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FEASIBILITY STUDY SUMMARY
TECHNICAL REVIEW COMMITTEE MEETING #5
NWIRP BETHPAGE, NY

September 16, 1993

**REMEDIAL ACTION OBJECTIVES
NWIRP BETHPAGE, NEW YORK**

Groundwater

- 1) Prevent human exposure (through ingestion, inhalation, dermal contact) to groundwater having contaminants in concentrations greater than the remedial action goals.
- 2) As implementable, restore contaminated groundwater to the remedial action goals.
- 3) Comply with contaminant-specific, location-specific, and action-specific ARARs and guidance.

If groundwater goals cannot be achieved or the aquifer restored, then at a minimum the following remedial objectives will be met.

- 1) Reduce human exposure (ingestion, inhalation, dermal contact) to groundwater having contaminants in concentrations greater than remedial action levels.
- 2) Prevent further offsite migration of contaminants.

Soils

- 1) Prevent human exposure (accidental ingestion, dermal contact, dust inhalation) to contaminated soils at Sites 1, 2, and 3 in concentrations greater than the remedial action goals.
- 2) Prevent leaching of contaminants at resultant groundwater concentrations in excess of groundwater remediation goals.
- 3) Comply with contaminant-specific, location-specific, and action-specific ARARs and guidance.

**RISK BASED GOAL
NWIRP BETHPAGE, NEW YORK**

Reference:

Risk Assessment Guidance for Superfund (RAGS), Volume 1, Human Health Evaluation Manual, Part B - Development of Risk-based Preliminary Remediation Goals (USEPA, December 1991).

Receptors/Exposure:

Current Industrial Use Scenario

- Current Onsite Worker / incidental ingestion and inhalation routes (fugitive dust).
- Current Offsite Resident / inhalation route (fugitive dust).

Future Residential Use Scenario

- Future Onsite Resident / Oral exposure.

Risk Criteria:

- Excess Cancer Risk: = 1×10^{-4} to 10^{-6} . PRGs are based initially on 1×10^{-6} for each chemical. A summation of risks for all chemicals must be made to confirm compliance with 1×10^{-4} criteria.
- Hazard Index: = 1.

TABLE 2-12
 REMEDIAL ACTION LEVELS FOR CONTAMINATED SOILS
 NWIRP, BETHPAGE, NEW YORK

CHEMICAL OF CONCERN	MAXIMUM SITE SOIL CONC (MG/KG)	RISK BASED REMEDIATION GOAL(MG/KG) ^(r)	ARAR BASED REMEDIATION GOAL (MG/KG)	TBC BASED REMEDIATION GOAL (MG/KG)
SITE 1				
ORGANICS - VOLATILES				
Trichloroethene	0.200	NR	0.0093 ^(c)	NR
Tetrachloroethene	4.80	NR	0.0268 ^(c)	NR
1,1,1-Trichloroethane	0.072	NR	0.00112 ^(c,h)	NR
PESTICIDES				
Chlordane	0.240	0.491 ^(b) -49.1 ^(b)	4.12 ^(c)	0.206 ^(d)
POLYCHLORINATED BIPHENYLS				
Total Aroclors	1.470	0.753 ^(e,k) -75.3 ^(e) 0.083 ^(b,h) -8.3 ^(b)	50 ^(b)	1-10 ^(e)
POLYNUCLEAR AROMATICS				
Benzo(a)anthracene	0.550	NA	147.5 ^(c)	0.0059 ^(d,h)
Chrysene	0.580	NA	147.5 ^(c)	0.0059 ^(d,h)
Benzo(b)fluoranthene	0.680	NA	405.0 ^(c)	0.0162 ^(d,h)
Benzo(k)fluoranthene	0.620	NA	405.0 ^(c)	0.0162 ^(d,h)
Benzo(a)pyrene	0.620	0.0875 ^(b,h) -8.75 ^(b)	16.22 ^(f)	0.0610 ^(g,h)
Indeno(1,2,3-cd)pyrene	0.430	NA	1,180 ^(c)	0.0472 ^(d,h)
Dibenzo(a,h)anthracene	0.150 ^(h)	NA	2,436 ^(c)	0.014 ^(e,h)
INORGANICS				
Arsenic	3,380	5.38 ^(e,h) -538 ^(h)	(i)	80 ^(p)
Manganese	167	142 ^(e,p)	NA	20,000 ^(q)

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TABLE 2-12 (continued)
REMEDIAL ACTION LEVELS FOR CONTAMINATED SOILS
NWRRP, BETHPAGE, NEW YORK

