X	X		X
5	Rose Township, MI		X	X		X
5	Seymour Recycling, IN		X	X		
5	New Brighton, MN	X	X	X		(5)
5	Industrial Excess, OH	X		X[3]		(5)
5	Northern Engraving, WI	X	X	X		
6	Cleve Reber, LA	X[4]	X	X		
6	Highlands Acid Pit, TX		X	X		(5)
6	Petro Chemical, TX	X	X	X		(5)
6	Compass Industries, TX	X	X	X	X	X
6	Sand Springs, OK	X	X	X	X	X
6	Bayou Sorrel, LA	X	X	X		
6	Hardage-Criner, OK		X	X		
6	Bayou Bonfouca, LA	X	X	X		(5)
7	Conservation Chem., MO	X	X	X		

8	Rocky Mtn. Arsenal, CO	X	X		(5)
9	San Fernando Valley, CA	X	X		(5)
9	Phoenix-Goodyear, AZ	X	X	X	
9	Stringfellow, CA	X	X		(5)
10	Colbert Landfill, WA	X	X	X	

(1) Comparison of toxicity, mobility, solubility, etc.
(2) Screening process used
(3) Chemicals with no toxicity data were excluded
(4) Detection in four or more samples
(5) Not applicable

TABLE 3.2
INDICATOR CHEMICALS SELECTED

REGION 1

OTTATI & GOSS, NH

Acetone
Arsenic
Benzene
Chlorobenzene
Cyanide
1,2-dichlorobenzene
1,4-dichlorobenzene
1,2-dichloroethane
2,4-dimethylphenol
Diethyl ether
Ethyl benzene
Isophorone
Methyl ethyl ketone
Naphthalene
Nickel
O-cresol
PCBs
Phenol
Tetrachloroethylene
Tetrahydrofuran
Toluene
Trans-dichloroethylene
1,1,1-trichloroethane
Trichloroethylene
Xylenes
Zinc

DAVIS LIQUID, RI

Arsenic
PCBs
Chloroform
1,1-Dichloroethylene
Bis(2-chloroethyl)Ether
Trichloroethylene
Vinyl Chloride
Tetrachloroethylene
Benzene
Ethylbenzene
Toluene
Lead
Xylenes
Cadmium

RE-SOLVE, MA

Arsenic
Cadmium
Lead
Tetrachloroethylene
Vinyl Chloride
trans-1,2-dichloroethylene
Trichloroethylene

REGION 2

CHEMICAL CONTROL, NJ

Benzene
1,2-dichloroethane
Tetrachloroethane
Trichloroethene
Vinyl Chloride
Chloroform
Methylene Chloride
Benzo(a)pyrene
4,4'-DDT
PCB 1250
N-nitrosodiphenylamine
Chromium
Arsenic
Nickel
Bis(2-ethylhexyl)phthalate
1,2-dichlorobenzene
Chlorobenzene
Toluene
Total xylenes
Ethylbenzene
1,2-dichloroethene
Lead
Mercury
Phenol
Acetone
2-butanone

COOPER ROAD DUMP, NJ

Lead
Chromium

DIAMOND ALKALI, NJ

HCB
2,4,6-TCP
Cyanide
Dioxin
2-hexanone
Arsenic
Benzo(a)anthracene
2,4-dimethylphenol
Bis(2-ethylhexyl)phthalate
Phenol
Benzene
Chloroform
2,4,5-T
Beta-BHC

ENDICOTT VILLAGE, NJ

1,1-Dichloroethane
1,1,1-Trichloroethane
Vinyl chloride
1,2-Dichloroethane
Trichloroethene
Total trihalomethanes
Tetrachloroethene
1,1,2-Trichloroethane

GE MOREAU, NY

PCBs
Trichloroethylene
Trans-1,2-dichloroethylene
Vinyl chloride
1,1,1-trichloroethane
1,1-dichloroethylene
Tetrachloroethylene
Methylene chloride
Chloroform
Chlorobenzene
Dichlorobromomethane

HAVILAND COMPLEX, NY

Vinyl chloride
Trichloroethene
Tetrachloroethene
Trans-1,2-dichloroethene
Benzene
1,2-Dichlorobenzene

1,3-Dichlorobenzene
Chlorobenzene

KATONAH WELL, NY

Benzene
Bis(2-ethylnexyl)phthalate
1,2-dichlorobenzene
Diethyl phthalate
Di-n-butylphthalate
Polychlorinated biphenyls
Tetrachloroethene
Toluene
1,2-trans-dichloroethene
Trichloroethene
Antimony
Arsenic
Barium
Beryllium
Cadmium
Copper
Iron
Lead
Manganese
Mercury
Nickel
Potassium
Silver
Sodium
Vanadium
Zinc
PAHs
Acetone
Carbon tetrachloride
Chlordane
Chloroform
Hexachlorobenzene
n-Nitrosodiphenylamine

MONTGOMERY TOWNSHIP, NJ

Trichloroethene
Tetrachloroethene
Chlorodane
Arsenic
Barium
Beryllium
Chromium
Lead
Nickel
Silver

RENORA, NJ

Benzene
Cresols (2-Methylphenol, 4-Methylphenol)
trans-1,2,-Dichloroethene
Ethylbenzene
Phenol
PCBs
PAHs
Tetrachloroethene
Toluene
1,2,3-Trichlorobenzene
Trichloroethene
Xylene
Cadmium
Zinc
Chloroethane
Chromium
Lead
Nickel
Copper

SOUTH BRUNSWICK, NJ

Total VOCs

SUFFERN WELL FIELD, NY

1,1,1-trichloroethane
Benzene
1,1-dichloroethene
1,2-dichloroethane
Chloroform
Trichloroethene
Cyanide
Lead
Cadmium
Aluminum
Sodium
Silver

VEGA ALTA, PR

Methylene chloride
Tetrachloroethylene
Trichloroethylene
1,2-dichloroethylene
1,1-dichloroethylene
1,1,1-trichloroethane
1,1-dichloroethane

1,2-dichloroethane
1,1,2-trichlorotrifluoroethane
Benzene
Toluene

VOLNEY MUNICIPAL

Toluene
Manganese
Zinc
1,1-Dichloroethane
2-Butanone (MEK)
1,1,1-Trichloroethane
Ethyl Benzene
Xylenes
Phenol
Beryllium
Lead
Mercury
Nickel
Selenium
Thallium
Vinyl Chloride
Benzene
Arsenic

WALDICK AEROSPACE, NJ

Tetrachloroethene
Trichloroethene
Dichloroethene
Vinyl chloride
Cadmium
Chromium

WILLIAMS PROPERTY

Bis(2-chloroethyl)ether
Bis(2-ethyl)phthalate
Methylene chloride
Tetrachloroethene
1,1,1-trichloroethane
Total xylenes
Cadmium
Chromium
Lead
Nickel

REGION 3

KANE AND LOMBARD, MD

Vinyl Chloride
Trichloroethylene
Benzene
Nickel
Cadmium

REGION 4

INDEPENDENT NAIL, SC

Cadmium
Chromium
Cyanide
Nickel
Zinc

TOWER CHEMICAL, FL

DDT
Gamma-BHC
Ethion
Xylene
Chromium
Copper
Arsenic
Chloroform
Chromium
Nickel
Alpha-BHC
4,4'-DDT

PARRAMORE SURPLUS, FL

Lead
Zinc
Cyanide
Bis(2-ethylhexyl)phthalate
Di-n-butyl Phthalate
Methyl Ethyl Ketone
Ethylbenzene
PCB-1254

GEIGER, SC

Benzo (a) Pyrene
Benzo (b and/or K) Fluoranthene
PCB
Benzene
1,1-Dichloroethane
Trans-1,2-Dichloroethylene
Lead
Chromium
Benzo (a) Anthracene

POWERSVILLE LANDFILL, GA

alpha-BHC
gamma-BHC
Vinyl chloride
1,2-Dichloroethane
Lead
Chromium
Dieldrin
Toxaphene
Chlordane

PALMETTO WOOD, SC

Arsenic
Copper
Chromium

NEWPORT DUMP, KY

Arsenic
Chromium (+6)
Benzo-A-Pyrene
PCB-1242
Barium
Toluene
Nickel

SODYECO, SC

Trichloroethylene
Tetrachloroethylene
Chlorobenzene
Ethylbenzene
1,2-dichlorobenzene
Toluene
Xylenes
Anthracene
Fluorene
Phenanthrene

GOLD COAST OIL, FL

Methylene chloride
1,1-Dichloroethane
trans-1,2-dichloroethylene
Lead
Trichloroethylene
Tetrachloethylene
Toluene

