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BASELINE RISK ASSESSMENT
HUMAN HEALTH EVALUATION

ORMET CORPORATION
HANNIBAL, OHIO

AUGUST 8, 1991

Prepared for:

U.S. Environmental Protection Agency
Emergency and Remedial Response Branch
Region V
230 South Dearborn Street
Chicago, Illinois 60604

PERFORMANCE OF REMEDIAL RESPONSE
ACTIVITIES AT UNCONTROLLED HAZARDOUS
WASTE SITES (ARCS V)

U.S. EPA CONTRACT NO. 68-W8-0093
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Prepared by: _____ Date: 8/8/91
Jo Ann Duchene
Program Manager
Life Systems, Inc.

Approved by: Mansour Ghiasi TOD Date: 8-8-91
Mansour Ghiasi, P.E.
Site Manager
Donohue & Associates, Inc.

Approved by: _____ Date: 8-9-91
Roman M. Gau, P.E.
ARCS Project Manager
Donohue & Associates, Inc.

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LIST OF ACRONYMS

ABS	Absorption Factor
AF	Adherence Factor
ATSDR	Agency for Toxic Substances and Disease Registry
BCF	Bioconcentration Factor
CAC	Consolidated Aluminum Corporation
CAS	Chemical Abstract Service
CLP	Contact Laboratory Program
CMSD	Construction Material Scrap Dump
CNS	Central Nervous System
CRDA	Carbon Runoff and Deposition Area
CTV	Critical Toxicity Value
DI	Daily Intake
FDM	Fugitive Dust Model
FE	Fraction Exposed
HIF	Human Intake Factor
LOAEL	Lowest-Observed-Adverse-Effect Level
MRL	Minimal Risk Level
NAS	National Academy of Sciences
NOAEL	No-Observed-Adverse-Effect Level
NPDES	National Pollutant Discharge Elimination Service
NTP	National Toxicology Program
OEPA	Ohio Environmental Protection Agency
OSHA	Occupational Safety and Health Administration
PAHs	Polycyclic Aromatic Hydrocarbons
PbB	Concentration of Lead in the Blood
PCBs	Polychlorinated Biphenyls
PCE	Perchloroethylene
RAGS	Risk Assessment Guidance for Superfund
RI	Remedial Investigation
RfD	Reference Dose
SF	Slope Factor
TAL	Target Analyte List
TCL	Target Compound List
TFV	Threshold Friction Velocity
TIC	Tentatively Identified Compound
UBK	Uptake/Biokinetic
USEPA	U.S. Environmental Protection Agency
USGS	U.S. Geological Survey
VOC	Volatile Organic Compound

EXECUTIVE SUMMARY

BACKGROUND AND PURPOSE

The Ormet Corporation site (Site) is located in southeastern Ohio along the Ohio River. The site is located at approximately river mile 123, about 35 miles south of Wheeling, West Virginia and approximately three miles upriver from Hannibal, Ohio (Monroe County). The site is bounded on the northwest by Ohio State Route 7, on the east and southeast by the Ohio River and on the southwest by the Consolidated Aluminum Corporation (CAC).

Ormet produces aluminum metal from the reduction of alumina. The process utilizes electrolytic cells or pots, lined with anthracite and pitch. This material, referred to as potliner, deteriorates during the process and is eventually replaced. Between 1958 and 1968 this spent potliner was stored in an unlined, open area, approximately ten-acres in size, in the northeast area of the site.

From 1958 until 1981, five retention ponds were utilized to receive wastes from the facility. These ponds are unlined and constructed of natural materials. Ponds 1 through 4, each about one acre in size, received predominately sludge from the pot-room wet scrubbing system or the wet scrubber for the anode bake furnace. Ponds 1 through 4 may have also received minor amounts of tailings from the cryolite recovery plant which began operations in 1968. These four ponds range in depth from four to 13 feet. The 11-acre Pond 5 received mostly tailings from the cryolite recovery operation and may have received, initially, sludge from the pot-room wet scrubber.

From 1958 through 1979, Ormet periodically deposited waste construction material in an area in the southeastern corner of the site. This four- to five-acre area is designated as the Construction Material Scrap Dump (CMSD). In the southeastern area of the site there is an area referred to as the Carbon Runoff and Deposition Area (CRDA). This three-acre wooded area contains deposits of carbon material one- to five-feet thick. The material has been carried from the anode crushing mill to the CRDA via storm water runoff.

The various site areas and their characterization are described in detail in the Ormet Remedial Investigation report.

This report provides an analysis of the potential adverse health effects (current and future) resulting from releases of hazardous substances at the Ormet Corporation Site. This evaluation, together with the Environmental Evaluation comprise the endangerment assessment, or baseline risk assessment, for the Ormet site. By definition, a baseline risk assessment is limited to conditions under the no-action alternative, that is in the absence of any remedial actions (including institutional controls) to control or mitigate releases.

SELECTION OF CHEMICALS OF POTENTIAL CONCERN

A large volume of monitoring data has been generated at Ormet. The data was organized and evaluated to select chemicals that form the basis for a quantitative risk assessment. These are referred to as the chemicals of potential concern. Many chemicals were reported in the Ormet data set; some were eliminated from the quantitative risk assessment according to the following decision rules:

- Any chemical not detected in any sample was eliminated.
- Any chemical detected infrequently was eliminated if it was not expected to contribute significantly to risk.
- Chemicals present at levels below those essential to human nutrition were eliminated.
- Chemicals present due solely to laboratory or field contamination were eliminated from the risk assessment.
- Any tentatively identified compound was eliminated.
- No chemicals were eliminated based on a comparison with background concentrations.

Table ES-1 summarizes the chemicals of potential concern that remain after these evaluations on an area-by-area basis at the Ormet site. The risk assessment focuses on these contaminants.

EXPOSURE AND TOXICITY ASSESSMENTS

An exposure assessment was performed which identified the current and potential future exposure scenarios to be used in risk characterization. Tables ES-2 and ES-3 indicate which pathways were selected for quantitative risk characterization.

A toxicity assessment was performed which documented potential adverse health effects for each contaminant of potential concern. Toxicity values (reference doses and slope factors) were obtained from USEPA databases.

RISK CHARACTERIZATION

Risk characterization integrates the results of the exposure and toxicity assessments into a quantitative description of cancer and noncancer risks. The method for risk characterization utilized in this baseline risk assessment is consistent with U.S. Environmental Protection Agency guidelines as contained in the Risk Assessment Guidance for Superfund, Volume 1 - Human Health Evaluation and other material as contained in Section 7.0 of this report.

TABLE ES-1 SUMMARY OF CHEMICALS OF POTENTIAL CONCERN AT THE ORMET CORPORATION SITE

Chemical	Range of Detected Concentrations							
	Disposal Ponds, mg/kg	Potliner Area, mg/kg	CRDA, mg/kg	CMSD, mg/kg	Seeps, mg/L	Groundwater, mg/L	River Sediments, mg/kg	Surface Water, mg/L
INORGANICS								
Aluminum	616-199,000	2,560-42,500	18,700-107,000	58,800-121,000	0.384-1.05	0.029-178	6,580-12,600	0.826-2.88[a]
Antimony	7.6-88	--[b]	9.5-56	--	0.017-0.032	0.025-0.042	--	0.04
Arsenic	15-123	3.0-25	3.8-663	32.2-56.9	0.005-0.006	0.0018-0.394	5.3-10.0	0.005-0.011
Barium	17-848	33-136	137-309	106-150	0.012-0.072	0.042-4.75	72-165	0.048-0.078
Beryllium	1.0-14	0.23-2.2	1.5-7.8	2.6-3.8	0.00055-0.00064	0.00025-0.035	0.94-2.0	--
Cadmium	1.8-2.7	--	1.2-2.0	2.0-3.6	0.02-0.03	0.0041-0.012	1.7-2.0	--
Chromium	6.4-119	4.8-168	14-47	2.0-42.5	0.023-0.06	0.0058-0.401	13-52	0.008-0.012
Cobalt	2.0-19	1.9-13.0	1.8-23	4.2-11.4	0.0057-0.052	0.0042-0.814	2.7-32	0.007
Copper	12-130	1.8-791	29-94	303-542	0.013-0.144	0.017-1.02	30-119	0.004-0.026
Iron	3,180-13,600	6,690-106,000	5,210-49,800	21,800-27,800	0.408-2.62	0.044-144	12,500-43,500	1.87-5.73
Lead	2.3-214	7.2-74	2.9-85	54.7-84.1	0.003-0.005	0.0023-0.139	20-92	0.003-0.009
Manganese	13-227	198-3,220	131-2,140	330-1,060	0.003-31.3	0.01-15.4	519-1,490	0.262-0.772
Mercury	0.14-0.59	0.089-0.098	0.17-0.31	--	--	0.00026-0.0033	0.22-0.39	--
Nickel	19-656	0.59-146	24-558	36.6-62.5	0.043-0.051	0.026-0.767	10-73	0.01-0.012
Silver	2-2.4	11	--	--	0.018-0.049	--	--	--
Sodium	6,410-69,400	1,190-14,200	1,960-11,500	22,300-48,700	945-4,900	18.7-2,640	501-2,060	10.3-15.3
Thallium	0.67-1.2	--	0.54-0.6	--	--	0.0028	--	--
Vanadium	13-741	6.1-62	31-270	29.4-42.4	0.006-0.029	0.0026-0.369	8.9-17.0	--
Cyanide	1.8-294	2.7-647	0.82-254	7.9-21.7	0.163-4.383	0.011-18.6	1.1-42	--
Non-CLP Inorganics								
Chloride	4-350	--	5-200	8-10	39-17	5-320	96-300	13-41
Cyanide, Amenable	1-120	--	3-28	--	0.0686-0.9	0.01-41.0	--	0.078
Cyanide, Total	2-430	1.0-1,900	3-130	7.9-21.7	0.0794-8.8	0.01-67	1-39	0.0076-0.428
Fluoride	31-7,200	0.3-1,500	64-270	440-540	6.5-200	0.1-1,000	2.3-83	0.1-12
Nitrogen, Ammonia	13-146	13-360	--	70-110	1.5-4.2	0.1-230	43-88	--
Silica	8-79	--	14-29	--	6-28	5-4,300	11-33	3-6
Sulfate	34-8,000	--	22-1,700	41-270	210-6,100	8-850	13-60	65-110
ORGANICS								
Volatiles								
Acetone	0.003-0.22	0.029-0.16	--	0.098-0.27	0.033-0.49	0.001-0.029	--	0.011-0.02
Benzene	0.002-0.025	--	0.31-0.35	--	--	0.001-0.024	0.024	--
2-Butanone	0.009	0.006-0.088	0.057	0.016-0.043	--	--	0.12	--

continued-

(a) Metal values in this column for total metals.
(b) "--" indicates either not detected or not analyzed for.

Table ES-1 - continued

Chemical	Range of Detected Concentrations							
	Disposal Ponds, mg/kg	Potliner Area, mg/kg	CRDA, mg/kg	CMSD, mg/kg	Seeps, mg/L	Groundwater, mg/L	River Sediments, mg/kg	Surface Water, mg/L
Volatiles - continued								
Carbon disulfide	0.002-0.079	--	--	0.004	--	0.001-0.01	--	--
Chlorobenzene	0.002-27	0.005-0.007	0.006-0.18	--	0.043-0.044	--	--	--
Chloroform	0.004-0.039	--	0.004-0.01	--	--	0.003	0.006-0.007	--
Ethylbenzene	0.008	--	0.001-0.004	0.002	0.002	--	--	--
Methylene chloride	0.002-0.198	0.004-0.02	0.018-0.033	0.002-0.092	0.002-0.003	0.002-0.017	0.032-0.038	0.001-0.002
Styrene	0.002	--	0.007-0.008	--	0.025	--	--	--
1,1,2,2-Tetrachloroethane	0.006	--	--	0.003	--	--	--	--
Tetrachloroethene	0.002-0.047	--	0.002-0.011	--	0.001	0.005-0.022	--	--
1,1,1-Trichloroethane	0.004	--	--	--	0.005-0.015	0.002-0.003	--	--
Trichloroethene	0.002	--	--	--	0.002	0.001-0.003	--	--
Toluene	0.002-0.006	--	0.002-0.034	0.002	0.003-0.005	0.001-0.004	--	--
Semivolatiles								
4-Methylphenol	--	0.21-3.4	0.055	--	--	--	--	--
2,4-Dimethylphenol	--	0.072-1.8	0.15-0.18	--	--	--	1.2	--
Naphthalene	0.076-3.7	0.13-81	0.07-0.57	1.3	--	--	0.07-1.8	--
2-Methylnaphthalene	0.057-0.83	0.037-39	0.053-0.22	0.46	--	--	0.098-0.74	--
Acenaphthene	0.066-2.2	0.62-1.4	--	--	--	--	0.078-1.3	--
Acenaphthylene	0.05-5.3	0.046-260	0.067-1.4	5.1-13.0	--	--	0.058-0.17	--
Dibenzofuran	0.12-4.3	0.043-120	0.073-0.87	2.7-8.5	--	--	0.081-3.3	--
Fluorene	0.065-4.5	0.04-140	0.056-0.64	4.1-110	--	--	0.084-7.8	--
Phenanthrene	0.34-56	0.19-670	0.055-9.5	44-130	--	0.004	0.45-110	--
Anthracene	0.046-44	0.045-230	0.064-3.7	13-35	--	--	0.17-38	--
Di-n-butylphthalate	0.067-5.5	0.043-0.063	0.045-0.085	47-240	--	0.002-0.003	0.058	--
Fluoranthene	0.099-150	0.18-880	0.052-14	43-280	0.004	0.008	1.4-310	0.003
Pyrene	0.36-55	0.12-860	0.042-13	31-220	0.003	0.003	0.82-190	0.003
Benzo(a)anthracene	0.1-100	0.076-770	0.046-16	25-180	--	--	0.18-150	--
Chrysene	0.14-130	0.74-740	0.048-20	--	--	--	0.74-180	0.003
bis(2-Ethylhexyl)phthalate	0.11-14	0.27-1.7	0.042-0.82	--	0.001-0.23	0.02-0.11	0.21-0.85	--
Di-n-octylphthalate	--	0.067	0.41-0.66	35-310	--	--	--	--
Benzo(b)fluoranthene	0.21-140	0.056-1,200	0.08-24	50	--	--	0.81-390	--
Benzo(k)fluoranthene	0.096-75	0.04-1,200	0.086-19	21-200	--	--	0.19-170	--
Benzo(a)pyrene	0.43-55	0.043-710	0.097-19	18-160	--	--	0.56-180	--
Indeno(1,2,3-cd)pyrene	0.25-40	0.061-220	0.08-6.6	5.2-14	--	--	0.61-91	--
Dibenz(a,h)anthracene	0.61-11	0.086-220	0.15-1.7	35-220	--	--	0.093-22	--
Benzo(g,h,i)perylene	0.22-45	0.085-190	0.084-5.4		--	--	0.26-88	--

continued

Table ES-1 - continued

Chemical	Range of Detected Concentrations							
	Disposal Ponds, mg/kg	Potliner Area, mg/kg	CRDA, mg/kg	CMSD, mg/kg	Seeps, mg/L	Groundwater, mg/L	River Sediments, mg/kg	Surface Water, mg/L
PCBs								
Aroclor-1242	--	--	--	--	0.00083-0.0074	--	--	0.001-0.0015
Aroclor-1248	--	--	--	3.6-22.6	--	--	1.04-97.5	--

TABLE ES-2 POTENTIALLY COMPLETE PATHWAY SUMMARY - CURRENT SCENARIOS

Population	Exposure Point	Source/Release Mechanism	Exposure Medium	Exposure Route
Occupational (Adult)	Plant Recreation Area	Disposal ponds, potliner area/ fugitive dust emission	Air	Inhalation (Particulates)
Residential (Adult & Child)	Proctor, West Virginia (off-site)	Disposal ponds, potliner area/ fugitive dust emission	Air	Inhalation (Particulates)
Residential (Adult & Child)	Ohio River	Disposal ponds, potliner area/ CMSD, Carbon Runoff Area/ fugitive dust emission, surface runoff	Surface Water	Ingestion of Fish
Hypothetical Trespasser	004 Backwater Area (Ohio River to Outfall 004 discharge pipe)	Disposal Ponds, Potliner Area, CMSD, Carbon Runoff Area/ fugitive dust emission, surface runoff	Sediments	Ingestion
				Dermal
			Surface Water	Ingestion
				Dermal
			Sediments	Ingestion
				Dermal

continued-

Table ES-2 - continued

Population	Exposure Point	Source/Release Mechanism	Exposure Medium	Exposure Route
Hypothetical Trespasser - continued	Ohio River Bank	Disposal Ponds, Potliner Area, CMSD, Carbon Runoff Area/ fugitive dust emission, surface runoff	Surface Water	Ingestion
				Dermal
			Sediments	Ingestion
				Dermal

TABLE ES-3 POTENTIALLY COMPLETE PATHWAY SUMMARY - HYPOTHETICAL FUTURE SCENARIOS

Population	Exposure Points	Source/Release Mechanism	Exposure Media	Exposure Route
Occupational (Adult CAC/ Ormet Worker)	CAC Ranney Well	Disposal ponds, potliner area/ infiltration	Groundwater	Ingestion
Resident (Adult & Child)	Drinking water well in plume	Disposal ponds, potliner area/ infiltration	Groundwater	Ingestion
	004 Backwater Area (Ohio River to outfall 004 discharge pipe)	004 Discharge, CMSD, carbon runoff area/ fugitive dust emission, surface runoff	Sediments	Ingestion Dermal
			Surface Water	Ingestion Dermal
	Residence-Downwind of Pond 5	Specific source areas/fugitive dust, direct contact	Air	Inhalation (Particulates)
	Residence-Potliner Area			
	Residence - Ponds 1-5		Soil	Ingestion Dermal
	Residence-CRA			
	Residence-CMSD			
	Ohio River	Disposal ponds, potliner area/ CMSD, carbon runoff area/ fugitive dust surface runoff	Surface Water	Ingestion Dermal
			Sediment	Ingestion Dermal
			Fish	Ingestion

Life Systems, Inc.

Cancer Risks

The risk of cancer from exposure to a chemical is described in terms of the probability that an individual exposed for his or her lifetime will develop cancer. Estimated cancer risks are summed across all chemicals of potential concern and all potential exposure pathways that contribute to exposure of an individual in a given population. Typically, cancer risks of 1E-06 (one in one million) or lower are considered to be so small that they are of no practical significance. Higher cancer risk levels may be cause for concern. Due to the inherent uncertainty in cancer risk calculations, all risk values are reported to only one significant figure.

Table ES-4 summarizes cancer risk estimates for current exposure scenarios evaluated at Ormet. For the Proctor residents, estimated cancer risks from inhalation are due primarily to the potential for inhalation of airborne particulates contaminated with arsenic, chromium and PAHs. The estimated cancer risk calculated for the fish ingestion scenario is due to the PCB, Aroclor 1242 and arsenic. Considerable uncertainties, described in both the exposure assessment and uncertainty sections of this document, exist regarding these calculations. For the off-site resident very conservative assumptions were incorporated into the assumed exposure scenario. This resident was assumed to inhale particulates every hour of every day for an entire lifetime of 70 years. This is not likely to reflect actual exposure conditions. Likewise, conservatism was included in attempting to quantify fish ingestion. Whether people in the area actually eat fish caught in the Ohio River in the vicinity of Ormet was not determined for this risk assessment. Additionally, one river water sample used in the exposure point calculation (the sample which contained the PCB) was taken in the area of the 004 discharge to the Ohio River. The sampling location was within an oil sheen on the river and is more indicative of the seep. This sample does not account for the effects of river dilution and therefore is not indicative of the entire river. The estimated cancer risk from ingestion of arsenic in fish may also be too high, since most arsenic that accumulates in fish is in a nontoxic organic form.

For the hypothetical trespasser scenarios, the incidental ingestion of and dermal contact with sediments in the backwater area pose the highest risks. Again, this is due primarily to PAHs and the PCB, Aroclor 1248. The hypothetical trespasser along the river bank may be exposed to less contaminated river sediments. The estimated potential cancer risk in this scenario is also attributable to PCB and PAH contamination.

Table ES-5 summarizes potential cancer risk estimates for all hypothetical future scenarios except future residential soil ingestion scenarios. Risk from ingestion of the groundwater either in a no-pumping scenario or in a future drinking water well scenario poses potential risk estimated at 1E-03 to 5E-03. Arsenic, beryllium and tetrachloroethylene are the contributing chemicals. If a future residence were built just downwind of Pond 5, potential cancer risk of 2E-05 might occur from particulate inhalation. Arsenic, chromium and PAHs are the contributing chemicals.

TABLE ES-4 SUMMARY OF ESTIMATED CANCER RISKS, CURRENT EXPOSURE SCENARIOS

Exposed Population	Exposure Point	Exposure Medium	Exposure Route	Cancer Risk
Current Worker	Recreational Area	Pond 5 Particulates	Inhalation	1E-06
Current Resident, Adult	Proctor, WVA	Pond 5 Particulates	Inhalation	3E-06
	Ohio River	Fish	Ingestion	3E-01
Hypothetical Current Trespasser	Ohio River	Surface Water	Ingestion	2E-08
		Surface Water	Dermal	1E-09
		Sediments	Ingestion	3E-07
		Sediments	Dermal	4E-06
Hypothetical Current Trespasser	004 Backwater	Surface Water	Ingestion	7E-08
		Surface Water	Dermal	1E-09
		Sediments	Ingestion	2E-05
		Sediments	Dermal	2E-04

TABLE ES-5 SUMMARY OF ESTIMATED CANCER RISKS - HYPOTHETICAL FUTURE SCENARIOS[a]

Exposed Population	Exposure Point	Exposure Medium	Exposure Route	Cancer Risk
Future Worker, No-Pumping Scenario	CAC Drinking Water Well	Groundwater	Ingestion	1E-03
Future Resident (Adult)	Pond 5 - Downwind	Pond 5 Particulates	Inhalation	1E-04
Future Resident (Adult)	Future Drinking Water Well	Groundwater	Ingestion	5E-03
	Ohio River	Surface Water	Ingestion	1E-07
	Ohio River	Surface Water	Dermal	4E-09
	Ohio River	Sediments	Ingestion	2E-06
	Ohio River	Sediments	Dermal	2E-05
	Ohio River	Fish	Ingestion	3E-01
	004 Backwater	Surface Water	Ingestion	4E-07
	004 Backwater	Surface Water	Dermal	1E-08
	004 Backwater	Sediments	Ingestion	8E-05
	004 Backwater	Sediments	Dermal	8E-04

ALSO NO-PUMPING SCENARIO

(a) Hypothetical future residential soil pathway scenarios are summarized in Table ES-6.

As for the current resident, any future residential ingestion of fish from the river might be expected to pose potential cancer risk (3E-01) due to the PCB, Aroclor 1242, detected in the river water. Other river scenarios that might pose potential risk are ingestion of and dermal exposure to river sediments either along the river or in the backwater area. This is due primarily to the presence of a PCB, Aroclor 1248 and PAHs.

As shown in Table ES-6, estimated cancer risks calculated at each of the exposure points where a future residence might be built, range from 7E-04 to 1E-02. The contributing chemicals include arsenic, beryllium, PAHs and the PCB, Aroclor 1248. It should be remembered that dermal exposures to PAHs cannot be quantified because of a lack of an appropriate toxicity value. Since PAHs can be carcinogenic at dermal exposure sites these risk calculations are likely to underestimate total risk from PAHs in these scenarios.

Evaluation of Noncarcinogenic Effects

The potential for noncarcinogenic effects is evaluated by summing hazard quotients (HQs) (i.e., the ratios of chemical-specific intakes over a specific time period to the chemical-specific RfDs derived for a similar exposure period). This cumulative ratio is referred to as a hazard index (HI). Since some individuals are exposed by more than one pathway, HI values are summed for each pathway that contributes to the exposure of an individual in a given population. If the total HI is equal to or less than one (1E+00), it is believed noncarcinogenic health effects will not occur.

Values for subchronic (HI_S) and chronic (HI_C) exposures were calculated for each assumed exposure scenario evaluated at this site. Because of the uncertainty inherent in these calculation all values are reported to only one significant figure.

As shown in Table ES-7, no hazard indices calculated for assumed current exposure scenarios exceed 1E+00. However, as shown in Tables ES-8 and ES-9 some hazard indices may exceed one for assumed hypothetical future scenarios. In a hypothetical future no-pumping scenario, HIs calculated for the groundwater ingestion pathway both for future workers and future residents could range from 80 to 600. Fluoride accounts for nearly all of this potential risk, although cyanide, arsenic, manganese (child only) and vanadium (child only) also contribute doses that each could exceed the corresponding reference dose values (i.e., HQ for each chemical exceeds 1E+00).

No HIs calculated for hypothetical future residential soil pathways exceed 1.0E+00 for adults. For hypothetical future child residents, HIs calculated for the soil pathway exceed 1.0 at Ponds 1 to 4 and the CRDA. At these exposure points nearly all potential risk is contributed by arsenic (HQ of 1E+00 in Ponds 1 through 4; HQ of 2E+00 in the CRDA). Antimony and vanadium in Ponds 1 to 4 each contribute HQs of nearly one. Since arsenic, vanadium and antimony all have different major critical effects it is appropriate to evaluate risk on a chemical by chemical basis. There does not appear to be concern for noncarcinogenic effects via the soil ingestion pathways at these locations except for arsenic at the CRDA.

TABLE ES-6 SUMMARY OF ESTIMATED CANCER RISKS, HYPOTHETICAL FUTURE RESIDENTIAL EXPOSURE SCENARIOS - SOIL PATHWAYS

Exposure Point	Exposure Medium	Exposure Route	Cancer Risk
Pond 5	Soil	Ingestion	7E-04
		Dermal	5E-09
		Total:	7E-04
Pond 1-4	Soil	Ingestion	3E-03
		Dermal	8E-08
		Total:	3E-03
Potliner	Soil	Ingestion	2E-02
		Dermal	5E-08
		Total:	2E-02
Carbon Runoff Area	Soil	Ingestion	2E-03
		Dermal	9E-04
		Total:	3E-03
Construction Material Scrap Dump	Soil	Ingestion	1E-02
		Dermal	3E-04
		Total:	1E-02

TABLE ES-7 SUMMARY OF ESTIMATED NONCARCINOGENIC RISKS, CURRENT EXPOSURE SCENARIOS

Exposed Population	Exposure Point	Exposure Medium	Exposure Route	Hazard Index
Current Worker	Recreational Area	Pond 5 Particulates	Inhalation	7E-02
Current Resident, Adult	Proctor, WVA	Pond 5 Particulates	Inhalation	7E-02
	Ohio River	Fish	Ingestion	3E-01
Current Resident, Child (subchronic)	Proctor, WVA	Pond 5 Particulates	Inhalation	8E-02
	Ohio River	Fish	Ingestion	9E-01
Current Hypothetical Trespasser	Ohio River	Surface Water	Ingestion	2E-03
		Surface Water	Dermal	5E-07
		Sediments	Ingestion	4E-04
		Sediments	Dermal	6E-04
Current Hypothetical Trespasser	Backwater Area (004)	Surface Water	Ingestion	2E-03
		Surface Water	Dermal	3E-07
		Sediments	Ingestion	3E-04
		Sediments	Dermal	6E-05

TABLE ES-8 SUMMARY OF ESTIMATED NONCARCINOGENIC RISKS - HYPOTHETICAL FUTURE SCENARIOS[a]

Exposed Population	Exposure Point	Exposure Medium	Exposure Route	Hazard Index
Future Worker, No-Pumping Scenario	CAC Drinking Water Well	Groundwater	Ingestion	8E+01
Future Resident, Adult	Pond 5 - Downwind	Pond 5 Particulates	Inhalation	4E-01
Future Resident, Child	Pond 5 - Downwind	Pond 5 Particulates	Inhalation	5E-01
Future Resident, Adult	Future Drinking Water Well	Groundwater	Ingestion	1E+02
	Ohio River	Surface Water	Ingestion	2E-03
	Ohio River	Surface Water	Dermal	2E-07
	Ohio River	Sediments	Ingestion	3E-04
	Ohio River	Sediments	Dermal	3E-05
	Ohio River	Fish	Ingestion	3E-01
	004 Backwater	Surface Water	Ingestion	1E-03
	004 Backwater	Surface Water	Dermal	4E-07
	004 Backwater	Sediments	Ingestion	2E-04
	004 Backwater	Sediments	Dermal	3E-05
Future Resident, Child	Future Drinking Water Well	Groundwater	Ingestion	6E+02
	Ohio River	Surface Water	Ingestion	7E-03
	Ohio River	Surface Water	Dermal	2E-07
	Ohio River	Sediments	Ingestion	1E-03
	Ohio River	Sediments	Dermal	6E-05
	Ohio River	Fish	Ingestion	9E-01
	004 Backwater	Surface Water	Ingestion	7E-03
	004 Backwater	Surface Water	Dermal	1E-07
	004 Backwater	Sediments	Ingestion	8E-04
	004 Backwater	Sediments	Dermal	9E-05

(a) Future residential soil pathway scenarios summarized in Table ES-9.

TABLE ES-9 SUMMARY OF ESTIMATED NONCARCINOGENIC RISKS - HYPOTHETICAL FUTURE RESIDENTIAL SOIL PATHWAYS

Exposure Point	Exposure Route	Hazard Index[a] Resident Adult	Resident Child
Pond 5	Ingestion	2E-01	1E+00
	Dermal	5E-05	2E-04
	Total:	2E-01	1E+00
Ponds 1-4	Ingestion	4E-01	3E+00
	Dermal	4E-04	3E-03
	Total:	4E-01	3E+00
Potliner	Ingestion	1E-01	8E-01
	Dermal	5E-04	2E-03
	Total:	1E-01	8E-01
CRDA	Ingestion	5E-01	3E+00
	Dermal	9E-05	5E-04
	Total:	5E-01	3E+00
CMSD	Ingestion	2E-01	1E+00
	Dermal	3E-03	3E-02
	Total:	2E-01	1E+00

(a) For the adult this is a chronic hazard index; for the child the hazard index is subchronic.

Evaluation of Risks from Lead Exposure

Since there are no EPA-approved RfD values for lead, it is not possible to evaluate potential noncancer risks of lead by calculation of a Hazard Index. An alternative approach is to estimate the likely effect of lead exposure on the concentration of lead in the blood (PbB). Several mathematical models have been developed for calculating the value of PbB as a function of environmental concentrations of lead. Of these, the Uptake/Biokinetic (UBK) model has the greatest flexibility and has been most thoroughly validated.

It is commonly agreed that young children are more susceptible to the effects of lead than older children or adults, since (1) young children tend to have higher exposure levels (especially to soil), (2) young children have higher lead absorption rates, and (3) the nervous system of infants and young children is more sensitive to the neurological effects of lead. The USEPA has developed a computer program ("LEAD4") for calculating lead exposures and the resulting PbB values in children age 0 to 6. This program was used to evaluate the effects of lead in environmental media on children at this site. It should be noted that these calculations include lead exposure from all sources (including food and area-wide emissions to air), and not just those specifically derived from the site (soil and water). Most input parameters (e.g., body weight, water intake, soil intake, breathing rate, concentration of lead in air and lead intake from the diet) were taken to be the national average values suggested as defaults by the USEPA. The concentrations of lead in soil and water were the site-specific values calculated as assumed in Section 3.4.1 for current and hypothetical future residential scenarios.