CHEMICAL OF CONCERN	MAXIMUM SITE SOIL CONC.(MG/KG)	RISK BASED REMEDIATION GOAL(MG/KG) ⁽ⁿ⁾	ARAR BASED REMEDIATION GOAL (MG/KG)	TBC BASED REMEDIATION GOAL (MG/KG)
SITE 2				
ORGANICS - VOLATILES				
Trichloroethene	0.032	NR	0.01174 ^(c)	NR
PHENOLS				
4-Methylphenol(p-cresol)	0.0750 ^(h)	NR	0.0226 ^(c,h,i)	0.452 ^(d)
PESTICIDES				
Heptachlor Epoxide	0.0120	0.072 ^(b) , 7.02 ^(b)	0.00082 ^{(c,i)(h)(m)}	0.000082 ^(d,h)
Dieldrin	0.0079	0.0399 ^(b) , 3.99 ^(b)	1.580 ^(c)	0.000316 ^(d,h)
POLYCHLORINATED BIPHENYLS				
Total Aroclors	36.6	0.753 ^(a,h) , 75.3 ^(a) 0.083 ^(k) , 8.3 ^(b)	50 ^(j)	1-10 ^(e)
POLYNUCLEAR AROMATICS				
Benzo(a)anthracene	1.20	NA	186.0 ^(c)	0.00744 ^(d,h)
Chrysene	1.10	NA	186.0 ^(c)	0.00744 ^(d,h)
Benzo(b)fluoranthene	0.980	NA	512.5 ^(c)	0.0205 ^(d,h)
Benzo(k)fluoranthene	1.20	NA	512.5 ^(c)	0.0205 ^(d,h)
Benzo(a)pyrene	1.20	0.0875 ^(b,h,k) , 8.75 ^(b)	20.47 ^(f)	0.061 ^(g,h)
Indeno(1,2,3-cd)pyrene	0.690	NA	1,490 ^(e)	0.0596 ^(d,h)
Dibenzo(a,h)anthracene	0.310 ^(m)	NA	3,071 ^(c)	0.014 ^(g,h)
Naphthalene	0.210 ⁽ⁿ⁾	NR	0.875 ^(c)	0.175 ^(d,h)
INORGANICS				
Arsenic	13.4	5.38 ^(a,h) , 538 ^(e)	500 ^(b)	80 ^(p)
Beryllium	0.880 ^(h)	0.663 ^(b,h) , 66.3 ^(b)	NA	0.160 ^(g,h)

TABLE 2-12 (continued)
 REMEDIAL ACTION LEVELS FOR CONTAMINATED SOILS
 NWIRP, BETHPAGE, NEW YORK

CHEMICAL OF CONCERN	MAXIMUM SITE SOIL CONC(MG/KG)	RISK BASED REMEDIATION GOAL(MG/KG) ^(c)	ARAR BASED REMEDIATION GOAL (MG/KG)	TBC BASED REMEDIATION GOAL (MG/KG)
SITE 3				
ORGANICS - VOLATILES				
Tetrachloroethene	0.0550	NR	0.0288	NR
ETHERS				
Bis(2-chloroethyl)ether	0.360	0.024 ^{(a,h,k),2.4^(a)}	0.011 ^(c,h,n)	0.00022 ^(d,h)
PESTICIDES				
Heptachlor	0.0170	NR	0.0759 ^(e)	0.00759 ^(d)
Dieldrin	0.0050	0.0399 ^{(b),3.99^(b)}	1.345 ^(e)	0.000269 ^(d,h)
POLYNUCLEAR AROMATICS				
Benzo(a)anthracene	0.880	NA	158.3 ^(c)	0.00633 ^(d,h)
Chrysene	1.06	NA	158.3 ^(c)	0.00633 ^(d,h)
Benzo(b)fluoranthene	1.20	NA	435.0 ^(c)	0.0174 ^(d,h)
Benzo(k)fluoranthene	1.40	NA	435.0 ^(e)	0.0174 ^(d,h)
Benzo(a)pyrene	1.30	0.0875 ^{(b,h,k),8.75^(b)}	17.40 ^(f)	0.0610 ^(g,h)
Indeno(1,2,3-cd)pyrene	0.920	NA	1,265 ^(e)	0.0506 ^(d,h)
Dimethylphthalate	0.190 ^(h)	782,143 ^(b)	0.0138 ^{(c)(h)(e)}	NR
INORGANICS				
Arsenic	56.8	5.38 ^{(e,k),538^(e)}	500 ^(l)	80 ^(p)
Beryllium	1.50	0.663 ^{(b,h,k),66.3^(b)}	NA	0.160 ^(g,h)
Manganese	267	142 ^(b,q)	NA	20,000 ^(p)