NW 58th STREET LANDFILL, FL

Arsenic
Chromium
Zinc
Benzene
Chlorobenzene
1,1,2,2-Tetrachloroethane
Trichloroethene
Vinyl Chloride

TRI-CITY OIL, FL

Benzene
Pyridine
Cadmium
Chromium
Lead

SEYMOUR RECYCLING, IN

Benzene
2-Butanone
Carbon tetrachloride
Chlorobenzene
Chloroform
1,1-Dichloroethane
1,2-Dichloroethene
Trans-1,2-dichloroethene
Ethylbenzene
2-Hexanone
Methylene chloride
1,1,2,2-Tetrachloroethene
Tetrachloroethene
1,1,1-Trichloroethane
1,1,2-Trichloroethane
Trichloroethene
Trichloromonofluoromethane
Toluene
Vinyl chloride
Xylene
Benzo (a) pyrene
Bis (2-ethylhexyl) phthalate
Di-N-Butyl phthalate
Chrysene
1,2-Dichlorobenzene
1,4-Dioxane
Hexachlorobenzene
Hexachlorobutadiene
Hexachloroethane
Isophorone
PCB
2-Chlorophenol
2,4-Dimethylphenol
2-Methylphenol
4-Methylphenol
Pentachlorophenol
Arsenic
Barium
Cadmium
Chromium
Copper
Iron
Lead
Manganese
Mecury
Nickel
Selenium
Thallium
Zinc

LIQUID DISPOSAL, MI

Chloroform
Methylene Chloride
Trichloroethylene
Tetrachloroethylene
Benzo (a) pyrene
Fluoranthene
PCBs
2-Butanone
Benzene
Toluene
Bis(2-ethylhexyl) Phthalate
Phenol
Naphthalene
Barium
Cadmium
Lead

NEW BRIGHTON, MN

Trichloroethylene
1,1-dichloroethylene
cis 1,2-dichloroethylene
1,1,1-trichloroethane
1,1-dichloroethane
trans 1,1-dichloroethylene
Chloroform
1,2-dichloroethane
1,1,2-trichloroethane
1,1,2,2-tetrachloroethylene
Benzene

INDUSTRIAL EXCESS, OH

Vinyl Chloride
Chloroethane
Tetrachloroethene
Alumiumum
Arsenic
Barium
Cadmium
Calcium
Chromium
Cobalt
Copper
Iron
Lead
Magnesium

Manganese
Nickel
Potassium
Selenium
Silver
Sodium
Vanadium
Zinc
Cyanide

ROSE TOWNSHIP, MI

Benzene
Chlorobenzene
Toluene
Methylene Chloride
1,1,1-Trichloroethane
Trichloroethylene
Vinyl Chloride
Bis(2-ethylhexyl) phthalate
Fluoranthene
Naphthalene
PCBs
Arsenic
Lead
2-Butanone
Isophorone
Pentachlorophenol

NORTHERN ENGRAVING, WI

Copper
Fluoride
Nickel
Zinc
1,1-dichloroethylene
Trichloroethylene
Vinyl chloride

REGION 6

CLEVE REBER, LA

Aniline
Hexachlorobenzene
N-Nitrosodiphenylamine
Tetrachloroethylene
Toluene
Hexachloroethane
Hexachlorobutadiene
Benzene

Vinyl Chloride

BAYOU BONFOUCA, LA

PAHs

HARDAGE-CRINER, OK

1,2-dichloroethane
1,1,2-trichloroethane
1,1-dichloroethene
Chloroform
2-Butanone
1,1-dichloroethane
1,1,1-trichloroethane
Tetrachloroethene
Trichloroethene
Methyl chloride
Toluene
Pentachlorophenol
Bis(2-chloroethyl)ether
Phenol
1,2-dichlorobenzene
Barium
Cadmium
Manganese
Mercury
Nickel
Cyanide
Selenium
Zinc
Arsenic
Lead
Chromium
PCBs
Toxaphene
DDT

BAYOU SORREL, LA

Benzene
Methylene chloride
1,2-dichloroethane
1,1-dichloroethylene
1,1,2-trichloroethane
Pentachlorophenol
Arsenic
Cadmium
Chromium
Lead
Mercury

COMPASS INDUSTRIES, OK

Arsenic
PCBs
PAHs
Chlordane
Benzene
Lead

SAND SPRINGS, OK

Cadmium
Lead
PAHs
Benzene
Trichloroethene
Tetrachloroethylene
Alkyl benzenes

PETRO-CHEMICAL, TX

Benzene
PAHs

HIGHLANDS ACID PITS, TX

Benzene
Pyridine
Arsenic
Cadmium
Chromium
Lead

REGION 7

CONSERVATION CHEMICAL, MO

Arsenic
Cadmium
Chromium
Nickel
Zinc
Iron
Aluminum
Cyanide
Chloroform
Trichloroethylene

Benzene
Vinyl Chloride
1,2-Dichloroethane
1,1,2-Trichloroethane
1,1-Dichloroethylene
Trans-1,2-Dichloroethylene
2,4-Dichlorophenol
2,4-Dimethylphenol
Phenol
Total Phenolics
2,4,6-Trichlorophenol
Carbon Tetrachloride
Toluene
Methylene Chloride

REGION 8

ROCKY MTN. ARSENAL, CO

Trichloroethylene
Acetone
Chloroform
1,1-Dichloroethane
1,1-Dichloroethylene
1,2-Dichloroethylene
Methylene Chloride
Tetrachloroethylene
Toluene
1,1,1-Trichloroethane
Trichloroethylene

REGION 9

SAN FERNANDO, CA

Trichloroethylene
Tetrachloroethylene

STRINGFELLOW, CA

Chromium
Cadmium
Copper
Lead
Managnese
Zinc
Nitrate-N
Sulfate
Chloride
Phenol

1,2-dichlorobenzene
1,4-dichlorobenzene
Isophorone
Chlorobenzene
Chloroform
Ethylbenzene
Methylene Chloride
Tetrachloroethylene
Toluene
Trichloroethylene
Acetone
2-Butanone
4,4'DDT
4,4'DDE

PHOENIX-GOODYEAR, AZ

Trichloroethylene
1,1-dichloroethylene
Chloroform
Carbon Tetrachloride
Chromium
1,1,1-trichloroethane
Perchloroethylene
Trichloroethylene
Tetrachloroethene
1,1-Dichloroethene
Trans-1,2-dichloroethene
Arsenic
Chromium

REGION 10

COLBERT LF, WA

1,1,1-Trichloroethane
Methylene Chloride
1,1-Dichloroethylene
Trichloroethylene
Tetrachloroethylene
1,1-Dichloroethane

TABLE 3.3
CHEMICALS DRIVING DECISIONS TO REMEDIATE

Region	Site	Chemicals/Class
1	Ottati & Goss, NH	Arsenic
1	Davis Liquid, RI	Arsenic
1	Re-Solve, MA	Arsenic Cadmium Lead Tetrachloroethylene Vinyl Chloride trans-1,2-Dichloroethylene Trichloroethylene PCBs
2	Chemical Control, NJ	Chromium
2	Diamond Alkali, NJ	Dioxin
2	Endicott Village, NJ	Vinyl Chloride
2	GE Moreau, NY	PCBs Trichloroethylene trans-1,2-Dichloroethylene Vinyl Chloride 1,1,1-Trichloroethane 1,1-Dichloroethylene Methylene Chloride Chloroform Chlorobenzene Dichlorobromomethane
2	Haviland Complex, NY	Vinyl Chloride Tetrachloroethylene Benzene
2	Katonah Well, NY	Benzene PCBs Tetrachloroethene Antimony Arsenic Barium Chromium

		Iron Lead Manganese Nickel Sodium
2	Montgomery Township, NJ	Trichloroethylene Chlordane Arsenic Barium Beryllium Chromium Lead Nickel Silver
2	Renora, NJ	PCBs PAHs
2	Suffern Well Field, NY	1,1-Dichloroethylene
2	Vega Alta, PR	Tetrachloroethylene Trichloroethylene 1,1-Dichloroethylene
2	Volney Municipal, NY	Arsenic
2	Waldick Aerospace, NJ	Tetrachloroethylene Trichloroethylene Cadmium Chromium
2	Williams Property, NJ	Bis(2-ethyl)phthalate Methylene Chloride Tetrachloroethene Lead Nickel
3	Kane and Lombard, MD	Vinyl Chloride Trichloroethylene Benzene Nickel Cadmium