Table ES-10 summarizes the results. Although there is no universally agreed upon value of PbB that may be identified as "safe" for the effects of lead on children, the USEPA has identified 10 to 15 µg/dL as a range of concern for health effects in children that warrant avoidance. As shown in Table ES-10, geometric blood lead values are predicted to range from 3.2 to 4.8 µg/dL for the various populations, and essentially no members of the exposed populations are expected to have values exceeding 15 µg/dL. On this basis, it appears that lead in surface soil or water is not a reason for significant concern.

Risk Summary

It is recognized that at the Ormet site individuals from either current and hypothetical future populations may be exposed to contaminants of potential concern through several pathways. Total exposure equals the exposures by all pathways. However, potential risks are not routinely summed without giving consideration to the following:

- Identification of reasonable exposure pathway combinations
- Examination of whether the same individual could consistently face the reasonable maximum by more than one pathway

Potential risks should not be combined if two pathways do not affect the same population. Likewise, if the same population is not likely to face the reasonable maximum in each pathway, potential risks should not be combined.

TABLE ES-10 SUMMARY OF LEAD EXPOSURES AND EXPECTED BLOOD LEVELS IN CHILDREN (AGE 0 to 6)

Residental Exposure Point	Medium	Assumed Concentration[(a)]	Predicted Blood Lead Values: Geometric Mean, µg/dL	Predicted Blood Lead Values: Percent Below 10 µg/dL	Predicted Blood Lead Values: Percent Below 15 µg/dL
Current, Proctor	Soil/Dust	200 µg/g*	3.24	99.94	100
	Water	4 µg/L*			
	Air	0.2 µg/m^3*			
Future, Pond 5 (downwind)	Soil/Dust	200 µg/g*	4.78	98.37	99.95
	Water	28 µg/L			
	Air	0.2 µg/m^3*			
Future, on Pond 5	Soil/Dust	29 µg/g	3.34	99.92	100
	Water	28 µg/L			
	Air	0.2 µg/m^3*			
Future, Ponds 1-4	Soil/Dust	140 µg/g	4.28	99.26	99.99
	Water	28 µg/L			
	Air	0.2 µg/m^3*			
Future, Potliner	Soil/Dust	27 µg/g	3.32	99.93	100
	Water	28 µg/L			
	Air	0.2 µg/m^3*			
Future, CRA	Soil/Dust	53 µg/g	3.54	99.86	100
	Water	28 µg/L			
	Air	0.2 µg/m^3*			
Future, CMSD	Soil/Dust	83 µg/g	3.79	99.7	100
	Water	28 µg/L			
	Air	0.2 µg/m^3*			

(a) * Indicates default value used in model.

At the Site the following combinations are considered reasonable:

- A future Ormet worker might be exposed to both Pond 5 emissions and the contaminated groundwater (in a hypothetical no-pumping scenario)

- Hypothetical future residents would be reasonably expected to be exposed via all quantified pathways.

Table ES-11 summarizes these potential risks estimated for exposures to carcinogenic contaminants. These values are presented such that total potential risk exclusive of the fish ingestion pathway is also included. It is recognized that the addition of all residential scenarios results in a carcinogenic risk summation that is likely to be greater than the reasonable maximum (as defined as the 95th percentile of the distribution). It is unlikely that any current or hypothetical future resident would consistently face a reasonable maximum exposure from every pathway quantified in this risk assessment.

ASSESSMENT OF UNCERTAINTIES

There are many aspects of the risk assessment process where precisely accurate evaluations are not possible. There are a number of uncertainties inherent in modeling, exposure evaluation and toxicological information that must be acknowledged. The major sources of uncertainties in the risk estimates presented in this report include the following:

- Not all chemicals detected at the site were quantitatively evaluated in all conceivable exposure pathways. While this approach will underestimate risk, it is not likely to introduce significant error.

- A simplifying assumption that chemical concentrations detected during sampling will remain constant over a lifetime is likely to overestimate risk since there are on-going fate and degradation processes which will tend to reduce contamination over time.

- Numerous uncertainties exist in modeling of any kind. The emissions and air modeling performed for this site appear to be reasonable when compared to actual monitoring data at locations away from Pond 5. It is unknown whether actual PM_{10} concentrations at Proctor have been over or underestimated by the selected modeling approach.

- Determination of the appropriate exposure factors to use in calculation of exposure levels can be highly uncertain, especially when nonstandard exposure scenarios (e.g., the river scenarios) are evaluated. When faced with significant uncertainties in selecting appropriate values, an effort was made to use conservative, but not unrealistic values (i.e., protective of the individual who receives the reasonable maximum exposure). Therefore, exposure calculations should be considered overestimates. This is especially true of the fish ingestion and other river-related scenarios.

TABLE ES-11 ESTIMATED CUMULATIVE CANCER RISKS

Exposed Population (Exposure Point)	Hypothetical Future Scenarios							
	Soil[a]	Air[b]	Groundwater[c]	River[d]	004 Backwater[d]	Sub-Total[e]	Fish Ingestion[f]	Total
Future Worker (Recreational Area)	--[g]	1E-06	1E-03	--	--	1E-03	--	1E-03
Future Resident (Downwind Pond 5)	--	2E-05	5E-03	2E-05	9E-04	6E-03	3E-01	3E-01
Future Resident (Pond 5)	7E-04	--	5E-03	2E-05	9E-04	7E-03	3E-01	3E-01
Future Resident (Ponds 1-4)	3E-03	--	5E-03	2E-05	9E-04	9E-03	3E-01	3E-01
Future Resident (Potliner)	2E-02	--	5E-03	2E-05	9E-04	3E-02	3E-01	3E-01
Future Resident (Carbon Runoff)	3E-03	--	5E-03	2E-05	9E-04	9E-03	3E-01	3E-01
Future Resident (Construction Material Scrap Dump)	1E-02	--	5E-03	2E-05	9E-04	2E-02	3E-01	3E-01

(a) Includes ingestion and dermal exposures. Values from Table 5-3.
(b) From Table 5-1. Value for current worker assumed to equal value for future worker.
(c) From Table 5-2.
(d) From Table 5-2. Includes both ingestion of and dermal contact with surface water and sediments. Fish ingestion scenario not included here.
(e) Exclusive of fish ingestion scenario.
(f) From Table 5-5.
(g) "--" indicates pathway not quantified.

- Several chemicals cannot be evaluated in the absence of reliable toxicity values for each relevant route of exposure. To some extent, this will result in an underestimate of risk.

- The approach for quantifying cancer risks assumes that dose-response data in animals can be approximately extrapolated to humans. The USEPA approach toward developing slope factors for carcinogens employs conservative assumptions. This, and the fact that lifetime exposures are assumed, are likely to result in overestimates of risk.

In summary, most assumptions employed in this risk assessment are likely to overestimate risk. Consequently, the risks presented here should be considered as approximate and are more likely to be high than low.

1.0 INTRODUCTION

1.1 Overview

This human health evaluation is an analysis of the potential adverse health effects (current and future) resulting from releases of hazardous substances at the Ormet Corporation Site (Site). This evaluation, together with the Environmental Evaluation comprise the endangerment assessment, or baseline risk assessment, for the Ormet site. By definition, a baseline risk assessment is limited to conditions under the no-action alternative, that is in the absence of any remedial actions (including institutional controls) to control or mitigate releases. The results of this baseline risk assessment will:

- Document both the magnitude and causes of risk at the site.
- Aid in determining if any remedial actions may be necessary to mitigate unacceptable health risks.

The procedures used in this risk assessment are consistent with guidance furnished in the Environmental Protection Agency's (EPA's) Risk Assessment Guidance for Superfund, Volume I - Human Health Evaluation Manual (RAGS) (USEPA 1989b), the Exposure Factors Handbook (USEPA 1989a) and the Superfund Exposure Assessment Manual (USEPA 1988c). Related guidance and other technical information have also been used and are referenced as appropriate.

1.2 Site Background

The Ormet Corporation site is located in southeastern Ohio along the Ohio River. The site is at approximately river mile 123, about 35 miles south of Wheeling, West Virginia and approximately three miles upriver from Hannibal, Ohio (Monroe County) (Figure 1-1). The site is bounded on the northwest by Ohio State Route 7, on the east and southeast by the Ohio River and on the southwest by the Consolidated Aluminum Corporation (CAC) (Figure 1-1).

Ormet produces aluminum metal from the reduction of alumina. The process utilizes electrolytic cells or pots, lined with anthracite and pitch. This material, referred to as potliner, deteriorates during the process and is eventually replaced. Between 1958 and 1968 this spent potliner was stored in an unlined, open area. Figure 1-2 shows this approximately ten-acre area in the northeast area of the site.

From 1958 until 1981, five retention ponds were utilized to receive wastes from the facility. These ponds are unlined and constructed of natural materials. Ponds 1 through 4, each about one acre in size, received predominately sludge from the pot-room wet scrubbing system or the wet scrubber for the anode bake furnace. Ponds 1 through 4 may have also received minor amounts of tailings from the cryolite recovery plant which began operations in 1968. These four ponds range in depth from four to 13 feet. The 11-acre Pond 5 received mostly tailings from the cryolite recovery operation and may have received, initially, sludge from the pot-room wet scrubber.

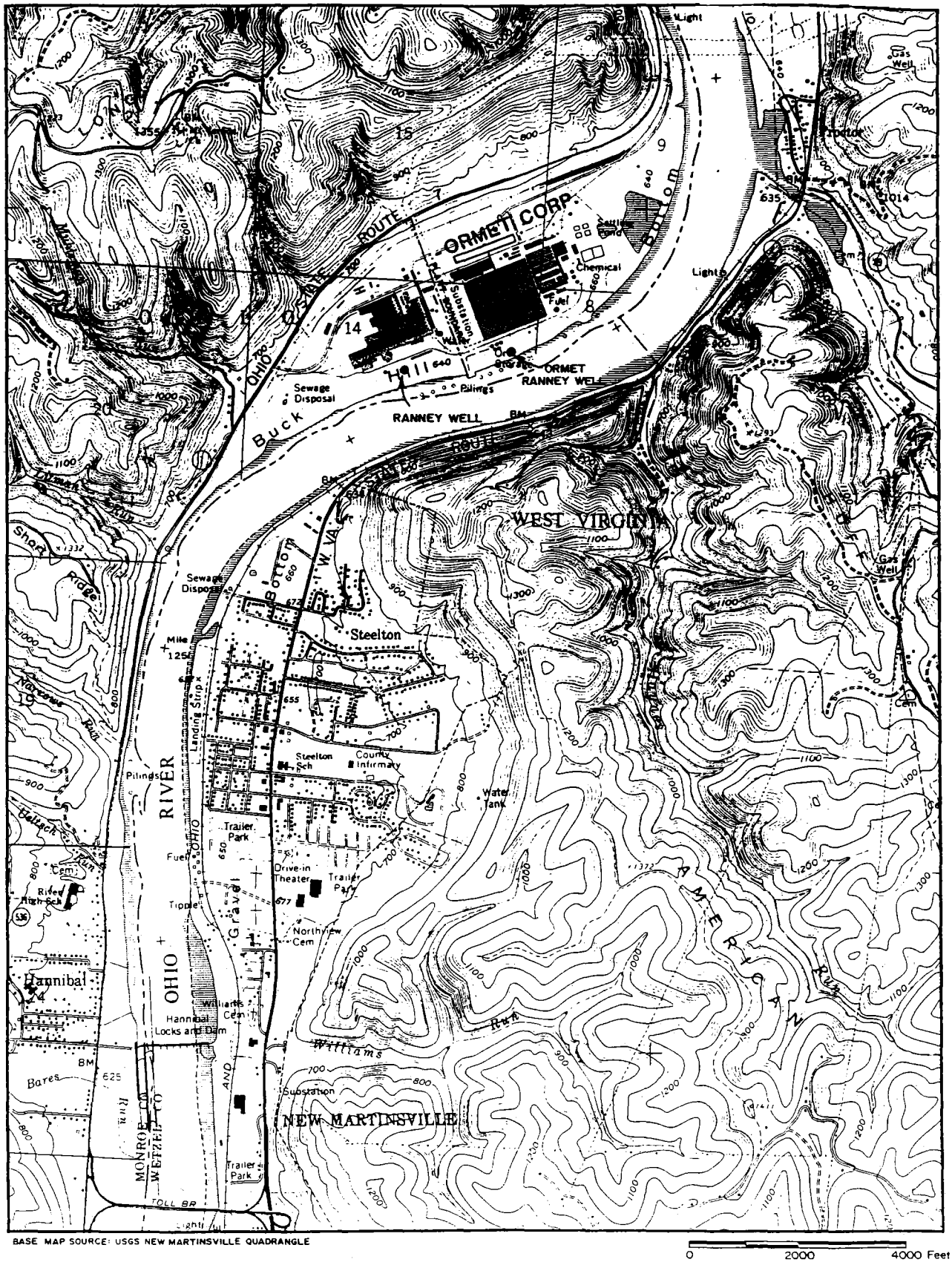
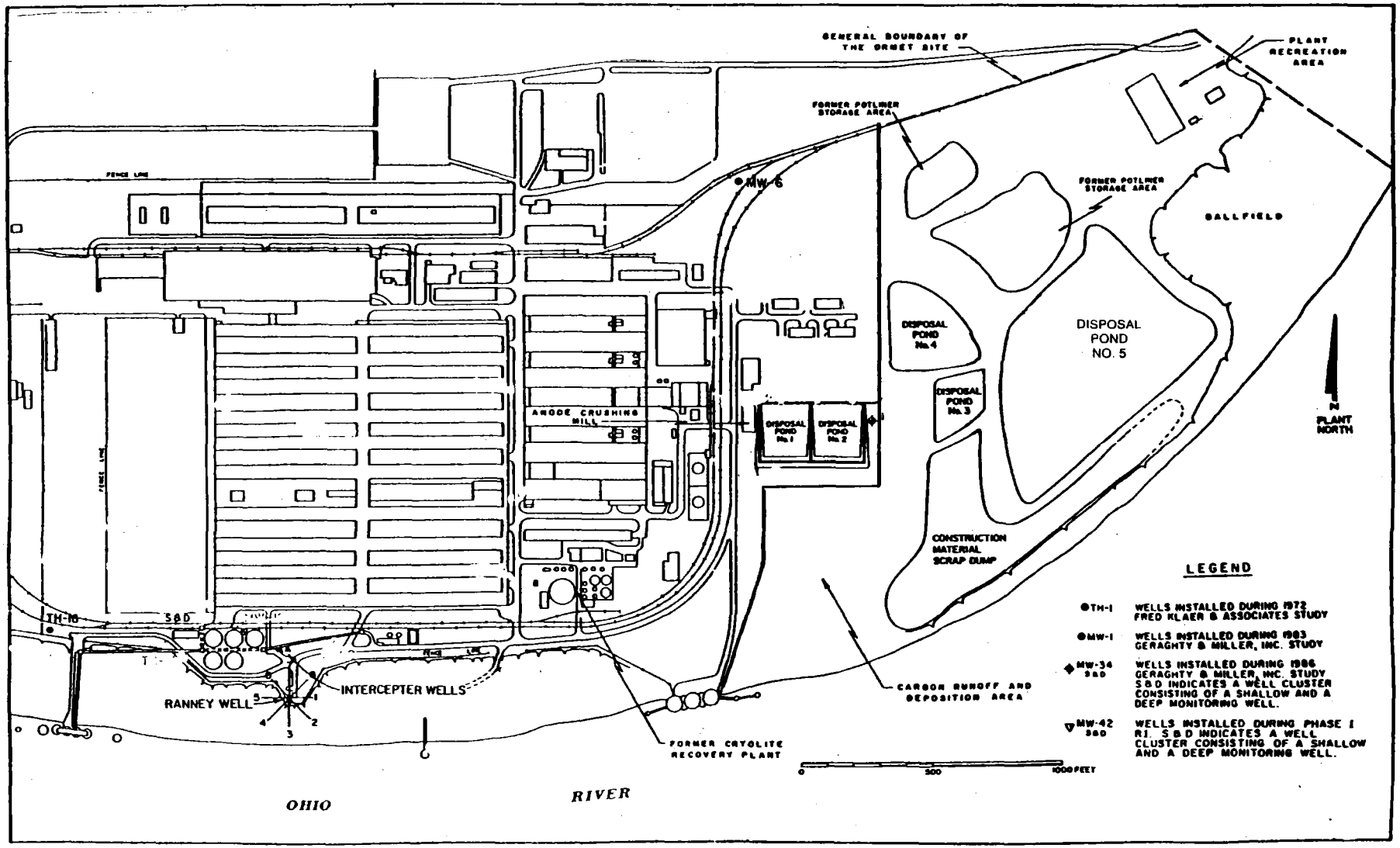


FIGURE 1-1 GENERAL LOCATION OF THE ORMET CORPORATION PLANT



Source: Geraghty & Miller (1991)

FIGURE 1-2 GENERAL SITE FEATURES

From 1958 through 1979, Ormet periodically deposited waste construction material in an area in the southeastern corner of the site. This four- to five-acre area is designated as the Construction Material Scrap Dump (CMSD) on Figure 1-1. In the southeastern area of the site there is an area referred to as the Carbon Runoff and Deposition Area (CRDA). This three-acre wooded area contains deposits of carbon material one- to five-feet thick. The material has been carried from the anode crushing mill to the CRDA via storm water runoff.

The various site areas and their characterization are described in detail in the Ormet Remedial Investigation (RI) report (Geraghty & Miller 1990b).

1.3 Organization of This Report

In addition to this Introduction, the Baseline Risk Assessment Report for the Ormet Corporation site consists of the following sections:

2.0 Identification of Chemicals of Potential Concern
3.0 Exposure Assessment
4.0 Toxicity Assessment
5.0 Risk Characterization
6.0 Assessment of Uncertainties
7.0 References

This report also contains five appendices. Appendix 1 contains sampling summary tables. Appendix 2 describes the emissions and air diffusion and transport modeling performed. Appendix 3 documents the calculation of exposure point concentrations. Appendix 4 contains toxicity summaries for the chemicals of potential concern. Appendix 5 contains worksheet outputs of risk characterization calculations.

2.0 IDENTIFICATION OF CHEMICALS OF POTENTIAL CONCERN

2.1 Summary of Site-Specific Data Collection

The RI for the Ormet site was conducted in two phases. Field activities in Phase I were conducted from February to August, 1988; Phase II field activities spanned the time period between February and July 1990. The sampling efforts are described in detail in the RI report (Section 2.0, Geraghty & Miller 1991) and are briefly summarized here. Analytical results from these sampling activities are presented in detail in the RI and are also summarized in Appendix 1 of this report. The tables that appear in Appendix 1 were constructed from copies of the laboratory reporting forms furnished by Ormet.

Disposal Pond Sampling

Figure 2-1 illustrates the sampling scheme for Disposal Ponds 1 through 5. Samples were taken at a variety of depths in each pond section. All pond solids were analyzed for the inorganic and organic parameters on EPA's Contract Laboratory Program (CLP) target analyte and target compound lists (TAL, TCL) with the exception of pesticides and dioxin. Additional analyses were included for a number of non-CLP analytes. These included ammonia-nitrogen, fluoride, silica, total cyanide, cyanide amenable to chlorination, chloride and sulfate.

Potliner Storage Area Sampling

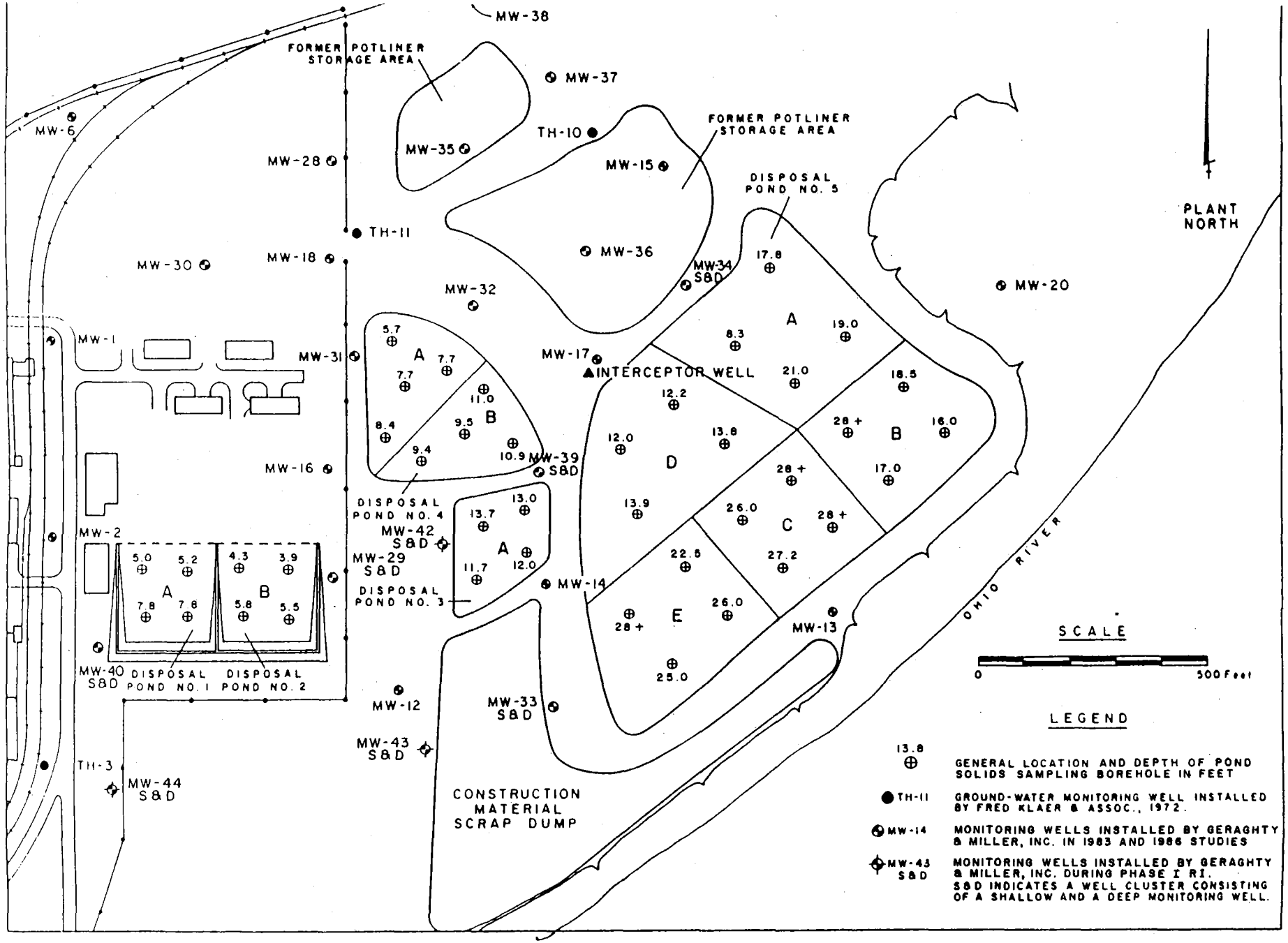
The potliner storage area was gridded into 24 sections and a soil boring was advanced in each (Figure 2-2). Five soil samples were composited for each boring over two-feet intervals (120 samples). These samples were analyzed for the non-CLP inorganic parameters as listed for the ponds sampling (except for cyanide amenable to chlorination). Four selected borings were analyzed for inorganic and organic CLP parameters (excluding pesticides and dioxin).

Construction Material Scrap Dump

During Phase II of the RI, four test pits were excavated in the CMSD (Figure 2-3). A representative sample of the material in each was composited from each two-foot interval. These samples were analyzed for all CLP and non-CLP parameters (as previously described in the pond sampling), with the exception of dioxin.

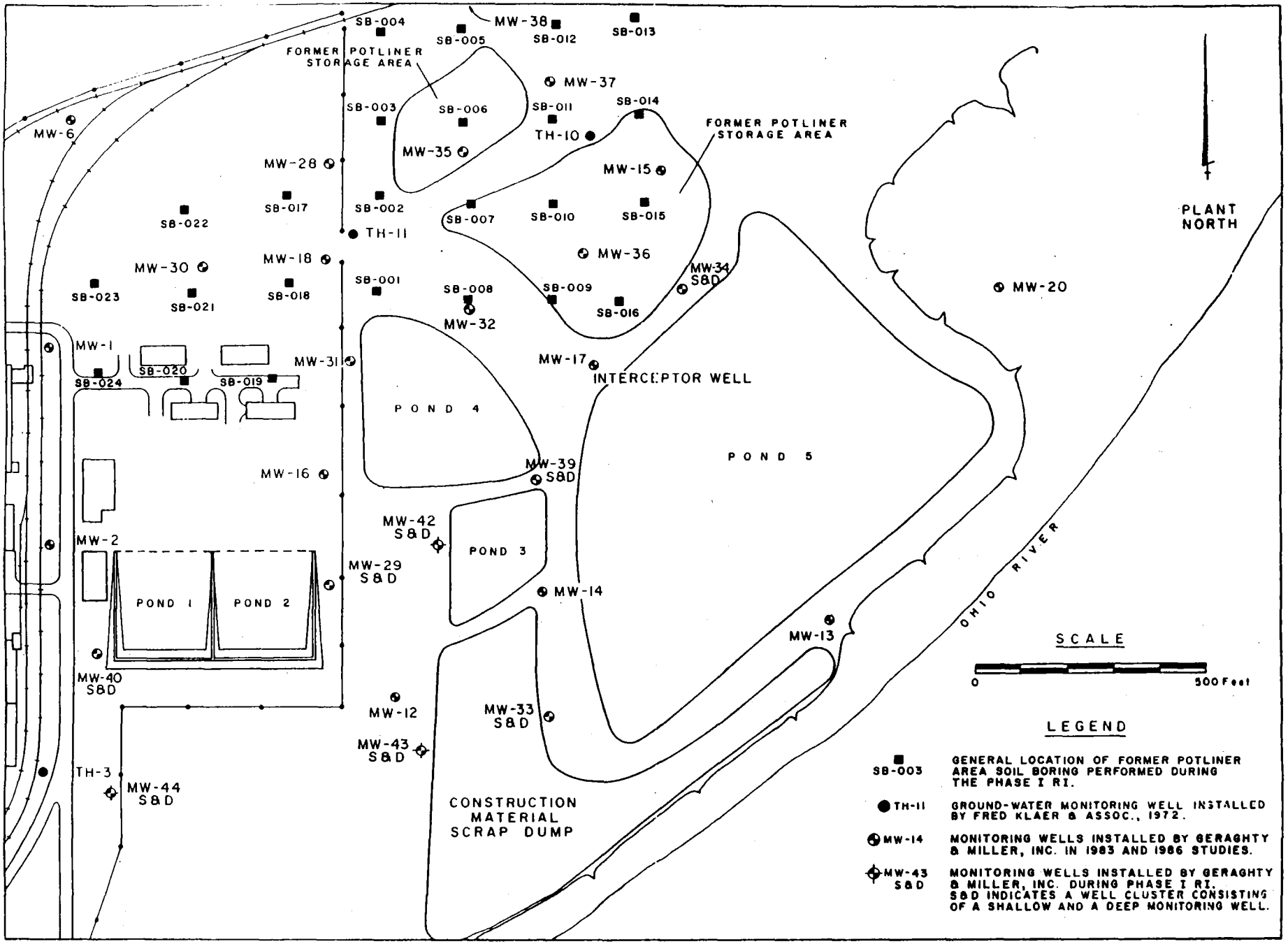
Carbon Runoff and Deposition Area

Samples of the carbon material and underlying soil in the CRDA were collected at six locations. These are indicated in Figure 2-4. The soil samples were collected from approximately one to two feet below the overlying carbon material. These samples were analyzed for all CLP parameters (excluding pesticides, polychlorinated biphenyls (PCBs) and dioxin) and the non-CLP parameters described in the pond sampling.