TABLE 2-12 (continued)
 REMEDIAL ACTION LEVELS FOR CONTAMINATED SOILS
 NWIRP, BETHPAGE, NEW YORK
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- (a) Current industrial land use scenario.
- (b) Future residential land use scenario.
- (c) Groundwater protection based on New York State MCLs.
- (d) Groundwater protection based on New York State guidelines.
- (e) 1 mg/Kg residential use, 10 mg/Kg industrial use based on Federal and New York State guidance.
- (f) Groundwater protection based on Federal MCLs/MCLGs.
- (g) Soil action level based on New York State guidelines.
- (h) Less than CRQL (organics) or CRDL (inorganics).
- (i) Potential for TCLP leachate to exceed hazardous waste criteria. Only one location at Site 1 exhibited elevated levels of arsenic. TCLP testing was conducted on a composite containing this sample. The TCLP concentration was 0.855 mg/l. RCRA criteria is 5 mg/l.
- (j) TSCA criteria.
- (k) Chemical of concern maximum concentration exceeds 10^{-8} risk; however, cumulative risk for all remaining chemicals not expected to exceed 10^{-4} following ARAR-based remediation.
- (l) Eliminate from further ARAR-based groundwater protection consideration. 4-methylphenol not detected in Site 2 subsurface soil or groundwater and only detected in 1 of 13 surface soil samples analyzed. The one detection is below the CRQL of 0.330 mg/Kg.
- (m) Eliminate from further ARAR-based groundwater consideration. Heptachlor epoxide not detected in Site 2 surface or subsurface soils or groundwater. Only detected in basin sediments (1 of 2 samples) which are periodically removed by Grumman.
- (n) Bis(2-chloroethyl)ether not detected in Site 3 subsurface soils or groundwater and only detected in 1 of 9 surface soil samples at a concentration slightly above the CRQL of 0.350 mg/Kg.
- (o) Eliminate from further ARAR-based groundwater protection consideration. Dimethyl phthalate not detected in Site 3 subsurface soils or groundwater and only detected in 1 of 9 surface soil samples at a concentration less than the CRQL of 0.330 mg/Kg.
- (p) Manganese was not detected in Site 1 surface soils. Manganese was detected in 9 of 9 subsurface soils analyzed, at a representative concentration of 126 mg/Kg which is less than the risk-based remediation goal. Primary non-carcinogenic risk is associated with dust inhalation.
- (q) Manganese was not detected in Site 3 surface soils. Manganese was detected in 6 of 6 subsurface soils analyzed, at a representative concentration of 195 mg/Kg which exceeds the risk based remediation goal. Primary non-carcinogenic risk is associated with dust inhalation.
- (r) Where data is presented as a range, chemical of concern is carcinogenic and range represents 10^{-8} to 10^{-4} risk.
- NA - Not applicable
- NR - Not reported since less stringent than ARAR-based criteria highlighted goals indicate an exceedance of maximum site soil concentration.

TABLE 2-13

**GROUNDWATER REMEDIAL ACTION GOALS
NWIRP, BETHPAGE, NEW YORK (ug/l)**

CHEMICAL	REMEDIAL ACTION GOAL	BASIS
VOLATILE ORGANICS		
Carbon Tetrachloride	5	Federal FMCL/NYS MCL
1,1-Dichloroethane	5	NYS MCL
1,1-Dichloroethene	5	NYS MCL
1,2-Dichloroethene	5	NYS MCL
Ethylbenzene	5	NYS MCL
Tetrachloroethene	5	Federal FMCL/NYS MCL
Toluene	5	NYS MCL
1,1,1-Trichloroethane	5	NYS MCL
Trichloroethene	5	Federal FMCL/NYS MCL
Xylenes	5	NYS MCL
SEMI-VOLATILES		
Bis(2-ethylhexyl phthalate)	50	NYS MCL
PCBs		
PCB*	0.1	NYS GWQS
TOXIC METALS		
Arsenic	25	NYS GWQS
Cadmium	5	Federal FMCLG
Chromium	50	NYS MCL
Hexavalent Chromium	50	NYS GWQS
Copper	200	NYS GWQS
Lead	15	NYS and Federal Action Level
Manganese	200	Federal LMCLG
Vanadium	250	NYS Action Level
Cyanide	100	NYS GWQS

TABLE 2-13 (continued)
GROUNDWATER REMEDIAL ACTION GOALS
NWIRP, BETHPAGE, NEW YORK [ug/l]
PAGE 2

NYS New York State

MCL Maximum Contaminant Level

L- Listed

F- Final

MCLG Maximum Contaminant Level Goal

GWQS Groundwater Quality Standard

NOTE: Refer to Table 2-6 for a listing of all contaminated-specific groundwater ARARs.

* Not present to date in groundwater.