4	Geiger, SC	PAHs PCBs Lead Chromium
4	Gold Coast, FL	Methylene Chloride 1,1-Dichloroethane trans-1,2-Dichloroethylene Lead Trichloroethylene Tetrachloroethylene
4	Independent Nail, SC	Cadmium Chromium Nickel
4	Newport Dump, KY	Arsenic Barium
4	NW 58th Street, FL	Arsenic Benzene 1,1,2,2-Tetrachloroethane Vinyl Chloride
4	Palmetto Wood, SC	Arsenic Chromium
4	Powersville LF, GA	alpha-BHC gamma-BHC Vinyl Chloride 1,2-Dichloroethane Lead Toxaphene Chlordane
4	Sodyeco, NC	Trichloroethylene Tetrachloroethylene PAHs
4	Tower Chemical, FL	DDT gamma-BHC Arsenic Chloroform alpha-BHC

5	Rose Township, MI	Chlorobenzene Toluene Vinyl Chloride PCBs Arsenic Lead
5	Northern Engraving, WI	Nickel Fluoride Copper Trichloroethylene Vinyl Chloride
6	Bayou Bonfouca, LA	PAHs
6	Hardage-Criner, LA	Chloroform 1,2-Dichloroethane Tetrachloroethene Trichloroethane 1,1,2-Trichloroethane Vinyl Chloride Bis(2-chloroethyl)ether DDT Arsenic Methylene Chloride 1,1,1-Trichloroethane Phenol Chromium Lead Toxaphene PCBs
6	Bayou Sorrel, LA	Benzene Methylene Chloride 1,2-Dichloroethane 1,1-Dichloroethylene 1,1,2-Trichloroethane Pentachlorophenol Arsenic Cadmium Chromium Lead Mercury
6	Compass Industries, OK	Arsenic Lead PAHs Benzene Chlordane PCBs

6	Sand Springs, OK	Cadmium Lead PAHs Benzene TCE PCE
6	Petro-Chemical, TX	VOCs PAHs
6	Cleve Reber, LA	Hexachlorobenzene
7	Conservation Chemical, MO	Cadmium Benzene Vinyl Chloride trans-1,2-Dichloroethylene Total phenolics
8	Rocky Mtn. Arsenal, CO	Trichloroethylene Tetrachloroethylene
9	San Fernando Valley, CA	Trichloroethylene Tetrachloroethylene
9	Stringfellow, CA	Chlorobenzene Chloroform Trichloroethylene
9	Phoenix-Goodyear, AZ	Chloroform Carbon Tetrachloride Trichloroethylene Tetrachloroethylene Arsenic
10	Colbert Landfill, WA	1,1,1-Trichloroethane Methylene Chloride 1,1-Dichloroethylene 1,1-Dichloroethane

4.0 BASELINE RISK

TABLE 4.1

GROUND WATER CONTAMINATION EXPOSURE
REGION 1

Site	Basis for Determination of Populations Exposed
Davis Liquid, RI	Sampling revealed contamination in off-site residential wells. Many residents continue to use water from these wells.
Ottati & Goss, NH	Area residential well sampling revealed no detectable contamination.
Re-Solve, MA	Residential well sampling revealed no significant contamination which can be attributed to the site.

GROUND WATER CONTAMINATION EXPOSURE
REGION 2

Site	Basis for Determination of Populations Exposed
Chemical Control, NJ	Aquifer is saline; no secondary contact in area.
Diamond Alkali, NJ	No potable wells are in use in the area. Sampling outside area of contamination revealed no contamination
Endicott Village, NJ	The Ranney well is one of four wells that provide for a population of approximately 45,000. It is estimated that 47 percent of these people receive 100 percent of their water from this well. Minimal attenuation is expected between sampling location and receptors.
GE Moreau, NY	Sampling revealed elevated levels of contaminants in residential wells.
Haviland Complex, NY	Sampling revealed that eleven private wells contain detectable levels of at least one of the eight key contaminants.
Katonah Well, NY	The well formerly served 6,200 people, but was taken out of service in 1978.
Montgomery Twp., NJ	Thirty-nine private residences are currently still using their residential wells.
Renora, NJ	Shallow ground water is not currently being used at the site or between the site and its point of discharge to surface water.
South Brunswick, NJ	Low level contamination is contained within site boundaries; nearest well is one mile upgradient

Suffern Wellfield, NY	The population served by the Village public water supply system and a portion of a nearby public customer base currently use ground water. However, the water distributed to the taps of consumers meets all drinking water standards.
Vega Alta, PR	Sampling of 10 public wells and 8 private wells revealed contamination of currently used wells. Risk associated with tap water concentrations is greater than 10^{-4}.
Volney Municipal, NY	Eight residential wells were sampled, and although current exposure to ground water exists, concentrations were below MCLs. Ground water will be investigated more extensively in a second operable unit.
Waldick Aerospace, NJ	No currently used wells are located within the contamination plume.
Williams Property, NJ	Approximately 3,550 residents within 3 miles of site who formerly used ground water are currently served by public water supply. One contaminated on-site residential well has been taken out of service.

GROUND WATER CONTAMINATION EXPOSURE
REGION 4

Site	Basis for Determination of Populations Exposed
Geiger, SC	Sampling revealed no off-site contamination which exceeded standards.
Gold Coast, FL	One offsite private well was sampled in the deep aquifer and no contamination was found. However, a shallow aquifer well located within 100 feet of this well was not sampled. Residents were surveyed regarding use of wells, and two residents were identified as being potentially at risk. No sampling was undertaken to confirm exposure.
Newport Dump, KY	A door to door survey of residents within a one-mile radius of site failed to identify any users of ground water.
NW 58th Street, FL	Endangerment Assessment identifies those using water from 60 private wells and two public water treatment plants downgradient of the site as populations exposed. Well contamination was confirmed by sampling.
Palmetto Wood, SC	Nine private wells in vicinity of site were sampled. Although elevated levels of chromium were found in an abandoned private well, no other private wells were contaminated. However, ingestion of ground water was evaluated as a potential current pathway of exposure.
Powersville LF, GA	Surrounding private wells were sampled during initial site investigation, and one contaminated private well was abandoned. However, ingestion of water from this well was evaluated as a current pathway of exposure.

Sodyeco, NC	No drinking water wells exist in area of contamination. Results of boundary well sampling indicated that contaminated ground water has not migrated in any other direction.
Tower Chemical, FL	Nearest private well was sampled twice during RI, and no site-related contamination was found.

GROUND WATER CONTAMINATION EXPOSURE

Region	Site	Basis for Determination of Populations Exposed
3	Kane and Lombard, MD	No current ground water exposure; residents are supplied with drinking water by the City of Baltimore.
5	Liquid Disposal, MI	No drinking water wells which intercept ground water originating from the site currently exist.
5	Rose Township, MI	Sampling revealed no currently elevated levels of contamination in domestic wells.
5	Seymour Recycling, IN	No current exposure; nearby residents have been connected to municipal water supply.
5	New Brighton, MN	One contaminated municipal well is a major source of water.
5	Industrial Excess, OH	Sampling of residential wells revealed contaminant levels in excess of standards.
5	Northern Engraving, WI	No private, municipal, or industrial wells are threatened by ground water contamination.
6	Cleve Reber, LA	Contamination is currently confined within site boundaries, and no on-site wells exist.
6	Hardage-Criner, OK	No wells currently exist in contaminated portion of aquifer.

6	Highlands Acid Pit, TX	Low level contamination is confined to unused portion of shallow aquifer.
6	Compass Industries, OK	Ground water contamination is confined to site.
6	Bayou Sorrel, LA	Ground water quality in area is marginal. Only two wells are located within two miles of site, and they are not used for drinking water purposes.
6	Bayou Bonfouca, LA	Sampling revealed no site-related contamination in area wells; elevated levels of several metals are ubiquitous to the area and therefore, do not indicate contamination.
7	Conservation Chem., MO	No current exposure; nearby wells are for industrial use only.
8	Rocky Mtn. Arsenal, CO	Private and municipal wells in the area are contaminated with organic solvents.
9	San Fernando Valley, CA	The contaminated Hollywood-Burbank Well Field supplies 10% of the total water supply for the City of Los Angeles; however, levels of contamination in tap water currently do not exceed state standards.
9	Phoenix-Goodyear, AZ	All water currently used for drinking water purposes is treated prior to use.

9	Stringfellow, CA	Approximately 75% of residents in the area have been connected to a municipal water supply; the remainder currently use bottled water.
10	Colbert Landfill, WA	Ground water is currently used as a potable water supply by some residents in the area.

