Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC107A

NUMERICAL RANKING SYSTEM (NRS) SCORESHEET

Pursuant to 310 CMR 40.1511 (Subpart O)

Release Tracking Number
3 - 1616

A. NRS SCORESHEET SUMMARY SECTION:

1. Classification Submittal: (check one) ☑ a. Initial NRS Score ☐ b. Revised NRS Score

2. Disposal Site Score:

II	III	IV	V	VI	Total
185	147	25	80		437

3. Disposal Site Classification: (check one)

☐ a. Tier IA ☐ b. Tier IB ☑ c. Tier IC ☐ d. Tier II

B. DISPOSAL SITE INFORMATION (NRS SECTION I):

1. UTM Coordinates: a. UTM N: 4679831 b. UTM E: 325144

2. Check which, if any, of the Tier I inclusionary criteria are met by the Disposal Site, pursuant to 310 CMR 40.0520(2):

☐ a. Groundwater is located within an Interim Wellhead Protection Area or a Zone II, and there is evidence of groundwater contamination by an Oil or Hazardous Material at the time of Tier Classification at concentrations equal to or exceeding the applicable RCGW-1 Reportable Concentration set forth in 310 CMR 40.0360.

☐ b. An Imminent Hazard is present at the time of Tier Classification.

C. EXPOSURE PATHWAYS (NRS SECTION II):

1. Exposure Pathways, and Oil and Hazardous Material (OHM) Sources:

For A.-D., score according to 310 CMR 40.1512 - Exposure Pathway Designation Criteria and NRS Table II.
For E., score using NRS Table II.E.

	Score
A. Soil (includes sediment)	15
B. Groundwater	20
C. Surface Water (includes wetlands)	100
D. Air	0
E. Number of OHM Sources	50
Total NRS Section II Score (15 - 700)	185

2. Was Section G (NRS Section VI) used to amend the score for this Section of the NRS? ☐ a. Yes ☑ b. No

Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC107A

NUMERICAL RANKING SYSTEM (NRS) SCORESHEET
Pursuant to 310 CMR 40.1511 (Subpart O)

Release Tracking Number
3 - 1616

3. Summary Rationale for Exposure Pathway Values, A. -D., and Phase I Report References:

see Attachment A

D. DISPOSAL SITE CHARACTERISTICS (NRS SECTION III):

1. Oil and Hazardous Material (OHM) Toxicity Score (NRS Section III.A.):

a. Use the Highest OHM Toxicity Score from either NRS Table III.A. or Worksheet III.A.1.:

OHM Scored	Concentration and Media	Toxicity Score (1 - 80)
trichloroethylene	250,000 ug/l groundwater	55

b. Score using NRS Worksheet III.A.1. to determine the OHM Toxicity Score for OHM not listed in NRS Table III.A.:

OHM	Human Health-based Toxicity Value	Concentration (Soil - ug/g)	Concentration (Water - ug/l)	Toxicity Score
cis 1,2 DCE	18	11.0000	60000.0000	35
1,1 DCE	28	14.0000	15000.0000	40
1,4 dichlorobenzene	22	1.2000	93.0000	10
1,2 dichlorobenzene	8	16.0000	1600.0000	25
phenanthrene	25	10.0000	40.0000	10
di-n-butylphthalate	8	14.0000	10.0000	5
fluoranthene	18	11	43.0000	5
pyrene	18	13	35.0000	5
DDE	28	0.3300		10

3. Summary Rationale for Exposure Pathway Values, A. -D., and Phase I Report References:

D. DISPOSAL SITE CHARACTERISTICS (NRS SECTION III):

1. Oil and Hazardous Material (OHM) Toxicity Score (NRS Section III.A.):

a. Use the Highest OHM Toxicity Score from either NRS Table III.A. or Worksheet III.A.1.:

OHM Scored	Concentration and Media	Toxicity Score (1 - 80)

b. Score using NRS Worksheet III.A.1. to determine the OHM Toxicity Score for OHM not listed in NRS Table III.A.:

OHM	Human Health-based Toxicity Value	Concentration (Soil - ug/g)	Concentration (Water - ug/l)	Toxicity Score
DDT	45	0.4400		20
chlordane	46	0.1400		20
2 methyl phenol	22	0.0620	180.0000	20
2,4 dimethyl phenol	18	0.3300	48.0000	5
naphthalene	25	2.8000	110.0000	20
bis(2-chloroethyl)eth	34		350.0000	25
isophorone	18		280.0000	15
fluorene	18	82		5
2,4,5 trichlorophenol	8		140.0000	15