**MAJOR ARARs and TBCs
NWIRP BETHPAGE, NEW YORK**

- **RCRA Hazardous Waste Criteria:** Soils at one location at Site 1 are likely to be RCRA Hazardous for arsenic. Spent solvents may also become an issue, since they are listed wastes. General practice on Federal level is to not classify as listed unless the source can be proven. NYS has similar state program.
- **RCRA LDRs:** Require treatment of hazardous waste prior to disposal (fixation for arsenic).
- **TSCA:** PCBs were found at greater than 50 ppm (trigger value for TSCA). Strict interpretation of regulations allows for landfill of soils with up to 500 ppm, however, there may not be any landfills which will accept 50 to 500 ppm. Greater than 500 ppm requires incineration.
- **SDWA MCL/MCLG:** Most significant groundwater ARAR. Regulates contaminants in drinking water. Standards are also typically applied to groundwater. NYS has similar state program, with standards generally slightly more stringent than Federal standards.
- **NYS "Contained-In" Policy:** Contains guidance for chemicals in soils and groundwater. Some standards are very stringent, while others are in line with risk assessment. This policy is a TBC.

TABLE 4-1
SUMMARY OF SOILS ALTERNATIVES COSTS
NWIRP, BETHPAGE, NEW YORK

Alternative No.	Current Industrial Scenario			Future Residential Scenario		
	Capital Cost	O&M Cost/Yr	Present Worth Cost (30-Yr)	Capital Cost	O&M Cost/Yr	Present Worth Cost (30-Yr)
S1 - No Action ⁽¹⁾	S1 - \$ 0	\$ 4,000	\$ 56,000	-----	-----	-----
S2 - Clay Capping	S2A - \$ 3,779,000	\$ 19,000	\$ 4,065,000	S2B - \$ 3,546,000	\$ 18,000	\$ 3,817,000
S3 - Fixation of Metals, Incineration of PCBs > 50 ppm, and In-Situ Vapor Extraction of VOCs ⁽¹⁾	S3 - \$ 16,847,000	\$ 14,000	\$ 17,056,000	-----	-----	-----
S4A - Fixation of Metals, Incineration of PCBs > 50 ppm, Landfill of PCBs between 10 ppm and 50 ppm, and In-Situ Vapor Extraction of VOCs ⁽¹⁾	S4A - \$ 19,441,000	\$ 14,000	\$ 19,651,000	-----	-----	-----
S4B - Fixation of Metals, Incineration of PCBs > 50 ppm, Landfill of PCBs between 10 ppm and 50 ppm, and Limited In-Situ Vapor Extraction of VOCs ⁽¹⁾	S4B - \$ 10,655,000	\$ 14,000	\$ 10,865,000	-----	-----	-----
S5 - Fixation of Metals, Incineration of PCBs > 50 ppm, In-Situ Vapor Extraction of VOCs, and Offsite Landfill of Other Metals/Organics ⁽²⁾	S5A - \$ 44,490,000	-----	-----	S5B - \$ 41,758,000	-----	-----
S6 - Fixation of Metals, Incineration of PCBs > 50 ppm, Low Temperature Stripping of VOCs, and Offsite Landfill of Other Metals/Organics ⁽²⁾	S6A - \$ 110,330,000	-----	-----	S6B - \$ 106,591,000	-----	-----
S7 - Soil Washing/Onsite Fill of Metals and Organics with Offsite Landfill of Metal Treatment Residuals, and Incineration of Organic Treatment Residuals ⁽²⁾	S7A - \$ 91,597,000	-----	-----	S7B - \$ 89,907,000	-----	-----

Handwritten notes:
 S1
 VOC
 S2
 S3
 S4
 S5
 S6
 S7

⁽¹⁾ Costs for current industrial use scenario and future residential use scenario are identical.
⁽²⁾ No long-term operating costs are incurred since no residual contamination remains on site; therefore, present worth costs are not applicable.

TABLE 2-14

CONTAMINATED SOIL VOLUMES
NWIRP, BETHPAGE, NEW YORK

Constituents of Concern	Site 1		Site 2		Site 3		Total	
	Current Industrial (CY)	Future Residential (CY)	Current Industrial (CY)	Future Residential (CY)	Current Industrial (CY)	Future Residential (CY)	Current Industrial (CY)	Future Residential (CY)
PCBs > 50 ppm	300	300	0	0	0	0	300	300
PCBs between 10 ppm and 50 ppm	1,100	1,100	2,600	2,600	0	0	3,700	3,700
Metals > Hazardous Waste Criteria	600	600	0	0	0	0	600	600
VOCs > Action Levels (excludes PCBs > 10 ppm) (excludes metals > hazardous waste criteria)	9,400	7,900	1,300	1,300	0	0	10,700	9,200
- VOCs and other metals/organics	106,000(a)	107,500(a)	1,800	1,800	121,400	121,400	229,200	230,700
- VOCs only	115,400	115,400	3,100	3,100	121,400	121,400	239,900	239,900
Total VOCs (c)								
Other organics and metals > action levels	9,400	7,900	1,300	1,300	0	0	10,700	9,200
- VOCs and other metals/organics	2,300	400	30,600	32,400	19,000	13,100	51,900	45,900
- Other metals/organics only	11,700	8,300	31,900	33,700	19,000	13,100	62,600	55,100
Total other metals/organics								
Total Soil Volumes (b)	119,700	117,800	36,300	38,100	140,400	134,500	296,400	290,400

(a) Includes 47,100 cubic yards of PCE (tetrachloroethene) contaminated soil originating from the Plant No. 3 area.