TABLE 4.2

BASELINE RISKS FOR DECISIONS INVOLVING SOIL CONTAMINATION
REGION 1

Site	Current Risk Level	Future Risk Level	Source Control Alternative Selected
Davis Liquid Waste, RI	2×10^{-4}	4×10^{-3} (a)	Incineration with backfilling/onsite disposal
Ottati & Goss, NH	Qualitative assessment (b)	Qualitative assessment (b)	Excavate, incinerate, and aerate soil and sediments
Re-Solve, MA	8×10^{-5} (c)	3×10^{-2} (a)	Dechlorination of PCB contaminated soils/ sediments with immobilization of PCBs

(a) Based on residential use scenario
(b) Includes sediments
(c) Includes ingestion of fish

BASELINE RISKS FOR DECISIONS INVOLVING SOIL CONTAMINATION
REGION 2

Site	Current Risk Level	Future Risk Level	Source Control Alternative Selected
Chemical Control, NJ	No current risk for soils; 8.9×10^{-6} for sediments	Assessed qualitatively	In-situ fixation
Cooper Road Dump, NJ	No risk; source removed	No risk	No further action
Diamond Alkali, NJ	Assessed qualitatively; risk exists	Assessed qualitatively[c]	Slurry wall
GE Moreau, NY	Assessed qualitatively; risk exists	Assessed qualitatively	Containment of PCB contaminated soils
Katonah Well, NY	2×10^{-7}	Assessed qualitatively	No source control remedial action
Renora, NJ	5×10^{-5}	1×10^{-3}[a]	Off-site disposal and on-site biodegradation of soils
Volney Municipal, NY	Assessed qualitatively[b]	Assessed qualitatively[b,c]	Slurry wall, capping, and leachate collection

South Brunswick, NJ	Assessed qualitatively; no significant risk	Assessed qualitatively	No action
Waldick Aerospace, NJ	3×10^{-5}	Assessed qualitatively	In-situ air stripping and off-site disposal
Williams Property, NJ	Qualitative assessment for carcinogens; levels exceed state action levels	Assessed qualitatively[c]	Incinerate soils

(a) Based on residential use scenario
(b) Includes sediments
(c) All risks evaluated as potential

BASELINE RISKS FOR DECISIONS INVOLVING SOIL AND SEDIMENT CONTAMINATION
REGION 4

Site	Current Risk Level[d]	Future Risk Level[d]	Source Control Alternative Selected
Geiger, SC	4×10^{-6}	4×10^{-4}[a,b]	On-site incineration and s/s
Gold Coast, FL	Assessed qualitatively; risk exists	Assessed qualitatively	Off-site disposal and s/s
Independent Nail, SC	7×10^{-6} HI 1.6	1×10^{-3}[b]	Excavate and s/s
Newport Dump, KY	No current exposure	7.4×10^{-6}	Monitoring, leachate collection
NW 58th Street, FL	Assessed qualitatively; risk exists	Assessed qualitatively	Capping
Palmetto Wood, SC	5×10^{-3}	3×10^{-2}[b]	Soil flushing
Parramore Surplus, FL	1.3×10^{-10}	3.5×10^{-8}	No action with monitoring
Powersville LF, GA	2×10^{-7}	5×10^{-6}[b]	Capping

Sodyeco, NC	HI 1.21	2.13×10^{-3} (a,c)	Off-site incineration and on-site treatment
Tower Chemical, FL	1×10^{-5}	1×10^{-5}	Off-site incineration
Tri-City Oil, FL	No risk	No risk	No action

(a) Total risk; media not specified
(b) Based on residential use scenario
(c) Includes ingestion of local waterfowl or small animals
(d) For soils only

BASELINE RISKS FOR DECISIONS INVOLVING SOIL AND SEDIMENT CONTAMINATION

Region	Site	Current Risk Level[a]	Future Risk Level[a]	Source Control Alternative Selected
3	Kane & Lombard, MD	No current risk	Assessed qualitatively; risk exists	Capping, slurry wall, removal of hot spots
5	Liquid Disposal, MI	7×10^{-6}[d] HI 74.4	3×10^{-5}[e] HI 444.36	Capping, slurry wall; s/s soils
5	Rose Township, MI	4×10^{-4}[d]	5×10^{-5}[e]	Incinerate soils
5	Seymour Recycling, IN	No current risk	3×10^{-3}[b]	Capping, soil vapor extraction; excavate sediments
5	Northern Engraving, WI	No current risk	HI 144 sludges HI 4.16 soils[g]	Capping; s/s soils and sludge
6	Cleve Reber, LA	2×10^{-4}	6×10^{-2}[f]	Capping; incinerate, s/s sludges
6	Highlands Acid Pit, TX	Assessed qualitatively; no risk	No risk	No action with monitoring
6	Petro-Chemical, TX	Assessed qualitatively; risk exists	Assessed qualitatively; risk exists	Excavation; interim on-site disposal of soils

6	Compass Industries, OK	Assessed qualitatively; potential risk exists	Potential risk exists	Capping
6	Sand Springs, OK	Assessed qualitatively; potential risk exists	Potential risk exists	Off-site incineration and s/s sludges
6	Hardage-Criner, OK	Assessed qualitatively; risk exists	Risk exists	Treatment and on-site disposal of solid wastes; incinerate liquids
6	Bayou Bonfouca, LA	3×10^{-4} (f,c)	1×10^{-2} (b)	Capping; incinerate piles and sediments
6	Bayou Sorrel, LA	Assessed qualitatively; potential risk	Potential risk	Capping; slurry wall
7	Conservation Chem., MO	No current risk	Potential risk exists	Capping

(a) For soils only
(b) Based on residential use scenario
(c) Includes sediments
(d) Based on exposure to surface soils
(e) Based on exposure to subsurface soils
(f) Based on fish ingestion
(g) Based on hypothetical contact; contamination is below surface

TABLE 4.3

BASELINE RISKS FOR DECISIONS INVOLVING GROUND WATER CONTAMINATION
REGION 1

Site	Populations Currently Exposed	Current Risk Level[e]	Future Risk Level[e]
Davis Liquid Waste, RI	Yes	6×10^{-3} [a,c]	1×10^{-1} [b,d]
Ottati & Goss, NH	None	No current risk	1.3×10^{-3} [b]
Re-Solve, MA	None	No current risk	5×10^{-1} [b]

(a) Based on actual exposure to current concentrations
(b) Based on hypothetical exposure to current concentrations
(c) Residential wells
(d) On-site monitoring wells
(e) For ground water only

DECISIONS INVOLVING GROUND WATER CONTAMINATION
REGION 2

Site	Populations Currently Exposed	Current Risk Level[a]	Future Risk Level[a]
Chemical Control, NJ	None	No current risk	No future risk
Diamond Alkali, NJ	None	No current risk	8×10^{-3}[d]
Endicott Village, NJ	Yes	2.5×10^{-5}[c]	Assessed qualitatively
GE Moreau, NY	Yes	Assessed qualitatively; risk present	Assessed qualitatively
Haviland Complex, NY	Yes	7.6×10^{-4}[c]	Assessed qualitatively
Katonah Well, NY	None	No current risk	1×10^{-2}[d]
Montgomery Township, NJ	Yes	2×10^{-2}[c]	Assessed qualitatively
Renora, NJ	None	No current risk	No future risk

South Brunswick, NJ	None	Assessed qualitatively; no risk	Assessed qualitatively; potential risk
Suffern Wellfield, NY	None	No current risk	6×10^{-3} (b)
Vega Alta, PR	Yes	1.5×10^{-4} (c)	Assessed qualitatively
Volney Municipal, NY	None	No current risk	3.71×10^{-2} (b,f,e)
Waldick Aerospace, NJ	None	No current risk	Qualitative assessment (e)
Williams Property, NJ	None	No current risk	3.3×10^{-3} (b,f)

(a) For ground water only
(b) Based on hypothetical exposure to current concentrations
(c) Based on actual exposure to current concentrations
(d) Based on hypothetical exposure to predicted future concentrations
(e) Addressed in second operable unit
(f) All risks discussed as potential

BASELINE RISKS FOR DECISIONS INVOLVING GROUND WATER CONTAMINATION
REGION 4

Site	Populations Currently Exposed	Current Risk Level[a]	Future Risk Level[a]
Geiger, SC	None	No current risk	Not calculated for each medium Total risk: 4×10^{-4}[b]
Gold Coast, FL	None	Assessed qualitatively; potential risk exists	Assessed qualitatively[d,b]
Newport Dump, KY	None	No current risk	8.6×10^{-3}[b]
NW 58th Street LF, FL	Yes	4.5×10^{-2}	Assessed qualitatively[e] risk exists
Palmetto Wood, SC	None	No current risk	Assessed qualitatively[c] risk exists
Powersville LF, GA	None	1.3×10^{-4}[b]	1×10^{-2}[c]

Sodyeco, NC	None	No current risk	Not calculated for each medium Total risk: 2.13×10^{-3} (b)
Tower Chemical, FL	None	No current risk	9×10^{-1} (b)

(a) For ground water only
(b) Based on hypothetical exposure to current concentrations
(c) Based on hypothetical exposure to predicted future concentrations
(d) No delineation between current and future risk; all risks discussed as potential
(e) Based on exposure to predicted future concentrations at exposure points with currently existing receptors