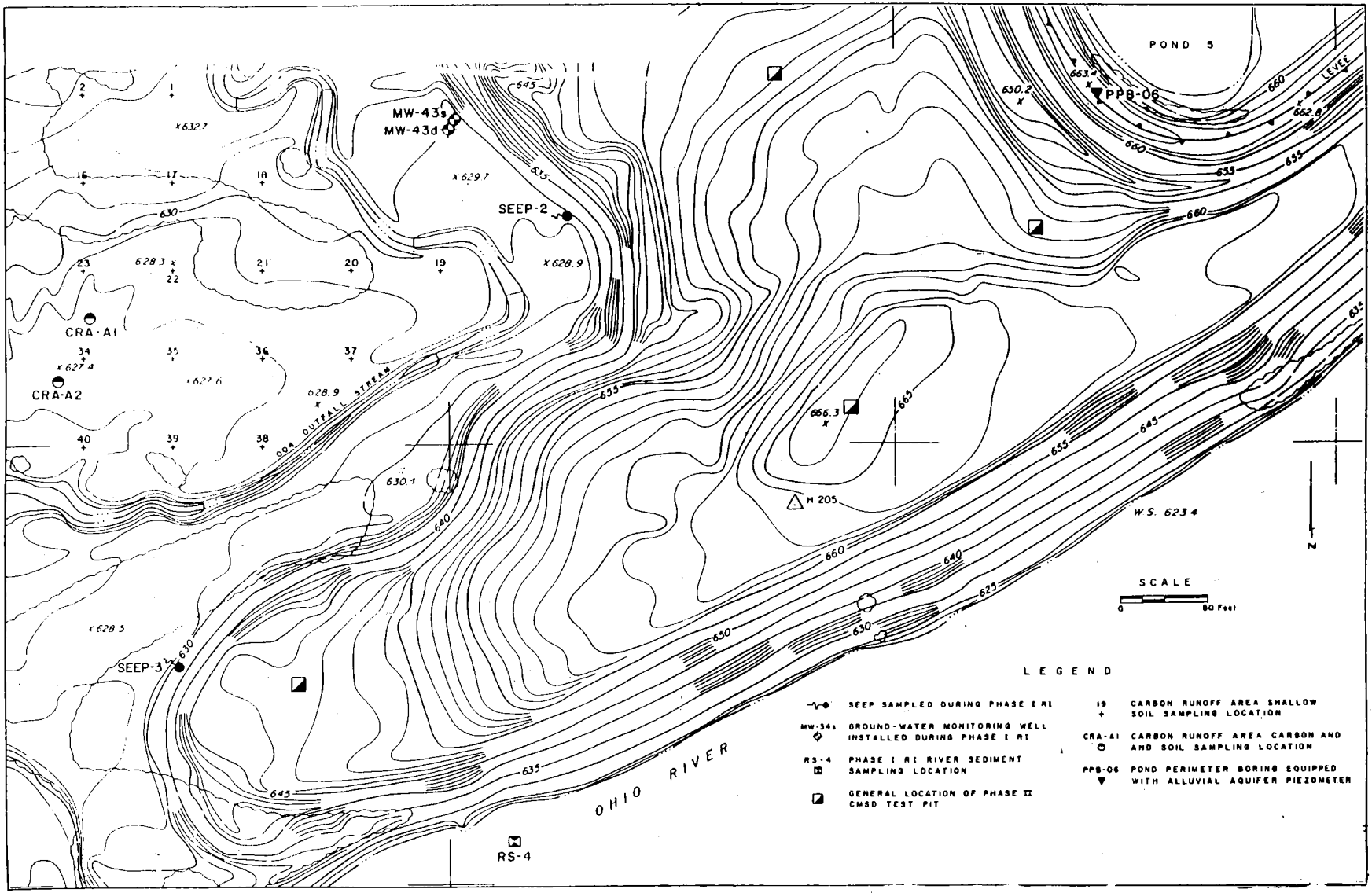
Source: Geraghty & Miller (1991)

FIGURE 2-1 LOCATIONS OF DISPOSAL POND SAMPLES



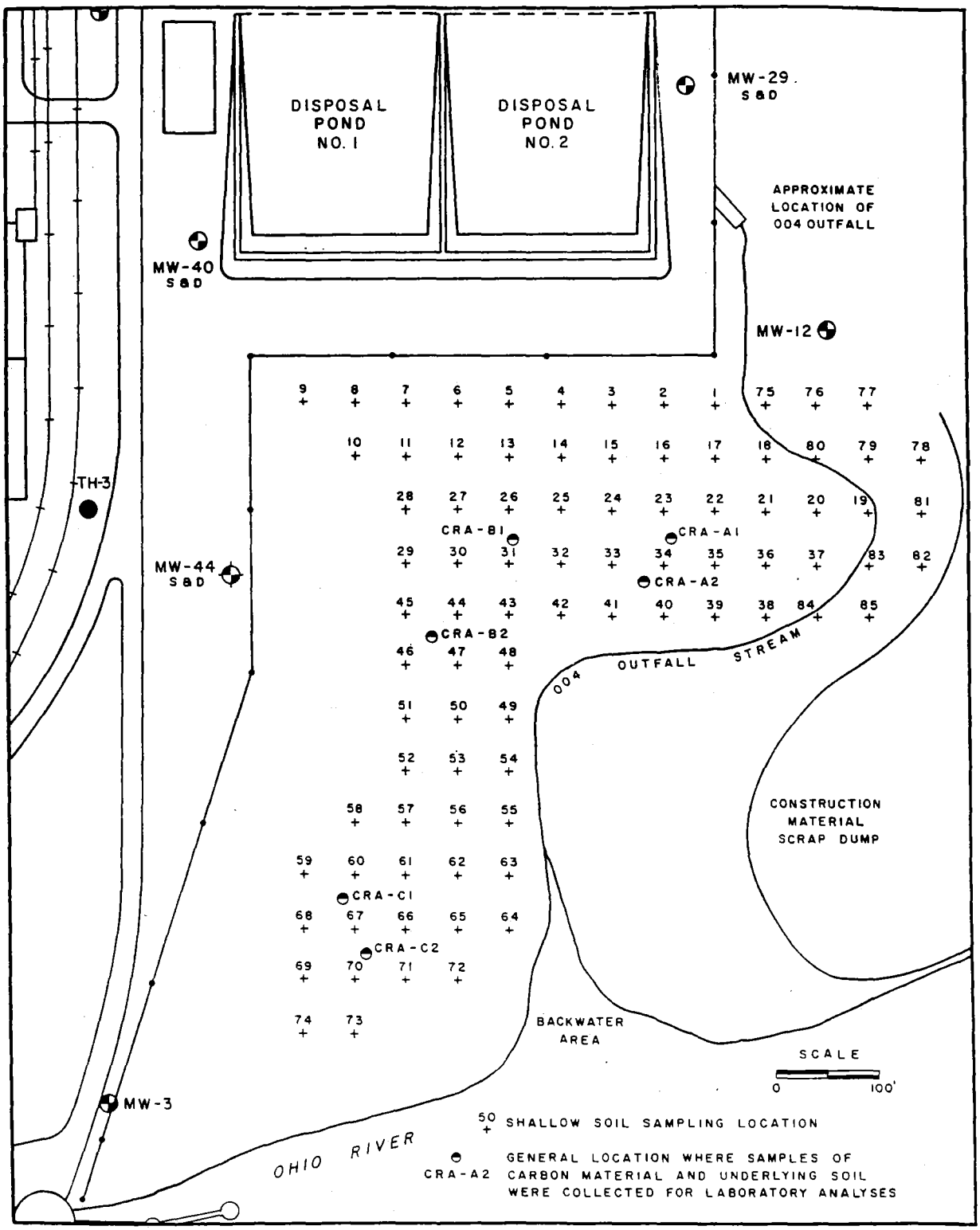
Source: Geraghty & Miller (1991)

FIGURE 2-2 GENERAL LOCATIONS OF SOIL BORINGS IN THE FORMER SPENT POTLINER STORAGE AREA



Source: Geraghty & Miller (1991)

FIGURE 2-3 GENERAL LOCATION OF TEST PITS IN CONSTRUCTION MATERIAL SCRAP DUMP



Source: Geraghty & Miller (1991)

FIGURE 2-4 LOCATION OF CARBON RUNOFF AND DEPOSITION AREA SAMPLES

Seeps

During several site visits, a number of seeps were located on site. Figure 2-5 shows the general location of these. Seeps No. 2, 3, 5, 6, 7 are all located along the base of the CMSD. Seeps 1 and 4 are located at the base of the slope leading down to the Ormet baseball field. During Phase I seeps 1 through 3 were sampled (No. 4 was dry) for all laboratory parameters except dioxin. In Phase II seeps 1 through 6 were sampled (Seep No. 7 was dry) for the same parameters. A conduit leading from the dike of Pond 5 along to the Ohio river was sampled in Phase I, along with the seeps.

Air Monitoring

Figure 2-6 illustrates the location of four air samplers located on the Ormet site to measure respirable particulate matter (PM_{10}). Air monitoring was conducted from March, 1988 until December, 1988. The air samplers were in operation for 24 hours every six days during that period. Results of this monitoring activity are described in Energy and Environmental Management, Inc. (1989).

Groundwater

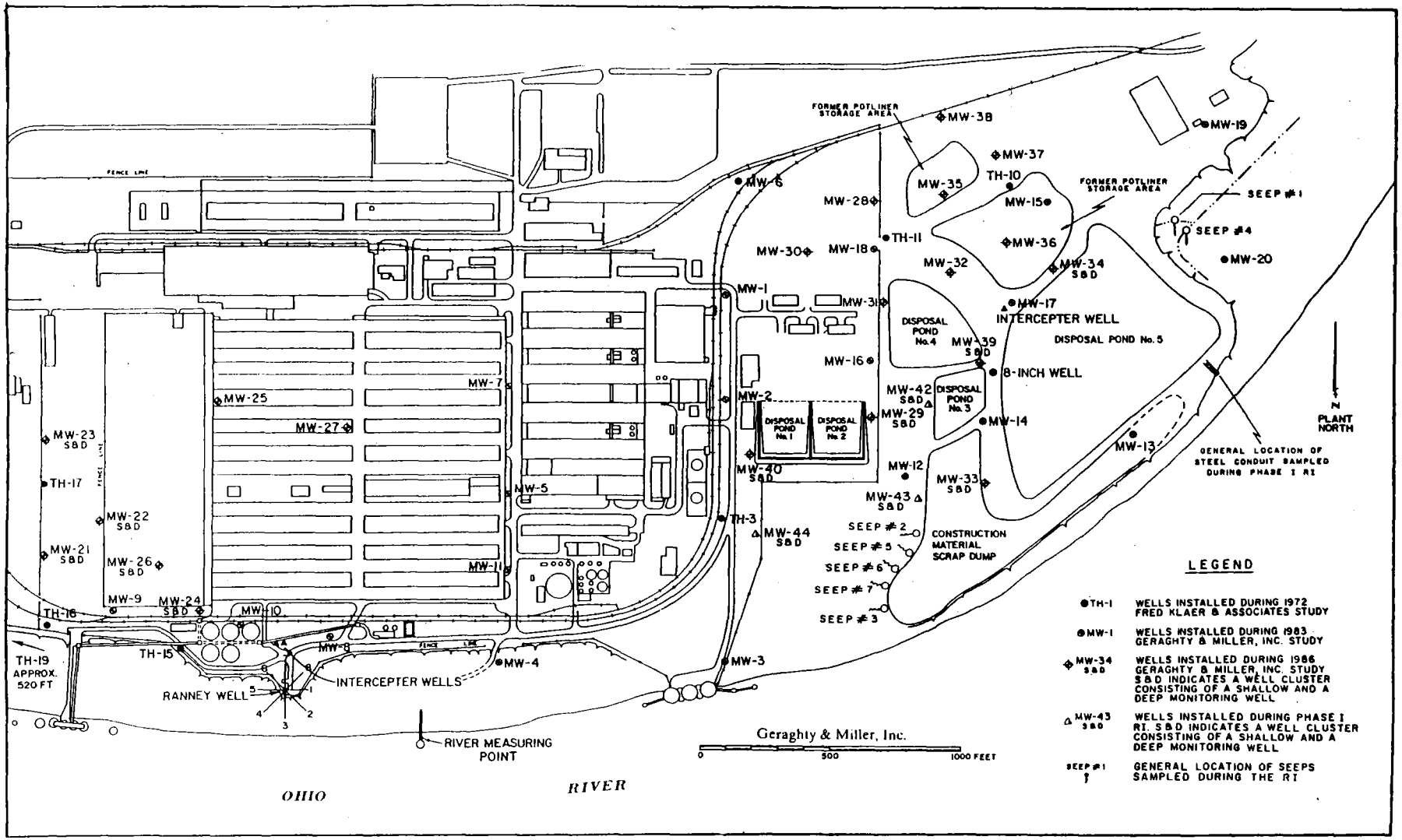
Locations of groundwater monitoring wells are depicted on Figure 1-2. During Phase I of the RI all MW series wells were sampled and analyzed for all inorganic CLP and non-CLP parameters (as described in pond sampling). Thirty-five of the wells were also analyzed for CLP organic compounds (with the exception of dioxin). During Phase II thirteen wells and the Ormet Ranney Well were sampled for fluoride, iron, sodium, silica, cyanide (total and amenable to chlorination) and sulfate.

In June and July, 1990, the CAC well was sampled both before and after the water had passed through the CAC treatment system. The groundwater samples collected from a valve near the well head were analyzed for all CLP and non-CLP parameters. The samples collected after treatment were analyzed for primary and secondary drinking water parameters and a list of unregulated volatile organic compounds (VOCs). The results of this sampling are described in the RI report (Geraghty of Miller, 1990b). A summary of the pretreatment sampling results are included in Appendix 1 (Table A1-10).

Sampling for low (part per trillion) analysis for polycyclic aromatic hydrocarbons (PAHs) is planned but not yet complete. This data are therefore not included in this report.

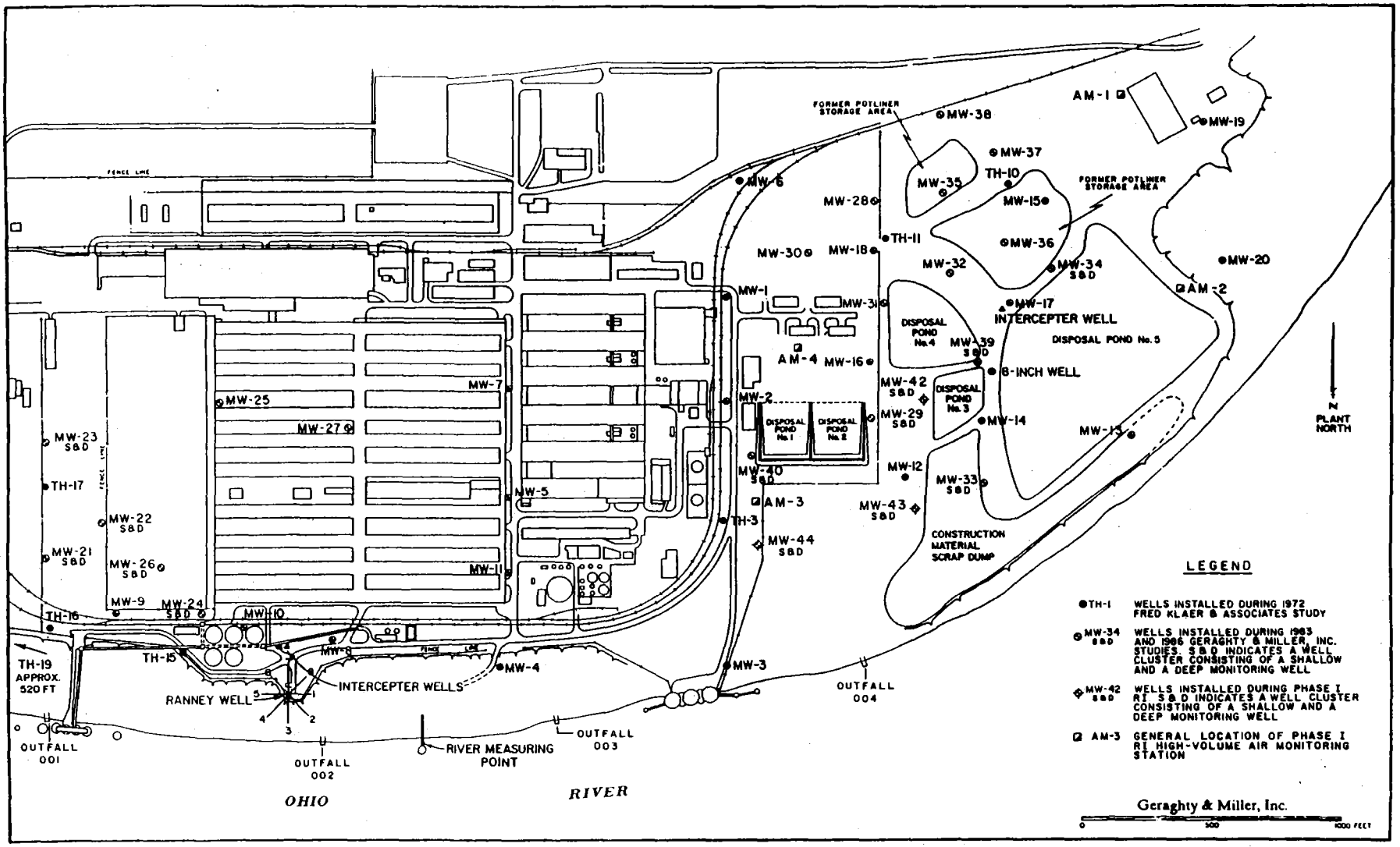
National Pollutant Discharge Elimination System Combined Outfall 004 Discharge

The Ohio Environmental Protection Agency (OEPA) provided monitoring data for the Ormet Corporation combined Outfall 004 discharge to the Ohio River (Stewart 1990, 1991). This discharge is monitored under National Pollutant Discharge Elimination System (NPDES) Permit No. OIE00005004. The discharge from this outfall flows through the carbon runoff and deposition area to form



Source: Geraghty & Miller (1991)

FIGURE 2-5 LOCATIONS OF SEEPS



Source: Geraghty & Miller (1991)

FIGURE 2-6 LOCATIONS OF HIGH-VOLUME AIR MONITORING STATIONS

a backwater area at its confluence with the Ohio River (Figure 2-7). Approximately 36 percent (317,000 gallons per day) of the total flow from this outfall is pumped from Interceptor Wells 1 and 2, which intercept the groundwater contaminant plume under the site (Stewart 1991).

River Sediments and Surface Water

As part of Phase I, river sediments were collected from six Ohio River locations. These samples were analyzed for CLP parameters (excluding pesticides, PCBs and dioxin) and the non-CLP inorganic parameters (previously listed in the pond sampling). Additional sampling was done in Phase II: twelve locations as shown in Figure 2-7 were analyzed for semivolatiles, pesticides and PCBs on the CLP. Likewise, during Phase II surface water samples were collected at five locations (Figure 2-7) and analyzed for all CLP parameters except dioxin and non-CLP inorganic parameters.

Environmental Evaluation

As part of the environmental evaluation soil, sediment and surface water samples were taken from various Site locations. Composite soil samples were taken from:

- The CRDA in the vicinity of a barren area
- The southeast periphery of Pond 3 near the CMSD
- The northeast edge of Pond 5
- Between the potliner storage area and the northwest edge of Pond 5
- In an off-site reference area northeast of the plant recreation area

Sediment samples were taken in the above-mentioned reference backwater area, a seepage area adjacent to the CMSD base and in the Ohio River, approximately 1,200 ft downstream of the CRDA. Surface water samples were also collected at these same locations except for the reference backwater area.

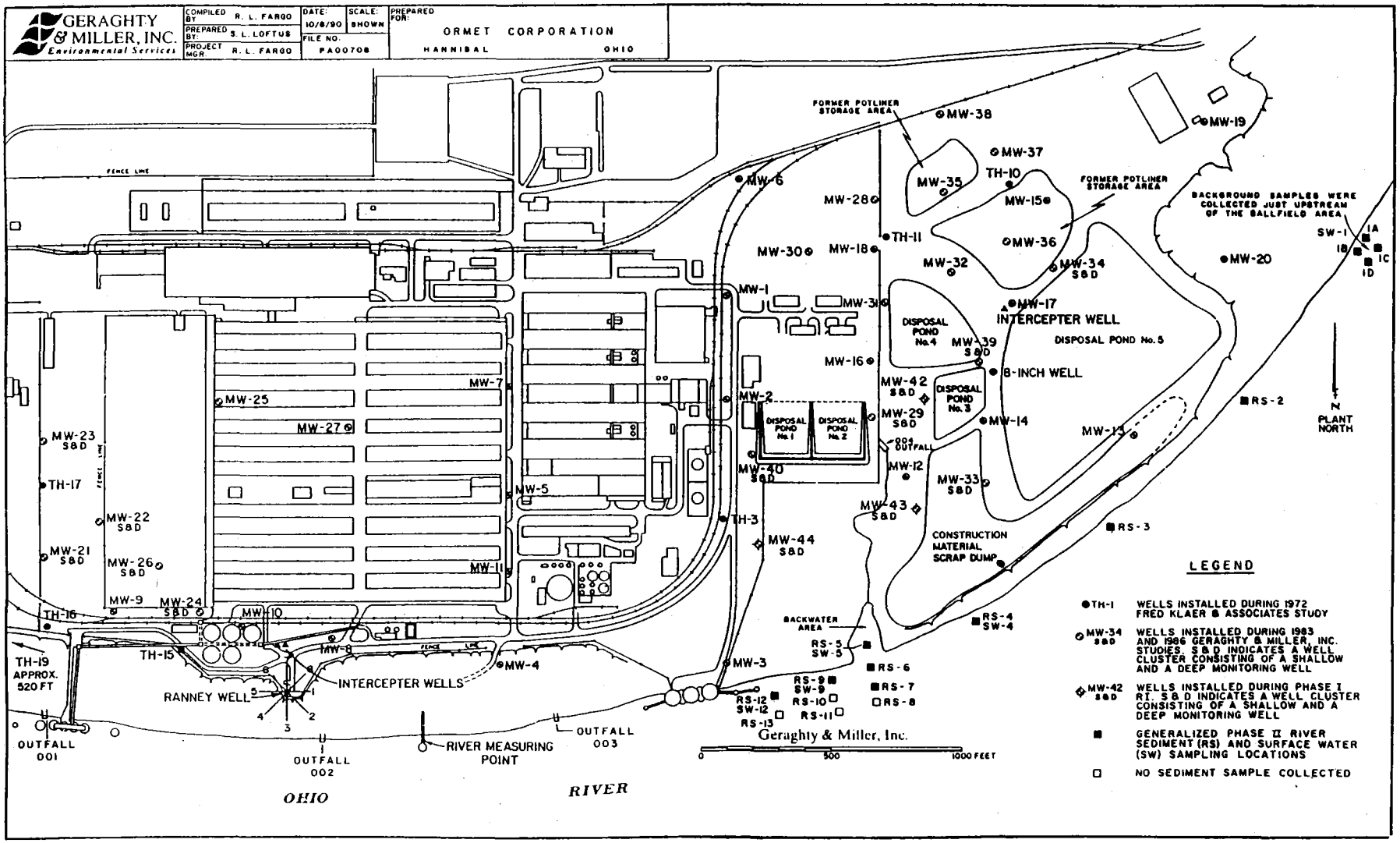
The details of the sampling scheme and results are described in USEPA 1991.

2.2 Data Evaluation Considerations

There are two objectives to be met in evaluating the environmental sampling data collected at Ormet. These objectives are 1) to ensure that only sample results which are of acceptable quality are used in the risk assessment and 2) to identify those chemicals that are assumed to be site related and that are to be evaluated in the risk assessment.

2.2.1 Data Evaluation Quality Control Considerations

Laboratories that analyze samples for the USEPA are required to follow a control system designed to assure the data user that the reported results meet a required level of quality (USEPA 1988a,b). Before sampling data are used in a risk assessment the user must look at the quality control data produced by the laboratories as well as the actual sampling data results. The Ormet data were validated by Geraghty & Miller and results reported in a validation



Source: Geraghty & Miller (1991)

FIGURE 2-7 RIVER SAMPLING LOCATIONS

report for each RI sampling phase (Geraghty & Miller 1989, 1990a). In order to evaluate the acceptability of sampling results for use in this risk assessment the following decisions were made based on guidance provided in USEPA (1989b) and information in those two reports:

- Any sample data qualified with an "R" by the data validator were eliminated from the data set. The "R" qualifier indicates the data are unusable. R-qualified data in Phase I were reported for all samples for selenium in the pond solids and river sediments, benzoic acid in four pond samples and selenium in the soil sample taken in the A2 section of the CRDA. No R-qualified data were reported in Phase II except for samples taken from the CAC Ranney well.

- Any sample values qualified by either the laboratory or the validator with the "J" qualifier were used as if the sample values were unqualified. The "J" qualifier indicates that the sample result reported is estimated. This can occur for a variety of quality control-related reasons. In the Phase I data set, values were J-qualified for calibration, surrogate recovery, spike recovery, serial dilution and holding time exceedances. None of these was serious enough to conclude that the data were unusable. In Phase II, some data were J-qualified for precision, accuracy and calibration problems. Again, none were serious enough to consider the data unusable.

- Blanks are samples that do not contain measurable amounts of any chemicals that are analyzed by the laboratory along with the environmental samples. If chemicals are detected in blanks, then contamination has been introduced into the sample. In reporting analytical results for organic compounds, the laboratory will qualify the results with a "B" to alert the data user that the same chemical was detected in an associated laboratory blank. The inorganic compound blank contamination is not reported by qualifying the sample but by reporting blank results in a separate section of the data set. In both cases, blank data should be compared to sample data to ensure that results solely due to laboratory or field contamination are not included in the risk assessment. There were numerous instances of blank contamination in both RI Phases. The comparison between blanks and samples is described in detail in the selection of chemicals of potential concern.

2.2.2 Selection of Chemicals of Potential Concern

A large volume of monitoring data has been generated during the two RI phases at Ormet. The data must be organized and evaluated so that it is in a useful form for the risk assessment. During this evaluation procedure a number of chemicals were eliminated from further consideration for a variety of reasons. The chemicals that remain form the basis of the quantitative risk assessment and are referred to as the chemicals of potential concern. Chemicals reported in the Ormet data set were eliminated from the quantitative risk assessment according to the following decision rules:

- Any chemical not detected in any sample was eliminated.
- Any chemical detected infrequently was eliminated if it was not expected to contribute significantly to risk.
- Chemicals present at levels below those essential to human nutrition were eliminated.
- Chemicals present due solely to laboratory or field contamination were eliminated from the risk assessment.
- Any tentatively identified compound was eliminated.
- No chemicals were eliminated based on a comparison with background concentrations.

An explanation of each elimination decision is described in the following sections.

Elimination of Chemicals Based on Nondetection

Sampling data from field activities described previously were sorted by area for use in the risk assessment (Table 2-1). Individual sampling results are reported in the RI (Geraghty & Miller 1990b). Summary tables describing frequency of detection, range of sample quantitation limits and range of detected concentrations were prepared for each chemical. Where available, background ranges were also included for information only. These tables have been included in Appendix 1 of this report. Any chemical not detected in any sample was eliminated from further consideration in the risk assessment. Table 2-2 lists these chemicals. A total of fifty-eight chemicals were eliminated by this decision rule.

Elimination of these chemicals does, however, introduce some uncertainty into the risk assessment. Chemicals which are not detected at the level reported as the quantitation level are not necessarily absent from the sample, but may be present as levels just below those at which the laboratory can reliably detect and measure. If the laboratory detection limit is higher than an acceptable concentration derived from toxicity reference values there is a possibility of undetected risk. In some cases, especially in soil analyses, elevated detection limits are routinely reported due to moisture content of the medium and sample dilutions. The reported U-values for those chemicals listed on Table 2-2 were compared to calculated reference concentrations for water and soil. This comparison is described in Table 2-3 and indicates that twenty-one of the nondetected chemicals at Ormet were analyzed for at reported detection limits that exceeded reference concentrations. It should also be noted that thirty-one of these nondetected chemicals do not have toxicity values, and therefore reported detection limits could not be evaluated.

TABLE 2-1 SUMMARY OF CHEMICAL SAMPLING AND ANALYSIS INFORMATION USED IN THE RISK ASSESSMENT FOR THE ORMET SUPERFUND SITE

Sample Location and Medium	Sampling Phase			
	Phase I		Phase II	
	Sample Location	Type of Analysis[a]	Sample Location	Type of Analysis
Ohio River Water			SW-1, SW-4, SW-5[b], SW-9, SW-11[c], SW-12	TM, DM, VOA, SV, P
Ohio River Sediment	RS-1 through RS-7[d,e]	VOA, TM, NCLP, SV	RSII-1A, 1B, 1C, 1D, RSII-2, RSII-3, RSII-4, RSII-5[f], RSII-6, RSII-7, RSII-9, RSII-12, RSII-14[g], RSII-15[h]	SV, P
Carbon Runoff Area	CRA-A1-S; A2, B1, B2, C1, C2 CRA-A1-C; A2, B1, B2, C1, C2, D1,[i], D2[j]	VOA, TM, NCLP, SV	--	--
Seeps	Seep 1, 2, 3 Conduit MW-50[k]	TM, VOA, SV, P, NCLP	Seeps 1 through 6, 8[l]	TM, VOL, SV, P, NCLP
Potliner Storage Area	SB-001 through SB-027[m] 0-2',2-4',4-6',6-8',8-10'	NCLP[n]	--	--
	SB-006, 008, 015, 016 0-2',2-4',4-6',6-8',8-10'	TM, VOA, SV, P[o]	--	

continued-

(a) VOA = Volatile Organic Analyses; SV = Semivolatile Analyses; P = Pesticide Analyses/PCB; TM = Total Metals Analyses; DM = Dissolved Metals Anayses; NCLP = NonCLP analyses for ammonia nitrogen, fluoride, cyanide, amenable silica, total cyanide to chlorination, chloride, sulfate.
(b) Backwater surface water sample.
(c) SW-11 is a duplicate of SW-1.
(d) RS-7 is a duplicate of sample RS-1.
(e) RS-5 backwater area river sediment sample.
(f) Backwater area sediment sample.
(g) RS11-14 is a duplicate of RS-9.
(h) RS11-15 is a duplicate of RS-12.
(i) CRA-D1 is a duplicate for B1-C.
(j) CRA-D2 is a duplicate for B2-S.
(k) MW-50 is a duplicate of Seep-3.
(l) Seep-8 is a duplicate of Seep-2.
(m) SB-025; 0-2 dup 006-0-2, 2-4 dup 007-2-4, 4-6 dup 008-4-6, 6-8 dup 009-6-8, 8-10 dup 010-8-10
SB-026; 0-2 dup 011-0-2, 2-4 dup 012-4-6, 4-6 dup 013-2-4, 6-8 dup 014-6-8, 8-10 dup 015-8-10
SB-027; 0-2 dup 022-4-6, 2-4 dup 021-4-6, 4-6 dup 018-4-6
(n) Excluding cyanide amenable to chlorination.
(o) Only PCB analysis was performed.***

Table 2-1 - continued

Sample Location and Medium	Sampling Phase			
	Phase I		Phase II	
	Sample Location	Type of Analysis	Sample Location	Type of Analysis
Pond 1-4	1A0-1, 1-4, 4-Int 2A0-1, 1-3, 3-Int 3A0-1, 2-5, 6-9, 10-Int 4A0-1, 1-4, 4-Int 4B0-1, 1-4, 4-7, 8-Int 6A0-1[b], 6A-1-4[c] 6A-4-7[d], 6A-6-9[e]	TM, VOA, SV, P[a], NCLP	--	--
Construction Material Scrap Dump			CMSD 1 through 5[f]	TM, V, SV, P, NCLP
Pond 5	5A-0-1, 5-8, 10-13, 15-18, Int 5B-0-1, 5-8, 10-13, 15-18, Int 5C-0-1, 5-8, 10-13, 15-18, 25-Int 5D-0-1, 5-8, 10-Int 5E-0-1, 5-8, 10-13, 15-18, 20-23, Int 6B-5-8[g], 6E-10-13[h]	TM, VOA, SV, P[a], NCLP	--	--
Groundwater	MW1, MW3, 4, 7, 9, 10, 20, 21S, 21D, 22S, 22D, 23D, 24D, 25, 26D, 27, 38, 46[i], 47[j]	TM, NCLP	MW2, 3, 3D, 14, 17, 18, 19, 23S, 23D, 31, 34S, 34D, 35, 37, 42S	NCLP
	MW2, 5, 8, 11-19[k], 28, 29S, 29D, 30-32, 33S, 33D, 34S, 34D, 35, 36, 37, 39S, 39D, 40S, 40D, 42S, 42D, 43D, 44S, 44D, 45[l], 48[m], 49[n]	TM, NCLP	--	

(a) Only PCB analysis was performed.
(b) Duplicate of 4B-0-1.
(c) Duplicate of 1A-1-4.
(d) Duplicate of 4B-4-7.
(e) Duplicate of 3A-6-9.
(f) CMSD5 is duplicate of CMSD3.
(g) Duplicate of 5B-58.
(h) Duplicate of 5E-10-13.
(i) MW46 duplicate of MW22D.
(j) MW47 duplicate of MW38.
(k) Background sample.
(l) MW45 duplicate of MW14.
(m) MW48 duplicate of MW35.
(n) MW49 duplicate of MW37.