(b) Total Soil Volume = PCBs > 50 ppm + PCBs between 10 ppm and 50 ppm + metals > hazardous waste criteria + VOCs only + other metals/organics only + VOCs and other metals/organics

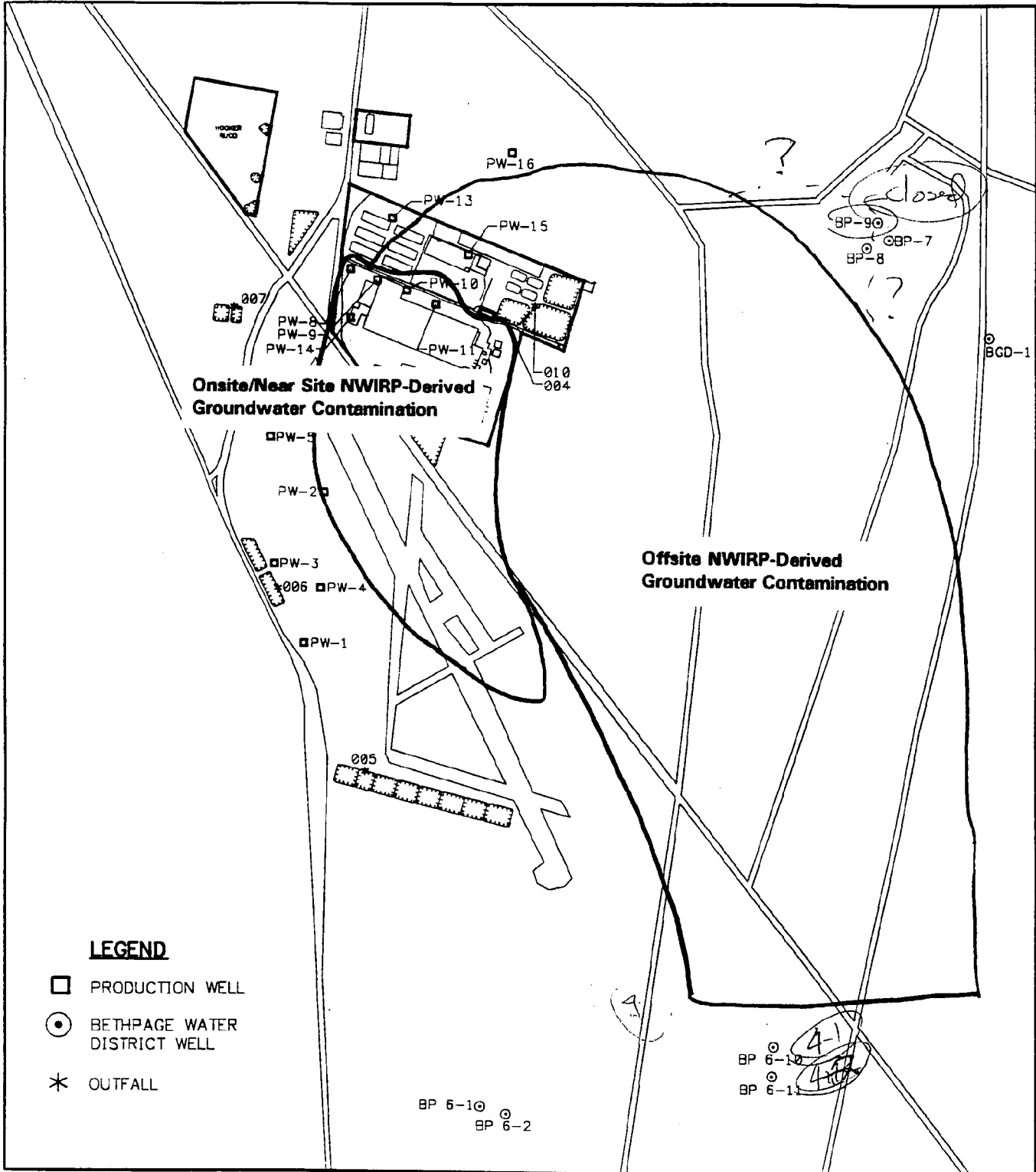
(c) The majority of VOC-contaminated soils only exceed the VOC-action levels by a factor of one to three. The volume of VOC-contaminated soils which exceed three times this baseline action level total approximately 87,000 cubic yards, all of which are located at, or adjacent to, Site 1.