40.1511: continued

Table III.A. **OHM TOXICITY SCORE**

OHM	*CONCENTRATION* (soil/sediment: • g/g; surface/groundwater • g/l)						
	• 99	100 - 999	1,000 - 9,999	10,000 - 100,000	> 100,000 NAPL < 0.5"	NAPL 0.5" - 12"	NAPL > 12"
Aliphatics C5-C8	5	15	25	35	45	55	65
C9-C12	1	10	20	30	40	50	60
C9-C18	1	10	20	30	40	50	60
C19-C36	1	10	20	30	40	50	60
Arsenic	20	30	40	50	60		
Aromatics C9-C10	5	15	25	35	45	55	65
C11-C22	5	15	25	35	45	55	65
Benzene	15	25	35	45	55	65	75
Bis(2-ethylhexyl)phthalate	10	20	30	40	50	60	70
Cadmium	20	30	40	50	60		
Carbon Tetrachloride	20	30	40	50	60	70	80
Chlorobenzene	5	15	25	35	45	55	65
Chromium III	1	10	20	30	40		
Chromium VI	10	20	30	40	50		
Coal Tar	10	20	30	40	50	60	70
Cyanide	5	15	25	35	45		
1,1 Dichloroethane	10	20	30	40	50	60	70
1,2 Dichloroethane	10	20	30	40	50	60	70
Ethylbenzene	5	15	25	35	45	55	65
Ethylene Dibromide	20	30	40	50	60	70	80
#2 Fuel Oil (virgin product)	5	15	25	35	45	55	65
Gasoline (virgin product)	10	20	30	40	50	60	70
Lead	20	30	40	50	60		
Mercury	20	30	40	50	60	70	80
Methylene Chloride	10	20	30	40	50	60	70
Methyl Ethyl Ketone	1	10	20	30	40	50	60
Methyl *Tert* Butyl Ether	5	15	25	35	45	55	65
Nickel	5	15	25	35	45		

40.1511: continued

Table III.A. - continued	OHM TOXICITY SCORE						
OHM	*CONCENTRATION* (soil/sediment: • g/g; surface/groundwater • g/l)						
	• •99	100 - 999	1,000 - 9,999	10,000 - 100,000	> 100,000 NAPL < 0.5"	NAPL 0.5" - 12"	NAPL > 12"
Phenol	1	10	20	30	40	50	60
PAHs	10	20	30	40	50	60	70
PCBs	20	30	40	50	60	70	80
Tetrachloroethylene	10	20	30	40	50	60	70
Toluene	1	10	20	30	40	50	60
1,1,1 Trichloroethane	5	15	25	35	45	55	65
Trichloroethylene	15	25	35	45	55	65	75
Vinyl Chloride	15	25	35	45	55	65	75
Xylenes	1	10	20	30	40	50	60
Zinc	1	10	20	30	40		

Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC107A

NUMERICAL RANKING SYSTEM (NRS) SCORESHEET

Pursuant to 310 CMR 40.1511 (Subpart O)

Release Tracking Number
3 - 1616

2. Multiple OHMs (NRS Section III.B.):

Was the Toxicity Score of more than one OHM greater than or equal to 30? ☑ a. Yes (30) ☐ b. No (0)

3. OHM Mobility and Persistence (NRS Section III.C.):

Score according to 310 CMR 40.1514 - OHM Mobility and Persistence

a. OHM Scored	b. Score (0 - 50)
cis 1,2 DCE	50

4. Disposal Site Hydrogeology (NRS Section III.D.):

Score according to 310 CMR 40.1515 - Soil Permeability, and NRS Table III.D.

Site Hydrogeology Score
12

5. Total NRS Section III Score:

A.	B.	C.	D.	Total for Section III (3 - 180)
55	30	50	12	147

6. Was Section G (NRS Section VI) used to amend the score for this Section of the NRS? ☐ a. Yes ☑ b. No

E. HUMAN POPULATION AND LAND USES (NRS SECTION IV):

1. Human Population (NRS Section IV.A.):

Score using NRS Table IV.A.