BASELINE RISKS FOR DECISIONS INVOLVING GROUND WATER CONTAMINATION

Region	Site	Populations Currently Exposed	Current Risk Level[a]	Future Risk Level[a]
3	Kane and Lombard, MD	None	No current risk	Potential risk exists[b]
5	Liquid Disposal, MI	None	1×10^{-5}[b,g]	4×10^{-4}[b,h]
5	Rose Township, MI	None	7×10^{-1}[b]	4×10^{-3}[d]
5	Seymour Recycling, IN	None	No current risk	1×10^{-1}[b,d]
5	New Brighton, MN	Yes	Assessed qualitatively; risk exists[c]	Assessed qualitatively
5	Industrial Excess, OH	Yes	7×10^{-4}[j]	4×10^{-5}[k]
5	Northern Engraving, WI	None	No current risk	5.77×10^{-4}[b]
6	Cleve Reber, LA	None	No current risk	Risk unlikely
6	Hardage-Criner, OK	None	No current risk	6×10^{-1}[b]
6	Highlands Acid Pit, TX	None	Asssed qualitatively; no current risk	No significant risk

6	Compass Industries, OK	None	Assessed qualitatively; no current risk	Potential risk exists; levels exceed ARARs
6	Bayou Sorrel, LA	None	Assessed qualitatively; potential risk exists	Potential risk exists
6	Bayou Bonfouca, LA	None	No current risk	2×10^{-1} (b)
7	Conservation Chem., MO	None	No current risk	Assessed qualitatively; potential risk exists (b)
8	Rocky Mtn. Arsenal, CO	Yes	2.6×10^{-5} (c)	Assessed qualitatively
9	San Fernando Valley, CA	None	No current risk	Evaluated qualitatively; concentrations exceed MCLs (b)
9	Phoenix-Goodyear, AZ	None	No current risk	6×10^{-3} (b)
9	Stringfellow, CA	None	Assessed qualitatively; no current risk	Future risk exists (b)

10	Colbert Landfill, WA	Yes	Assessed qualitatively; concentrations exceed acceptable levels	Assessed qualitatively

(a) For ground water only
(b) Based on hypothetical exposure to current concentrations
(c) Based on actual exposure to current concentrations
(d) Based on hypothetical exposure to predicted future concentrations
(e) Addressed in second operable unit
(f) All risks discussed as potential
(g) Based on downgradient concentrations
(h) Based on on-site concentrations
(i) Data not available
(j) Based on residential well concentrations

TABLE 4.4

DECISIONS INVOLVING GROUND WATER CONTAMINATION
REGION 1

Site	Ground Water Remedy Selected	Basis for Remediation
Davis Liquid, RI	Pump and treat; alt. water supply	Current and future risk
Ottati & Goss, NH	Pump and treat	Future risk; aquifer is Class II; portions of aquifer are currently used as drinking water source; No alternate water supply available
Re-Solve, MA	Pump and treat	Future risk; aquifer is Class II; portions of aquifer are currently used as drinking water source; lack of alternate water supply system in the area; downward migration of contaminants

DECISIONS INVOLVING GROUND WATER CONTAMINATION
REGION 2

Site	Ground Water Remedy Selected	Basis for Remediation
Chemical Control, NJ	No ground water remediation	Aquifer is saline; No current or future risk
Diamond Alkali, NJ	Slurry wall; Pump and treat for purposes of containment*	Pumping ground water would lower the water level in the contained volume, and any lateral migration across the slurry wall would be toward the contained volume.
Endicott Village, NJ	Pump and treat	MCLs are currently met; however, contaminant levels tend to fluctuate.
GE Moreau, NY	Slurry wall; Pump and treat	Current risk
Haviland Complex, NY	Pump and treat; alt. water supply	Alternate water supply will address current exposure; plume is expected to move toward unaffected areas.
Katonah Well, NY	Pump and treat	Risk associated with possible future use of ground water; restoration of aquifer system as water resource for community
Montgomery Township, NJ	Alternate water supply*	Current risk

Renora, NJ	Treat via use as medium for bio-remediation system	Qualitative risk assessment for gw; no current or expected exposure to ground water; however, ground water is Class IIb and discharges to surface waters.
South Brunswick, NJ	No action with monitoring	Low level contamination has not migrated beyond site boundaries; nearest well is one mile upgradient.
Suffern Wellfield, NY	No action with monitoring	Lack of significant risk
Vega Alta, PR	Pump and treat; alt. water supply*	Current risk
Volney Municipal, NY	No ground water remediation*	No current risk; however, ground water will be evaluated more extensively in second operable unit.
Waldick Aerospace, NJ	No ground water remediation*	Ground water addressed in second operable unit.
Williams Property, NJ	Pump and treat; alt. water supply	Ground water classification Heavy use of aquifer as a potable water source; risk associated with potential use

* First operable unit

DECISIONS INVOLVING GROUND WATER CONTAMINATION
REGION 4

Site	Ground Water Remedy Selected	Basis for Remediation
Geiger, SC	Pump and treat	Ground water classification; Potential future use of gw; Ground water discharges to wetlands.
Gold Coast, FL	Pump and treat	Potential migration of plume toward Coral Gables Canal or into the Biscayne Aquifer, a sole source aquifer; potential future use of ground water
Newport Dump, KY	No ground water remediation	Dilution factor of 40,000:1 at point of discharge to nearby river; lack of current pathways of exposure; migration of plume of contamination away from raw water intake
NW 58th Street LF, FL	Alternate water supply*	Current exposure to gw; contribution of contamination to contamination of Biscayne Aquifer, a sole source aquifer
Palmetto Wood, SC	Pump and treat	Connection of contaminated shallow aquifer to a sole source deep aquifer

Powersville LF, GA	Alternate water supply	Restriction of downward migration of contaminants by overlapping clay lenses; potential future risk
Sodyeco, NC	Pump and treat	Ground water classification; Potential future use of ground water
Tower Chemical, FL	Alternate water supply; pump and treat	Vertical flow of ground water into a deep aquifer used as a primary drinking water source; potential future use of ground water; individual treatment units until gw treatment is complete

*Ground water treatment addressed in Biscayne Aquifer Area Ground Water Study ROD

DECISIONS INVOLVING GROUND WATER CONTAMINATION

Region	Site	Ground Water Remedy Selected	Basis for Remediation
3	Kane and Lombard, MD	No ground water remediation	Addressed in second operable unit
5	Liquid Disposal, MI	Pump and treat	Future public health risk; ecological risk due to off-site migration to wetlands
5	Rose Township, MI	Pump and treat	Future risk based on modeling
5	Seymour Recycling, IN	Pump and treat	Future risk associated with potential on-site use and off-site migration to nearby wells
5	New Brighton, MN	Pump and treat; alt. water supply	Current risk; need for additional municipal well for emergency use
5	Industrial Excess, OH	Alternate water supply	Current risk associated with residential well contamination
5	Northern Engraving, WI	Ground water monitoring only	No known points of entry of ground water into nearby river; no increase of indicator compounds downstream from discharge points in the river; deed

			restriction will prevent human contact with contaminated ground water
6	Cleve Reber, LA	Ground water monitoring only	Contamination confined to site; low mobility of contaminants of concern; Lack of current risk or significant future risk
6	Highlands Acid Pit, TX	No action with monitoring	Contaminated shallow aquifer is not a source of potable water; existence of underlying clay aquitard
6	Compass Industries, OK	Pump and treat	Potential risk
6	Bayou Sorrel, LA	Ground water monitoring only	Contamination in shallow aquifer is low level.
6	Bayou Bonfouca, LA	Pump and treat	Future risk
7	Conservation Chemical, MO	Pump and treat; off-site monitoring	Potential risk associated with migration of contaminants to aquifer used as a drinking water source
8	Rocky Mtn. Arsenal, CO	Permanent drinking water treatment plant; interim alternate supply	Current risk

9	San Fernando Valley, CA	Pump and treat	Future risk; contaminated aquifer provides 10% of the water supply for Los Angeles; increased demand may require use of contaminated portion
9	Phoenix-Goodyear, AZ	Pump and treat	Future risk associated with migration of contaminants to residential wells
9	Stringfellow, CA	Pump and treat downgradient ground water	Future risk associated with migration of contaminants to a municipal water supply
10	Colbert Landfill, WA	Pump and treat; alternate water supply	Current risk