TABLE 4-2

SUMMARY OF GROUNDWATER ALTERNATIVES COSTS
 NWIRP, BETHPAGE, NEW YORK

Alternative No.	Onsite/Near Site Contamination > 100 ug/l			All Contamination > 5 ug/l		
	Capital Cost	O&M Cost/Yr	Present Worth Cost (30-Yr)	Capital Cost	O&M Cost/Yr	Present Worth Cost (30-Yr)
GW1 - No Action ⁽¹⁾	---	---	---	GW1-\$ 0	\$ 4,000	\$ 56,000
GW2 - Monitoring of Existing Potable Water Supplies	---	---	---	GW2-\$249,000	\$ 27,300	\$ 669,000
GW3 - Air Stripping (GW3A) or GAC Treatment (GW3B) of Existing Potable Water Supplies	---	---	---	GW3A-\$1,385,000 GW3B-\$1,647,000	\$ 169,000 \$ 24,300	\$ 3,984,000 \$ 2,020,000
GW4 - Extraction, Precipitation/Filtration, Air Stripping, and Reuse Adder for Air Stripping PW-14 Vinyl Chloride Well	GW4A-\$7,589,000 \$2,040,000	\$1,452,000 \$ 214,000	\$29,907,000 \$ 5,326,000	GW4B-\$15,053,000 \$2,040,000	\$2,856,000 \$ 214,000	\$ 58,960,000 \$ 5,326,000
GW5 - Extraction, Precipitation/ Filtration, GAC, and Reuse Adder for Enhanced Oxidation PW-14 Vinyl Chloride Well	GW5A-\$8,647,000 \$2,238,000	\$1,783,000 \$ 545,000	\$36,049,000 \$10,618,000	GW5B-\$19,083,000 \$2,238,000	\$4,236,000 \$ 545,000	\$ 84,201,000 \$ 10,618,000
GW6 - Extraction, Precipitation/ Filtration, Enhanced Oxidation, and Reuse	GW6A-\$23,718,000	\$7,608,000	\$ 140,698,000	GW6B-\$33,003,000	\$13,020,000	\$233,170,000

⁽¹⁾ Costs are the same for onsite/near site contamination > 100 ug/l as for all contamination.



**ESTIMATED AREAL EXTENT OF
ONSITE/NEAR SITE AND OFFSITE NWIRP-
DERIVED GROUNDWATER CONTAMINATION
FEASIBILITY STUDY, NWIRP BETHPAGE, NEW YORK**

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HALLIBURTON NUS
Environmental Corporation

FIGURE 2-7

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TABLE 2-15
CONTAMINATED GROUNDWATER VOLUMES
NW/IRP, BETHPAGE, NEW YORK

Layer(a)	Scenario Solvent Concentration	Onsite/Near Site Contamination > 100 ug/l			Balance of Contamination (> 5 and < 100 ug/l)		
		Volume GW (gal)	Soluble Solvents (lbs)	Total Solvents (lbs)	Volume GW (gal)	Soluble Solvents (lbs)	Total Solvents (lbs)
1	> 1000 ug/l	41,839,043	2,380	7,488			
	> 100 ug/l	260,640,600	507	1,338			
	< 100 ug/l				636,847,200	124	327
2	> 10000 ug/l	70,686,000	15,454	37,309			
	> 1000 ug/l	56,406,800	3,275	8,879			
	< 100 ug/l	702,147,600	1,364	4,605	3,696,092,400	969	2,889
3	> 100 ug/l	583,440,000	3,041	6,581			
	< 100 ug/l				4,259,112,000	725	2,100
4	> 100 ug/l (VC)	102,663,000	492	781			
	> 100 ug/l	334,917,000	575	1,423			
	< 100 ug/l				8,314,020,000	1,427	3,532
5	> 100 ug/l	207,704,640	99	172			
	< 100 ug/l				19,264,605,360	919	2,421
Total Individual System		2,361,000,000	27,200	68,576	36,171,000,000	4,200	11,300
Percentage of Total System		6.1%	86.6%	85.9%	93.9%	13.4%	14.1%

(a) For groundwater modeling purposes, the aquifer was divided into five layers, as follows:

- Layer 1 - Thickness 50 feet (shallow depth)
- Layer 2 - Thickness 100 feet (intermediate depth)
- Layer 3 - Thickness 100 feet (deep depth)
- Layer 4 - Thickness 150 feet (production well depth)
- Layer 5 - Thickness 223 feet (production well depth)