Residential Population within 1/2 Mile	Institutions within 500 Feet	On-site Workers	Population Score (0 - 40)
15	10	0	25

2. Aquifers (NRS Section IV.B.):

a. Sole Source Aquifer: ☐ i. Yes (25) ii. Name: _____ ☑ iii. No (0)

b. Potentially Productive Aquifer: ☐ i. Medium or High (15) ☑ ii. No (0)

3. Water Use (NRS Section IV.C.):

Score using NRS Table IV.C.

Proximity to Public Drinking Water Source	Persons Served by Public Drinking Water Supply	Private Water Supplies within 500 Feet	Alternate Public Water Supply Available	Water Use Score (0 -125)
0	0	0	0	0

4. Total NRS Section IV Score:

A.	B.	C.	Total for Section IV (0 - 205)
25	0	0	25

5. Was Section G (NRS Section VI) used to amend the score for this Section of the NRS? ☐ a. Yes ☑ b. No

Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC107A

NUMERICAL RANKING SYSTEM (NRS) SCORESHEET

Pursuant to 310 CMR 40.1511 (Subpart O)

Release Tracking Number
3 - 1616

F. ECOLOGICAL POPULATION (NRS SECTION V):

1. Environmental Resource Areas (NRS Section V.A.): Score using NRS Table V.A.

Area of Critical Environmental Concern	Species of Special Concern, Threatened or Endangered Species Habitat	Wetlands, Certified Vernal Pool, or Outstanding Resource Water	Fish Habitat	Protected Open Space	Environmental Resource Area Score (0 - 150)
0	0	0	30	30	60

2. Environmental Toxicity Score (NRS Section V.B.):

Score only if Environmental Resource Area Score is greater than or equal to 30.

a. Use the Highest Environmental Toxicity Score from either NRS Table V.B. or from Worksheet V.B.1.:

OHM Scored	Concentration and Media	Toxicity Score (0 - 35)
1,1 dichloroethane	5,500 ug/l groundwater	20

b. Score using NRS Worksheet V.B.1. to determine the Environmental Toxicity Score for OHM not listed in NRS Table V.B. See 310 CMR 40.1516 for Environmental Toxicity Values for each OHM.

OHM	Environmental Toxicity Value	Concentration (Soil - ug/g)	Concentration (Water - ug/l)	Environmental Toxicity Score
cis 1,2 DCE	10	11.0000	60000.0000	15
1,1 DCE	10	14.0000	15000.0000	15
1,4 dichlorobenzene	10	1.2000	0.0000	10
1,2 dichlorobenzene	10	16.0000	1400.0000	10
phenanthrene	30	6.4000	40.0000	10
di-n-butylphthalate	40	9.8000	10.0000	15
fluoranthene	20	8.0000	36.0000	5

3. Total NRS Section V Score:

A.	B.	Total for Section V (0 - 185)
60	20	80

4. Was Section G (NRS Section VI) used to amend the score for this Section of the NRS? ☐ a. Yes ☑ b. No

Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC107A

NUMERICAL RANKING SYSTEM (NRS) SCORESHEET
Pursuant to 310 CMR 40.1511 (Subpart O)

Release Tracking Number
☐ - ☐

F. ECOLOGICAL POPULATION (NRS SECTION V):

1. Environmental Resource Areas (NRS Section V.A.): Score using NRS Table V.A.

Area of Critical Environmental Concern	Species of Special Concern, Threatened or Endangered Species Habitat	Wetlands, Certified Vernal Pool, or Outstanding Resource Water	Fish Habitat	Protected Open Space	Environmental Resource Area Score (0 - 150)
0	0	0	0	0	0

2. Environmental Toxicity Score (NRS Section V.B.):

Score only if Environmental Resource Area Score is greater than or equal to 30.

a. Use the Highest Environmental Toxicity Score from either NRS Table V.B. or from Worksheet V.B.1.:

OHM Scored	Concentration and Media	Toxicity Score (0 - 35)

b. Score using NRS Worksheet V.B.1. to determine the Environmental Toxicity Score for OHM not listed in NRS Table V.B. See 310 CMR 40.1516 for Environmental Toxicity Values for each OHM.