5.0 REMEDIAL ALTERNATIVE SELECTION

TABLE 5.1

RELATIONSHIP OF REMEDIAL ALTERNATIVE SELECTED
TO MORE COSTLY ALTERNATIVES
REGION 1

Site	Least Costly Remedy Selected[d]	Most Costly Remedy Selected	Difference In Costs Minimal	More Protective Alternatives Cost Add. 10M+	More Costly Alt. Provide No Add. Protect.	More Costly Alt. Involve Excav.
Davis Liquid, RI	X[b]	X[a]				
Ottati & Goss, NH				X[c]		
Re-Solve, MA	X[b]	X[a]		X[b]	X[b]	

(a) Management of migration alternative
(b) Source control alternative
(c) Except for one variation of selected alternative which would provide 10^{-6} risk reduction for an additional 2.3M.
(d) Excluding no action

RELATIONSHIP OF REMEDIAL ALTERNATIVE SELECTED
TO MORE COSTLY ALTERNATIVES
REGION 2

Site	Least Costly Remedy Selected[a]	Most Costly Remedy Selected	Difference In Costs Minimal	More Protective Alternatives Cost Add. 10M+	More Costly Alt. Provide No Add. Protect.	More Costly Alt. Involve Excav.
Chemical Control, NJ						X
Cooper Road, NJ	X[b]				X[b]	
Diamond Alkali, NJ				X		X
Endicott Village, NJ					X	
GE Moreau, NY				X[d]		
Haviland Complex, NY	X					
Katonah Well, NY					X	
Montgomery Twp., NJ					X	
Renora, NJ					X	
South Brunswick, NJ	X[b]				X[b]	
Suffern Wellfield, NY	X[b]				X[b]	
Vega Alta, PR	X				X	

(Region 2, cont.)	Least Costly Remedy Selected[a]	Most Costly Remedy Selected	Difference In Costs Minimal	More Protective Alternatives Cost Add. 10M+	More Costly Alt. Provide No Add. Protect.	Involve Excav.
Volney Municipal, NY				X		
Waldick Aerospace, NJ	X			X		
Williams Property, NJ	X			X	X	

(a) Excluding no action
(b) No action alternative selected
(c) More than one criterion may apply to a site
(d) For residential water supply only; other alternatives selected were already implemented prior to ROD

RELATIONSHIP OF REMEDIAL ALTERNATIVE SELECTED
TO MORE COSTLY ALTERNATIVES
REGION 4

Site	Least Costly Remedy Selected[a]	Most Costly Remedy Selected	Difference In Costs Minimal	More Protective Alternatives Cost Add. 10M+	More Costly Alt. Provide No Add. Protect.	More Costly Alt. Involve Excav.
Geiger, SC					X	
Gold Coast Oil, FL					X	
Independent Nail, FL						X
Newport Dump, KY				X		
NW 58th Street LF, FL				X		
Palmetto Wood, SC					X	X
Parramore Surplus, FL	X[b]				X[b]	
Powersville LF, GA				X		
Sodyeco, NC					X	
Tower Chemical, FL	X				X	
Tri-City, FL	X[b]				X[b]	

(a) Excluding no action
(b) No action alternative selected

RELATIONSHIP OF REMEDIAL ALTERNATIVE SELECTED
TO MORE COSTLY ALTERNATIVES

Site	Least Costly Remedy Selected[a]	Most Costly Remedy Selected	Difference In Costs Minimal	More Protective Alternatives Cost Add. 10M+	More Costly Alt. Provide No Add. Protect.	More Costly Alt. Involve Excav.
Kane & Lombard, MD				X		X
Liquid Disposal, MI					X	
Rose Township, MI		X				
Seymour Recycling, IN					X[c]	
New Brighton, MN					X	
Industrial Excess, OH			X			
Northern Engraving, WI					X	X
Cleve Reber, LA				X		X
Highlands Acid Pit, TX	X[b]				X[b]	
Petro Chemical, TX				X		X
Compass Industries, OK	X			X	X	

Sand Springs, OK	X		X	X	
Bayou Sorrel, LA			X		X
Hardage-Criner, OK	X		X		
Bayou Bonfouca, LA			X		
Conservation Chem., MO	X		X	X	
Rocky Mtn., Arsenal, CO		X			
San Fernando Valley, CA		X			
Phoenix-Goodyear, AZ		X			
Stringfellow, CA	X				
Colbert Landfill, WA				X	

(a) Excluding no action
(b) No action alternative selected
(c) Only one more costly alternative provides for treatment of soils

TABLE 5.2

CLEANUP GOALS
REGION 1

Site	Soils	Ground Water
Davis Liquid, RI	2 ppm for VOCs will provide a 10^{-5} risk level for ground water.	MCLs
Ottati & Goss, NH	1 ppm for VOCs; 20 ppm for PCBs based on EPA Advisory for PCBs; 1 ppm PCBs for sediments	10^{-5} risk level
Re-Solve, MA	10^{-5} risk level (25 ppm PCBs); 1 ppm PCBs for sediments	10^{-5} risk level with the exception of ground water in the waste management area

CLEANUP GOALS
REGION 2

Site	Soils	Ground Water
Chemical Control, NJ	No goals established; chemical fixation remedy	No ground water remediation
Copper Road, NJ	No further action	No further action
Diamond Alkali, NJ	Containment remedy; no goals established	10^{-6}, Water Quality Criteria
Endicott Village, NJ	No soil remediation*	MCLs, 10^{-6} risk level
GE Moreau, NY	No goals established; containment remedy	MCLs, state standards
Haviland Complex, NY	Source removal only	MCLs, State standards
Katonah Well, NY	Operable unit for ground water only	MCLs, detection limit for PCE
Montgomery Twp., NJ	Operable unit for ground water only	No ground water treatment; alt. water supply meets MCLs
Renora, NJ	State criteria (5 ppm for PCBs)	MCLs, State criteria
South Brunswick, NJ	No action	No action

Suffern Wellfield, NY	No action	No action
Vega Alta, PR	Operable unit for ground water only	10^{-6} risk level
Volney Municipal, NY	Containment; no goals for leachate treatment	Operable unit source control only
Waldick Aerospace, NJ	State criteria (1 ppm for VOCs)	Operable unit for source control only
Williams Property, NJ	State criteria (1 ppm for VOCs)	MCLs

CLEANUP GOALS
REGION 4

Site	Soils	Ground Water
Geiger, SC	10^{-7} to 10^{-11} risk level	MCLs, PRMCLs, 10^{-5} risk level, Aquatic Life Chronic Toxicity Values, and CLP detection limit
Gold Coast, FL	100 ppm for lead[a]	MCLs, MCLGs, and other criteria[d]
Independent Nail, SC	10^{-6} risk level	Operable unit for source only
Newport Dump, KY	10^{-6} risk level or background	ACLs[b]
NW 58th Street LF, FL	No goals established; containment remedy	MCLs[c,d]
Palmetto Wood, SC	10^{-6} risk level or level recommended by ATSDR	MCLs or RMCLs
Parramore Surplus, FL	No action	No action
Powersville LF, GA	No goals established; containment remedy	ARARs currently met

Sodyeco, NC	Treat until leachate meets ARARs	PMCLGs, 10^{-6} risk level, or Ambient Water Quality Criteria; 2.8 ng/l for PAHs
Tower Chemical, FL	10^{-6} risk level	State standards, Office of Drinking Water Health Advisory standards, minimum detection limit, 10^{-6} risk level, and ACLs[d]
Tri-City, FL	No action	No action

(a) Level negotiated by EPA and Florida Department of Environmental Resources
(b) Allowance for dilution by river to 10^{-6}
(c) Ground water not addressed in this operable unit
(d) Criteria established in Biscayne Aquifer Area Groundwater Study
(e) Calculated by regional expert toxicologist for chlorobenzilate

CLEANUP GOALS

Region	Site	Soils	Ground Water
3	Kane and Lombard, MD	Containment remedy; no goals established	No ground water remediation
5	Liquid Disposal, MI	Solidification; no goals established	MCLs
5	Rose Township, MI	Background; 10 ppm for PCBs	MCLs; 10^{-6} risk level; PMCLG
5	Seymour Recycling, IN	10^{-5} risk level for VOCs	10^{-5} risk level;* 10^{-6} for nearest receptor
5	New Brighton, MN	Operable unit for ground water only	MCLs
5	Industrial Excess, OH	Operable unit for ground water only	Interim alternate water supply only
5	Northern Engraving, WI	Solidification; no goals established	Monitoring only; ACLs downgradient
6	Cleve Reber, LA	No specific goals given for soil incineration	No ground water remediation
6	Highlands Acid Pit, TX	No action	No action
6	Petro Chemical, TX	Containment of soils to 10 ppm PAHs and VOCs	No ground water remediation
6	Compass Industries, OK	Containment remedy	No discussion