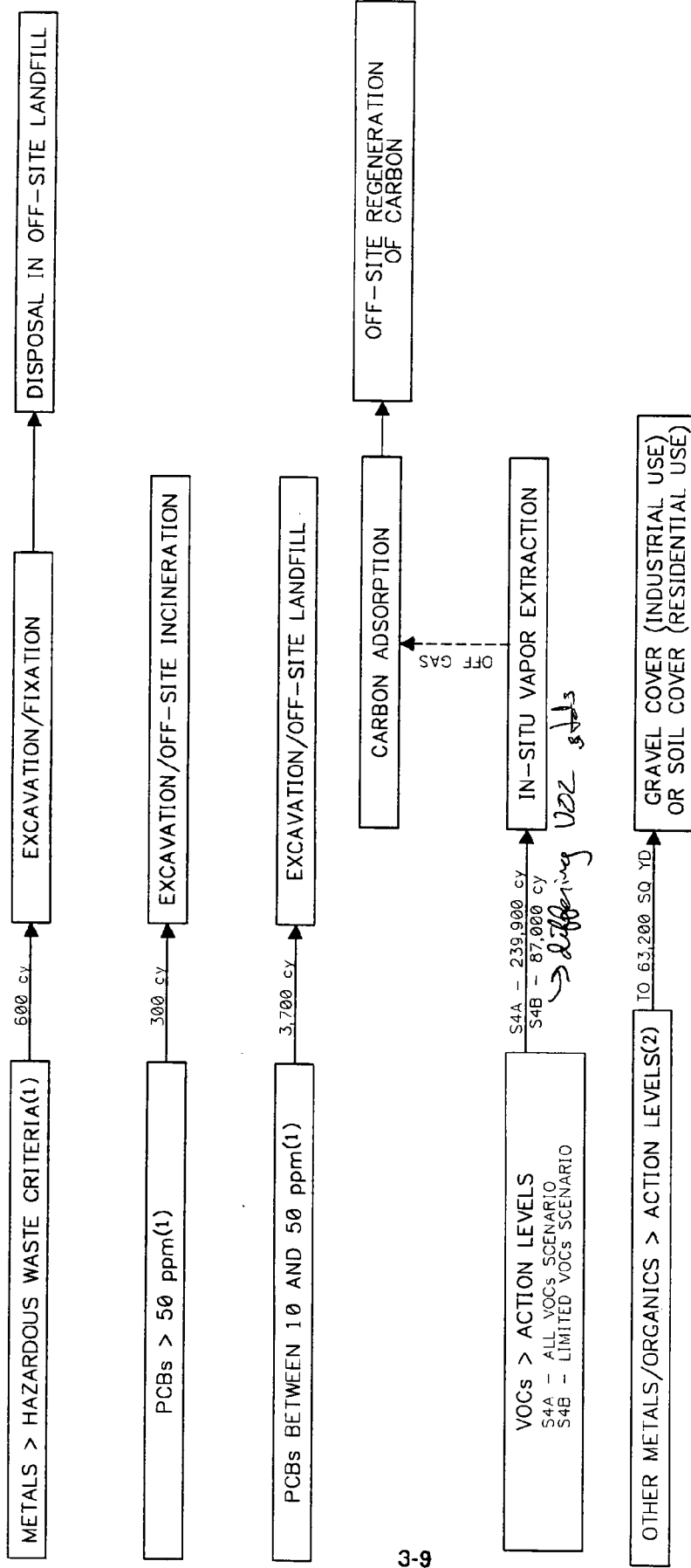
**PREFERRED ALTERNATIVE
NWIRP BETHPAGE, NEW YORK**

Soils

- Alternative S4B - Fixation of Metals, Incineration of PCBs >50 ppm, Landfill of PCBs between 10 ppm and 50 ppm, Limited In-Situ Vapor Extraction of VOCs, and Cover of Remaining Areas.
 - Capital cost: \$10,700,000 + 50/-30
 - Complies with ARARs (RCRA, TSCA, SDWA). Does not comply with NYS soil guidelines.
 - Residual risk: 1×10^{-4} to 10^{-6} unrestricted use without soil cap (PCBs, metals, and PAHs exceed 10^{-6} at isolated locations). Soil cap with deed restrictions eliminate pathway, and therefore risk. $\hookrightarrow < 10^{-6}$
- 5 yr review

Groundwater

- Alternative GW-4A - Extraction (Onsite/Near Site Groundwater greater 100 ug/l, Precipitation/Filtration (Inorganics), Air Stripping (VOCs), and Reuse, includes operation of PW-14. Also, portions of Alternative GW-3B, GAC treatment of BWD wells (Wells 4-1 and 4-2 only) and GW-2, monitoring of existing potable water supply wells.
- Capital Cost: \$11,000,000
O&M Cost: \$1,800,000/year
- Cleanup time: 15 to 30+ years
- Onsite/Near Site treatment coupled with treatment at BWD should allow protection of human health. In approximately 30 years, only relatively small pockets of low concentration NWIRP-derived contamination should remain in aquifer.