OHM	Environmental Toxicity Value	Concentration (Soil - ug/g)	Concentration (Water - ug/l)	Environmental Toxicity Score
pyrene	30	8.0000	42.0000	10
DDE	30	0.1400		5
DDT	50	0.0200		15
chlordane	50	0.1400		15
2 methyl phenol	30	0.3300	48.0000	10
naphthalene	20	0.4700	110.0000	10
bis(2-chloroethyl)eth	20		350.0000	10

3. Total NRS Section V Score:

A.	B.	Total for Section V (0 - 185)
0		0

4. Was Section G (NRS Section VI) used to amend the score for this Section of the NRS? ☐ a. Yes ☐ b. No

2nd page of V B1.

40.1511 (Continued)

Table V.B. ENVIRONMENTAL TOXICITY SCORE

OHM	*CONCENTRATION* (soil/sediment: • g/g; surface/groundwater • g/l)				
	< 1	1 - 99	100 - 999	1,000 - 9,999	• •10,000
Arsenic	5	10	15	20	25
Benzene	0	1	5	10	15
Bis(2-ethylhexyl)phthalate *	5	10	15	20	25
Cadmium	10	15	20	25	30
Carbon Tetrachloride	0	1	5	10	15
Chlorobenzene *	5	10	15	20	25
Chromium III	1	5	10	15	20
Chromium VI	5	10	15	20	25
Coal Tar *	5	10	15	20	25
Cyanide	5	10	15	20	25
1,1 Dichloroethane *	5	10	15	20	25
1,2 Dichloroethane	0	1	5	10	15
Ethylbenzene	0	1	5	10	15
Ethylene Dibromide *	5	10	15	20	25
#2 Fuel Oil (virgin product) *	1	5	10	15	20
Gasoline (virgin product) *	5	10	15	20	25
Lead	5	10	15	20	25
Mercury	15	20	25	30	35
Methylene Chloride *	5	10	15	20	25
Methyl Ethyl Ketone *	5	10	15	20	25
Methyl Tert Butyl Ether *	1	5	10	15	20
Nickel	1	5	10	15	20
Phenol	0	1	5	10	15
PAHs *	5	10	15	20	25
PCBs	15	20	25	30	35
Tetrachloroethylene	0	1	5	10	15
Toluene	0	1	5	10	15
1,1,1 Trichloroethane	0	1	5	10	15
Trichloroethylene	0	1	5	10	15

Table V.B. **ENVIRONMENTAL TOXICITY SCORE**

OHM	*CONCENTRATION* (soil/sediment: • g/g; surface/groundwater • g/l)				
	< 1	1 - 99	100 - 999	1,000 - 9,999	• •10,000
Vinyl Chloride *	5	10	15	20	25
Xylenes *	5	10	15	20	25
Zinc	1	5	10	15	20

* Scores derived by default methods 40.1516(2).

Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC107A

NUMERICAL RANKING SYSTEM (NRS) SCORESHEET

Pursuant to 310 CMR 40.1511 (Subpart O)

Release Tracking Number
3 - 1616

G. MITIGATING DISPOSAL SITE -SPECIFIC CONDITIONS (NRS SECTION VI):

1. Disposal site-specific conditions that warrant amending the site score. Changes directly related to NRS Sections or Subsection scores may not reduce the score more than the relevant subsection value assigned for the disposal site in that subsection. Section VI must reference specific pages of the Phase I. Section VI may not exceed plus or minus 50 points and may be scored only in 5-point increments.

☐ 2. Check here if additional pages are provided in an attachment.

3. Disposal Site Amendment (Not to exceed plus or minus 50 points):

Total Score Section VI

BWSC 107A
RTN 3-1616
Lewis Chemical Corporation

NRS Scoresheet – Attachment A

Section C. 3.

A: No exposure pathway to soils at this time. The site is secured with a chain-link fence that has been successful in restricting access (p. 4, Phase I, ES&M 3/12/03). Although concentrations of PAH in sediment were found to be above RCs, the area of OHM contamination (sediment) is not used for active recreation. In addition, there is a high likelihood that detected PAHs are ubiquitous and consistent with background. Therefore, Evidence of Contamination with no Exposure Pathway.
B: There is no private or public use of groundwater for drinking purposes in the vicinity of the site (p. 24-26, Phase I).
C: Potential exposure pathway because OHM from the site has been identified in surface water in the adjacent Neponset River, which is used for recreational boating (p. 20-23, Phase I).
D: Although VOCs > GW-2 standards are present in groundwater beneath the building, the building is not occupied and the property is secured by fencing (p. 19, Phase I).