TABLE 2-2 CHEMICALS NOT DETECTED IN ANY SAMPLE COLLECTED AT THE ORMET SITE

Volatiles	Semivolatiles
Bromodichloromethane	Benzyl alcohol
Bromoform	4-Bromophenyl-phenylether
Bromomethane	bis(2-Chloroethoxy) methane
Carbon tetrachloride	4-Chloroaniline
Chloroethane	2-Chlorophenol
Chloromethane	4-Chlorophenyl-phenylether
Dibromochloromethane	1,2-Dichlorobenzene
1,2-Dichloroethane	1,3-Dichlorobenzene
1,2-Dichloropropene	2,4-Dinitrotoluene
trans-1,3-Dichloropropene	Hexachlorocyclopentadiene
cis-1,3-Dichloropropene	Hexachloroethane
1,1,2-Trichloroethane	N-Nitroso-di-n-dipropylamine
Vinyl acetate	3-Nitroaniline
Vinyl chloride	4-Nitroaniline
	4,6-N-Nitrosodiphenylamine
Pesticides	Nitrobenzene
	2-Nitrophenol
All 20 compounds on the TCL for this chemical class.	4-Nitrophenol
	Pentachlorophenol
	2,4,5-Trichlorophenol
	PCBs
	Aroclor-1016
	Aroclor-1221
	Aroclor-1232
	Aroclor-1260

TABLE 2-3 CHEMICALS WHOSE REPORTED DETECTION LIMITS EXCEED REFERENCE CONCENTRATIONS

Chemical	Water		Soil	
	Highest U-Value, mg/L[a]	Reference Concentration, mg/L[b]	Highest U-Value, mg/kg[c]	Reference Concentration, mg/kg[d]
Chloromethane	1E-02	2.7E-03	-[e]	-
Vinyl chloride	1E-02	1.5E-05	-	-
1,2-Dichloroethane	5E-03	3.9E-04	-	-
Carbon tetrachloride	5E-03	2.7E-04	-	-
Bromodichloromethane	5E-03	2.7E-04	-	-
1,2-Dichloropropene	5E-03	5.2E-04	-	-
Dibromochloromethane	5E-03	4.2E-04	-	-
1,1,2-Trichloroethane	5E-03	6.2E-04	-	-
Bromoform	5E-03	4.5E-03	-	-
Hexachloroethane	2E-02	2.5E-03	68	5.1E+01
Nitrobenzene	2E-02	1.8E-02[f]	-	-
2,4-Dinitrotoluene	2E-02	5.2E-05	68	1.0E+00
Heptachlor	5E-05	7.9E-06	1.1E+00	1.5E-01
Aldrin	5E-05	2.1E-06	1.1E+00	4.2E-02
Dieldrin	1E-04	2.2E-06	2.1E+00	4.5E-02
Toxaphene	1E-03	3.2E-05	2.1E+00	6.5E-01
Alpha-chlordane	5E-04	2.7E-05	1.1E+01	5.5E-01
Gamma-chlordane	5E-04	2.7E-05	1.1E+01	5.5E-01
Aroclor (1016, 1221, 1232, 1260)	1E-03	4.6E-06	2.1E+01	9.3E-02

(a) U-Value is CRQL.
(b) Reference concentrations calculated by assuming a risk level of daily ingestion of 2L of water per day by a 70-kg adult (USEPA 1989b).
(c) U-Value is CRQL adjusted for percent moisture and dilution.
(d) Reference concentration calculated by assuming a risk level of 10^{-6} and a daily soil ingestion rate of 100 mg by a 70-kg adult.
(e) "-" indicates U value was lower than calculated reference concentration.
(f) Reference concentration for nitrobenzene based on noncarcinogenic effects.

Elimination of Infrequently Detected Chemicals

Chemicals detected infrequently may not be representative of contamination but rather artifacts of either the analytical method or the sampling scheme. Chemicals may be eliminated from the quantitative risk assessment if they are detected infrequently in one or two media. The Ormet data set was evaluated with respect to chemicals detected in less than five samples and at only one or two areas of the site. The result of this effort is summarized in Table 2-4. None of these chemicals are detected in high concentrations, (see Appendix 1), are particularly toxic (most are noncarcinogens) and there is no reason to believe they are actually present at the site over any large area. These chemicals are therefore eliminated from further consideration in the risk assessment. A total of twenty-nine chemicals were eliminated by this decision rule.

Elimination of Essential Nutrients

Chemicals that are essential nutrients, are detected at low concentrations and are relatively nontoxic can be eliminated from further consideration in the risk assessment (USEPA 1989b). In order to decide if any essential nutrients can be eliminated based on the Ormet sampling results, a conservative daily intake for each chemical was calculated based on the following conservative assumptions. Daily intakes were estimated by assuming a daily ingestion of 2L of water and 100 mg of soil from the sample location where the highest chemical concentration was measured. If this estimated daily intake did not exceed the recommended daily intake or safe and adequate level (NAS 1989) the chemical was eliminated. Table 2-5 documents those calculations. Calcium, magnesium, potassium, selenium and zinc were eliminated by this decision rule.

Elimination of Laboratory or Sampling Contaminants

Blanks are quality control samples analyzed along with site samples in order to determine if contamination has been introduced into the samples either during sampling or in the laboratory during analysis. Blank data are compared with the site data to eliminate non-site related chemicals, according to the following rules (USEPA 1988a,b):

- If the contaminants are common laboratory contaminants, then the sample results should be included as long as sample concentrations exceed ten times the amount detected in the blank. Common laboratory contaminants are considered to include: acetone, 2-butanone, methylene chloride, toluene and phthalate esters.

- If blanks contain detectable levels of chemicals not considered to be common laboratory contaminants, the sample results must exceed five times the maximum level detected in a blank in order to be included in the risk assessment.

Table 2-6 summarizes contaminants detected in blanks used in the Ormet sampling activities and levels detected in site samples. It should be noted

TABLE 2-4 CHEMICALS DETECTED INFREQUENTLY AT THE ORMET SITE

Chemical	Frequency of Detection	Area
INORGANICS		
Tin, total	2/12	Seeps
Volatiles		
1,1-Dichloroethene	1/37	Groundwater
1,1-Dichloroethane	3/37	Groundwater
1,2-Dichloroethane	2/12	Seeps
2-Hexanone	1/5	CMSD[a]
4-Methyl-2-pentanone	1/5	CMSD
Xylene (total)	1/71	Ponds
	2/5	CMSD
Semivolatiles		
Benzoic acid	1/17	CRDA[b]
	1/23	River Sediment
Butylbenzylphthalate	1/16	CRDA
	1/56	Groundwater
bis(2-Chloroethyl) ether	1/23	River Sediment
bis(2-2-Chloroisopropyl) ether	1/23	River Sediment
4-Chloro-3-methylphenol	1/23	River Sediment
2-Chloronaphthalene	1/23	River Sediment
1,4-Dichlorobenzene	2/23	River Sediment
3,3'-Dichlorobenzidine	2/52	Ponds
2,4-Dichlorophenol	1/23	River Sediment
Diethylphthalate	1/52	Ponds
Dimethylphthalate	2/23	River Sediment
2,4-Dinitrophenol	1/52	Ponds
2,6-Dinitrotoluene	1/52	Ponds
Hexachlorobenzene	1/52	Ponds
Hexachlorobutadiene	1/23	River Sediment
Isophorone	1/13	Seeps
2-Methylphenol	1/52	Ponds
	2/21	Potliner Storage Area
2-Nitroaniline	1/23	River Sediment
N-nitrosodiphenylamine	1/23	River Sediment
Phenol	3/21	Potliner
	1/13	Seeps
1,2,4-Trichlorobenzene	1/23	River Sediment
2,4,6-Trichlorophenol	1/23	River Sediment

(a) CMSD = Construction material scrap dump.
(b) CRDA = Carbon runoff and deposition area.

TABLE 2-5 EVALUATION OF ESSENTIAL NUTRIENTS

Chemical	Soil		Water		Daily Intake, mg/day	Recommended Daily Intake, mg/day[e]
	Concentration, mg/kg[a]	Intake, mg/day[b]	Concentration, mg/L[c]	Intake, mg/day[d]		
Calcium	252,000	25.2	177	354	389	1,200
Chloride	350	0.035	320	640	990	750
Chromium	168	0.0168	0.401	0.802	0.8	0.2
Copper	791	0.0791	1.02	2.04	2.1	1.5-3
Iron	106,000	10.6	144	288	298	10-15
Magnesium	6,010	0.601	48.5	97	97.6	280-350
Manganese	3,220	0.322	31.3	62.6	62.9	2.0-5[g]
Potassium	2,810	0.281	42.1	84.2	84.4	2,000[f]
Selenium	0.61	0.000061	0.027	0.054	0.05	0.055-0.07
Sodium	69,400	6.94	4,990	9,980	9,986	500[f]
Zinc	524	0.0524	0.449	0.898	1.0	12-15

(a) Highest detected value in any solid sample from site areas, mg/kg.
(b) Calculated by multiplying the highest detected concentration in solid samples by an ingestion rate of 100 mg/day.
(c) Highest detected value in any site water sample, mg/L.
(d) Calculated by multiplying the highest detected concentration in water samples by an ingestion rate of 2L/day.
(e) NAS (1989). Based on age groups >18 yr.
(f) Minimum requirements for a healthy person NAS (1989).
(g) Estimated safe and adequate daily dietary intake for adults (NAS 1989).

TABLE 2-6 SUMMARY OF BLANK CONTAMINATION

Analyte	Maximum Detected Value in a Blank[a]	10 x or 5 x Value[b]	Maximum Value in Site Sample[a]
Common Laboratory Contaminants			
Acetone	0.025	0.25	0.49
2-Butanone	0.009	0.09	-[c]
bis(2-Ethylhexyl-phthalate)	0.017	0.17	0.23
Methylene Chloride	0.013	0.13	0.017
Toluene	0.005	0.05	0.005
Uncommon Laboratory Contaminants			
Aluminum	0.043	0.215	178
Antimony	0.060	0.3	0.042
Antimony	5.3 mg/kg	26.5 mg/kg	88 mg/kg
Arsenic	0.0035	0.0175	0.394
Arsenic	0.3 mg/kg	1.5 mg/kg	663 mg/kg
Barium	0.071	0.355	4.75
Benzene	0.041	0.205	0.024
Beryllium	0.0017	0.0085	0.035
Cadmium	0.003	0.015	0.03
Calcium	79.4	397	177
Calcium	22 mg/kg	110 mg/kg	352,000 mg/kg
Carbon disulfide	0.012	0.06	0.01
Chromium	0.014	0.07	0.401
Chromium	1.2 mg/kg	6 mg/kg	168 mg/kg
Cobalt	0.009	0.045	0.814
Copper	0.018	0.09	1.02
Cyanide	0.218	1.09	18.6
Iron	0.074	0.37	144
Iron	14 mg/kg	70 mg/kg	106,000 mg/kg
Lead	0.0036	0.018	0.139
Magnesium	9.89	49.5	48.5
Magnesium	22.8 mg/kg	114 mg/kg	6,120 mg/kg
Manganese	0.015	0.075	31.3
Nickel	0.013	0.065	0.767
Potassium	4.98	24.9	42.1
Potassium	472 mg/kg	2,360 mg/kg	2,810 mg/kg
Selenium	0.0034	0.017	0.027
Selenium	0.56 mg/kg	2.8 mg/kg	0.61 mg/kg

continued-

(a) Units are mg/L except where otherwise noted.
(b) Maximum blank value multipled by 10 for common laboratory contaminants and by 5 for all others.
(c) Not detected in any site water sample.

Table 2-6 - continued

Analyte	Maximum Detected Value in a Blank	10 x or 5 x Value	Maximum Value in Site Sample
Uncommon Laboratory Contaminants - continued			
Silver	0.007	0.035	0.049
Sodium	29.7	148.5	4,990
Sodium	36 mg/kg	180 mg/kg	69,400 mg/kg
Vanadium	0.0079	0.039	0.369
Vanadium	0.54 mg/kg	2.7 mg/kg	741 mg/kg
Xylene	0.001	0.005	--(a)
Zinc	0.034	0.17	0.449
Zinc	3.4 mg/kg	17 mg/kg	524 mg/kg

(a) Not detected in any site water sample.

that this table summarizes results from trip and field blank forms from Phase I and inorganic laboratory blank forms (Form III) from Phase I and II. Laboratory blank forms for organic analyses (Phase I and II) were not included in the data set, therefore comparisons between blank and individual sample values could not be made. Likewise trip and field blank data for Phase II were not provided and could not be included in this analyses.

Table 2-6 suggests that three common laboratory contaminants 2-butanone, methylene chloride and toluene were detected in field blanks at levels low enough to indicate they may not be site related. However, since organic laboratory blank data values are not available, these chemicals will not be eliminated from the risk assessment.

Table 2-6 also suggests that six chemicals that are not common laboratory contaminants may not be site related: antimony, benzene, calcium, magnesium, selenium and carbon disulfide. Benzene and carbon disulfide will be retained for further consideration since, again, organic laboratory blank data for individual samples are not available. Calcium and magnesium appear to be blank contaminants in water samples, but not in solid samples. Selenium appears to be a blank contaminant only in solid samples, but not in water samples. These three chemicals have already been eliminated due to nutritional essentiality. Therefore no chemicals have been eliminated based solely on their presence as laboratory contamination. Antimony is retained since it is present in solid samples more than five times the amount found in blank samples (but not in water samples).

Elimination of Tentatively Identified Compounds

There are many more organic compounds that could be present at a site than are routinely analyzed for. In the CLP, laboratories are required to analyze for only those compounds on the TCL, but when volatile and semivolatile analyses are run, the presence of other compounds is recorded by the analyzing instrument. These "peaks" can be matched to known compounds and are reported in the data set as tentatively identified compounds (TICs). The TIC information is highly uncertain - not only is the compound's identity not confirmed but the concentration is certainly inaccurate. In some data sets there are relatively few TICs reported and can be generally excluded from the risk assessment. At Ormet, many TICs were reported, some at relatively high concentrations. Therefore, the following decisions regarding TICs were made:

- Any TIC reported as an "unknown" or as a class of compounds was not included in the risk assessment. This introduces a measure of uncertainty into the risk assessment since not all possible contaminants are included in the qualification.

- All TICs with a Chemical Abstract Services (CAS) number are summarized in Table A1-9 and are included qualitatively in the risk assessment.

Background Comparisons

No site background samples for soil were taken at Ormet. Background data collected by the U.S. Geological Survey (USGS) at locations distant from the

site, but characteristic of the region are summarized in Table 2-7. These locations are characteristic of upland areas unaffected by major pollution sources (Boerngen and Shacklette 1981, Shacklette and Boerngen 1984). These samples are likely to represent geological material that contributed to the makeup of the site area. Table 2-7 also includes soil sampling results from the reference area selected during the environmental evaluation. The reference area may not be a true background location since it is downwind of the site and downriver of other possible sources.

Table 2-7 indicates that all inorganic elements likely to be naturally occurring are present on-site at levels higher than expected from background samples, with the possible exception of potassium and selenium. No chemicals were therefore eliminated based solely on comparisons to background. Instead, all chemicals not eliminated by other decision rules were carried through risk characterization.

The same conclusion, that naturally-occurring elements are elevated on site, can be drawn by examining background samples taken in groundwater (MW 19). Table A1-6 in Appendix 1 illustrates that all inorganic constituents in MW 19 were detected at values lower than in the other monitoring wells. For river sediments, the sample values for inorganic analytes detected at sampling location 6 (upriver of Ormet) are lower than downriver samples for all analytes except for antimony, arsenic, iron, potassium and vanadium.

2.2.3 Chemicals Monitored in the Outfall 004 Discharge

An additional set of monitoring data for the Outfall 004 discharge to the Ohio River (Table 2-8) was provided by OEPA (Stewart 1990, 1991). The chemicals included in this monitoring set have been selected as contaminants of concern based on an evaluation of data collected for site characterization. While quality control data were not provided with this data set for evaluation, the quality of the data is considered acceptable for use in this risk assessment. However, measurements of surface water concentrations in the backwater area made during site characterization are used in risk calculations due to greater similarity of data quality to that of other measurements used in the risk calculations for this site.

2.3 Summary of Chemicals of Potential Concern

Table 2-9 summarizes the chemicals of potential concern on an area-by-area basis at the Ormet site. The risk assessment will focus on these contaminants.

TABLE 2-7 COMPARISON OF BACKGROUND AND SITE LEVELS FOR NATURALLY OCCURRING ELEMENTS

Chemical	Background[a]	Reference Area[b]	Highest Concentration Detected in Site Samples, mg/kg			
			Disposal Ponds	Potliner	CRDA	CMSD
Aluminum	70,000	16,000	199,000	42,500	107,000	121,000
Antimony	--[c]	--	80	--	56	--
Arsenic	9.9	7	123	25	663	56.9
Barium	700	500	840	136	309	150
Beryllium	1.5	--	14	2.2	7.8	3.8
Cadmium	--	--	2.7	1.40	2.0	3.6
Calcium	4,400	1,600	352,000	24,300	194,000	16,100
Chromium	100	40	119	168	47	42.5
Cobalt	15	23	19	13	23	11.4
Copper	30	41	130	791	94	542
Iron	30,000	37,000	13,600	106,000	49,800	27,800
Lead	30	51	214	74	85	84.1
Magnesium	3,000	1,600	6,010	2,930	3,860	1,670
Manganese	1,000	1,200	227	3,220	2,140	1,060
Mercury	0.13	0.17	0.59	0.098	0.31	--
Nickel	30	43	656	146	558	62.5
Potassium	18,000	1,600	2,510	2,810	2,750	1,150
Selenium	1.1	1.0	R[d]	0.61	--	--
Silver	--	--	2.4	11	--	--
Sodium	7,000	360	69,400	14,200	11,500	--
Thallium	--	--	1.2	--	--	--
Vanadium	70	35	741	62	270	42.4
Zinc	50	180	170	109	194	125

(a) Source: Boerngen and Shacklette 1981. Units are mg/kg.
(b) From USEPA 1991. Units are mg/kg.
(c) "--" indicates analyte not detected or not analyzed for.
(d) Sampling results qualified as unusable.

TABLE 2-8 ANNUAL SUMMARY STATISTICS FOR SELECTED CONTAMINANTS IN OUTFALL 004 DISCHARGE AND CONCENTRATIONS MEASURED AT SAMPLE LOCATION SW-5

	Outfall 004 Discharge, mg/L[a]				
Parameter	Minimum	Mean	Standard Deviation	Maximum	Sample Location SW-5, mg/L
Aluminum[b]	0.4	1.8	1.3	9.7	1.27
Antimony[b]	0	0	0	8E-4	0.016U[c]
Benzo(a)pyrene	0	2.5E-4	1.3E-3	8E-3	0.01U
Cyanide[b]	1.5	2.5	0.4	4.1	0.125
Cyanide[d]	0	0.06	0.2	0.96	0.005U
Fluoride	9.9	16	4	30	12
Nickel[b]	0	3.5E-3	1.4E-2	8E-2	0.007U

(a) Source: Ohio EPA 11/17/90 data summary for NPDES Permit No. OIE00005004.
(b) Total.
(c) "U" indicates instrument detection limit (for inorganics) and the Contract Required Detection Limit (adjusted) for organic compounds.
(d) Amenable.

TABLE 2-9 SUMMARY OF CHEMICALS OF POTENTIAL CONCERN AT THE ORMET CORPORATION SITE

Chemical	Range of Detected Concentrations							
	Disposal Ponds, mg/kg	Potliner Area, mg/kg	CRDA, mg/kg	CMSD, mg/kg	Seeps, mg/L	Groundwater, mg/L	River Sediments, mg/kg	Surface Water, mg/L
INORGANICS								
Aluminum	616-199,000	2,560-42,500	18,700-107,000	58,800-121,000	0.384-1.05	0.029-178	6,580-12,600	0.826-2.88[a]
Antimony	7.6-88	--[b]	9.5-56	--	0.017-0.032	0.025-0.042	--	0.04
Arsenic	15-123	3.0-25	3.8-663	32.2-56.9	0.005-0.006	0.0018-0.394	5.3-10.0	0.005-0.011
Barium	17-848	33-136	137-309	106-150	0.012-0.072	0.042-4.75	72-165	0.048-0.078
Beryllium	1.0-14	0.23-2.2	1.5-7.8	2.6-3.8	0.00055-0.00064	0.00025-0.035	0.94-2.0	--
Cadmium	1.8-2.7	--	1.2-2.0	2.0-3.6	0.02-0.03	0.0041-0.012	1.7-2.0	--
Chromium	6.4-119	4.8-168	14-47	2.0-42.5	0.023-0.06	0.0058-0.401	13-52	0.008-0.012
Cobalt	2.0-19	1.9-13.0	1.8-23	4.2-11.4	0.0057-0.052	0.0042-0.814	2.7-32	0.007
Copper	12-130	1.8-791	29-94	303-542	0.013-0.144	0.017-1.02	30-119	0.004-0.026
Iron	3,180-13,600	6,690-106,000	5,210-49,800	21,800-27,800	0.408-2.62	0.044-144	12,500-43,500	1.87-5.73
Lead	2.3-214	7.2-74	2.9-85	54.7-84.1	0.003-0.005	0.0023-0.139	20-92	0.003-0.009
Manganese	13-227	198-3,220	131-2,140	330-1,060	0.003-31.3	0.01-15.4	519-1,490	0.262-0.772
Mercury	0.14-0.59	0.089-0.098	0.17-0.31	--	--	0.00026-0.0033	0.22-0.39	--
Nickel	19-656	0.59-146	24-558	36.6-62.5	0.043-0.051	0.026-0.767	10-73	0.01-0.012
Silver	2-2.4	11	--	--	0.018-0.049	--	--	--
Sodium	6,410-69,400	1,190-14,200	1,960-11,500	22,300-48,700	945-4,900	18.7-2,640	501-2,060	10.3-15.3
Thallium	0.67-1.2	--	0.54-0.6	--	--	0.0028	--	--
Vanadium	13-741	6.1-62	31-270	29.4-42.4	0.006-0.029	0.0026-0.369	8.9-17.0	--
Cyanide	1.8-294	2.7-647	0.82-254	7.9-21.7	0.163-4.383	0.011-18.6	1.1-42	--
Non-CLP Inorganics								
Chloride	4-350	--	5-200	8-10	39-17	5-320	96-300	13-41
Cyanide, Amenable	1-120	--	3-28	--	0.0686-0.9	0.01-41.0	--	0.078
Cyanide, Total	2-430	1.0-1,900	3-130	7.9-21.7	0.0794-8.8	0.01-67	1-39	0.0076-0.428
Fluoride	31-7,200	0.3-1,500	64-270	440-540	6.5-200	0.1-1,000	2.3-83	0.1-12
Nitrogen, Ammonia	13-146	13-360	--	70-110	1.5-4.2	0.1-230	43-88	--
Silica	8-79	--	14-29	--	6-28	5-4,300	11-33	3-6
Sulfate	34-8,000	--	22-1,700	41-270	210-6,100	8-850	13-60	65-110
ORGANICS								
Volatiles								
Acetone	0.003-0.22	0.029-0.16	--	0.098-0.27	0.033-0.49	0.001-0.029	--	0.011-0.02
Benzene	0.002-0.025	--	0.31-0.35	--	--	0.001-0.024	0.024	--
2-Butanone	0.009	0.006-0.088	0.057	0.016-0.043	--	--	0.12	--

continued-

(a) Metal values in this column for total metals.
(b) "--" indicates either not detected or not analyzed for.

3.0 EXPOSURE ASSESSMENT

Exposure is defined as the contact between an individual and a chemical of potential concern. The magnitude of this contact is determined by estimating how much of each chemical is available for absorption at one of the body's exchange boundaries (i.e., the intestinal tract, the lungs, the skin) during a specified period of time. Determining this amount is the objective of an exposure assessment. This section will identify the types of exposure at the Ormet site and quantify the magnitude, duration and frequencies for those routes whereby exposure can occur.

This exposure assessment includes three components:

- Characterization of the exposure setting.
- Identification of exposure routes and pathways.
- Quantification of exposure.

3.1 Characterization of the Exposure Setting

A detailed description of the features of the Ormet site is provided in the Remedial Investigation (RI) report (Geraghty & Miller 1991). Information from that report that is directly applicable in describing human exposure to the contaminants of potential concern is summarized below.

Physical Setting

The Ormet facility is an active aluminum processing plant located on the west bank of the Ohio River, in an area known as Buck Hill Bottom (Figure 1-1). The property consists of approximately 245 acres; the processing areas cover approximately 110 acres. The actual Superfund Site is adjacent to and northeast of the manufacturing facility area. The Site generally follows the river bend. As described earlier in the background section of this report the major site features include five disposal ponds, an area where potliner material was stored, an area where construction materials were buried and an area where wastes from the manufacturing area accumulated due to surface water run off. Immediately east of the manufacturing area is an outfall (designated as 004) which meanders through the carbon runoff area eventually discharging into the Ohio River. At the far northeastern edge of the Site there is a plant recreational area consisting of a ballfield, tennis courts, picnic facilities and a maintenance shed.

The area surrounding the Site is basically rural. The Site itself is relatively undeveloped and contains disturbed forested areas and heavy underbrush. Immediately south of the Ormet facility is the CAC which is an active aluminum rolling mill. The nearest downriver population center is Hannibal, Ohio, located approximately 2.5 miles south of Ormet. Just downriver from Hannibal is the Hannibal Lock and Dam. On the opposite side of the river, the town of New Martinsville, West Virginia, is approximately three miles downriver. The town of Proctor, West Virginia, is immediately upriver and downwind of the Site.

The backwater area, the carbon runoff area, Pond 5 and the construction material scrap dump all lie within the 50- and 100-year flood plain of the Ohio River (Geraghty & Miller 1990).

Climate and Meteorology

The average daily minimum and maximum temperatures for this area are approximately 41 F and 65 F, respectively (Geraghty & Miller 1990). Average annual precipitation is around 40 inches; yearly average snowfall is approximately 30 inches. On average, there are approximately 10 days each year with one inch or more of snow.

The climate at Ormet is temperate - summers are moderately warm and humid, winters are generally cold and cloudy. Although the highest precipitation occurs during the summer months, there is little seasonal variability with a difference of only 2.5 inches in average precipitation between the wettest and driest months.

Wind speed and direction are monitored on site by Ormet. Winds are predominantly southwest and northeast thus following the river most of the time. Summer winds tend to be from southwest; winter winds originate from the northwest, follow the river valley and impact the Site from the northeast. The average wind speed recorded during the nine-month air monitoring program was approximately 5 mph (2.3 m/s). The highest wind speed recorded was 8 mph (3.7 m/s) (Energy and Environmental Management, Inc. 1989).

Surface Water Hydrology

Approximately three miles downriver from Ormet is the Hannibal Lock and Dam. This structure tends to keep the Ohio River pool elevation at a fairly constant 623 feet above mean sea level despite changes in river flow. In a 100-year flood event the river flood stage would be approximately 638 feet. The average discharge of the river at the Hannibal Lock and Dam is approximately 210,000 cubic feet per second (Geraghty & Miller 1990).

Surface water runoff at the Site generally follows the topographic relief, toward the river. The stream formed by the discharge from Outfall 004 also receives surface water runoff from the carbon runoff area and the construction material scrap dump as it meanders from the pipe to the backwater area at its confluence with the river.

Geology

Sand and gravel deposits underlay much of the Ormet site and are fairly continuous down to bedrock, 50 to 100 feet below the surface (Geraghty & Miller 1990). The potliner storage area, Ponds 1 to 4 and a portion of Pond 5 are predominantly underlain by sand and gravel. However, in areas closer to the valley wall (i.e., the northern portion of the site), these deposits are intermingled with clay, silt, rock fragments and mud-slide debris, primarily as a result of weathering and mass wasting of both the highlands and the valley wall. Thin (one-inch) layers of coal can also be found at varying

depths in the sand and gravel deposits (Geraghty & Miller 1990). Areas of the site near the river are overlain by silt and clay deposits thought to be historical flood plain deposits. This area reaches a maximum 40-foot thickness. These deposits have relatively low permeabilities (10^{-7} to 10^{-8} cm/sec) and lie beneath the carbon runoff area, the construction material scrap dump and most of Pond 5 (Geraghty & Miller 1990).

Hydrogeology

There are two water-bearing zones beneath the Ormet site. The Ohio River alluvial aquifer is the main unit. Within the Buck Bottom area about four million gallons of water per day (mgd) are pumped from this aquifer to the surface in various wells. About 25% of this volume is pumped from the CAC Ranney well and is used for drinking water and sanitary uses by the Ormet and CAC employees. Approximately 60% of this volume is used by Ormet as contact and noncontact cooling water in its processing operations. Approximately 8% is pumped daily from the Ormet interceptor wells. These interceptor wells, located several hundred feet north of the Ormet Ranney well, were installed to capture the contaminant plume beneath the disposal ponds and the potliner area before it reaches the Ranney well.

Under these current pumping conditions groundwater flow is generally northeast to southwest from the Site toward the Ormet Ranney well and interceptor wells. The source recharge water is mainly from the river although there are some contributions from infiltrating precipitation and the bedrock system. Prior to Ranney well pumping, the aquifer probably discharged to the Ohio River. Current pumping prevents this (Geraghty & Miller 1990).

The current pumping of the Ormet Ranney well and the interceptor wells has created a groundwater divide along Ormet's southwest property border. Thus, groundwater beneath Ormet does not flow toward the CAC Ranney well. During Phase II sampling activities the CAC well was sampled in an attempt to confirm that contamination from the site was not reaching this well. Table A1-10 lists chemicals detected in those samples. As shown in that table the chemicals detected in the CAC well are at levels lower or similar to concentrations detected in the background monitoring well (MW19). The RI report concludes that if the Ormet Ranney well and interceptor wells discontinued pumping, it would take approximately seven months for groundwater at the Ormet Ranney well to reach the CAC Ranney well (Geraghty & Miller 1990).

Localized perched groundwater zones also exist on Site. These zones are limited both vertically and laterally and were discovered in several areas around the disposal ponds and in one test pit excavated in the construction material scrap dump. The seeps encountered during RI sampling are probably discharges from these perched zones. These seeps are recharged by precipitation through overlying materials (Geraghty & Miller 1990).

Vegetation

The site is located in the unglaciated Allegheny Plateau. The natural vegetation is a diverse, mixed mesophytic forest. Understory trees, shrubs and herbaceous vegetation are well developed and rich soils form over the

shale and limestone bedrock. In the absence of development or disturbance, natural succession would lead to this mixed mesophytic forest on the higher elevation and a flood-plain forest, swamp or marsh along the river. Activities at the site, however, have caused significant disturbance in these areas.

The site vegetation varies from thick underbrush in the Construction Material Scrap Dump and the carbon runoff area to virtually bare soils in the potliner area. The disposal ponds are mostly dried and sparsely vegetated. Pond 4 is almost half moss covered and contains small trees growing in the middle. One half of Pond 2 and portions of the potliner area lie in low areas and frequently contain standing water. The recreation area is mowed grass. Details on the plant communities on site are presented in the environmental evaluation (ICAIR 1991).

3.2 Potentially Exposed Populations

Current Population Centers

The Ormet site is located in Ohio Township, Monroe County. The population of Hannibal, the nearest village to the site, is estimated at less than 800. In the 1980 census, the population of Ohio Township was 1,318 (U.S. Department of Commerce 1982). Across the river are two population centers - New Martinsville, West Virginia (population 7,109) and Proctor, West Virginia (population estimated at 150) (U.S. Department of Commerce 1982). Ormet employs approximately 1,700 workers at the processing plant. The CAC plant employs approximately 1,500 workers.

Current Populations Potentially Exposed

Human populations that may be exposed on Site are workers employed at Ormet and their families that may use the plant recreation area. Most of the Ormet employees are engaged in work within the plant processing area and do not come in contact with the Site. There is, however, a maintenance shed located near the plant recreational area which houses mowers, tractors and other types of maintenance equipment. A few Ormet employees perform maintenance-type activities in this area. The ballfield, tennis courts and picnic areas are used infrequently by Ormet employees and their families. Ormet employees use the CAC Ranney well for drinking water purposes.

There appear to be no other current, on-site potentially exposed populations with the exception of possible trespassers. The area is not fenced and is accessible from either the river or Ohio Route 7. A trespasser could visit the Site, although no evidence of trespassing has been observed during site visits. Portions of the Site are patrolled regularly by security personnel, although the more densely overgrown areas are not routinely patrolled. There are no on-site residences.

Both Hannibal, Ohio and New Martinsville, West Virginia are downriver of the site. There are no drinking water intakes located along the river within 100 miles downriver of Ormet. Proctor, West Virginia is downwind (and upriver) of the site. The residential population there may be potentially

exposed via the transport of airborne particulates from the ponds. Residents of these areas use the Ohio River for recreational activities (fishing and swimming) and therefore could potentially be exposed while on the river or at downwind or downriver shore locations.