6	Sand Springs, OK	99.99% destruction of sludges	No ground water remediation
6	Bayou Sorrel, LA	Containment remedy	No ground water remediation
6	Hardage-Criner, OK	Not specified	No ground water remediation
6	Bayou Bonfouca, LA	Incineration of sediments with PAH levels above 1300 ppm; soils to 100 ppm PAH	10^{-4} or 10^{-6} risk level (level technically feasible)
7	Conservation Chem., MO	Containment remedy	MCLs; FWQC standards; health advisories; 10^{-6}
8	Rocky Mtn. Arsenal, CO	No soil remediation	MCLs; 10^{-6} risk risk level
9	San Fernando Valley, CA	No soil remediation	MCLs; State Action Levels
9	Phoenix-Goodyear, AZ	No soil remediation	MCLs; MCLGs; FWQC standards; State Action Levels
9	Stringfellow, CA	No soil remediation	MCLs do not apply treatment requirements determined by municipal water project authority
10	Colbert Landfill, WA	No soil remediation	MCLs; 10^{-6} risk level

* Additive risk for levels given is 4×10^{-4}

TABLE 5.3

PREDICTED EFFECTIVENESS OF REMEDIAL ALTERNATIVE SELECTED
REGION 1

Site	Comments
Davis Liquid, RI	Treatability studies required for ground water; will leave residue on-site which may be delisted; destruction efficiency of 99.9% for organics
Ottati & Goss, NH	A total of approximately 19,000 cy of the 54,000 cy of on-site and off-site contaminated soils are to be treated; pilot studies will be conducted for aeration of soils.
Re-Solve, MA	Dechlorination selected for source control remedy; although pilot studies have been conducted, additional studies will be conducted prior to implementation, and if dechlorination proves to be infeasible, incineration will be used.

PREDICTED EFFECTIVENESS OF REMEDIAL ALTERNATIVE SELECTED
REGION 2

Site	Comments
Chemical Control, NJ	"In-situ fixation is not yet a standard construction practice;" A treatability study and field test will be required.
Cooper Road, NJ	No action; site previously remediated and is no longer a source of contamination.
Diamond Alkali, NJ	Interim remedy; goal of remediation is containment; effectiveness of containment remedy supported by ground water modeling
Endicott Village, NJ	Based on performance studies, it was determined that the selected treatment system will meet ARARs; however, the source of contamination has not been confirmed or characterized.
GE Moreau, NY	Containment remedy for source; Except for extension of residential water supply, the selected remedial alternative was implemented before ROD was signed; air stripper treatment facilities to be utilized for treatment of surface water and ground water have already been in operation and have been effectively removing VOCs.
Haviland Complex, NY	Additional ground water sampling and pilot testing will be conducted to determine whether metals treatment is necessary.
Katonah Well, NY	The selected technology is capable of achieving 10^{-6} risk level.

Montgomery Village Twp., NJ	Interim alternate drinking water supply; soils and gw to be addressed in second operable unit.
Renora, NJ	Treatability studies will be conducted for soils; long-term reliability of alternative will be established during the treatability study.
South Brunswick, NJ	Site previously remediated; post-remedial monitoring program will be implemented.
Suffern Wellfield, NY	No action alternative--includes monitoring and model verification
Vega Alta, PR	Tests to determine treatability of gw will be conducted. Multiple sources of contamination are not yet characterized.
Volney Municipal, NY	Containment remedy "provides a high overall degree of risk reduction;" ground water evaluated further in second operable unit
Waldick Aerospace, NJ	Confirmatory sampling will be conducted after treatment; ground water addressed in second operable unit
Williams Property, NJ	Hydrogeologic investigation will determine the leading edge of the contaminated ground water plume. "A high degree of [ground water contaminant] removal is expected."

PREDICTED EFFECTIVENESS OF REMEDIAL ALTERNATIVE SELECTED
REGION 4

Site	Comments
Geiger, SC	Treatability studies will determine which ground water treatment system will be used. Solidification/stabilization will be evaluated prior to implementation to determine its effectiveness in achieving cleanup goals.
Gold Coast, FL	Hardened sludges are not considered to be amenable to treatment; further studies will determine treatability of soils and ground water and determine extent of contamination for both media.
Independent Nail, SC	Although testing will be conducted, studies have shown solidification/stabilization to be effective for immobilizing cadmium, chromium, and other heavy metals present in low levels at site; sampling will determine parameters for excavation
Newport Dump, KY	Surface contamination and migration offsite is minimal; low permeability clays beneath site; multi-media monitoring program to evaluate effectiveness
NW 58th Street, FL	Capping will minimize production of leachate.
Palmetto Wood, SC	Pump tests, computer modeling, and treatability studies will be conducted prior to ground water remediation. Treatabililty studies will determine

	extraction effectiveness for soil remedy.
Parramore Surplus, FL	No action; source removed
Powersville LF, GA	Caps will reduce mobility of contaminants.
Sodyeco, NC	Treatability studies will be conducted to determine the treatment system for soils. FS states that 98% efficiency is associated with the ground water alternative.
Tower Chemical, FL	FS states that gw removal efficiencies greater than 90% for arsenic would be difficult to achieve; cleanup goal set for DDT is below detection limit. Further studies will be required.
Tri-City, FL	No action; source removed

PREDICTED EFFECTIVENESS OF REMEDIAL ALTERNATIVE SELECTED

Region	Site	Comments
3	Kane and Lombard, MD	ROD states that the remedy is expected to "significantly reduce ground water contamination" produced by source and "provide, to the extent possible, complete on-site management of surface water. However, uncertainties associated with construction of a section of the slurry wall raise "concerns over its long-term physical and chemical integrity."
5	Liquid Disposal, MI	Solidification/fixation is expected to be effective because of the relatively low mass of organics involved. However, pilot studies will be conducted during the remedial design. Additional sampling of bedrock aquifer will also be conducted.
5	Rose Township, MI	Ground water treatability studies and aquifer pump tests will be conducted; although 99.99% incineration efficiency is expected, pilot testing is necessary; further sampling will be conducted in wetlands and northern grid area to determine extent of remediation in these areas.
5	Seymour Recycling, IN	ROD states that the vapor extraction system would "remove a substantial amount" of VOCs; Non-volatile organics will remain in soil. Ground water pumping effectiveness determined by modeling; however, the model cannot be verified.

5	New Brighton, MN	Interim alternate water supply selected; source has not been addressed.
5	Industrial Excess, OH	Operable unit for provision of alternate water supply only
5	Northern Engraving, WI	A Quality Assurance plan will be developed for ground water monitoring program, and inconclusive differences between upstream and downstream concentrations of contaminants will be addressed.
6	Cleve Reber, LA	Incineration provides for destruction of sludge; wastes to be excavated are not fully characterized; residue will be absorbed by local organic clays. Containment of contaminated soils.
6	Highlands Acid Pit, TX	No action with monitoring; some contamination in shallow aquifer; however, attenuation is expected. Surface and sediment sampling will be conducted.
6	Petro Chemical, TX	Operable unit for excavation and interim on-site disposal of soils; will minimize contact with moderately contaminated soils and improve access to site for further remedial investigations
6	Compass Industries, OK	Containment remedy for landfill; ROD states that this is a permanent remedy. Ground water will be treated at a later date if found necessary; no criteria were given for evaluating the necessity.

6	Sand Springs, OK	Some sludges will be incinerated; treatability study verified 99.9% efficiency. Remaining sludges will be solidified; EPA pilot study determined this technology to be ineffective for high levels of organics. However, studies conducted by responsible parties indicated its effectiveness. Further treatability studies will be conducted.
6	Bayou Sorrel, LA	Effectiveness of containment remedy supported by existence of extremely impermeable soils underlying the site; ground water monitoring included.
6	Hardage-Criner, OK	Interim remedy; treatment technology will be determined by bench tests or pilot studies.
6	Bayou Bonfouca, LA	Field tests and literature studies support the conclusion that residual contamination will be attenuated and adsorbed by local clays. ROD states that "ground water remediation will in essence be a pilot study. Until specific field data are collected it is unknown what clean-up levels will be technologically feasible."
7	Conservation Chemical, MO	Containment/pumping system is based on existing technology; however, "geologic and hydro-geologic uncertainties at the site make calculation of precise pumping rates necessary to ensure adequate capture impossible." Performance of system will be verified by off-site ground water monitoring.

8	Rocky Mtn. Arsenal, CO	Interim remedy involves alternate water supply; aquifer restoration will be addressed in a subsequent operable unit.
9	San Fernando Valley, CA	Interim remedy is considered to be capable of attaining ARARs; includes carbon filter for air contaminants; remedy is primarily for containment of plume; source unknown
9	Phoenix-Goodyear, AZ	Selected technology has been shown to be 99.9% effective for removal of organics; however, source has not been addressed or characterized
9	Stringfellow, CA	Treatability studies and a full scale feasibility study is being conducted; interim remedy will prevent further migration of contaminated plume.
10	Colbert Landfill, WA	Monitoring will verify successful interception of contamination; treatment "will be sufficient to reduce contaminant levels in the aquifers and in the wastewater to or below" the cleanup goals established.