Section D.3.

OHM with toxicity score greater than 20:

OHM	Mobility and Persistence Score
1,1 DCA	45
1,2 DCA	45
Ethylbenzene	20
Lead	25
Methylene chloride	35
PCE	40
Toluene	20
1,1,1 TCA	45
TCE	45
Cis 1,2 DCE	**50**
1,1 DCE	45
1,2 DCB	40

Table 1
Former Lewis Chemical
Soil Analytical Results
High and Low Concentrations
(mg/kg)

PCBS	**High Result**		**Low Result**	
aroclor-1248	68	TANKFARMDR	0.078P	ESM-07
aroclor-1254	0.16P	ESM-01 (DUP)	0.15P	ESM-01
METALS	**High Result**		**Low Result**	
Arsenic	5.3	ESM-10	0.81B	ESM-01 (DUP)
Barium	241	Drain-01	12.6	ESM-07
Cadmium	6.3	Drain-01	0.15B	ESM-10
Chromium	101	Drain-02	6.5	ESM-07
Lead	416	Drain-01	2.0*	ESM-01 (DUP)
Lead (surfical)	2640	C-80-100	250	C-140-120
Mercury	1.7	Drain-02	0.029B*N	ESM-05
Silver	15	Drain-01	0.27B	ESM-01 (DUP)
Cyanide	0.52B	Drain-01		
PESTICIDES	**High Result**		**Low Result**	
alpha-BHC	0.0035	ESM-08	0.0022	ESM-06
beta-BHC	0.130	Drain-01	0.046	Drain-02
gamma-BHC (lindane)	0.0057P	ESM-03	0.004P	ESM-08
heptachlor epoxide	0.055P	TANKFARMDR	0.0023P	ESM-06
endosulfan I	0.043P	TANKFARMDR	0.0025P	ESM-06
dieldrin	0.074P	Drain-02	0.058P	Drain-01
4,4'-DDE	0.33	TANKFARMDR	0.0041	ESM-01
4,4'-DDD	0.063	Drain-02	0.037	Drain-01
4,4'-DDT	0.044P	Drain-01		
endrin ketone	0.055	Drain-02		
gamma-chlordane	0.14P	TANKFARMDR	0.0034P	ESM-06
endrin aldehyde	0.025P	Drain-01		
SEMI VOLATILES	**High Result**		**Low Result**	
phenol	0.071J	ESM-10		
1,4-dichlorobenzene	1.1J	ESM-03	0.19J	TANKFARMDR
1,2-dichlorobenzene	24	ESM-03	0.058J	ESM-06
2-Methylphenol	0.062J	ESM-10		
4-methylphenol	0.84	ESM-10	0.039J	ESM-05
2,4-dimethylphenol	0.33J	ESM-10		
1,2,4-trichlorobenzene	0.490J	Drain-01		
naphthalene	2.8J	ESM-03	0.081J	ESM-01
2-methylnaphthalene	0.43J	ESM-03	0.059J	ESM-08
2,4,6-trichlorophenol	0.270DJ	Drain-02DL		
2,4,5-trichlorophenol	0.430J	Drain-02	0.07J	ESM-05
acenaphthylene	0.056J	Drain-02		
acenaphthene	0.82J	ESM-03	0.11J	ESM-08
dibenzofuran	0.140J	Drain-02		
fluorene	82J	ESM-08	0.046J	ESM-10
pentachlorophenol	0.34J	ESM-08		
phenanthrene	6.4	ESM-03	0.044J	ESM-07
anthracene	1.3J	ESM-03	0.074J	ESM-08
carbazole	1.1J	ESM-03	0.200J	Drain-02
di-n-butylphthalate	14.000	Drain-01	9.8	ESM-03
fluoranthene	7.6	ESM-03	0.097J	ESM-05
pyrene	7.6	ESM-03	0.1J	ESM-05
butylbenzylphthalate	3.700J	Drain-01		
benzo(a)anthracene	3.4J	ESM-03	0.058J	ESM-06
chrysene	3.5J	ESM-03	0.042J	ESM-05
bis(2-ethylhexyl)phthalate	63.000	Drain-01	0.043J	ESM-04
di-n-octylphthalate	4.000J	Drain-01		
benzo(b)fluoranthene	4	ESM-03	0.078J	ESM-02
benzo(k)fluoranthene	1.6J	ESM-03	0.069J	ESM-10
benzo(a)pyrene	3.2J	ESM-03	0.065J	ESM-02
indeno(1,2,3-cd)pyrene	2J	ESM-03	0.12J	ESM-08
benzo(g,h,i)perylene	2J	ESM-03	0.082J	ESM-10

Notes:
Only one detection where only high concentration is presented.
See Data Qualifiers list for explanations.