Future Populations Potentially Exposed

Several future hypothetical populations may be potentially exposed depending on future land uses that may be possible for this Site. One future use that can be assumed is residential. Although the Site is adjacent to an on-going industrial concern, the Superfund portion of the Ormet property is not involved in active industrial operations and is sufficiently large to be suitable for development of multi-family or single family residential properties. There are reports that houses (farmsteads) were once located on the property prior to its acquisition by Ormet.(a) There are no zoning restrictions currently in effect which limit the type of land use at this location.(b) It is assumed that any future residential development would be subject to possible zoning changes and restrictions to building on a floodplain. The village of Hannibal is only a short distance (approximately 4,000 ft) south of the Site, which illustrates that residential property development does occur nearby. Flat land is at a premium along the Ohio River in this area. River frontage, wooded areas and adjacent waterfront areas all add to the property's value as a future residential area. Industrial and residential land uses appear to compete for any available land. These two types of land uses appear to mix at other locations upstream and downstream of the Site. Future population growth of over 25% has been projected for the area.(a) These conditions therefore indicate that a future residential use is reasonable at the Site and will be evaluated in this risk assessment. Future residential populations could be exposed directly to on-site contaminants of potential concern or via a hypothetical groundwater well used for drinking water. Alternatively, Ormet could expand its operations to encompass the Site, thus increasing occupational-type exposures.

Another plausible future scenario assumes that current groundwater pumping (both from the Ormet Ranney well and the interceptor wells) ceases for some reason. Under those circumstances the contaminant plume beneath the Site would then be able to reach the drinking water source for Ormet and CAC employees.

Potentially Sensitive Subpopulations

Sensitive subpopulations are groups of individuals who may be more sensitive to chemical exposure in general because of their age or health status (USEPA 1989b). Sensitive subpopulations might include infants, children, pregnant or nursing women, the elderly or hospital patients. Currently no sensitive subpopulations exist on site except for the occasional Ormet family member who

(a) Personal communication with Ohio EPA Site Manager, R. Stewart, 07/15/91.
(b) Personal communication with Monroe County Engineering Department 12/27/90.

may frequent the recreation area. There are likely to be elderly, infants and children susceptible to respiratory ailments living in Proctor, but there are no hospitals, schools or nursing homes located there.

Future residential populations would likely include some sensitive individuals.

3.3 Exposure Pathway Analysis

An exposure pathway describes the movement of a chemical from a source to the point where an individual comes in contact with that chemical. A complete exposure pathway consists of the following:

- A source and mechanism of chemical release.
- A transport medium.
- A point of potential human contact with the contaminated medium.
- An exposure route at the contact point.
- A potentially exposed population.

In general, a complete pathway contains all these elements. In some cases the source itself is the exposure point and there is no release or transport involved. If a pathway is not complete there is no exposure and therefore risk cannot be characterized. The information available for the Ormet site was evaluated to determine which exposure pathways are complete. To illustrate the exposure pathway from source to receptor, a conceptual site model was developed, Figure 3-1. The elements of this model are described in the following sections.

Sources and Releases

There are several areas of contamination at Ormet that serve as sources. They include Ponds 1 through 5, the former potliner storage area, the carbon runoff area and the construction material scrap dump. The contaminants identified as chemicals of potential concern in these sources can be released to the environment by the following mechanisms.

- Volatilization from material discharged into the ponds.
- Fugitive dust emission from dry disposal ponds and potliner storage area surfaces.
- Infiltration and leaching through the underlying soil into groundwater.
- Surface water releases through seeps from the CMSD and Pond 5.
- Surface runoff or erosion to adjacent areas.
- Excavation of contaminated areas (hypothetical future land use).

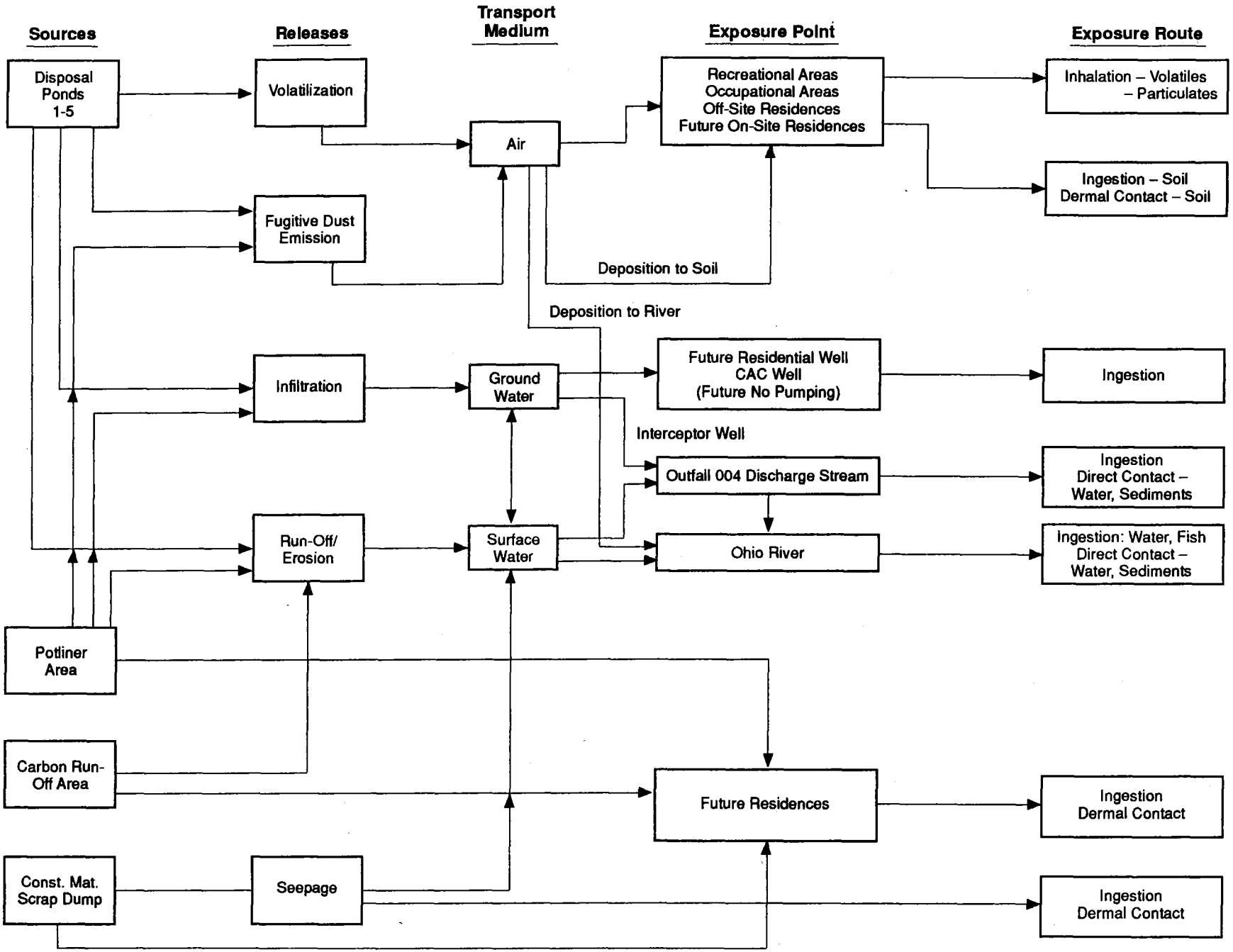


FIGURE 3-1 CONCEPTUAL SITE MODEL - ORMET CORPORATION SITE
(HUMAN POPULATIONS ONLY)

Transport Media

Emissions to air occur in two ways. Volatile chemicals can be emitted from wastes remaining in the ponds and wind can suspend particulates from the dry ponds into the air. Both volatiles and these suspended particulates can then be transported by wind to downwind locations.

Contaminants may reach groundwater via infiltration or leaching through the soils beneath source areas. The wastes disposed at Ormet were primarily solids, so the transport to groundwater is dependent on precipitation and the permeability of the underlying soils. The underlying soils of the potliner area are more permeable than the ponds (Geraghty & Miller 1990), therefore, it appears likely that contamination of groundwater is attributable more to the potliner area than to the other areas. As mentioned earlier, there is a connection between groundwater and surface water since, under the current pumping scenario, river water is recharging the alluvial aquifer below the Ormet property.

Three mechanisms are responsible for releases to surface water: runoff interceptor well pumping and subsequent discharge and airborne particulate deposition. Soluble contaminants can be carried during precipitation events via overland flow from the source areas to the Outfall 004 discharge stream or other Site ditches and eventually to the Ohio River. Interceptor Wells 1 and 2 are currently pumping contaminated groundwater, which is discharged to the Ohio River via the 004 permitted outfall. Contaminants sorbed to particulates can be transported either by fugitive dust emissions through the air or by runoff and eventually deposited as river sediments.

Outfall 004 is a permitted discharge, and there is information regarding the chemicals within this discharge (Table 2-8). Historical contributions to 004, however, are not known with certainty. Ormet has in the past discharged PCBs and PAHs via Outfall 004 (Geraghty & Miller 1991).

Exposure Points

An actual or potential exposure point is defined as that point where a human can come in contact with a contaminated medium. The contaminated source, transport or medium release point itself can also be an exposure point (e.g., the contaminated soil in the potliner area). Current on-site exposure points identified for Ormet include:

- The plant recreation area.
- The source areas themselves (Disposal Ponds 1 to 5, the potliner area, the carbon runoff area, the construction material scrap dump (both the soil and leachate seeps)).
- Outfall 004 discharge stream water and sediment.
- The Ohio River.

- The Ohio River bank.
- Seep areas at the base of the construction material scrap dump.

Future on-site exposure points could include any current exposure points described above and future on-site residences or drinking water wells installed on site.

Potential off-site exposure points currently include residences in Proctor or further downwind of the Site and areas along the Ohio River. In a future no-pumping scenario, the CAC Ranney well could become an off-site exposure point since the hydraulic gradient would no longer prevent transport of contaminated water to that well.

Exposure Routes

Human populations can be exposed by three routes:

- Inhalation of contaminated media.
- Ingestion of contaminated media.
- Dermal contact with contaminated media.

Those routes applicable at Ormet include:

- Inhalation of volatiles and airborne particulates from the source areas.
- Ingestion and dermal contact with contaminated soils.
- Ingestion of groundwater as drinking water (future hypothetical).
- Dermal contact with groundwater (future hypothetical).
- Inhalation of volatiles in groundwater during showering (future hypothetical).
- Incidental ingestion of surface water during recreational-type activities.
- Ingestion of contaminated fish from the Ohio River.
- Dermal contact with contaminated surface water or sediments during recreational-type activities.
- Incidental ingestion and dermal contact with seeps.

3.4 Quantification of Exposure

3.4.1 Selection of Exposure Scenarios for Quantification

Only pathways that are judged complete are quantified. However, some complete pathways may not be quantified because the potential magnitude for exposure is considered small compared to other pathways that are quantified for the same

population. Also, exposures of some populations may not be evaluated if the potential magnitude for exposure is considered small when compared to other populations exposed by the same pathway. Additionally, some pathways that are quantified are applicable to more than one population.

Tables 3-1 and 3-2 also indicate which pathways were selected for quantification in this risk assessment and, where applicable, the rationale for not quantifying it.

3.4.2 Introduction

The quantification of the magnitude, duration and frequency of the selected exposure scenarios allows the calculation of an average daily intake of the chemicals of potential concern. The intake is an approximation of exposure expressed in terms of the contaminant mass at the body exchange boundary per unit body weight per day (mg/kg-day). To calculate intakes, the following general equation is used:

$$I = C \times \frac{CR \times EFD}{BW} \times \frac{1}{AT} \qquad (1)$$

where:

- I = intake; the average amount of the chemical at the body's exchange boundary (mg/kg-day).
- C = chemical concentration; the concentration which comes in contact with the body during the exposure period (e.g., mg/kg in pond solids or mg/m^3 in air).
- CR = contact rate; the amount of contaminated medium contacted per unit time or event (e.g., m^3/day for inhaled air).
- EFD = exposure frequency and duration (how long and how often exposure occurs). The EFD term is usually calculated using two terms, the exposure frequency (EF) (usually expressed in days/year) and exposure duration (ED) (usually expressed in years).
- BW = body weight; the average body weight over the exposure period (kg).
- AT = averaging time; period over which exposure is averaged (days).

All the variables in this equation are chosen so that an estimate of the reasonable maximum exposure for each pathway is achieved (USEPA 1989b).

These calculations are accomplished in two steps: (1) the calculation of concentration values (exposure point concentrations) and (2) the calculation of Human Intake Factors (HIFs) which incorporate the remaining terms of Equation 1 (CR, EFD, BW, AT). The calculations for the pathways selected for evaluation at Ormet are described in the following sections.

3.4.3 Calculation of Concentration Values

Exposure is evaluated over three time periods: subchronic (C_S - two weeks to seven years), chronic (C_C - between seven years and a lifetime) and lifetime (C_L - 70 years) (USEPA 1989b). Each of these time periods has associated with

TABLE 3-1 POTENTIALLY COMPLETE PATHWAY SUMMARY - CURRENT SCENARIOS

Population	Exposure Point	Source/Release Mechanism	Exposure Medium	Exposure Route	Quantify?
Occupational (Adult)	Plant Recreation Area	Disposal ponds, potliner area/ fugitive dust emission	Air	Inhalation (Particulates & Volatiles)	Yes - Particulates. No - Volatiles, unable to quantify with available data.
			Soil	Ingestion	No - Unable to quantify with available data.
			Soil	Dermal	No - Unable to quantify with available data.
Recreational (Adult & Child)	Plant Recreation Area	Disposal ponds, potliner area/ fugitive dust emission, seepage	Air	Inhalation	No - Occupational exposures represent higher exposure potential. Ormet workers and families are not frequent visitors to area.
			Soil	Ingestion	No - Pathway not always complete, exposure infrequent and potential low.
			Soil	Dermal	
Residential (Adult & Child)	Proctor, West Virginia (off-site)	Disposal ponds, potliner area/ fugitive dust emission	Air	Inhalation (Particulates & Volatiles)	Yes - Particulates. No - Volatiles, unable to quantify with available data.

continued-

Table 3-1 - continued

Population	Exposure Point	Source/Release Mechanism	Exposure Medium	Exposure Route	Quantify?
Residential (Adult & Child)	Ohio River	Disposal ponds, potliner area/ CMSD, Carbon Runoff Area/ fugitive dust emission, surface runoff	Surface Water	Incidental Ingestion	No - Current exposure potential for these pathways low. Pathway evaluated for future residential scenario.
			Surface Water	Ingestion of Fish	Yes
Hypothetical Trespasser	004 Backwater Area (Ohio River to Outfall 004 discharge pipe)	004 Discharge, CMSD, Carbon Runoff Area/ fugitive dust emission, surface runoff	Sediments	Ingestion	Yes
				Dermal	Yes
			Surface Water	Ingestion	Yes
				Dermal	Yes
			Sediments	Ingestion	Yes
				Dermal	Yes
	Ohio River Bank	Disposal Ponds, Potliner Area, CMSD, Carbon Runoff Area/ fugitive dust emission, surface runoff	Surface Water	Ingestion	Yes
				Dermal	Yes
			Sediments	Ingestion	Yes
				Dermal	Yes

continued-

Table 3-1 - continued

Population	Exposure Point	Source/Release Mechanism	Exposure Medium	Exposure Route	Quantify?
Hypothetical Trespasser	Source Areas	Disposal Ponds, Potliner Area, CMSD, Carbon Runoff Area/ fugitive dust emission, direct contact	Soil	Dermal	No - Pathways involving direct contact with the source likely presents low potential. Evaluated in future scenarios.
				Ingestion	
			Air	Inhalation	No - Pathway evaluated for worker whose exposure potential is higher.
	Seeps	Groundwater/ seepage to surface	Surface Water	Ingestion	No - Pathway not always complete and potential for exposure is low.
				Dermal	No - Pathway not always complete and potential for exposure is low.

TABLE 3-2 POTENTIALLY COMPLETE PATHWAY SUMMARY - HYPOTHETICAL FUTURE SCENARIOS

Population	Exposure Points	Source/Release Mechanism	Exposure Media	Exposure Route	Quantify?
Occupational (Adult CAC/ Ormet Worker)	CAC Ranney Well	Disposal ponds, potliner area/ infiltration	Groundwater	Ingestion	Yes
Resident (Adult & Child)	Drinking water well in plume	Disposal ponds, potliner area/ infiltration	Groundwater	Ingestion Inhalation Dermal	Yes No. Pathway not likely to present high exposure potential.
	Residence-Downwind of Pond 5 Residence-Potliner Area	Specific source areas/fugitive dust, direct contact	Air	Inhalation (Particulates & Volatiles)	Yes. Particulates where pathway is complete No. Volatiles unable to quantify with available data.
	Residence - Ponds 1-5		Soil Soil	Ingestion Dermal	Yes Yes
	Residence-CRDA				
	Residence-CMSD				
	Ohio River	Disposal ponds, potliner area/ CMSD, carbon runoff area/ fugitive dust surface runoff	Surface Water Sediment Fish	Ingestion Dermal Ingestion Dermal Ingestion	Yes Yes Yes Yes Yes
	004 Backwater area (Ohio River to outfall 004 discharge pipe)	004 Discharge, CMSD, carbon runoff area/ fugitive dust emission, surface runoff	Sediments Surface Water	Ingestion Dermal Ingestion Dermal	Yes Yes Yes Yes

it a unique exposure point concentration. These concentrations represent the upper-bound (95th percentile confidence limit) of the arithmetic average of the concentrations of contaminants contacted over the time period involved (USEPA 1989b). At this site it is assumed that the concentrations in the environment are approximately constant over the maximum exposure duration evaluated (i.e., 70 years). Consequently, C_S, C_C and C_L are assumed to be equivalent. This is a conservative assumption which will provide an overestimate of risk. Concentrations of some of the Site contaminants of potential concern (especially the organic compounds) are expected to decrease over time due to degradation processes in the environment.

Table 3-3 summarizes sample locations selected for estimating exposure point concentrations. The 95th percentile of the arithmetic mean was used as the exposure point calculation unless that value exceeded the maximum detected, or if an upper bound could not be calculated because of too few samples. In those cases the maximum detected value was used. In all calculations of the mean, nondetect values were entered at one-half the detection limit and field duplicate sampling locations were averaged. Appendix 3 provides statistical summaries for these calculations.

Exposure Point Calculations in Air

In order to quantify the air pathway, a combination of monitoring and modeling data were utilized. The basic procedure followed involved the following steps:

1. An emission rate was calculated for particulates from Pond 5 surfaces using the Cowherd (1985) model and particle size distribution data collected from the pond.

2. These emission rates were used to model concentrations at Proctor and other assumed exposure points using the Fugitive Dust Model (FDM) (TRC 1990).

3. Modeled PM_{10} concentrations were compared with the PM_{10} concentrations measured during air monitoring (Metcalf & Eddy 1991). This reality check concluded that the FDM model overestimated PM_{10} concentrations (by a factor of approximately 7) at monitoring location AM2, close to the future residential exposure point downwind of Pond 5, selected for quantification in this risk assessment. The average measured PM_{10} concentration at AM2 (42.5 $\mu g/m^3$) was used as the exposure point concentration for this exposure point. Use of this value will still underestimate pond emissions to some unknown extent since the monitored values include emissions from the ongoing industrial operations at Ormet. The PM_{10} concentrations predicted by FDM were lower than the measured values at AM1, 3 and 4.

4. It was assumed that the mass concentration in the surface pond samples was equal to the concentration associated with the PM_{10} particulates. This calculation is shown on worksheet Pond 5S.WK1 in Appendix 3 (beginning on page A3-11).

TABLE 3-3 SAMPLE LOCATIONS USED FOR ESTIMATING EXPOSURE POINT CONCENTRATIONS

Exposure Point	Medium	Sample Locations Used	Exposure Point Concentration Worksheet[a]
Future Drinking Water Well	Groundwater	MW1; MW2; MW15; MW16; MW17; MW18; MW28; MW29; and MW30; MW31; MW32; MW34; and MW35; MW36; MW37; MW39; and MW49 and MW42 (Phase I and Phase II)	MW.WQ1
Plant Recreation Area Proctor, West Virginia Future Residence, (Downwind of Pond 5)	Air (Particulates)	5A0-1; 5B0-1; 5C0-1; 5D0-1; 5E0-1	POND5S.WQ1[b]
Future Residence, (Pond 5)	Soil	5A0-1; 5A-5-8; 5A-10-13; 5B0-1; 5B-5-8; 5B-10-13; 5C-0-1; 5C-5-8; 5C-10-13; 5D-0-1; 5D-5-8; 5D-10-INT; 5E-0-1; 5E-5-8; 5E-10-13	POND5D.WQ1
Future Residence, (Pond 1 to 4)	Soil	1A0-1; 1A1-4; 1A-4-INT; 2A-0-1; 2A-1-3; 2A-3-INT; 3A-0-1; 3A-2-5; 3A-6-9; 3A-10-INT; 4A-0-1; 4A-1-4; 4A-4-INT; 4B-0-1; 4B-1-4; 4B-4-7; 4B-8-INT	POND1-4D.WQ1
Future Residence (Potliner)	Soil	SB-001 through SB-024 (0 to 2 ft; 2 to 4 ft; 4 to 6 ft; 6 to 8 ft; 8 to 10 ft)	POTLNR.WQ1

continued-

(a) Indicates worksheet in Appendix 3 which contains statistical summaries for this exposure point.
(b) Includes both Disposal Pond 5 sample results and modelled air concentrations for PM 10.

Table 3-3 - continued

Exposure Point	Medium	Sample Locations Used	Exposure Point Concentration Worksheet
Future Residence (Carbon Runoff Area)	Soil	CRA-A1-C; CRA-A1-S; CRA-A2-S; CRA-A2-C; CRA-B1-S; CRA-B1-C; CRA-B2-S; CRA-B2-C; CRA-C1-C; CRA-C1-S; CRA-C2-S; CRA-C2-C	CRA.WQ1
Future Residence (Construction Material Scrap Dump)	Soil	CMSD-1; CMSD-2; CMSD-3; CMSD-4; CMSD-5; ERT Sample No. 1[a]	CMSD.WQ1
Ohio River	Surface Water Sediment	SW4; SW9; SW12 RS2; RS3; RS4; RS6; RSII-2; RSII-3; RSII-4; RSII-6; RSII-9; RSII-12	RIVWTR.WQ1 RIVSED.WQ1
Backwater Area (004)	Surface Water Sediments	SW5 RS5, RSII5	BAKWAT.WQ1 BAKSED.WQ1

(a) This sample from USEPA (1991) for PCB analysis only.

Appendix 2 presents the detailed assumptions and calculations for air emission rates and exposure point concentrations.

Quantification of volatilization of organics from pond solids to air was attempted using the model of Hwang et al. (1986). However, the Hwang model predicted that the amount emitted from the pond over a 30-year period would be about 1,000 times the total amount of contaminant present in the pond. Since an overestimate of this magnitude is clearly unreasonable, and no better model has been located to estimate volatilization from this source type, this pathway has not been quantified.

It is not known why the Hwang model predicted unrealistically high emission rates for volatiles. It is likely, however that some of the assumptions of the model do not apply at this Site. For example, the model was designed to estimate volatilization from an infinite reservoir of contaminant in the soil. In addition, the model estimates volatilization from soil materials. The pond solids at Ormet do not have all the same physical/chemical characteristics as common soil types, nor do they contain unlimited reservoirs of the volatile contaminants. This combination of factors may lead to the unrealistic estimates. Not quantifying this pathway represents a source of uncertainty in the risk estimates. Risks from volatile emissions have not been quantified; therefore, exposures involving Pond 5 will be underestimated by some unknown amount.

Exposure Point Concentrations in Groundwater

Exposure point concentrations for groundwater were calculated using monitoring data from both RI phases. Results of sampling from monitoring wells located within the plume beneath the potliner area and the disposal ponds were used. These samples represent not only the contaminated area but also the area where future drinking water wells are most likely to be installed.

Exposure Point Concentrations in Soil

Exposure point concentrations for the ponds, potliner area and the construction material scrap dump, were calculated using all samples collected to a depth of approximately 12 feet, the assumed depth of excavation for a future residence. All samples from the carbon runoff area, regardless of depth, were utilized. Sample locations in the vicinity of each of the assumed future residence were used (Table 3-2).

The soil samples from the environmental evaluation generally agreed both in contaminants and detected concentrations with the samples collected during the RI phases. However, in the CRDA, PCBs were not included in the analysis scheme while they were in USEPA (1991). The sample collected by the Environmental Response Team (ERT) at location 1 included a hit for PCBs at 56 mg/kg. This sample for Aroclor 1248 has been used in exposure point calculations.

Exposure Point Concentrations in Surface Water and Sediments

Two exposure points involving surface water and sediments were evaluated. One exposure point is assumed along the Ohio River, the second in the backwater area along the Outfall 004 discharge stream. The samples collected nearest the Ohio shore and downriver from the background sampling location were used in developing the surface water exposure point concentration for both surface water and sediments along the river (Locations 2, 3, 4, 6, 7, 9, 12). For the Outfall 004 discharge stream and backwater area only sample location 5 was used. Both Phase I and Phase II data were used.

Exposure Point Concentrations in Fish

The concentration of contaminants in edible fish taken from the Ohio River were estimated by multiplying the concentration in water by the bioconcentration factor (BCF) (USEPA 1988f) for freshwater fish. These calculations are shown in the Appendix 3 Worksheet RIVWTR.WQ1.

3.4.4 Calculation of HIF Terms

In the general equation for calculating intake (Equation 1), the HIF incorporates the terms that describe exposure in terms of human activity. The value of the HIF term in calculating chemical intakes depends on the specific exposure scenario being evaluated. An HIF value is calculated individually for each exposed population, for each medium, for each exposure route and for each exposure duration. In general, an HIF value is comprised of three terms:

- A contact rate term that describes the amount of intake of a medium (e.g., mg of soil or m^3 of air) by a person on a day when exposure occurs.
- A body weight term.
- A series of time correction factors that account for the fact that exposure may not occur every day during the time period of interest. These variables include exposure time (hours/day), exposure frequency (day/year) and exposure duration (years). These factors are divided by the period (in days) over which exposure is averaged (averaging time).

The exposure scenarios selected for quantification and which require calculation of an HIF are summarized in Table 3-4. The equations and selected values for HIF calculations for these scenarios are described below.

Inhalation of Particulates

The basic equation for the calculation of an HIF for the inhalation of particulates chemicals is:

$$\text{HIF } (m^3/\text{kg-day}) = \frac{IR \times ET \times EF \times ED}{BW \times AT} \qquad (2)$$

TABLE 3-4 EXPOSURE SCENARIOS REQUIRING HIF CALCULATIONS

Land Use	Exposure Point	Population	Route-Medium
Current	Plant Recreational Area	Worker	Inhalation-Particulates
	Proctor, West Virginia	Resident Adult Resident Child	Inhalation-Particulates
	Ohio River	Hypothetical Trespasser	Ingestion-Surface Water, Sediments Dermal Contact-Surface Water, Sediments
	004 Backwater Area	Hypothetical Trespasser	Ingestion-Surface Water, Sediments Dermal Contact-Surface Water, Sediments
	Ohio River	Resident Adult Resident Child	Ingestion of Fish
Future	CAC Drinking Water Well	Worker	Ingestion-Groundwater
	Future Residences[(a)]	Resident Adult Resident Child	Ingestion-Groundwater, Soil Inhalation-Particulates Dermal Contact-Soils
	Ohio River	Resident Adult Resident Child	Ingestion-Surface Water, River Sediments, Fish Dermal Contact-Surface Water, River Sediments
	004 Backwater Area	Resident Adult Resident Child	Ingestion-Surface Water, Sediments Dermal-Surface Water, Sediments

(a) Includes an assumed residence downwind of Pond 5, on Pond 5, on Ponds 1 through 4, on the potliner, on the CMSD or on the CRDA.

where:

IR = Inhalation rate, m^3/hr
ET = Exposure time, hr/day
EF = Exposure frequency, day/yr
ED = Exposure duration, yr
BW = Body weight, kg
AT = Averaging time, days

Table 3-5 summarizes the values estimated or assumed for the Ormet Site.

Inhalation rates depend on the level of physical activity assumed for each exposure scenario. For adult residents a time-weighted average breathing rate of 0.8 m^3/hr (approximately 20 m^3/day) is assumed (USEPA 1990c). A similar time-activity weighting for children results in an estimated upper-bound inhalation rate of 1.4 m^3/hr (see Table 3-6). For workers, a higher breathing rate is assumed since those individuals are assumed to be engaged in activities while working that would increase their breathing rate (e.g., mowing grass, other maintenance-type activities). A time-weighted average breathing rate of 1.6 m^3/hr was estimated by assuming each 8-hour work day is divided among resting, light and moderate activities. Table 3-6 describes the time-weighting calculations in more detail.

The averaging time selected is dependent on the type of toxic effect that may occur as a result of exposures to the chemicals of potential concern. The chemicals at this site in general produce chronic and carcinogenic effects. When evaluating chronic exposures to noncarcinogens intakes are averaged over the period of exposure; for carcinogens, intakes are calculated by prorating the total cumulative dose over a lifetime (70 years).

The exposure duration for a worker at Ormet is assumed to be 25 years (USEPA 1990c). This worker is assumed to work five days a week, 50 weeks per year (250 days/year).

The exposure duration for a resident adult is assumed to be 70 years, i.e., an entire lifetime. The area surrounding Ormet is rural in nature and any future residential scenarios assume that persons living on site would stay there for a lifetime of 70 years. The only assumed exposure period for a child is a subchronic one for the five early years of childhood (aged 1 to 6). This time period accounts for higher contact rates at the time when body weight is lowest.

The average adult human body weight is assumed to be 70 kg (154 lb) (USEPA 1989b). The body weight of a child is dependent on the age of the child. For residential scenarios a child aged one to six is assumed. The average body weight over this age span is estimated to be 15 kg (USEPA 1989a).

TABLE 3-5 HIF CALCULATIONS FOR INHALATION OF PARTICULATES

Basic Equation: $HIF\ (m^3/kg\text{-}day) = \frac{IR \times ET \times EF \times ED}{BW \times AT}$

		Population - Specific Value		
			Resident (Current and Future)	
Variable	Units	Current Worker	Adult	Child
IR	m^3/hr	1.6(b)	0.8	1.4(b)
ET	hr/day	8	24	24
EF_S	days/yr	NA(a)	NA	365
EF_C	days/yr	250	365	NA
EF_L	days/yr	250	365	NA
ED_S	yr	NA	NA	5
ED_C	yr	25	70	NA
ED_L	yr	25	70	NA
BW	kg	70	70	15
AT_S	yr (days)	NA	NA	5 (1,825)
AT_C	yr (days)	25 (9,125)	70 (25,550)	NA
AT_L	yr (days)	70 (25,550)	70 (25,550)	NA
HIF_S	m^3/kg-day	NA	NA	2.2E+00
HIF_C	m^3/kg-day	1.2E-01	2.7E-01	NA
HIF_L	m^3/kg-day	4.4E-02	2.7E-01	NA

(a) NA = Not Applicable. Subchronic exposures calculated only for young children. Lifetime and chronic exposures not calculated for young children.
(b) See Table 3-6.