6.0 DOCUMENTS REVIEWED

REGION 1

Davis Liquid, RI

Record of Decision, Environmental Protection Agency, September 29, 1987
Draft Remedial Investigation, Vol. 1, Camp Dresser and McKee, Inc., November 1986
Draft Feasibility Study, Vol. 1, Camp Dresser and McKee, Inc., April 1987

Ottati and Goss, NH

Record of Decision, Environmental Protection Agency, January 16, 1987
Remedial Investigation/Feasibility Study, Vol. 1, Goldberg-Zoino and Associates, Inc., August 1986

Re-Solve, MA

Record of Decision, Environmental Protection Agency, September 23, 1987
On-Site Remedial Investigation/Feasibility Study, Vol. 1, Camp Dresser and McKee, Inc., June 1983
Draft Off-Site Remedial Investigation Supplement, Camp Dresser and McKee, Inc., February 1987

REGION 2

Chemical Control, NJ

Record of Decision, Environmental Protection Agency, September 23, 1987
Draft Remedial Investigation, NUS Corporation, July 1986
Draft Feasibility Study, NUS Corporation, June 1987

Cooper Road, NJ

Record of Decision, Environmental Protection Agency, September 29, 1987

Diamond Alkali, NJ

Record of Decision, Environmental Protection Agency, September 30, 1987
80 Lister Avenue Feasibility Study, Diamond Shamrock Chemical Company, October 1985

Proposed Interim Remedial Action Plan, Environmental Protection Agency, Region II, July 1987

Endicott Village, NJ

Record of Decision, Environmental Protection Agency, September 25, 1987
Feasibility Study, TAMS Consultants, Inc., July 1987
Baseline Public Health Evaluation, TAMS Consultants, Inc., July 1987

GE Moreau, NY

Record of Decision, Environmental Protection Agency, July 13, 1987
Remedial Investigation, Vol. 1, Dunn Geoscience Corporation for General Electric, October 1984
Feasibility Study, Vol. 1, GE Moreau, August 1985

Haviland Complex, NY

Record of Decision, Environmental Protection Agency, September 30, 1987
Remedial Investigation, Holzmacher, McLendon and Murrell, P.C. June 1987
Feasibility Study, Holzmacher, McLendon and Murrell, July 1987

Katonah Well, NY

Record of Decision, Environmental Protection Agency, September 25, 1987
Remedial Investigation, Vol. 1, Camp Dresser and McKee, July 1987
Draft Feasibility Study, Camp Dresser and McKee/ICF-Clement, July 1987

Montgomery Township, NJ

Record of Decision, Environmental Protection Agency, September 29, 1987
Operable Unit Remedial Investigation/Feasibility Study, Woodward-Clyde Consultants, July 1987

Renora, NJ

Record of Decision, Environmental Protection Agency, September 30, 1987
Remedial Investigation, BCM Eastern, Inc., July 1987
Feasibility Study, BCM Eastern, Inc., August 1987

Baseline Endangerment Assessment, Camp Dresser and McKee/ICF-Clement, August 1987

South Brunswick, NJ

Record of Decision, Environmental Protection Agency, September 30, 1987
Hydrogeologic Investigation Study, Wehran Engineering, 1982

Suffern Wellfield, NY

Record of Decision, Environmental Protection Agency, September 25, 1987
Remedial Investigation, Vol. 1, ERM-Northeast, July 1987
Feasibility Study, Vol. 1, ERM-Northeast, August 1987

Vega Alta, PR

Record of Decision, Environmental Protection Agency, September 30, 1987
Remedial Investigation, NUS Corporation, May 1986
Feasibility Study, Ebasco Services, Inc., July 1987

Volney Municipal, NY

Record of Decision, Environmental Protection Agency, July 31, 1987
Remedial Investigation/Feasibility Study, URS Company, Inc., May 1987

Waldick Aerospace, NJ

Record of Decision, Environmental Protection Agency, September 29, 1987
Draft Remedial Investigation, Camp Dresser and McKee/ICF Incorporated, July 1987
Draft Feasibility Study, Camp Dresser and McKee, July 1987

Williams Property, NJ

Record of Decision, Environmental Protection Agency, September 30, 1987
Feasibility Study, Woodward-Clyde Consultants, July 1987

REGION 3

Kane and Lombard, MD

Record of Decision, U.S. Environmental Protection Agency, September 30, 1987
Remedial Investigation, Camp Dresser & McKee, Inc., May 1987

REGION 4

Geiger, SC

Record of Decision, U.S. Environmental Protection Agency, June 1, 1987
Remedial Investigation/Feasibility Study, Camp Dresser & McKee, Inc., July 1987
Public Health Evaluation, Camp Dresser & McKee, Inc., November 1986

Gold Coast, FL

Record of Decision, U.S. Environmental Protection Agency, September 11, 1987
Draft Remedial Alternatives Evaluation Report, Engineering-Science, June 1984
Remedial Action Master Plan, NUS Corporation, June 1983
Endangerment Assessment, ICAIR, December 1986
Final Cost Estimate Report, AEPCO, Inc., February 1987

Independent Nail, SC

Record of Decision, U.S. Environmental Protection Agency, September 30, 1987
Remedial Investigation, Camp Dresser & McKee, Inc., June 1987
Draft Feasibility Study, Camp Dresser & McKee, Inc., July 1987
Endangerment Assessment, ICF-Clement, Inc., June 1987

Newport Dump, KY

Record of Decision, U.S. Environmental Protection Agency, March 17, 1987
Remedial Investigation/Feasibility Study, NUS Corporation, March 1987
Endangerment Assessment, NUS Corporation, January 1987

NW 58th Street Landfill, FL

Record of Decision, U.S. Environmental Protection Agency, September 21, 1987
Endangerment Assessment, Planning Research Corporation, April 1986
Biscayne Aquifer/Dade County Final Report--Phase II, CH2M Hill, February 1984
Biscayne Aquifer/Dade County Final Report--Phase III, CH2M Hill, May 1985
Leachate Characteristics and Control Report, Environmental Science and Engineering, Inc., June 1985

Palmetto Wood, SC

Record of Decision, U.S. Environmental Protection Agency, September 30, 1987
Remedial Investigation, Camp Dresser & McKee, Inc., January 1987
Feasibility Study, Camp Dresser & McKee, Inc., July 1987
Public Health Evaluation, ICF-Clement, Inc., January 1987

Parramore Surplus, FL

Record of Decision, U.S. Environmental Protection Agency, September 15, 1987
Modified Remedial Investigation, NUS Corporation, January 1986
Public Health Evaluation, Environmental Protection Agency, September 1987

Powersville Landfill, GA

Record of Decision, U.S. Environmental Protection Agency, September 30, 1987
Draft Remedial Investigation/Feasibility Study, Camp Dresser & McKee, Inc., July 1987
Endangerment Assessment, ICF-Clement, Inc., July 1987

Sodyeco, SC

Record of Decision, U.S. Environmental Protection Agency, September 24, 1987
Draft Remedial Investigation Study, Engineering-Science, May 1987
Draft Feasibility Study, Engineering-Science, July 1987

Tri-City, FL

Record of Decision, U.S. Environmental Protection Agency, September 11, 1987
Contamination Assessment, Environmental Science and Engineering, Inc., April 1985

Tower Chemical, FL

Record of Decision, U.S. Environmental Protection Agency, June 30, 1987
Remedial Investigation (portions including PHE), NUS Corporation
Feasibility Study, NUS Corporation, July 1987

REGION 5

Industrial Excess, OH

Record of Decision, U.S. Environmental Protection Agency, September 30, 1987
Remedial Investigation, Camp Dresser & McKee, Inc., July 1987
Feasibility Study, Camp Dresser & McKee, Inc., August 1987
Public Health Evaluation, ICF-Clement Associates, Inc., April 28, 1988

Liquid Disposal, MI

Record of Decision, U.S. Environmental Protection Agency, September 30, 1987
Remedial Investigation, E. C. Jordan Co., May 1987
Feasibility Study, E.C. Jordan Co., August 1987

New Brighton, MN

Record of Decision, U.S. Environmental Protection Agency, March 31, 1987
Phased Feasibility Study, Camp Dresser & McKee, December, 1986

Northern Engraving, WI

Record of Decision, U.S. Environmental Protection Agency, September 28, 1987
Remedial Investigation Report, Eder Associates, February 1987
Feasibility Study, Eder Associates, August 1987
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