Environmental Strategies & Management

Table 1
Former Lewis Chemical
Soil Analytical Results
High and Low Concentrations
(mg/kg)

VOLATILES	**High Result**		**Low Result**	
Dichlorodifluoromethane	0.016	ESM-03		
Vinyl Chloride	1.200E	ESM-03	0.006	ESM-05 & ESM-06
Chloroethane	0.004	ESM-06		
Trichlorofluoromethane	1.600E	ESM-03		
1,1-Dichloroethene	14.000D	ESM-03 DL	0.019	ESM-09
Acetone	2.700J	Drain-01	0.034	ESM-09
Carbon Disulfide	0.080	ESM-08	0.003J	ESM-09
Methylene Chloride	4.100E	TANKFARMDR	0.009B	ESM-07
trans-1,2-Dichloroethene	0.030	ESM-08	0.002J	ESM-06, ESM-04
Methyl tert-butyl ether	0.003J	ESM-05	0.002J	ESM-04, ESM-06, ESM-07, ESM-09
1,1-Dichloroethane	4.300DJ	ESM-03 DL	0.022	ESM-07
2-Butanone	0.170D	ESM-09 DL	0.005	ESM-04
cis-1,2-Dichloroethene	11.000DJ	ESM-03 DL	0.058DJ	ESM-04 DL
1,1,1-Trichloroethane	120.000D	ESM-03 DL	0.010	ESM-04
1,2-Dichloroethane	1.800D	TANKFARMDR DL	0.001J	ESM-07
Trichloroethene	190.000	Drain-01	0.009	ESM-04
4-Methyl-2-pentanone	0.140	ESM-05		
Toluene	300.000	ESM-03 DL	0.031	ESM-04
1,1,2-Trichloroethane	0.041	ESM-05		
Tetrachloroethene	340.000D	ESM-03 DL	0.004J	ESM-09
Chlorobenzene	0.270J	Drain-02	0.005	ESM-06
Ethylbenzene	46.000	ESM-10, ESM-08 DL	0.003J	ESM-09
Xylene (Total)	83.000D	ESM-08 DL	0.008	ESM-07
Styrene	0.120	ESM-03		
Bromoform	0.006	ESM-04	0.004J	ESM-07
Isopropylbenzene	0.640E	ESM-03	0.004J	ESM-07, ESM-06
1,1,2,2-Tetrachloroethane	0.017	ESM-05		
n-Propylbenzene	2.700E	ESM-03	0.013	ESM-06
1,3,5-Trimethylbenzene	3.600	Drain-02	0.028	ESM-06
tert-Butylbenzene	0.160	ESM-03		
1,2,4-Trimethylbenzene	6.900DJ	ESM-03 DL	0.003J	ESM-09
sec-Butylbenzene	0.630E	ESM-03	0.010	ESM-08
4-Isopropyltoluene	3.300D	ESM-08 DL	0.019	ESM-05
1,4-Dichlorobenzene	1.200E	ESM-03	0.013	ESM-06
n-Butylbenzene	0.130DJ	TANKFARMDR DL		
1,2-Dichlorobenzene	16.000D	ESM-03 DL	0.014	ESM-04
1,2,4-Trichlorobenzene	0.240E	ESM-03	0.006	ESM-06
Naphthalene	1.900E	ESM-03	0.002J	ESM-09

Notes:
Only one detection where only high concentration is presented.
See Data Qualifiers list for explanations.