TABLE 3-6 TIME-WEIGHTING OF BREATHING RATES

Population	Activity Assumptions	Breathing Rate, m^3/hr [(a)]	Time-Weighted Average, m^3/hr
Resident Child	When indoors, time spent:		
	resting - 25%	0.4	
	light activity - 60%	1.0	
	moderate activity - 10%	3.2	
	heavy activity - 5%	4.2	1.2
	When outdoors, time spent:		
	light activity - 50%	1.0	
	heavy activity - 50%	4.2	2.6
	Assume Indoor = 20 hours and Outdoor = 4 hours over a 24-hr period		1.4
Worker	3.5 hr at light activity	0.8	
	3.5 hr at medium activity	2.5	
	1.0 hr at resting	0.7	
	Assume an 8-hr exposure event:		1.6

(a) All values from USEPA (1989a).

Ingestion of Drinking Water

The basic HIF equation for ingestion of drinking water is:

$$HIF\ (L/kg\text{-}day) = \frac{IR \times EF \times ED}{BW \times AT} \quad (3)$$

where:

IR = Ingestion rate, liters/day
EF = Exposure frequency, day/yr
ED = Exposure duration, yr
BW = Body weight, kg
AT = Averaging time, days

Table 3-7 summarizes the values estimated or assumed for this exposure pathway at the Ormet site.

A value of two liters per day is assumed for all residents and workers (USEPA 1989a, 1989b). Occupational populations, although exposed at work for only half their waking hours are engaged in increased physical activity and their ingestion of water is likely to increase. Therefore, a two liter per day ingestion rate is a conservative estimate for a worker. All drinking water is assumed to come from the contaminated plume at the Ormet site. The assumptions for the time correction terms, body weight and averaging times are the same as previously described for the inhalation exposure scenario.

Ingestion of Soil

The basic HIF equation for ingestion of soil is:

$$HIF\ (kg/kg\text{-}day) = \frac{IR \times CF \times FI \times EF \times ED}{BW \times AT} \quad (4)$$

where:

IR = Ingestion rate (mg soil/day)
CF = Conversion factor, 10^{-6} kg/mg
FI = Fraction ingested from contaminated source (unitless)
EF = Exposure frequency, day/yr
ED = Exposure duration, yr
BW = Body weight, kg
AT = Averaging time, days

Table 3-8 summarizes the HIF calculations for soil ingestion.

Available data on soil ingestion under typical residential conditions indicates that most soil intake is a result of hand-to-mouth activity and is age dependent. During early childhood, soil ingestion is estimated to be 200 mg/day; by age six and through adulthood this value drops to 100 mg.

TABLE 3-7 HIF CALCULATIONS FOR INGESTION OF DRINKING WATER

Basic Equation: $HIF\ (L/kg\text{-}day) = \frac{IR \times EF \times ED}{BW \times AT}$

Variable	Units	Population - Specific Value		
		Adult Worker (No Pumping Scenario)	Future Resident	
			Adult	Child
IR	L/day	2	2	2
EF_S	days/yr	NA[(a)]	NA	365
EF_C	days/yr	250	365	NA
EF_L	days/yr	250	365	NA
ED_S	74	NA	NA	5
ED_C	yr	25	70	NA
ED_L	yr	25	70	NA
BW	kg	70	70	15
AT_S	yr (days)	NA	NA	5 (1,825)
AT_C	yr (days)	25 (9,125)	70 (25,550)	NA
AT_L	yr (days)	70 (25,550)	70 (25,550)	NA
HIF_S	L/kg-day	NA	NA	1.3E-01
HIF_C	L/kg-day	2.0E-02	2.9E-02	NA
HIF_L	L/kg-day	7.0E-03	2.9E-02	NA

(a) NA = Not Applicable. Subchronic exposures calculated only for young children. Lifetime and chronic exposures not calculated for young children.

TABLE 3-8 HIF CALCULATIONS FOR INGESTION OF SOIL

Basic Equation: $HIF\ (kg/kg\text{-}day) = \frac{IR \times CF \times FI \times EF \times ED}{BW \times AT}$

Variable	Units	Population - Specific Value, Future Resident	
		Adult	Child
IR	mg/day	100	200
CF	kg/mg	1E-06	1E-06
FI	unitless	1.0	1.0
EF_S	days/yr	NA(a)	365
EF_C	days/yr	365	NA
EF_L	days/yr	365	NA
ED_S	yr	NA	5
ED_C	yr	70	NA
ED_L	yr	70	NA
BW	kg	70	15
AT_S	yr (days)	NA	5 (1,825)
AT_C	yr (days)	70 (25,550)	NA
AT_L	yr (days)	70 (25,550)	NA
HIF_S	kg/kg-day	NA	1.3E-05
HIF_C	kg/kg-day	1.4E-06	NA
HIF_L	kg/kg-day	1.4E-06	NA

(a) NA = Not Applicable. Subchronic exposures calculated only for young children. Lifetime and chronic exposures not calculated for young children.

These values are recommended by USEPA (1990c) and represent conservative estimates. It is assumed all soil ingested by future residents comes from contaminated areas of the site (i.e., Fl = 1.0).

All other variables for calculating HIF values for soil ingestion are the same as those described previously.

Ingestion of River Water and River Sediments

This exposure scenario involves ingestion of river water and sediments by hypothetical trespassers or future residents if the Site were developed. The river bank is an attractive area for either playing along the river or wading in the river. Ingestion of river water and sediments might occur during this type of human activity. The basic HIF formula for this scenario is:

$$\text{HIF (L/kg-day for water or kg/kg-day for sediments)} = \frac{CR \times EF \times ED}{BW \times AT} \quad (5)$$

where:

CR = Contact rate, liters/event for water or kg/event for sediments
EF = Exposure frequency, events/year
ED = Exposure duration, yrs
BW = Body weight, kg
AT = Averaging time, days

There is no information available which would support assumptions for this type of human activity. The following assumptions were made regarding contact rates and exposure frequencies using best professional judgment. The USEPA estimates that 50 mL of water could be consumed during a swimming event (USEPA 1989b). Considerably less would be reasonably expected during a wading activity. It is assumed that during each river bank event 5 mL of river water could be consumed. This approximates the amount a child or adult might accidentally swallow if they waded along the river bank. It is likewise difficult to estimate how much sediments could be ingested. A sediment intake rate of 5 mg is assumed.

A reasonable maximum exposure frequency is assumed as once a week during the year, with the exception of the winter months (November to March) or 32 events/year.

The hypothetical trespasser most likely to be exposed is assumed to be an older child, aged 8 to 18. The body weight for this age is 54 kg (USEPA 1989a) and an exposure duration of 10 years is assumed. It is assumed that this trespasser would also frequent the river 32 times in a given year (identical to the residents).

All other variables for the river bank/wading scenarios were described previously. Table 3-9 summarizes these HIF calculations. These same HIF calculations are also used for the scenarios involving the 004 backwater area.

Ingestion of Fish

The basic HIF equation for ingestion of locally-caught fish is:

$$\text{HIF (kg/kg-day)} = \frac{\text{IR x FI x CF x EF x ED}}{\text{BW x AT}} \qquad (6)$$

where:

IR = Ingestion rate, g/meal
FI = Fraction ingested, unitless
CF = Conversion factor, kg/g
EF = Exposure frequency, meals/yr
ED = Exposure duration, yr
BW = Body weight, kg
AT = Averaging time, days

Table 3-10 summarizes the HIF calculations for the fish ingestion scenario. A number of surveys have been conducted to determine the rate of fish consumption among U.S. populations. A large population was surveyed in the 1977-1978 U.S. Department of Agriculture (USDA) Nationwide Food Consumption Survey (USEPA 1989a). The median and 95th percentile fish consumption rates for persons who reported fish as part of their diet were 37 and 120 g/day, respectively. These data however are not representative of recreational fishermen, who tend to include more fish in their diets. Two studies of West Coast sport fishermen report higher consumption rates, up to 338 g/day (USEPA 1989a). These surveys include both finfish and shellfish.

It is difficult to extrapolate these data to the Ormet site. No local fish consumption information was located. While the river supports a variety of finfish it is unknown what percentage may be affected by the Site and how many of these fish are caught and consumed by local fishermen. A conservative estimate of approximately two, seven-ounce (198 g) meals per week has been used in this risk assessment. This corresponds to approximately 56 g/day. It is furthermore assumed that only one serving of fish per week is actually caught at or within the influence of the Site; the other comes from a nonsite-related source. This is a very conservative estimate of human intake and will likely result in an overestimate of risk if the population near Ormet does not, in actuality, regularly consume fish from the Ohio River.

The remaining variables in this equation have been described previously.

TABLE 3-9 HIF CALCULATIONS FOR INGESTION OF RIVER WATER AND SEDIMENTS

Basic Equation: $HIF\ (kg\ or\ L/kg\text{-}day) = \frac{CR \times EF \times ED}{BW \times AT}$

Variable	Units	Population - Specific Value		
		Hypothetical Trespasser	Future Resident	
			Adult	Child
CR (water)	L/event	5E-03	5E-03	5E-03
CR (sediments)	kg/event	5E-06	5E-06	5E-06
EF	events/yr	32	32	32
ED_S	yr	NA(a)	NA	5
ED_C	yr	10	70	NA
ED_L	yr	10	70	NA
BW	kg	54	70	15
AT_S	yr (days)	NA	NA	5 (1,825)
AT_C	yr (days)	10 (3,650)	70 (25,550)	NA
AT_L	yr (days)	70 (25,550)	70 (25,550)	NA
HIF_S (water)	L/kg-day	NA	NA	2.9E-05
HIF_S (sediments)	kg/kg-day	NA	NA	2.9E-08
HIF_C (water)	L/kg-day	8.1E-06	6.3E-06	NA
HIF_C (sediments)	kg/kg-day	8.1E-09	6.3E-09	NA
HIF_L (water)	L/kg-day	1.1E-06	6.3E-06	NA
HIF_L (sediments)	kg/kg-day	1.1E-09	6.3E-09	NA

(a) NA = Not Applicable. Subchronic exposures calculated for young children only. Lifetime and chronic exposures not calculated for young children.

TABLE 3-10 HIF CALCULATIONS FOR INGESTION OF LOCALLY-CAUGHT FISH

Basic Equation: $HIF\ (kg/kg\text{-}day) = \frac{IR \times FI \times CF \times EF \times ED}{BW \times AT}$

Variable	Units	Current or Future Resident	
		Adult	Child
IR	g/meal	198[a]	198[a]
FI	unitless	0.5	0.5
CF	kg/g	1E-3	1E-3
EF_S	meals/yr	NA[b]	96[c]
EF_C	meals/yr	96	96
EF_L	meals/yr	96	NA
ED_S	yr	NA	5
ED_C	yr	70	NA
ED_L	yr	70	NA
BW	kg	70	15
AT_S	yr (days)	NA	5 (1,825)
AT_C	yr (days)	70 (25,550)	NA
AT_L	yr (days)	70 (25,550)	NA
HIF_S	kg/kg-day	NA	1.7E-03
HIF_C	kg/kg-day	3.7E-04	NA
HIF_L	kg/kg-day	3.7E-04	NA

(a) A 7-oz serving is approximately 198 g.
(b) NA = Not Applicable. Subchronic exposures calculated only for young children. Lifetime and chronic exposures not calculated for children.
(c) A resident is assumed to remain at home 338 days a year which is approximately 48 weeks. Two servings/wk are therefore assumed.

Dermal Contact with Soil and River Sediments

The basic equation for calculating HIF values for dermal contact with soils and sediment is:

$$\text{HIF (kg/kg-day)} = \frac{\text{SA x AF x CF x ABS x EF x ED}}{\text{BW x AT}} \qquad (7)$$

where:

SA = Skin surface area available for contact, cm^2/event
AF = Soil-to-skin adherence factor, mg soil/cm^2 skin
CF = Conversion factor, kg/mg
ABS = Chemical-specific absorption factor, unitless
EF = Exposure frequency, events/yr
ED = Exposure duration, yr
BW = Body weight, kg
AT = Averaging time, days

The area of skin exposed depends on the human activities assumed at the Site. In most cases not all body parts are likely to come in contact with the contaminated media. For hypothetical future residents dermal exposure to contaminated soils or sediments may occur during outdoor yard-work type activities for adults or, for children, during outdoor playing at a future residence. An adult engaged in outdoor yard work is assumed to be dressed in a short-sleeved shirt and shorts, thus the exposed areas would be the head, hands, forearms and legs. For children a similar assumption is made including all of the legs and arms as exposed areas. Table 3-11 summarizes the calculations for exposed body parts for each hypothetical residents.

For both child and adult hypothetical residents, dermal exposures to sediments can occur during the assumed river scenarios, at both the backwater area and the river bank.

Exposure to river sediments would occur during wading type activities. The skin surface area is assumed to be those body parts that are likely to get wet while wading. For all populations it is assumed that feet, hands and lower legs would be exposed to both river water and sediments. Identical assumptions were made for the hypothetical trespasser, a child 8 to 18. Table 3-12 summarizes the calculation of skin surface area for contact during wading.

Information on soil adherence factors is limited. Commercial potting soil adheres to hands at 1.45 mg/cm^2; kaolin clay adheres at 2.77 mg/cm^2 (USEPA 1989b). In the absence of better information about the adherence characteristics of the solid media at Ormet, an approximate average value of 2 mg/cm^2 is assumed.

The absorption factor in this equation is a chemical-specific value. Values of 0.10 for semivolatile compounds and 0.25 for volatile compounds are assumed (Ryan et al. 1987). In general, metals and other inorganics have very low dermal absorption and a value of zero has been assumed.

TABLE 3-11 ASSUMED EXPOSED SKIN AREAS DERMAL CONTACT WITH SOIL

Body Part	Population - Specific Value, cm^2[a]	
	Resident Adult	Resident Child[b]
Head	1,180	996
Hands	840	385
Legs	4,050	1,673
Arms	2,280	921
Total	8,350	3,975

(a) All values from USEPA (1989a).
(b) Body parts for children calculated as a percentage of total body surface area averaged by age and sex (Tables 4B-3, 4B-4 and 4-3 of USEPA (1989a).

TABLE 3-12 ASSUMED SKIN AREA - WADING SCENARIO

Body Part	Population - Specific Value, cm^2[a]		
	Resident Adult	Resident Child[b]	Hypothetical Trespasser[b]
Feet	1,120	478	1,021
Legs	2,070	1,673	4,316
Hands	840	385	736
Total	4,030	2,536	6,073

(a) All values from USEPA (1989a).
(b) Body parts for children calculated as a percentage of total body surface area averaged by age and sex (Tables 4B-3, 4B-4 and 4-3 of USEPA (1989a).

For adult residents the exposure frequency is assumed to be 32 events per year. This assumes one day of outdoor yard activity each week from April through November. Children are assumed to play outdoors five days a week during the spring and summer months and twice a week during fall and winter. This corresponds to an exposure frequency of 168 days/year.

The remaining values in equation (7) have been described previously. Table 3-13 summarizes the calculations of HIF values for this type of exposure.

Dermal Contact with River Water

During assumed activity patterns involving playing or wading in either the Ohio River or the backwater area, human populations may come in contact with chemicals of potential concern via the dermal route. The basic equation to calculate an HIF term for dermal contact with chemicals in water is:

$$\text{HIF (L/kg-day)} = \frac{PC \times SA \times ET \times EF \times ED \times CF}{BW \times AT} \qquad (8)$$

where:

PC = Permeability constant, cm/hr
SA = Skin surface area available for contact, cm^2
ET = Exposure time, hours/day
EF = Exposure frequency, days/yr
ED = Exposure duration, yr
CF = Volumetric conversion factor for water, 1 liter/1,000 cm^3
BW = Body Weight, kg
AT = Averaging Time, days

The permeability constant is a chemical-specific term that reflects the movement of the chemical across the skin into the bloodstream. Dermal permeability constants are not known for most of the contaminants of potential concern at Ormet. The permeability constant for water, 8E-04 (Blank 1984) is assumed.

Exposure frequency and duration were described in the river and backwater scenarios discussed previously for ingestion of river water and sediments. No data are available on how long a river event might last. A one-hour exposure time is assumed. All other variables have already been described. Table 3-14 summarizes HIF calculations for dermal exposure to river water at Ormet.

3.4.5 Calculation of Daily Intakes

Using the calculated exposure point concentrations from Appendix 3 and the HIF values derived in Section 3.4.3, daily intakes for subchronic, chronic and lifetime exposures were calculated using Equation 1. These calculations are summarized in Appendix 5.

TABLE 3-13 HIF CALCULATIONS FOR DERMAL EXPOSURE TO SOILS AND RIVER SEDIMENTS

Basic Equation: $HIF\ (kg/kg\text{-}day) = \frac{SA \times AF \times CF \times ABS \times EF \times ED}{BW \times AT}$

		Population - Specific Values				
		Soil		River Sediments		
		Future Resident		Hypothetical	Future Resident	
Variable	Units	Adult	Child	Trespasser	Adult	Child
SA	cm^2/event	8,350	3,975	6,073	4,030	2,536
AF	mg/cm^2	2	2	2	2	2
CF	kg/mg	1E-6	1E-6	1E-6	1E-6	1E-6
EF	events/yr	32	168	32	32	32
ED_S	yr	NA	5	NA	NA	5
ED_C	yr	70	NA	10	70	NA
ED_L	yr	70	NA	10	70	NA
BW	kg	70	15	54	70	15
AT_S	yr (days)	NA	5 (1,825)	NA	NA	5 (1,825)
AT_C	yr (days)	70 (25,550)	NA	10 (3,650)	70 (25,550)	NA
AT_L	yr (days)	70 (25,550)	NA	70 (25,550)	70 (25,550)	NA
HIF_S (b)	kg/kg-day	NA	2.4E-04	NA	NA	3.0E-05
HIF_C (b)	kg/kg-day	2.1E-05	NA	2.0E-05	1.0E-05	NA
HIF_L (b)	kg/kg-day	2.1E-05	NA	2.8E-06	1.0E-05	NA

(a) NA = Not Applicable. Subchronic exposures calculated only for young children. Lifetime or chronic exposures not calculated for young children.

(b) All HIF values must be multipled chemical-specific ABS term.

TABLE 3-14 HIF CALCULATIONS FOR DERMAL EXPOSURE TO RIVER WATER

Basic Equation: $HIF\ (L/kg\text{-}day) = \frac{PC \times SA \times ET \times EF \times ED \times CF}{BW \times AT}$

Variable	Units	Population - Specific Values		
		Future Resident		Hypothetical
		Adult	Child	Trespasser
PC	cm/hr	8E-04	8E-04	8E-04
SA	cm^2	4,030	2,536	6,073
ET	hr/day	1.0	1.0	1.0
EF	days/yr	32	32	32
ED_S	yr	NA(a)	5	NA
ED_C	yr	70	NA	10
ED_L	yr	70	NA	10
CF	L/cm^3	1E-03	1E-03	1E-03
BW	kg	70	15	54
AT_S	yr (days)	NA	5 (1,825)	NA
AT_C	yr (days)	70 (25,550)	NA	10 (3,650)
AT_L	yr (days)	70 (25,550)	NA	70 (25,550)
HIF_S	L/kg-day	NA	1.2E-05	NA
HIF_C	L/kg-day	4.0E-06	NA	7.9E-06
HIF_L	L/kg-day	4.0E-06	NA	1.1E-06

(a) NA = Not Applicable. Subchronic exposures are calculated only for young children. Lifetime and chronic exposures not calculated for young children.

4.0 TOXICITY ASSESSMENT

The purpose of the toxicity assessment is to evaluate available evidence regarding the potential for a contaminant to cause an adverse health effect in an exposed individual. The information in this section provides an overview of the process of evaluating toxicity information to develop critical toxicity values (CTVs). These values for the chemicals of potential concern are subsequently used in risk characterization to estimate the likelihood of adverse effects occurring at the exposure levels posed by the Site. More detailed information on the toxicity of chemicals found to contribute risk that approaches or exceeds a level of concern at Ormet are presented in Appendix 4.

4.1 Noncarcinogenic Effects

The noncancer health effects of a chemical are evaluated using a Reference Dose (RfD) approach. A Reference Dose is a conservative estimate of the daily intake of a chemical (mg chemical per kg body weight per day) that is without risk of any noncancer health effects in humans, including sensitive subpopulations. An RfD is specific for a given exposure route (oral, inhalation or dermal) and for a given exposure period (acute, subchronic or chronic). The RfD is usually calculated from experimental data which identify the No-Observed-Adverse-Effect Level (NOAEL) or the Lowest-Observed-Adverse-Effect Level (LOAEL) in animals or humans. In order to provide a margin of safety, the RfD is taken to be the NOAEL or LOAEL divided by an appropriate uncertainty factor. Table 4-1 lists all available RfDs for chemicals of potential concern identified at Ormet.

4.2 Carcinogenic Effects

For cancer the CTVs are termed Slope Factors (SFs). These are route-specific estimates of the slope of the dose-response curve at low doses. Both human and animal studies are reviewed initially to determine the weight of evidence that the chemical is carcinogenic. A weight-of-evidence classification is then assigned, as follows:

Group A	Known human carcinogen
Group B1 or B2	Probable human carcinogen (B1 indicates the availability of limited human data; B2 indicates sufficient evidence in animals but inadequate or no evidence in humans)
Group C	Possible human carcinogen
Group D	Not classifiable as to human carcinogenicity
Group E	Evidence of noncarcinogenicity for humans

In the second part of the evaluation, an SF is calculated. This SF may be used to calculate cancer risk from any given exposure level. The SF is calculated by extrapolation from observed data at high dose levels using

TABLE 4-1 SUMMARY OF NONCARCINOGENIC EFFECTS AND CRITIAL TOXICITY VALUES FOR CONTAMINANTS OF POTENTIAL CONCERN AT ORMET[a]

Chemical	Effect	Oral CTV			Inhalation CTV		
		RfD_S[b]	RfD_C[b]	Confidence Level	RfD_S[b]	RfD_C[b]	Confidence Level
Acenaphthene	Liver effects - oral	6.0E-01	6.0E-02	--	--	--	--
Acenaphthylene	(c)	--[c]	--[c]	--	--	--	--
Acetone	Increased liver and kidney weights, nephrotoxicity-oral	1.0E-00	1.0E-01	Low	--	--	--
Aluminum	Asthma, pulmonary fibrosis-inhalation; neurological disorders following ingestion of large doses or kidney dialysis (ATSDR 1990a)	--	--	--	--	--	--
Anthracene	(c)	3.0E+00	3.0E-01	--	--	--	--
Antimony	Decreased longevity, changes in blood glucose, cholesterol-ingestion	4.0E-04	4.0E-04	Low	--	--	--
Aroclor-1242, 1248, 1254	Liver effects, chloracnce-all routes (ATSDR 1989c)	--	--	--	--	--	--
Arsenic	Mucous membrane irritation-inhalation; keratosis, hyperpigmentation, neurological disorders-both routes (ATSDR 1989a)	1.0E-03	1.0E-03	--	--	--	--
Barium	Hypertension-ingestion	5.0E-02	7.0E-02	Medium	1.0E-03	1.0E-04	--
Benzene	--	--	--		--	--	--
Benzo(a)anthracene	(c)	--[c]	--[c]		--	--	--
Benzo(a)pyrene	(c)	--[c]	--[c]	--	--	--	--
Benzo(b)fluoranthene	(c)	--[c]	--[c]	--	--	--	--
Benzo(g,h,i)perylene	(c)	--[c]	--[c]	--	--	--	--
Benzo(k)fluoranthene	(c)	--[c]	--[c]	--	--	--	--

continued-

(a) All information from either IRIS Database (USEPA 1990b) or HEAST (Fourth Quarter, 1990) (USEPA 1990a) unless otherwise noted.
(b) Units of the RfD are mg/kg-day.
(c) Noncarcinogenic effects of PAHs evaluated using RfD for naphthalene.

Table 4-1 - continued

Chemical	Effect	Oral CTV			Inhalation CTV		
		RfD_S	RfD_C	Confidence Level	RfD_S	RfD_C	Confidence Level
Beryllium	No adverse effects at a single dose level-oral.	5.0E-03	5.0E-03	Low	--	--	--
bis(2-ethylhexyl)phthalate	Liver toxicity, reproductive and developmental effects-ingestion (ATSDR 1989d)	2.0E-02	2.0E-02	Medium	--	--	--
2-Butanone	Central nervous system effects, fetotoxicity-inhalation	5.0E-01	5.0E-02	Medium	9.0E-01	9.0E-02	--
Cadmium (food) (water)	Renal damage-both routes; impaired respiratory function-inhalation; possible immune alterations-ingestion (ATSDR 1989b)	-- --	1.0E-03 5.0E-04	High High	-- --	-- --	-- --
Carbon disulfide	Neurological, cardiovascular, developmental and hepatic effects following inhalation (ATSDR 1990b)	1.0E-01	1.0E-01	Medium	--	1.0E-02	--
Chloride	--	--	--	--	--	--	--
Chlorobenzene	Liver damage after ingestion	2.0E-01	2.0E-02	Medium	5.0E-02	5.0E-03	--
Chloroform	Liver and kidney toxicity following inhalation and ingestion; central nervous system depression following inhalation (ATSDR 1989c)	1.0E-02	1.0E-02	Medium	--	--	--
Chromium (VI)[a]	Atrophy of nasal mucosa-inhalation; no effects defined after oral exposure	2.0E-02	5.0E-03	Low	5.7E-06	5.7E-07	--
Chrysene	(b)	--[b]	--[b]	--	--	--	--
Cobalt	Asthma, fibrosis--inhalation. Cardiomyopathy-ingestion (ATSDR (1990d)	--	--	--	--	--	--
Copper	Gastrointestinal irritation following ingestion	3.7E-02	3.7E-02	--	--	--	--
Cyanide (free)	Weight loss, thyroid effects, myelin degeneration-oral	2.0E-02	2.0E-02	Medium	--	--	--

continued-

(a) All detected chromium assumed to be hexavalent.
(b) Noncarcinogenic effects of PAHs evaluated using RfD for naphthalene.

Table 4-1 - continued

Chemical	Effect	Oral CTV			Inhalation CTV		
		RfD_S	RfD_C	Confidence Level	RfD_S	RfD_C	Confidence Level
Di-n-butylphthalate	Increased mortality-ingestion	1.0E+00	1.0E-01	Low	--	--	--
Di-n-octylphthalate	Kidney and liver damage-oral	2.0E-02	2.0E-02	--	--	--	--
Dibenz(a,h)anthracene	(a)	--(a)	--(a)	--	--	--	--
Dibenzofuran	--	--	--	--	--	--	--
2,4-Dimethylphenol	Clinical signs of toxicity, changes in hematologic parameters-oral	2.0E-01	2.0E-02	Low	--	--	--
Ethylbenzene	Liver and kidney effects-oral	1.0E+00	1.0E-01	Low	--	--	--
Fluoranthene	Liver and kidney effects-oral	4.0E-01	4.0E-02	Low	--	--	--
Fluorene	Decreased red blood cells, hemoglobin-oral	4.0E-01	4.0E-02	Low	--	--	--
Fluoride	Objectionable dental fluorosis, skeletal fluorosis-oral	6.0E-02	6.0E-02	High	--	--	--
Indeno(1,2,3-cd)pyrene	(a)	--(a)	--(a)	--	--	--	--
Iron	--	--	--	--	--	--	--
Lead	Neurological deficiencies, hypertension, inhibition heme synthesis, reproductive effects-both routes (ATSDR 1988a)	--(b)	--(b)	--	--	--	--
Manganese	Psychomotor disturbances-inhalation	1.0E-01	1.0E-01	--	1.1E-04	1.1E-04	--
Mercury	Neurotoxicity-inhalation; kidney effects-oral	3.0E-04	3.0E-04	--	8.6E-05	8.6E-05	--
Methylene chloride	Liver toxicity-ingestion	6.0E-02	6.0E-02	Medium	8.6E-01	8.6E-01	--
2-Methylnaphthalene	(a)	--(a)	--(a)	--	--	--	--
4-Methylphenol	Neurotoxicity-oral	5.0E-01	5.0E-02	--	--	--	--

continued-

(a) Noncarcinogenic effects of PAHs evaluated using RfD for naphthalene.
(b) Lead will be evaluated based on acceptable blood lead levels using the UBK model.

Table 4-1 - continued

Chemical	Effect	Oral CTV			Inhalation CTV		
		RfD_S	RfD_C	Confidence Level	RfC_S	RfC_C	Confidence Level
Naphthalene	Hemolytic anemia-ingestion and inhalation; hepatic, reproductive and other effects-ingestion	4.0E-01(a)	4.0E-01(a)	--	--	--	--
Nickel (soluble salts)	Hematological, developmental effects-ingestion, respiratory, immune and reproductive effects-inhalation (ATSDR 1988b)	2.0E-02	2.0E-02	Medium	--	--	--
Nitrogen, ammonia	Upper respiratory irritant-inhalation. Burns in throat, stomach after ingestion of large amounts (ATSDR 1989g).	--	--	--	--	--	--
Phenanthrene	(b)	--(a)	--(a)	--	--	--	--
Pyrene	Kidney damage-oral	3.0E-01	3.0E-02	--	--	--	--
Silica	--	--	--	--	--	--	--
Silver	Argyria-oral	3.0E-03	3.0E-03	Medium	--	--	--
Sodium	--	--	--	--	--	--	--
Sulfate	Diarrhea at high concentrations-ingestion (USEPA 1990d)	--	--	--	--	--	--
Styrene	Liver and red blood cell effects-oral	2.0E+00	2.0E-01	Medium	--	--	--
1,1,2,2-Tetrachloroethane	--	--	--	--	--	--	--
Tetrachloroethene	Liver and kidney effects following inhalation and ingestion; central nervous system depression following inhalation (ATSDR 1990c)	1.0E-01	1.0E-02	Medium	--	--	--
Thallium	Alopecia and increased liver enzymes-ingestion	7.0E-04	7.0E-05	--	--	--	--

-continued-

(a) Represented by naphthalene. Value calculated in Health Effects Assessment for Naphthalene (USEPA 1988d).
(b) Noncarcinogenic effects of PAHs evaluated using RfD for naphthalene.

Table 4-1 - continued

Chemical	Effect	Oral CTV			Inhalation CTV		
		RfD_S	RfD_C	Confidence Level	RfC_S	RfC_C	Confidence Level
Toluene	Changes in liver and kidney weights-oral	2.0E-00	2.0E-01	Medium	5.7E-01	5.7E-01	--
1,1,1-Trichloroethane	Growth retardation, liver changes-inhalation	9.0E-01	9.0E-02	Medium	3.0E+00	3.0E-01	--
Trichloroethene	Liver, kidney effects-inhalation and ingestion; central nervous system depression-inhalation (ATSDR 1989f)	--	--	--	--	--	--
Vanadium	Renal and gastrointestinal effects-oral; respiratory irritation-inhalation	7.0E-03	7.0E-03	--	--	--	--

a model which assumes that the dose-response curve becomes linear at low doses and has no threshold (i.e., the curve passes through the origin). To ensure an adequate margin of safety, the SF is taken to be the upper 95th percent confidence limit of the slope. Thus, the actual slope factors could be lower but are not likely to be higher. Table 4-2 summarizes the slope factors available for chemicals of potential concern identified for the Ormet Site.