3-9

(1) TO BE CONDUCTED PRIOR TO VOCs TREATMENT
 (2) TO BE CONDUCTED FOLLOWING VOCs TREATMENT

SOILS ALTERNATIVES S4A AND S4B
FIXATION OF METALS. INCINERATION OF PCBs > 50 ppm
OFF-SITE LANDFILL PCBs BETWEEN 10 ppm AND 50 ppm
IN-SITU VAPOR EXTRACTION OF VOCs
AND COVER OF OTHER METALS/ORGANICS > ACTION LEVELS
NWIRP, BETHPAGE, NEW YORK

FIGURE 3-3



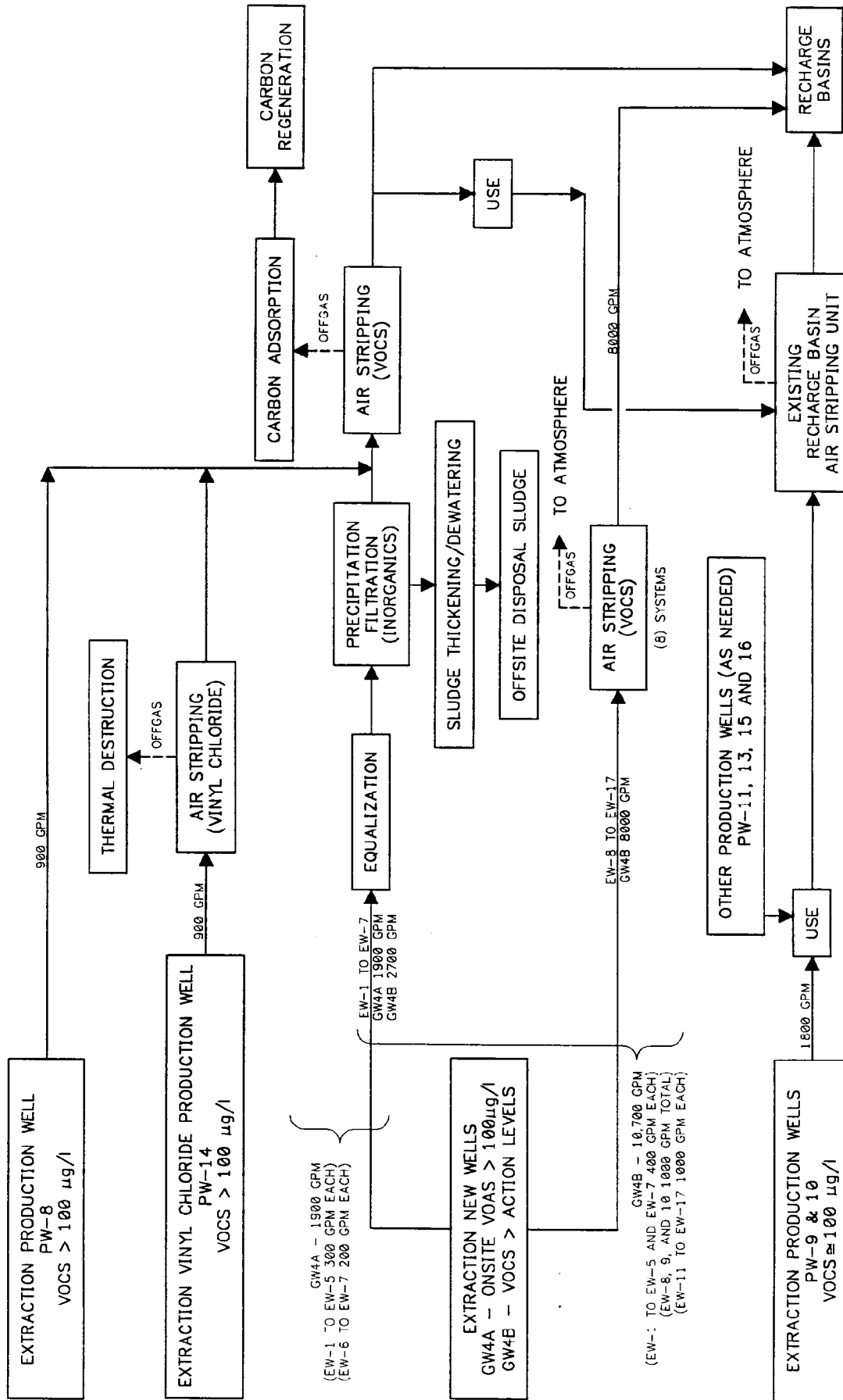


FIGURE 3-9

**GROUNDWATER ALTERNATIVES GW4A AND GW4B
 EXTRACTION, PRECIPITATION/FILTRATION,
 AIR STRIPPING AND REUSE**

NWIRP, BETHPAGE, NEW YORK



AGENDA

**TECHNICAL REVIEW COMMITTEE MEETING #5
NWIRP BETHPAGE, NY
September 16, 1993**

1. Introduction
2. Comments on Technical Review Committee (TRC) Meeting #4 Minutes
3. Preliminary Responses to Phase 2 Draft RI Comments
4. Community Relations Activities
 - Fact Sheet (September 1993)
5. Feasibility Study
 - Remedial Action Objectives
 - Remedial Action Goals
 - Major ARARs and TBCs
 - Summary of Remedial Action Alternatives and Costs
 - Preferred Alternative
6. General comments and open discussion