Environmental Strategies & Management

Table 2
Former Lewis Chemical
Sediment Analytical Results
High and Low Concentrations
(mg/kg)

METALS	**High Result**		**Low Result**	
Arsenic	12.7	SED-SH	3.4	SED-DUP
Barium	164	SED-SH	40.2	SED-DUP
Cadmium	3.6	SED-SH	0.49	SED-DS
Chromium	100	SED-SH	18.2	SED-DUP
Lead	296	SED-SH	105	SED-DUP
Mercury	2.1	SED-US	0.15B	SED-DUP
Selenium	4.3	SED-SH		
Silver	2.3	SED-SH	0.49B	SED-DUP
SEMI VOLATILES	**High Result**		**Low Result**	
1,2-dichlorobenzene	0.320J	SED-SH		
naphthalene	0.410J	SED-MC		
2-methylnaphthalene	0.280J	SED-MC		
acenaphthylene	0.210J	SED-MC		
acenaphthene	1.000J	SED-DS	0.760J	SED-MC
dibenzofuran	0.620J	SED-DS	0.420J	SED-MC
fluorene	0.950J	SED-DS & SED-DUP	0.240J	SED-SH
phenanthrene	10.000	SED-DS	2.700	SED-SH
anthracene	2.000J	SED-DS	0.490J	SED-SH
carbazole	1.100J	SED-DS	0.440J	SED-SH
fluoranthene	11.000	SED-DS	4.600	SED-SH
pyrene	13.000	SED-DS & SED-DUP	6.400	SED-SH
benzo(a)anthracene	4.900J	SED-DS & SED-DUP	2.000J	SED-SH
chrysene	6.200	SED-DUP	3.400	SED-SH
bis(2-ethylhexyl)phthalate	11.000	SED-DUP	2.200J	SED-DS
di-n-octylphthalate	1.800J	SED-SH	0.420J	SED-MC
benzo(b)fluoranthene	6.500	SED-DS	4.000	SED-SH
benzo(k)fluoranthene	2.800J	SED-DUP	1.800J	SED-SH & SED-US
benzo(a)pyrene	4.700J	SED-DUP	2.300	SED-SH
indeno(1,2,3-cd)pyrene	2.200	SED-MC	1.400J	SED-US
benzo(g,h,i)perylene	2.200J	SED-DUP	1.400J	SED-SH

Notes:
There is only one detection where only high result is presented.
See Data Qualifier list for explanations.

Environmental
Strategies
& Management

Table 3
Former Lewis Chemical
Groundwater Analytical Results
High and Low Concentrations
(ug/l)

METALS	**High Result**		**Low Result**	
Arsenic	9.7B	ESM-05	3.2B	ESM-08
Barium	260	ESM-04	42.1B	ESM-07
Lead	4.4B	B1/0W1	1.5B	ESM-07
Selenium	9.0B	ESM-10		
Silver	2.9B	ESM-05	2.3B	ESM-DUP*
SEMI VOLATILES	**High Result**		**Low Result**	
phenol	37	ESM-05	3J	ESM-01
bis(2-chloroethyl)ether	350	ESM-09	12	ESM-10
1,3-dichlorobenzene	18J	ESM-03		
1,4-dichlorobenzene	93	ESM-06	2J	ESM-02
1,2-dichlorobenzene	1400	ESM-06	8J	ESM-DUP
2-Methylphenol	180	ESM-03	3J	ESM-09
4-methylphenol	96J	ESM-03	1J	ESM-02
isophorone	280E	ESM-05		
2,4-dimethylphenol	19J	ESM-08	1J	ESM-10
1,2,4-trichlorobenzene	15	ESM-02	1J	ESM-05
naphthalene	110	ESM-03	5J	ESM-01
2-methylnaphthalene	2J	ESM-01	1J	ESM-05
2,4,5-trichlorophenol	140	ESM-05		
acenaphthylene	3J	ESM-01		
dibenzofuran	4J	ESM-01		
diethylphthalate	2J	ESM-05		
fluorene	3J	ESM-01		
pentachlorophenol	8J	ESM-08		
phenanthrene	43DJ	ESM-01DL	2J	ESM-05 & ESM-04
anthracene	9DJ	ESM-01DL	8J	ESM-01
carbazole	6J	ESM-01		
di-n-butylphthalate	10J	ESM-03		
fluoranthene	43DJ	ESM-01DL	1J	ESM-10 & ESM-05
pyrene	35DJ	ESM-01DL	1J	ESM-10 & ESM-05
butylbenzylphthalate	3J	ESM-01		
benzo(a)anthracene	20DJ	ESM-01DL	1J	ESM-04
chrysene	27J	ESM-06	1J	ESM-04
bis(2-ethylhexyl)phthalate	960D	ESM-01DL	1J	ESM-04
di-n-octylphthalate	9J	ESM-01		
benzo(b)fluoranthene	23	ESM-01	2J	ESM-04 & DUP (ESM-4)
benzo(k)fluoranthene	10DJ	ESM-01DL	1J	ESM-DUP
benzo(a)pyrene	17J	ESM-01	1J	ESM-04
indeno(1,2,3-cd)pyrene	8J	ESM-01		
benzo(g,h,i)perylene	9J	ESM-01		