4.3 Dermal Toxicity Values

Since dermal exposure to soil and sediment are also of concern at the Site, dermal toxicity values are also required. It is important to note that dermal toxicity values must be based on the absorbed dose (rather than the exposed or administered dose), since dermal intakes are calculated as absorbed doses. Since the USEPA has not yet established any dermal toxicity values, approximate values were derived by extrapolation from oral toxicity values. This was done by multiplying the oral subchronic or chronic RfD values by the oral absorption fraction (AF_o), and dividing the oral slope factor by the oral absorption fraction. Absorption fractions are chemical-specific values obtained from the toxicological studies including, if available, the studies used in determining toxicity values. This approach is based on the assumption that equal absorbed doses are equitoxic. For all the organic chemicals of potential concern at Ormet, the AF_o was assumed to be 1.0 (i.e., 100% oral absorption). Most organic compounds are fairly well absorbed from the gastrointestinal tract. This is, however, not the most conservative approach since a lower AF_o would result in a lower RfD or higher slope factor. Risk may, therefore, be underestimated.

No extrapolation from oral to dermal was performed for any PAHs, since the effect occurs at the point of contact (skin, stomach, lungs) and inter-route extrapolation is inappropriate. Dermal toxicity values were not calculated for metals, since it is generally considered that dermal absorption of metals is so small as to be of no practical health concern. The calculations and the resulting dermal toxicity values are shown in the CTV table, Appendix 5.

4.4 Estimating Chemicals with No Toxicity Values

Inspection of Tables 4-1 and 4-2 indicate that there are ten chemicals for which there are no toxicity values. In the case of lead, considerable controversy exists concerning the appropriate toxicity value. In this risk assessment, lead will be evaluated using the Uptake/Biokinetic model (see Section 5.3). For the remaining chemicals, uncertainty exists as to whether these chemicals are present at levels which might be a cause for concern. In an attempt to bound that uncertainty, readily available toxicity information was compared to approximate (worst-case) doses posed by the Site (Table 4-3).

TABLE 4-2 SUMMARY OF CARCINOGENIC EFFECTS AND SLOPE FACTORS FOR CONTAMINANTS OF POTENTIAL CONCERN AT ORMET[a]

Chemical	Tumor Type - Route	Weight of Evidence	Slope Factor, (mg/kg-day)$^{-1}$ Oral	Inhalation
Aroclor-1242, 1248, 1254[b]	Liver-oral; inadequate but suggestive evidence of liver cancer by inhalation and dermal routes	B2	7.7E+00	--
Arsenic	Lung-inhalation; skin cancer-ingestion; limited evidence of other internal cancers by both routes	A	1.8E+00	1.5E+01
Benzene	Nonlymphocytic leukemia-inhalation and oral	A	2.9E-02	2.9E-02
Benzo(a)pyrene	Stomach-ingestion; respiratory tract-inhalation; skin-dermal[c]	B2	1.2E+01	6.1E+00
Beryllium	Lung cancer-inhalation. Osteosarcomas-injection (intravenous or intramedullary	B2	4.3E+00	8.4E+00
bis(2-ethylhexyl)phthalate	Liver-ingestion	B2	1.4E-02	--

continued-

(a) Information from IRIS Database (USEPA 1990b) or HEAST 4th Quarter (USEPA 1990a) unless otherwise noted. Only chemicals with A, B1 or B2 weight of evidence classification included here.
(b) All Aroclors evaluated by using SF developed for Aroclor 1260.
(c) Other carcinogenic PAHs to be evaluated using the benzo(a)pyrene SF are:

Benzo(a)anthracene
Benzo(b)fluoranthene
Benzo(k)fluoranthene
Chrysene
Dibenz(a,h)anthracene
Indeno(1,2,3-cd)pyrene

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Table 4-2 - continued

Chemical	Tumor Type - Route	Weight of Evidence	Slope Factor, $(mg/kg\text{-}day)^{-1}$ Oral	Inhalation
Cadmium	Lung, prostate-inhalation; insufficient evidence of carcinogenicity by oral	B1 (inhalation)	--	6.1E+00
Chloroform	Kidney and liver-inhalation and ingestion	B2	6.1E-03	8.1E-02
Chromium (VI)	Lung-inhalation	A (inhalation)	--	4.1E+01
Lead	Renal tumors-oral (ATSDR 1988a)	B2	--	--
Methylene chloride	Liver-oral and inhalation	B2	7.5E-03	1.6E-03
Nickel	Lung and nasal cancer-inhalation of nickel refinery dust. Insufficient evidence of carcinogenicity by oral route.	A (inhalation)	--	8.4E-01
Styrene	Leukemia-inhalation; lung and bronchi-oral	B2	3.0E-02	2.0E-03
1,1,2,2-Tetrachloroethane	Liver tumors-ingestion	C	2.0E-01	2.0E-01
Tetrachloroethene	Liver-inhalation and ingestion; leukemia-inhalation	B2	5.1E-02	1.8E-03
Trichloroethene	Liver-ingestion; lung cancer-inhalation	B2	1.1E-02	6.0E-03

TABLE 4-3 DOSE-RESPONSE INFORMATION FOR CHEMICALS WITH NO TOXICITY VALUES

Chemical	Available Dose-Response Information	Site Maximum Daily Dose,(a) mg/kg-day
Aluminum	Subtle differences in rat behavior at 50 mg/kg-day; at 2,700 mg/kg-day poor performance on learned tasks. (ATSDR 1990a).	5.4
Chloride	Sustained overconsumption of salt leads to hypertension (NAS 1989). Dose not available.	14
Cobalt	Cardiac, respiratory effects at a dose of 0.004 mg/kg-day in humans (ATSDR 1990d).	0.02
Dibenzofuran	No information available. Generally considered nontoxic.	0.002
Iron	Toxicity may occur in doses greater than 1.0 mg/kg-day. Lethal dose at 250 mg/kg-day (as ferrous sulfate) (NAS 1989).	4.3
Nitrogen Ammonia	Effects occur in rats at water concentrations of 500 to 1,000 mg/L	6.6
Silica	No information. Generally considered nontoxic.	123
Sulfate	Diarrhea at approximately 100 mg/L in drinking water (USEPA 1990d) or a dose 14 mg/kg-day.	24.3
Sodium	Sustained overconsumption salt leads to hypertension (NAS 1989). Dose not available.	143

(a) Sum of intake by soil (calculated by multiplying the highest detected concentration in solid samples by an ingestion rate of 100 mg/day) and groundwater (calculated by multiplying the highest detected concentration by an ingestion rate of 2 L/day) are divided by 70 kg (assumed body weight).

5.0 RISK CHARACTERIZATION

Risk characterization integrates the results of the exposure and toxicity assessments into a quantitative description of cancer and noncancer risk estimates. The method for risk characterization utilized in this baseline risk assessment is consistent with guidance provided in USEPA (1989b).

5.1 Evaluation of Carcinogenic Risks

The risk of cancer from exposure to a chemical is described in terms of the probability that an individual exposed for his or her entire lifetime will develop cancer. This value is calculated from the daily intake averaged over a lifetime (DI_L) and the SF for the chemical, as follows:

$$\text{Cancer Risk} = 1 - \exp(-DI_L \cdot SF) \quad (9)$$

In most cases (except when the product of $DI_L \cdot SF$ is larger than about 0.01), cancer risk may be estimated more simply as:

$$\text{Cancer Risk} = DI_L \cdot SF \quad (10)$$

Cancer risks are summed across all chemicals of potential concern and all exposure pathways that contribute to exposure of an individual in a given population. Typically, cancer risks of 1E-06 (one in one million) or lower are considered to be so small that they are of no practical significance. Higher cancer risk levels may be cause for concern.

Using the average lifetime daily intake values calculated as described in Section 3.4.4. and the slope factors described in Section 4.0 (see Table 4-2), estimated cancer risks were calculated for populations who may be chronically exposed at Ormet. Additional chemical- and pathway-specific results are presented in Appendix 5. The population-level results are summarized in Tables 5-1 through 5-3. Due to the inherent uncertainty in cancer risk calculations, all risk values are reported to only one significant figure. Results of these calculations indicate the estimated potential for cancer risks ranged from 3E-01 (fish ingestion) to 1E-09 (dermal contact with surface water).

For the exposure point evaluated at Proctor, estimated risks are due primarily to the potential for inhalation of airborne particulates contaminated with arsenic, chromium and PAHs. The estimated cancer risk calculated for the fish ingestion scenario is due to the PCB, Aroclor 1242 and arsenic. Considerable uncertainty exists regarding both calculations. For the off-site resident very conservative assumptions were incorporated into the assumed exposure scenario. This resident was assumed to inhale these particulates every hour of every day for an entire 70-year lifetime. This is not likely to be the actual exposure conditions. Likewise, conservatism was included in attempting to quantify fish ingestion. Whether people in the area actually eat fish caught in the Ohio River in the vicinity of Ormet was not determined.

TABLE 5-1 SUMMARY OF ESTIMATED CANCER RISKS, CURRENT EXPOSURE SCENARIOS

Exposed Population	Exposure Point	Exposure Medium	Exposure Route	Cancer Risk
Current Worker	Recreational Area	Pond 5 Particulates	Inhalation	1E-06
Current Resident, Adult	Proctor, WVA	Pond 5 Particulates	Inhalation	3E-06
	Ohio River	Fish	Ingestion	3E-01
Current Hypothetical Trespasser	Ohio River	Surface Water	Ingestion	2E-08
		Surface Water	Dermal	1E-09
		Sediments	Ingestion	3E-07
		Sediments	Dermal	4E-06
Current Hypothetical Trespasser	004 Backwater	Surface Water	Ingestion	7E-08
		Surface Water	Dermal	1E-09
		Sediments	Ingestion	2E-05
		Sediments	Dermal	2E-04

TABLE 5-2 SUMMARY OF ESTIMATED CANCER RISKS - HYPOTHETICAL FUTURE SCENARIOS[a]

Exposed Population	Exposure Point	Exposure Medium	Exposure Route	Cancer Risk
Future Worker, No-Pumping Scenario	CAC Drinking Water Well	Groundwater	Ingestion	1E-03
Future Resident (Adult)	Pond 5 - Downwind	Pond 5 Particulates	Inhalation	2E-05
Future Resident (Adult)	Future Drinking Water Well	Groundwater	Ingestion	5E-03
	Ohio River	Surface Water	Ingestion	1E-07
	Ohio River	Surface Water	Dermal	4E-09
	Ohio River	Sediments	Ingestion	2E-06
	Ohio River	Sediments	Dermal	2E-05
	Ohio River	Fish	Ingestion	3E-01
	004 Backwater	Surface Water	Ingestion	4E-07
	004 Backwater	Surface Water	Dermal	1E-08
	004 Backwater	Sediments	Ingestion	8E-05
	004 Backwater	Sediments	Dermal	8E-04

(a) Hypothetical future residential soil pathway scenarios are summarized in Table 5-3.

TABLE 5-3 SUMMARY OF ESTIMATED CANCER RISKS, HYPOTHETICAL FUTURE RESIDENTIAL EXPOSURE SCENARIOS - SOIL PATHWAYS

Exposure Point	Exposure Medium	Exposure Route	Cancer Risk
Pond 5	Soil	Ingestion	7E-04
		Dermal	5E-09
		Total:	7E-04
Pond 1-4	Soil	Ingestion	3E-03
		Dermal	8E-08
		Total:	3E-03
Potliner	Soil	Ingestion	2E-02
		Dermal	5E-08
		Total:	2E-02
Carbon Runoff Area	Soil	Ingestion	2E-03
		Dermal	9E-04
		Total:	3E-03
Construction Material Scrap Dump	Soil	Ingestion	1E-02
		Dermal	3E-04
		Total:	1E-02

Additionally, one river water sample used in the exposure point calculation (the one which contained the PCB) is probably not representative of concentrations in the river as a whole. This sample was taken in the area of the 004 discharge to the Ohio River. The sampling location was within an oil sheen on the river and would not account for the effects of river dilution. The cancer risk from ingestion of arsenic in fish may also be too high, since most arsenic that accumulates in fish is in a nontoxic organic form.

For the assumed hypothetical trespasser scenarios, the incidental ingestion of and dermal contact with sediments in the backwater area pose the highest estimated risks. Again, this is due primarily to PAHs and the PCB, Aroclor 1248. The hypothetical trespasser along the river bank is potentially exposed to less contaminated river sediments. The estimated cancer risk in this scenario is also attributable to PCB and PAH contamination.

Table 5-2 summarizes estimated cancer risks for all hypothetical future scenarios except those involving soil pathways. Results of these calculations indicate the potential for cancer risks ranging from 5E-03 to 4E-09. Estimated risk from ingestion of the groundwater either in a hypothetical occupational, no-pumping scenario or in a hypothetical future drinking water well scenario poses estimated risks from 1E-03 to 5E-03. Arsenic, beryllium and tetrachloroethylene are the contributing chemicals. If a future residence were built just downwind of Pond 5, estimated cancer risks from particulate inhalation (2E-05) might occur. Arsenic, chromium and PAHs are the contributing chemicals.

Hypothetical future resident ingestion of fish from the river might be expected to pose an excess cancer risk (3E-01) due to the PCB, Aroclor 1242, detected in the river water. The only other hypothetical future river scenarios that might pose unacceptable risk are dermal exposures to river sediments either along the river or in the backwater area. This is due primarily to the presence of a PCB, Aroclor 1248 and PAHs.

As shown in Table 5-3, estimated cancer risks may be posed by several chemicals in the soils at each of the exposure points where a future residence might be built. For the CMSD and CRDA both ingestion and dermal routes pose estimated risks in excess of 1E-06. The contributing chemicals include arsenic, beryllium, PAHs and the PCB, Aroclor 1248. At other assumed exposure points, the same chemicals contribute to estimated risk with the exception of PCBs, which were not detected or analyzed for in these areas.

It should be remembered that dermal exposures to PAHs cannot be quantified in any scenario because of a lack of an appropriate toxicity value. Since PAHs can be carcinogenic at dermal exposure sites, these risk calculations are likely to underestimate total risk from PAHs in these scenarios.

5.2 Evaluation of Noncarcinogenic Effects

The potential for noncarcinogenic effects is evaluated by comparing an intake over a specific time period with the RfD derived for a similar exposure period. This comparison results in a noncancer hazard quotient as follows:

$$HQ = DI/RfD \qquad (11)$$

where:

HQ = Hazard Quotient for subchronic (HQ_S) or chronic (HQ_C) exposure
DI = Daily Intake (mg/kg-day), either from subchronic (DI_S) or chronic (DI_C) exposure
RfD = Reference Dose (mg/kg-day), either for subchronic (RfD_S) or chronic (RfD_C) exposure

This procedure assumes that there is a level of exposure below which it is unlikely that even sensitive subpopulations will experience adverse health effects. There may be concern for potential noncancer effects if DI exceeds the threshold represented by the RfD. It must be noted that the slopes of dose-response curves vary widely among chemicals. Therefore, although generally the greater the value of DI/RfD the more cause for concern, this level of concern does not necessarily increase linearly either as the RfD is approached or exceeded. The RfDs are not equally precise or accurate and the toxic effects are not as equally toxic among chemicals.

Since exposure occurs simultaneously to more than one chemical, in order to assess the overall potential for noncarcinogenic effects, a screening level hazard index is first calculated, as follows:

$$HI = HQ_1 + HQ_2 + HQ_3 \ldots . HQ_i \qquad (12)$$

where:

HI = Screening level hazard Index for either subchronic or chronic exposure
HQ_1 = Hazard Quotient for the first chemical
HQ_i = Hazard Quotient for the i^{th} chemical

The HQ values all represent the same exposure period (subchronic or chronic) and are summed for all chemicals and all pathways that contribute to the exposure of an individual in a given population. If the screening level HI is equal to or less than one (1E+00), it is believed noncarcinogenic health effects will not occur. If a screening level HI exceeds 1E+00, there is some possibility that noncarcinogenic effects may exist although an HI above 1E+00 does not indicate an effect will occur. In particular, the screening-level approach assumes that the risks from all noncarcinogenic chemicals are additive. However, in many cases, effects caused by one chemical on a particular tissue (e.g., the liver) will not be influenced by the effects of another chemical on a different tissue (e.g., the kidney). Thus, when the screening-level HI exceeds 1E+00, it is then necessary to perform a more detailed analysis in which effects are summed only after segregation according to target tissue (USEPA 1989b).

The methods for calculation of average daily intakes (DI_S and DI_C) were summarized in Section 3.0, and chemical specific RfD values were summarized in Section 4.0 (Table 4-1). Based on these, HQ and HI values for subchronic

(HI_S) and chronic (HI_C) exposures were calculated for each exposure scenario evaluated at this site. Because of the uncertainty inherent in calculation of HQ values, all HQs are reported to only one significant figure. The detailed calculations are presented in Appendix 5 and results are summarized in Tables 5-4 through 5-6.

As shown in Table 5-4, no hazard indices calculated for current exposure scenarios exceed 1E+00. However, as shown in Table 5-5, some hazard indices may exceed one for future hypothetical scenarios. In a future no-pumping scenario, HIs calculated for the groundwater ingestion pathway both for workers and residents could range from 80 to 600. Fluoride accounts for nearly all of this risk, although cyanide, arsenic, manganese (child only) and vanadium (child only) individually contribute doses that each exceed the corresponding reference dose values (i.e., the HQ for each chemical exceeds 1E+00).

No HIs calculated for future hypothetical residential soil pathways exceed 1.0E+00 for adults. For children, HIs calculated for the soil pathway exceed 1.0 at Ponds 1 to 4 and the CRDA. At these exposure points nearly all potential risk is contributed by arsenic (HQ of 1E+00 in Ponds 1 to 4; HQ of 2E+00 in the CRDA). Antimony and vanadium each contribute HQs of nearly 1E+00. The major critical effects of each chemical are different (see Table 4-2), therefore, it is appropriate to evaluate risk for this pathway on a chemical-by-chemical basis. Therefore the only HQ that exceeds 1E+00 is arsenic at the CRDA.

5.3 Evaluation of Risks from Lead Exposure

Since there are no EPA-approved RfD values for lead, it is not possible to evaluate the noncancer risks of lead by calculation of a Hazard Index. An alternative approach is to estimate the likely effect of lead exposure on the concentration of lead in the blood (PbB). Several mathematical models have been developed for calculating the value of PbB as a function of environmental concentrations of lead (USEPA 1989c). Of these, the Uptake/Biokinetic (UBK) model has the greatest flexibility and has been most thoroughly validated, so it is selected for use here. The basic equations for calculating PbB with the UBK model is:

$$PbB = \left(\Sigma\ C_i \cdot I_i \cdot ABS_i \right) \cdot BKSF \qquad (13)$$

where:

C_i = Concentration of lead in medium i (µg/unit medium)
I_i = Human intake of medium i (units medium/day)
ABS_i = Absorption fraction of lead from medium i (unitless)
BKSF = Biokinetic slope factor related blood lead to absorbed dose. The units of BKSF are µg/dL per µg/day.

TABLE 5-4 SUMMARY OF ESTIMATED NONCARCINOGENIC RISKS, CURRENT EXPOSURE SCENARIOS

Exposed Population	Exposure Point	Exposure Medium	Exposure Route	Hazard Index
Current Worker	Recreational Area	Pond 5 Particulates	Inhalation	7E-02
Current Resident, Adult	Proctor, WVA	Pond 5 Particulates	Inhalation	7E-02
	Ohio River	Fish	Ingestion	3E-01
Current Resident, Child (subchronic)	Proctor, WVA	Pond 5 Particulates	Inhalation	8E-02
	Ohio River	Fish	Ingestion	9E-01
Current Hypothetical Trespasser	Ohio River	Surface Water	Ingestion	2E-03
		Surface Water	Dermal	5E-07
		Sediments	Ingestion	4E-04
		Sediments	Dermal	6E-04
Current Hypothetical Trespasser	Backwater Area (004)	Surface Water	Ingestion	2E-03
		Surface Water	Dermal	3E-07
		Sediments	Ingestion	3E-04
		Sediments	Dermal	6E-05

TABLE 5-5 SUMMARY OF ESTIMATED NONCARCINOGENIC RISKS - HYPOTHETICAL FUTURE SCENARIOS[a]

Exposed Population	Exposure Point	Exposure Medium	Exposure Route	Hazard Index
Future Worker, No-Pumping Scenario	CAC Drinking Water Well	Groundwater	Ingestion	8E+01
Future Resident, Adult	Pond 5 - Downwind	Pond 5 Particulates	Inhalation	4E-01
Future Resident, Child	Pond 5 - Downwind	Pond 5 Particulates	Inhalation	5E-01
Future Resident, Adult	Future Drinking Water Well	Groundwater	Ingestion	1E+02
	Ohio River	Surface Water	Ingestion	2E-03
	Ohio River	Surface Water	Dermal	2E-07
	Ohio River	Sediments	Ingestion	3E-04
	Ohio River	Sediments	Dermal	3E-05
	Ohio River	Fish	Ingestion	3E-01
	004 Backwater	Surface Water	Ingestion	1E-03
	004 Backwater	Surface Water	Dermal	4E-07
	004 Backwater	Sediments	Ingestion	2E-04
	004 Backwater	Sediments	Dermal	3E-05
Future Resident, Child	Future Drinking Water Well	Groundwater	Ingestion	6E+02
	Ohio River	Surface Water	Ingestion	7E-03
	Ohio River	Surface Water	Dermal	2E-07
	Ohio River	Sediments	Ingestion	1E-03
	Ohio River	Sediments	Dermal	6E-05
	Ohio River	Fish	Ingestion	9E-01
	004 Backwater	Surface Water	Ingestion	7E-03
	004 Backwater	Surface Water	Dermal	1E-07
	004 Backwater	Sediments	Ingestion	8E-04
	004 Backwater	Sediments	Dermal	9E-05

(a) Future residential soil pathway scenarios summarized in Table 5-7.

TABLE 5-6 SUMMARY OF ESTIMATED NONCARCINOGENIC RISKS - HYPOTHETICAL FUTURE RESIDENTIAL SOIL PATHWAYS

Exposure Point	Exposure Route	Hazard Index[a] Resident Adult	Resident Child
Pond 5	Ingestion	2E-01	1E+00
	Dermal	5E-05	2E-04
	Total:	2E-01	1E+00
Ponds 1-4	Ingestion	4E-01	3E+00
	Dermal	4E-04	3E-03
	Total:	4E-01	3E+00
Potliner	Ingestion	1E-01	8E-01
	Dermal	5E-04	2E-03
	Total:	1E-01	8E-01
CRDA	Ingestion	5E-01	3E+00
	Dermal	9E-05	5E-04
	Total:	5E-01	3E+00
CMSD	Ingestion	2E-01	1E+00
	Dermal	3E-03	3E-02
	Total:	2E-01	1E+00

(a) For the adult this is a chronic hazard index; for the child the hazard index is subchronic.

In general, the values of I, ABS and BKSF are all age dependent, and the value of PbB at any given age is a complex function of both current and past lead exposure levels. It is commonly agreed that young children are more susceptible to the effects of lead than older children or adults, since (1) young children tend to have higher exposure levels (especially to soil), (2) young children have higher lead absorption rates and (3) the nervous system of infants and young children is more sensitive to the neurological effects of lead.

The USEPA has developed a computer program ("LEAD4") for calculating lead exposures and the resulting PbB values in children age 0 to 6. This program was used to evaluate the effects of lead in environmental media on children at this site. It should be noted that these calculations include lead exposure from all sources (including food and area-wide emissions to air), and not just those specifically derived from the site (soil and water). Most input parameters (e.g., body weight, water intake, soil intake, breathing rate, concentration of lead in air and lead intake from the diet) were taken to be the national average values suggested as defaults by the USEPA. The concentrations of lead in soil and water were the site-specific values calculated as described in Section 3.0 for current and future residential scenarios.

Table 5-7 summarizes the results. Although there is no universally agreed upon value of PbB that may be identified as "safe" for the effects of lead on children, the USEPA has identified 10 to 15 µg/dL as a range of concern for health effects in children that warrants avoidance (USEPA 1988e). As shown in Table 5-7, geometric blood lead values are predicted to range from 3.2 to 4.8 µg/dL for the various populations, and essentially no members of the exposed populations are expected to have values exceeding 15 µg/dL. On this basis, it appears that lead in surface soil or water is not a reason for significant concern.

5.4 Risk Summary

It is recognized that at the Ormet site individuals from both current and hypothetical future populations may be exposed to contaminants of potential concern through several pathways. Total exposure equals the exposures by all pathways. However, estimated risks are not routinely summed without giving consideration to the following:

- Identification of reasonable exposure pathway combinations
- Examination of whether the same individual could consistently face the reasonable maximum by more than one pathway

Estimated risks should not be combined if two pathways do not affect the same population. Likewise, if the same population is not likely to face the reasonable maximum in each pathway, risks should not be combined.

At the Site the following combinations are considered reasonable:

- A future Ormet worker might be exposed to both Pond 5 emissions and the contaminated groundwater (in a hypothetical future no-pumping scenario)

TABLE 5-7 SUMMARY OF LEAD EXPOSURES AND EXPECTED BLOOD LEVELS IN CHILDREN (AGE 0 to 6)

Residental Exposure Point	Medium	Assumed Concentration[(a)]	Predicted Blood Lead Values: Geometric Mean, µg/dL	Predicted Blood Lead Values: Percent Below 10 µg/dL	Predicted Blood Lead Values: Percent Below 15 µg/dL
Current, Proctor	Soil/Dust	200 µg/g*	3.24	99.94	100
	Water	4 µg/L*			
	Air	0.2 µg/m^3*			
Future, Pond 5 (downwind)	Soil/Dust	200 µg/g*	4.78	98.37	99.95
	Water	28 µg/L			
	Air	0.2 µg/m^3*			
Future, on Pond 5	Soil/Dust	29 µg/g	3.34	99.92	100
	Water	28 µg/L			
	Air	0.2 µg/m^3*			
Future, Ponds 1-4	Soil/Dust	140 µg/g	4.28	99.26	99.99
	Water	28 µg/L			
	Air	0.2 µg/m^3*			
Future, Potliner	Soil/Dust	27 µg/g	3.32	99.93	100
	Water	28 µg/L			
	Air	0.2 µg/m^3*			
Future, CRDA	Soil/Dust	53 µg/g	3.54	99.86	100
	Water	28 µg/L			
	Air	0.2 µg/m^3*			
Future, CMSD	Soil/Dust	83 µg/g	3.79	99.7	100
	Water	28 µg/L			
	Air	0.2 µg/m^3*			

(a) * Indicates default value used in model.

- Hypothetical future residents would be reasonably expected to be exposed via all quantified pathways

Table 5-8 summarizes these estimated risks for exposures to carcinogenic contaminants. These values are presented such that total estimated risk exclusive of the fish ingestion pathway is also included. It is recognized that the addition of all residential scenarios results in a carcinogenic risk summation that is likely to be greater than the reasonable maximum (as defined as the 95th percentile of the distribution). It is unlikely that any current or hypothetical future resident would consistently face a reasonable maximum exposure from every pathway quantified in this risk assessment.

TABLE 5-8 ESTIMATED CUMULATIVE CANCER RISKS

Exposed Population (Exposure Point)	Hypothetical Future Scenarios							
	Soil[a]	Air[b]	Groundwater[c]	River[d]	004 Backwater[d]	Sub-Total[e]	Fish Ingestion[f]	Total
Future Worker (Recreational Area)	--[g]	1E-06	1E-03	--	--	1E-03	--	1E-03
Future Resident (Downwind Pond 5)	--	2E-05	5E-03	2E-05	9E-04	6E-03	3E-01	3E-01
Future Resident (Pond 5)	7E-04	--	5E-03	2E-05	9E-04	7E-03	3E-01	3E-01
Future Resident (Ponds 1-4)	3E-03	--	5E-03	2E-05	9E-04	9E-03	3E-01	3E-01
Future Resident (Potliner)	2E-02	--	5E-03	2E-05	9E-04	3E-02	3E-01	3E-01
Future Resident (Carbon Runoff)	3E-03	--	5E-03	2E-05	9E-04	9E-03	3E-01	3E-01
Future Resident (Construction Material Scrap Dump)	1E-02	--	5E-03	2E-05	9E-04	2E-02	3E-01	3E-01

(a) Includes ingestion and dermal exposures. Values from Table 5-3.
(b) From Table 5-1. Value for current worker assumed to equal value for future worker.
(c) From Table 5-2.
(d) From Table 5-2. Includes both ingestion of and dermal contact with surface water and sediments. Fish ingestion scenario not included here.
(e) Exclusive of fish ingestion scenario.
(f) From Table 5-5.
(g) "--" indicates pathway not quantified.

6.0 ASSESSMENT OF UNCERTAINTIES

There are a number of factors that can introduce uncertainty into any exposure and risk estimate. This section attempts to identify those key factors and assumptions that contribute uncertainty to the evaluation of risks at Ormet.

Selection of Contaminants of Potential Concern

The selection of contaminants of potential concern at Ormet was designed to include all chemicals identified at the site that are most likely to be of human health concern. Three procedures were used to eliminate chemicals (nondetection, infrequent detection and nutritional essentiality). The chemicals not selected because of nutritional essentiality have low toxicity and their elimination is unlikely to result in a major error. Chemicals eliminated because of infrequent and low detection are also not likely to introduce a major error. Elimination of the remaining chemicals because they were not detected in any environmental sample is not likely to result in a major error. Use of analytical methods that are not sensitive enough to detect chemical concentrations that represent risk at 1E-06 is, however, a source of uncertainty. It is simply not known if the chemicals associated with these methods are or are not present at Ormet. Another source of uncertainty is the large number of tentatively identified compounds reported. Both the identity and concentration of these chemicals are clearly uncertain. The variety of TICs reported clearly indicate that the wastes disposed at Ormet were probably both heterogeneous and have undergone a variety of fate and transformation processes.

Exposure Pathways Not Evaluated

Several potential exposure pathways were not quantified at this site. They include incidental contact with seeps, inhalation of volatiles during showering (or other similar household uses) and inhalation of volatile emissions from the ponds. It does not appear that any of these pathways contribute significantly to exposures, however, their omission is a source of uncertainty and may lead to an underestimate of risk.

Emission and Transport Modeling

There are numerous uncertainties in modeling of any kind. For both the emissions and air diffusion and transport models numerous assumptions were used. These are presented in Table 6-1. It is apparent from Table 6-1 that neither the magnitude nor direction of the uncertainty involved can be predicted. In addition, the level of uncertainty in the modeling effort can be magnified since the output of the emissions modeling becomes the input to the air dispersion and transport modeling.

A reality check (Appendix 2) was performed on the modeling output and the results appeared reasonable except for one location where modeling overpredicted monitored concentrations.

TABLE 6-1 CHARACTERIZATION OF MODELING UNCERTAINTIES

Model	Key Assumptions	Potential Impact on Risk
Emissions (Cowherd et al. 1985)	Uniform contamination of a symmetrical area.	Unknown
	Contaminant concentrations in PM_{10} are the same as contaminant concentrations in pond solids.	Unknown
	Wind and mechanical entrainment processes are continuous and steady.	Overestimate
	Values for all site-specific parameters are those estimated (e.g., roughness height, average annual wind speed, percent vegetation).	Unknown
Transport (TRC 1990)	Emission rate of PM_{10} is accurate as calculated.	Unknown
	Contaminant concentrations in PM_{10} are the same as contaminant concentrations in pond solids.	Unknown
	Values for all site-specific parameters are those estimated (e.g., roughness height, predominant wind direction, wind dependence, annual average wind speed, area of each sector).	Unknown
	Model can accurately account for site specific conditions such as the occurrence of drainage winds in side valleys and river valley stagnation.	Unknown

Environmental Fate and Transport

The evaluation of human health risks assumes that environmental media concentrations determined from sampling will remain at the same levels over a human lifetime. This assumption is likely to result in an overestimate of risk, since concentrations are expected to decline over the long-term as natural fate and transport processes degrade or remove site contaminants. The impact of this assumption is probably not great at Ormet since the contaminants of concern are primarily metals, PAHs and PCBs. These chemicals tend to persist in the environment.