Notes:
There is only one detection where only high result is indicated.
ESM-Dup is ESM-04.
See data qualifier sheet for explanations.

Environmental Strategies & Management

Table 3
Former Lewis Chemical
Groundwater Analytical Results
High and Low Concentrations
(ug/l)

VOLATILES	**High Result**		**Low Result**	
Vinyl Chloride	340	ESM-04	130J	ESM-01
Chloroethane	190	B1/0W1		
1,1-Dichloroethene	15000	ESM-05	5J	ESM-07 & B1/0W1
Methylene Chloride	2300	ESM-01	14J	ESM-10
trans-1,2-Dichloroethene	130J	ESM-09	3J	ESM-07 & ESM-02
Methyl tert-butyl ether	9J	ESM-07		
1,1-Dichloroethane	5500J	ESM-05	10J	ESM-10
cis-1,2-Dichloroethene	60000	ESM-03	63	ESM-10
1,1,1-Trichloroethane	210000	ESM-05	14J	ESM-10
1,2-Dichloroethane	5500J	ESM-05	6J	B1/0W1
Trichloroethene	250000	ESM-05	13	ESM-02
Toluene	77000	ESM-05	70	ESM-10
Tetrachloroethene	18000	ESM-06	4J	ESM-02
Ethylbenzene	2300	ESM-08	3J	B1/0W1
Xylene (Total)	7100	ESM-03	7J	B1/0W1
Isopropylbenzene	2J	ESM-02		
n-Propylbenzene	4J	ESM-02		
1,3,5-Trimethylbenzene	11	ESM-02		
1,2,4-Trimethylbenzene	34	ESM-02		
sec-Butylbenzene	12	ESM-02		
4-Isopropyltoluene	81J	ESM-01	25	ESM-10
1,4-Dichlorobenzene	3J	ESM-02		
1,2-Dichlorobenzene	1600J	ESM-06	98J	ESM-01
1,2,4-Trichlorobenzene	21	ESM-02		
Naphthalene	13	ESM-02		

Notes:
There is only one detection where only high result is indicated.
ESM-Dup is ESM-04.
See data qualifier sheet for explanations.

Table 4
Former Lewis Chemical
Surface Water Analytical Results
High and Low Concentrations
(ug/L)

METALS	**High Result**		**Low Result**		
Barium	53.6B	SW-US	39.6B	SW-DS	
Lead	1.9B	SW-SH	1.3B	SW-DS & SW-MC	
VOLATILES	**High Result**		**Low Result**		
Vinyl Chloride	3J	SW-SH			
Chloroethane	3J	SW-SH			
1,1-Dichloroethane	4J	SW-SH			
cis-1,2-Dichloroethene	12	SW-SH	1J	SW-DS	
1,1,1-Trichloroethane	5	SW-SH			
Toluene	1J	SW-SH			

Notes:
There is only one detection where only low result is presented.
See Data Qualifier list for explanations.

Environmental
Strategies
& Management

Data Qualifiers Used

P flag is used for pesticide/PCB/herbicide compound when there is a greater than 40% difference for detected concentration between the two GC columns used for Primary and Confirmation analysis. The difference typically indicates an interference, causing one value to be unusually high. The lower of the two values is reported in the Analysis Report.

B indicates a "trace" concentration below the reporting limit and equal to or above the detection limit.

N indicates the matrix spike recovery falls outside of the control limit.

B indicates that the compound was also detected in the method blank.

J indicates an estimated value due to a detection below the reporting limit or an estimated concentration for Tentatively Identified Compound.

E indicates that the compound concentration exceeded the Calibration Range.

D indicates that the compound concentration was obtained from a diluted analysis. (Duplicate sample is identified with a DL.)