Estimation of Exposure Point Concentrations

The exposure point concentrations used for assessing risks are the upper bound (95% upper confidence limit of the arithmetic mean) in most instances. This calculation assumes that the sample values are normally distributed. Since most of the contaminants were detected in nearly all the samples, this assumption is not likely to result in high uncertainty.

Non-CLP analyses for solid samples were utilized at the values reported on the laboratory forms furnished by Ormet. After calculations were performed, information was received that the values were expressed as wet weight rather than as dry weight. The exposure point calculations for fluoride in soil exposure pathways are, therefore, underestimated. (None of the fluoride HQs in soil pathways approached a level of concern.)

Estimation of risks from exposure to chemicals in surface water in the backwater area is based on measurements at a single sampling location (SW-5) at the mouth of the 004 discharge stream near its confluence with the river. In general, the concentration values in the SW-5 sample are greater than or similar to the values reported in Outfall 004 discharge monitoring report (Table 2-8). Therefore, while some values are slightly higher in the Outfall 004 discharge, the impact of not using the higher 004 discharge values on risk estimates is believed to be small and not enough to change the conclusions of the risk assessment.

Calculation of the exposure point calculation for the fish ingestion scenario used a sample (at SW-9) taken within the mixing zone of Outfall 004 and the river. Dilution of the contaminants in the river was not accounted for in this calculation and probably represents an overestimate of risk.

Exposure Levels

The amount of exposure which an individual receives is highly dependent on the details relating to the human activities in which that individual participates. As discussed in Section 3.0 there is considerable uncertainty regarding the values assumed in calculating human intake factors. For instance, estimates of parameters involved in calculating river exposures are based almost entirely on professional judgment. Estimates of soil ingestion rates for children and adults in residential settings is subject to on-going debate - assumptions for a trespasser or a worker are even more uncertain.

When faced with significant uncertainties in the appropriate values to use in the derivation of HIF terms, an effort was made to employ conservative (but not entirely unrealistic) values. As a result of this approach, it is likely that some calculated estimates of risk are higher than actual, but it is unlikely that any of the calculated risks are significantly lower.

Bioavailability

When chemicals are mixed in soil, sediment or pond solids, the amount absorbed into the body may be less than the amount absorbed when the chemical is free. This is most likely to be true for metals and cyanide. Results from the cyanide amenable to chlorination analyses suggest that most of the cyanide present on site is in a complex resistant to the chlorination method. This might suggest that little of the cyanide is bioavailable; however, the amenable to chlorination method does not predict the total amount of decomplexation that might occur in the gastrointestinal tract or lungs. Risk estimates for cyanide may therefore be overestimated since total cyanide was used in the risk calculations. Use of cyanide amenable to chlorination would, however, underestimate risk. One hundred percent bioavailability has been assumed for all contaminants of potential concern since no other data are available. This is likely to lead to some overestimation of exposure and risk, but the magnitude of the error cannot be stated.

Quantification of the Fish Ingestion Pathway

Considerable uncertainty exists in the quantification of the fish ingestion pathway. The overestimate of the sample concentration value mentioned previously and the assumptions regarding human activity patterns (i.e., how much fish from the Ohio River is actually consumed by residents) will overestimate risk. However, application of the BCF factor in lieu of actual PCB concentrations in edible fish tissue may underestimate risk. Fish that are likely to be consumed could also feed on other biota in the river that may be accumulating or magnifying PCBs in the river. Use of the BCF factor for quantifying fish ingestion exposures via arsenic may also overestimate cancer risks since most arsenic that accumulates in fish is in a nontoxic organic form.

Absence of Toxicity Values

Quantification of risk from exposure to a chemical cannot be accomplished in the absence of reliable, appropriate toxicity values (reference doses, slope factors). For the chemicals of potential concern at Ormet, toxicity values are not available for some chemicals by some routes (see Table 4-1 and 4-2). The absence of these values is likely to result in an underestimate of both noncancer and cancer health risks at the site, but it is not possible to estimate the magnitude of this underestimate. Table 4-3 suggests there might be a concern for iron, sodium and chloride in the groundwater; however, this has not been quantified. Dermal toxicity values for some organic compounds were derived by extrapolating from oral values. An oral absorption factor of 100% was assumed. If the true absorption factor for a given compound is indeed lower, then the corresponding RfD would be lower (or the slope factor would be higher). This assumption may have underestimated risk from dermal exposures.

Cancer Risk Estimates

The predicted cancer risk due to chemical exposure is often based on cancer dose-response data in animals. There is a long-standing controversy in the scientific community as to the best way by which animal data should be extrapolated to humans, if at all. In general, the USEPA follows a very conservative procedure in the derivation of slope factors, so cancer risk estimates based on these values could be considerably higher than the true risk. In addition, risk estimates are based on an assumed lifetime exposure at the site, even though this may not be true in all cases.

Cancer risks were not calculated for children, since cancer is primarily a chronic disease of adulthood. If an exposed child remained in the area for his/her lifetime, the cancer risk to that individual would be approximately equal to the cancer risk calculated for an adult in the same area. If an individual was exposed during childhood and then moved from the area, the excess lifetime cancer risk to that individual would presumably be somewhere between zero and the risk associated with continued residence in the area. However, at present there is no scientifically accepted procedure for estimating cancer risk for less than lifetime exposures, particularly in children.

Carcinogenic Risks to PAHs

The total of known or suspected carcinogenic PAHs in each sample was used to estimate exposure point concentrations for evaluation of carcinogenic risks. This approach may underestimate potential cancer risks if additional studies show that PAHs present in the samples or as TICs are indeed carcinogenic. On the other hand, the slope factor for benzo(a)pyrene was used to estimate cancer risk from all carcinogenic PAHs. If cancer potency factors for other PAHs turn out to be lower than that derived for benzo(a)pyrene, then current estimates of risks are probably overly conservative.

An additional source of uncertainty is the validity of the cancer potency factor for benzo(a)pyrene for both the inhalation and oral routes. Currently, these values are under review by the USEPA and are subject to change.

Noncarcinogenic Risks to PAHs

The RfD for naphthalene was used to estimate the magnitude of risks to noncarcinogenic risks to all PAHs which do not have references doses. There is considerable uncertainty involved as to whether exposure to any PAH will result in adverse effects similar in type and magnitude to those of naphthalene. The current estimates of noncarcinogenic risks to these PAHs are probably overly conservative.

Noncarcinogenic Risks to Lead Exposure

Lead is often a contaminant of considerable concern due to its ability to affect the nervous system of fetuses or children, even at relatively low environmental levels. As presented in Section 5.3, the USEPA has developed a model for estimating the likely change in blood lead level that can be

attributed to lead exposure at waste sites. Although this calculation is subject to a number of uncertainties, the predicted blood lead values at this site are sufficiently below the level of health concern that the conclusion (that lead exposure is not a major concern at this Site) is relatively certain.

Exposure to Multiple Chemicals

The hazard index approach assumes dose additivity among chemicals ignoring both synergistic and antagonistic effects among chemicals. There is, however, no evidence of synergism among the chemicals evaluated at Ormet, therefore the assumption of dose additivity is not likely to introduce a major error.

Summary of Uncertainties

In summary, estimations of exposure and risk are subject to a number of uncertainties that may lead to either an overestimate or underestimate of risk.

Assumptions made in this risk assessment that are likely to overestimate risk include:

- Soil ingestion rates for all exposed populations.
- Future residents will often frequent the Ohio River.
- Workers are exposed for 25 years.
- Residents are exposed for 70 years.
- All carcinogenic PAHs are as potent as benzo(a)pyrene.
- Contaminants in pond solids and soil are fully bioavailable.
- Slope factors are equal to the 95% confidence limit of the best estimate of the slope of the dose-response curve.
- River water samples are representative of diluted river contaminants.
- Organic forms of arsenic that are likely to accumulate in fish tissue are as toxic as inorganic arsenic compounds.

Factors made in this risk assessment that are likely to underestimate risk:

- Not all conceivable pathways for all chemicals were quantified.
- Complete (100%) oral absorption assumed in the extrapolation for dermal toxicity values.
- Toxicity values not available for every chemical, for every exposure duration, for all exposure routes.

- Wet weight sample values for non-CLP parameters were utilized in exposure point concentration calculations.

Factors in which the direction of the uncertainty cannot be determined or are unknown include:

- Use of best professional judgment in estimating key parameters for emissions modeling, air modeling and exposure factors.
- Use of the one-half detection limit in calculating exposure point concentrations for samples where a specific chemical was not detected.
- Analytical variations in chemical analyses.
- The estimation of risks from lead utilizing likely changes in blood lead level.
- Use of bioconcentration factors to estimate fish tissue concentrations.

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APPENDIX 1

SAMPLING SUMMARY TABLES

The tables contained in this section summarize sampling results from data collected at the Ormet site. They include:

Table	Title	Page
A1-1	Disposal Ponds	A1-3
A1-2	Potliner	A1-10
A1-3	Carbon Runoff Deposition Area	A1-17
A1-4	Construction Material Scrap Dump	A1-24
A1-5	Seeps	A1-31
A1-6	Monitoring Wells	A1-38
A1-7	River Sediments	A1-45
A1-8	River Water	A1-52
A1-9	TIC Summary	A1-60
A1-10	CAC Drinking Water Well	A1-65

TABLE A1-1 SUMMARY OF SAMPLING DATA FROM THE ORMET DISPOSAL PONDS[a]

Chemical	Selected as Chemical of Potential Concern[b]	Frequency of Detection[c]	Range of U Values[d]	Range of Detected Concentrations
INORGANICS				
Aluminum[d]	*	48/48	-	616-199,000
Antimony	*	42/48	6.2-11.0	7.6-88
Arsenic	*	48/48	-	15-123
Barium	*	48/48	-	17-848
Beryllium	*	48/48	-	1.0-14
Cadmium	*	2/48	0.88-1.8	1.8-2.7
Calcium	EN	48/48	-	586-352,000
Chromium (total)	*	48/48	-	6.4-119
Cobalt	*	48/48	-	2.0-19
Copper	EN	47/48	3.9	12-130
Iron	*	48/48	-	3,180-13,600
Lead	*	48/48	-	2.3-214
Magnesium	EN	48/48	-	172-6,010
Manganese	*	48/48	-	13-227
Mercury	*	9/48	0.088-0.2	0.14-0.59

continued-

(a) Units are mg/kg for all values.
(b) Asterisk indicates chemical was selected for quantification in the risk assessment. Reasons for eliminating the chemical are:
ND: Not detected in any sample.
FD: Eliminated based on infrequent detection in samples.
EN: Eliminated based on essential nutritionality.
(c) Number of times chemical detected/number of samples taken.
(d) U values defined as the Instrument Detection Limit for CLP inorganic chemicals and the Contract-Required Detection Limit (adjusted for sample moisture and dilution) for CLP organic compounds.

Table A1-1 - continued

Chemical	Selected as Chemical of Potential Concern	Frequency of Detection	Range of U Values	Range of Detected Concentrations
INORGANICS - continued				
Nickel	*	47/48	6.4	19-656
Potassium	EN	6/48	495-1,020	810-2,510
Selenium[a]	EN	-	-	-
Silver	*	2/48	0.95-2.0	2-2.4
Sodium	*	47/48	321	6,410-69,400
Thallium	*	2/48	0.41-0.81	0.67-1.2
Vanadium	*	47/47	-	13-741
Zinc	EN	48/48	-	13-170
Cyanide	*	46/48	0.63-0.85	1.8-294
Non-CLP INORGANICS				
Nitrogen, ammonia	*	32/46	13	13-140
Fluoride	*	46/46	-	31-7,200
Silica	*	35/46	8	8-79
Cyanide, total	*	43/46	1	2-430
Cyanide, amenable	*	19/46	1	1-120
Chloride	*	44/46	4	4-350
Sulfate	*	46/46	-	34-8,000
Tin, total	FD	NA[b]		
ORGANICS:				
Volatiles				
Chloromethane	ND	0/71	0.01-0.022	-
Bromomethane	ND	0/71	0.01-0.022	-
Vinyl chloride	ND	0/71	0.01-0.022	-

(a) All sample values were qualified with R - unusable.
(b) NA - Compound not analyzed for.

continued-

Table A1-1 - continued

Chemical	Selected as Chemical of Potential Concern	Frequency of Detection	Range of U Values	Range of Detected Concentrations
Volatiles - continued				
Chloroethane	ND	0/71	0.01-0.022	-
Methylene chloride	*	38/71	0.01-0.63	0.002-0.198
Acetone	*	20/71	0.004-0.16	0.003-0.22
Carbon disulfide	*	23/71	0.005-0.019	0.002-0.079
1,1-Dichloroethene	FD	0/71	0.005-0.011	-
1,1-Dichloroethane	FD	0/71	0.005-0.011	-
1,2-Dichloroethene (total)	FD	0/71	0.005-0.011	-
Chloroform	*	55/71	0.002-0.01	0.004-0.039
1,2-Dichloroethane	ND	0/71	0.005-0.011	-
2-Butanone	*	1/71	0.01-0.022	0.009
1,1,1-Trichloroethane	*	1/71	0.005-0.011	0.004
Carbon tetrachloride	ND	0/71	0.005-0.011	-
Vinyl acetate	ND	0/71	0.01-0.022	-
Bromodichloromethane	ND	0/71	0.005-0.011	-
1,2-Dichloropropene	ND	0/71	0.005-0.011	-
cis-1,3-Dichloropropene	ND	0/71	0.005-0.011	-
Trichloroethene	*	1/71	0.005-0.011	0.002
Dibromochloromethane	ND	0/71	0.005-0.011	-
1,1,2-Trichloroethane	ND	0/71	0.005-0.011	-
Benzene	*	30/71	0.003-0.01	0.002-0.025
trans-1,3-Dichloropropene	ND	0/71	0.005-0.011	-
Bromoform	ND	0/71	0.005-0.011	-
4-Methyl-2-pentanone	FD	0/71	0.01-0.022	-
2-Hexanone	FD	0/71	0.01-0.022	-
Tetrachloroethene	*	4/71	0.005-0.011	0.002-0.047
1,1,2,2-Tetrachloroethane	*	1/71	0.005-0.011	0.006
Toluene	*	19/71	0.002-0.011	0.002-0.006
Chlorobenzene	*	2/71	0.005-0.011	0.002-27
Ethylbenzene	*	1/71	0.005-0.011	0.008
Styrene	*	1/71	0.005-0.011	0.002
Xylene (total)	FD	1/71	0.005-0.011	0.013

continued-

Table A1-1 - continued

Chemical	Selected as Chemical of Potential Concern	Frequency of Detection	Range of U Values	Range of Detected Concentrations
Semivolatiles				
Phenol	FD	0/52	0.33-33	-
bis(2-Chloroethyl) ether	FD	0/52	0.33-33	-
2-Chlorophenol	ND	0/52	0.33-33	-
1,3-Dichlorobenzene	ND	0/52	0.33-33	-
1,4-Dichlorobenzene	FD	0/52	0.33-33	-
Benzyl alcohol	ND	0/52	0.33-33	-
1,2-Dichlorobenzene	ND	0/52	0.33-33	-
2-Methylphenol	FD	1/52	0.41-33	0.043
bis(2-2-Chloroisopropyl) ether	FD	0/52	0.33-33	-
4-Methylphenol	*	1/52	0.41-33	0.061
N-Nitroso-di-n-dipropylamine	ND	0/52	0.33-33	-
Hexachloroethane	ND	0/52	0.33-33	-
Nitrobenzene	ND	0/52	0.33-33	-
Isophorone	FD	0/52	0.33-33	-
2-Nitrophenol	ND	0/52	0.33-33	-
2,4-Dimethylphenol	*	0/52	0.33-33	-
Benzoic acid	FD	0/49	1.65-33	-
bis(2-Chloroethoxy)methane	ND	0/52	0.33-33	-
2,4-Dichlorophenol	FD	0/52	0.33-33	-
1,2,4-Trichlorobenzene	FD	0/52	0.33-33	-
Naphthalene	*	36/52	0.47-33	0.076-3.7
4-Chloroanaline	ND	0/52	0.33-33	-
Hexachlorobutadiene	FD	0/52	0.33-33	-
4-Chloro-3-methylphenol	FD	0/52	0.33-33	-
2-Methylnaphthalene	*	34/52	0.47-33	0.057-0.83
Hexachlorocyclopentadiene	ND	0/52	0.33-33	-
2,4,6-Trichlorophenol	FD	0/52	0.33-33	-
2,4,5-Trichlorophenol	ND	0/52	1.65-160	-
2-Chloronaphthalene	FD	0/52	0.33-33	-

continued-

Table A1-1 - continued

Chemical	Selected as Chemical of Potential Concern	Frequency of Detection	Range of U Values	Range of Detected Concentrations
Semivolatiles - continued				
2-Nitroaniline	FD	0/52	1.65-160	-
Dimethylphthalate	FD	0/52	0.33-33	-
Acenaphthylene	*	7/52	0.33-33	0.066-2.2
2,6-Dinitrotoluene	FD	1/52	0.33-33	0.19
3-Nitroaniline	ND	0/52	1.65-160	-
Acenaphthene	*	32/52	0.47-33	0.05-5.3
2,4-Dinitrophenol	FD	1/52	1.65-160	0.2
4-Nitrophenol	ND	0/52	1.65-160	-
Dibenzofuran	*	42/52	0.49-6.6	0.12-4.3
2,4-Dinitrotoluene	ND	0/52	0.33-33	-
Diethylphthalate	ND	1/52	0.33-33	1.4
4-Chlorophenyl-phenylether	ND	0/52	0.33-33	-
Fluorene	*	42/52	0.55-33	0.065-4.5
4-Nitroaniline	ND	0/52	1.65-160	-
4,6-Dinitro-2-methylphenol	ND	0/52	1.65-160	-
N-Nitrosodiphenylamine	FD	0/52	0.33-33	-
4-Bromophenyl-phenylether	ND	0/52	0.33-33	-
Hexachlorobenzene	FD	1/52	0.33-33	2.4
Pentachlorophenol	ND	0/52	1.65-160	-
Phenanthrene	*	52/52	-	0.34-56
Anthracene	*	52/52	-	0.046-44
Di-n-butylphthalate	*	3/52	0.046-33	0.067-5.5
Fluoranthene	*	51/52	0.47	0.099-150
Pyrene	*	50/52	0.47-6.6	0.36-55
Butylbenzylphthalate	FD	0/52	0.33-33	-
3,3'-Dichlorobenzidine	FD	2/52	0.66-66	1.3-8.2
Benzo(a)anthracene	*	52/52	-	0.1-100
Chrysene	*	52/52	-	0.14-130
bis(2-Ethylhexyl)phthalate	*	5/52	0.065-33	0.11-14

continued-

Table A1-1 - continued

Chemical	Selected as Chemical of Potential Concern	Frequency of Detection	Range of U Values	Range of Detected Concentrations
Semivolatiles - continued				
Di-n-octylphthalate	*	0/52	0.33-33	-
Benzo(b)fluoranthene	*	51/52	0.33	0.21-140
Benzo(k)fluoranthene	*	49/52	0.33-0.66	0.096-75
Benzo(a)pyrene	*	47/52	0.33-0.66	0.43-55
Indeno(1,2,3-cd)pyrene	*	47/52	0.33-0.66	0.25-40
Dibenz(a,h)anthracene	*	45/52	0.33-0.66	0.61-11
Benzo(g,h,i)perylene	*	46/52	0.33-0.66	0.22-45
Pesticides/PCBs				
alpha-BHC	ND	NA	-	-
beta-BHC	ND	NA	-	-
delta-BHC	ND	NA	-	-
gamma-BHC	ND	NA	-	-
Heptachlor	ND	NA	-	-
Aldrin	ND	NA	-	-
Heptachlor epoxide	ND	NA	-	-
Endosulfan I	ND	NA	-	-
Dieldrin	ND	NA	-	-
4,4'-DDE	ND	NA	-	-
Endrin	ND	NA	-	-
Endosulfan II	ND	NA	-	-
4,4'-DDD	ND	NA	-	-
Endosulfan sulfate	ND	NA	-	-
4,4'-DDT	ND	NA	-	-
Methoxychlor	ND	NA	-	-

continued-

Table A1-1 - continued

Chemical	Selected as Chemical of Potential Concern	Frequency of Detection	Range of U Values	Range of Detected Concentrations
Pesticides/PCBs - continued				
Endrin ketone	ND	NA	-	-
alpha-Chlordane	ND	NA	-	-
gamma-Chlordane	ND	NA	-	-
Toxaphene	ND	NA	-	-
Aroclor-1016	ND	0/48	0.19-1.9	-
Aroclor-1221	ND	0/48	0.19-3.8	-
Aroclor-1232	ND	0/48	0.19-1.9	-
Aroclor-1242	*	0/48	0.19-1.9	-
Aroclor-1248	*	0/48	0.19-1.9	-
Aroclor-1254	ND	0/48	0.38-3.8	-
Aroclor-1260	ND	0/48	0.19-3.8	-

TABLE A1-2 SUMMARY OF SAMPLING DATA FROM THE ORMET POTLINER STORAGE AREA[a]

Chemical	Selected as Chemical of Potential Concern[b]	Frequency of Detection[c]	Range of U Values[d]	Range of Detected Concentrations
INORGANICS				
Aluminum[d]	*	20/20	-	2,560-42,500
Antimony	*	0/20	11-15	-
Arsenic	*	20/20	-	3.0-25
Barium	*	20/20	-	33-136
Beryllium	*	20/20	-	0.23-2.2
Cadmium	*	0/20	1.0-1.4	-
Calcium	EN	20/20	-	806-24,300
Chromium (total)	*	20/20	-	4.8-168
Cobalt	*	19/20	1.1	1.9-13.0
Copper	EN	20/20	-	8.0-791
Iron	*	20/20	-	6,690-106,000
Lead	*	20/20	-	7.2-74
Magnesium	EN	20/20	-	661-2,930
Manganese	*	20/20	-	198-3,220
Mercury	*	2/20	0.062-0.12	0.089-0.098

continued-

(a) Units are mg/kg for all values.
(b) Asterisk indicates chemical was selected for quantification in the risk assessment. Reasons for eliminating the chemical are:
ND: Not detected in any sample.
FD: Eliminated based on infrequent detection in samples.
EN: Eliminated based on essential nutritionality.
(c) Number of times chemical detected/number of samples taken.
(d) U values defined as the Instrument Detection Limit for CLP inorganic chemicals and the Contract-Required Detection Limit (adjusted for sample moisture and dilution) for CLP organic compounds.

Table A1-2 - continued

Chemical	Selected as Chemical of Potential Concern	Frequency of Detection	Range of U Values	Range of Detected Concentrations
INORGANICS - continued				
Nickel	*	16/20	8.3-8.5	0.59-146
Potassium	EN	6/20	499-691	796-2,810
Selenium[a]	EN	3/20	0.27-0.56	0.31-0.61
Silver	*	1/20	1.7-2.3	11
Sodium	*	16/20	352-446	1,190-14,200
Thallium	*	0/20	0.46-0.63	-
Vanadium	*	20/20	-	6.1-62
Zinc	EN	20/20	-	24-109
Cyanide	*	20/20	-	2.7-647
NON-CLP INORGANICS				
Cyanide	*	55/133	1.0	1.0-1,900
Nitrogen, ammonia	*	35/133	12.5	13-360
Fluoride	*	130/133	0.4	0.3-1,500
Calcium	EN	133/133	-	360-81,000
Sodium	*	75/133	250	260-67,000
Tin, total	FD	NA[b]		
ORGANICS:				
Volatiles				
Chloromethane	ND	0/20	0.03	-
Bromomethane	ND	0/20	0.03	-
Vinyl chloride	ND	0/20	0.03	-
Chloroethane	ND	0/20	0.03	-

(a) All sample values were qualified with R - unusable.
(b) NA - Compound not analyzed for.

continued-

Table A1-2 - continued

Chemical	Selected as Chemical of Potential Concern	Frequency of Detection	Range of U Values	Range of Detected Concentrations
Volatiles - continued				
Methylene chloride	*	18/20	0.015	0.004-0.02
Acetone	*	14/20	0.12	0.029-0.16
Carbon disulfide	*	0/20	0.015	-
1,1-Dichloroethene	FD	0/20	0.015	-
1,1-Dichloroethane	FD	0/20	0.015	-
1,2-Dichloroethene (total)	FD	0/20	0.015	-
Chloroform	*	0/20	0.015	-
1,2-Dichloroethane	ND	0/20	0.015	-
2-Butanone	*	10/20	0.03-0.089	0.006-0.088
1,1,1-Trichloroethane	*	0/20	0.015	-
Carbon tetrachloride	ND	0/20	0.015	-
Vinyl acetate	ND	0/20	0.03	-
Bromodichloromethane	ND	0/20	0.015	-
1,2-Dichloropropene	ND	0/20	0.015	-
cis-1,3-Dichloropropene	ND	0/20	0.015	-
Trichloroethene	*	0/20	0.015	-
Dibromochloromethane	ND	0/20	0.015	-
1,1,2-Trichloroethane	ND	0/20	0.015	-
Benzene	*	0/20	0.015	-
trans-1,3-Dichloropropene	ND	0/20	0.015	-
Bromoform	ND	0/20	0.015	-
4-Methyl-2-pentanone	FD	0/20	0.03	-
2-Hexanone	FD	0/20	0.03	-
Tetrachloroethene	*	0/20	0.015	-
1,1,2,2-Tetrachloroethane	*	0/20	0.015	-
Toluene	*	0/20	0.015	-
Chlorobenzene	*	2/20	0.015	0.005-0.007
Ethylbenzene	*	0/20	0.015	-
Styrene	*	0/20	0.015	-
Xylene (total)	FD	0/20	0.015	-

continued-

Table A1-2 - continued

Chemical	Selected as Chemical of Potential Concern	Frequency of Detection	Range of U Values	Range of Detected Concentrations
Semivolatiles				
Phenol	FD	3/21	0.4-68	0.12-1.7
bis(2-Chloroethyl) ether	FD	0/21	0.4-68	-
2-Chlorophenol	ND	0/21	0.4-68	-
1,3-Dichlorobenzene	ND	0/21	0.4-68	-
1,4-Dichlorobenzene	FD	0/21	0.4-68	-
Benzyl alcohol	ND	0/21	0.4-68	-
1,2-Dichlorobenzene	ND	0/21	0.4-68	-
2-Methylphenol	FD	2/21	0.4-68	0.065-0.087
bis(2-2-Chloroisopropyl) ether	FD	0/21	0.4-68	-
4-Methylphenol	*	5/21	0.4-68	0.21-3.4
N-Nitroso-di-n-dipropylamine	ND	0/21	0.4-68	-
Hexachloroethane	ND	0/21	0.4-68	-
Nitrobenzene	ND	0/21	0.4-68	-
Isophorone	FD	0/21	0.4-68	-
2-Nitrophenol	ND	0/21	0.4-68	-
2,4-Dimethylphenol	*	3/21	0.4-68	0.072-1.8
Benzoic acid	FD	0/21	2.0-340	-
bis(2-Chloroethoxy)methane	ND	0/21	0.4-68	-
2,4-Dichlorophenol	FD	0/21	0.4-68	-
1,2,4-Trichlorobenzene	FD	0/21	0.4-68	-
Naphthalene	*	15/21	0.4	0.13-81
4-Chloroanaline	ND	0/21	0.4-68	-
Hexachlorobutadiene	FD	0/21	0.4-68	-
4-Chloro-3-methylphenol	FD	0/21	0.4-68	-
2-Methylnaphthalene	*	14/21	0.4	0.037-39
Hexachlorocyclopentadiene	ND	0/21	0.4-68	-
2,4,6-Trichlorophenol	FD	0/21	0.4-68	-
2,4,5-Trichlorophenol	ND	0/21	2-340	-
2-Chloronaphthalene	FD	0/21	0.4-68	-

continued-

Table A1-2 - continued

Chemical	Selected as Chemical of Potential Concern	Frequency of Detection	Range of U Values	Range of Detected Concentrations
Semivolatiles - continued				
2-Nitroaniline	FD	0/21	2-340	-
Dimethylphthalate	FD	0/21	0.4-68	-
Acenaphthylene	*	2/21	0.4-68	0.062-1.4
2,6-Dinitrotoluene	FD	0/21	0.4-68	-
3-Nitroaniline	ND	0/21	2-340	-
Acenaphthene	*	14/21	0.4	0.046-260
2,4-Dinitrophenol	FD	0/21	2-340	-
4-Nitrophenol	ND	0/21	0.4-340	-
Dibenzofuran	*	15/21	0.4	0.043-120
2,4-Dinitrotoluene	ND	0/21	0.4-68	-
Diethylphthalate	ND	0/21	0.4-68	-
4-Chlorophenyl-phenylether	ND	0/21	0.4-68	-
Fluorene	*	14/21	0.4-0.55	0.04-140
4-Nitroaniline	ND	0/21	2-340	-
4,6-Dinitro-2-methylphenol	ND	0/21	0.4-340	-
N-Nitrosodiphenylamine	FD	0/21	0.4-68	-
4-Bromophenyl-phenylether	ND	0/21	0.4-68	-
Hexachlorobenzene	FD	0/21	0.4-68	-
Pentachlorophenol	ND	0/21	0.4-340	-
Phenanthrene	*	16/21	0.4	0.19-670
Anthracene	*	16/21	0.4	0.045-230
Di-n-butylphthalate	*	7/21	0.4-68	0.043-0.063
Fluoranthene	*	16/21	0.4	0.18-880
Pyrene	*	16/21	0.4	0.12-860
Butylbenzylphthalate	FD	0/21	0.4-68	-
3,3'-Dichlorobenzidine	FD	0/21	0.8-136	-
Benzo(a)anthracene	*	16/21	0.4	0.076-770
Chrysene	*	16/21	0.4	0.74-740
bis(2-Ethylhexyl)phthalate	*	14/21	0.4-68	0.27-1.7

continued-

Table A1-2 - continued

Chemical	Selected as Chemical of Potential Concern	Frequency of Detection	Range of U Values	Range of Detected Concentrations
Semivolatiles - continued				
Di-n-octylphthalate	*	1/21	0.4-68	0.067
Benzo(b)fluoranthene	*	15/21	0.4	0.056-1,200
Benzo(k)fluoranthene	*	15/21	0.4	0.04-1,200
Benzo(a)pyrene	*	16/21	0.4	0.043-710
Indeno(1,2,3-cd)pyrene	*	15/21	0.4	0.061-220
Dibenz(a,h)anthracene	*	13/21	0.4	0.086-220
Benzo(g,h,i)perylene	*	14/21	0.4-2.0	0.085-190
Pesticides/PCBs				
alpha-BHC	ND	NA		
beta-BHC	ND	NA		
delta-BHC	ND	NA		
gamma-BHC	ND	NA		
Heptachlor	ND	NA		
Aldrin	ND	NA		
Heptachlor epoxide	ND	NA		
Endosulfan I (A)	ND	NA		
Dieldrin	ND	NA		
4,4'-DDE	ND	NA		
Endrin	ND	NA		
Endosulfan II (A)	ND	NA		
4,4'-DDD	ND	NA		
Endosulfan sulfate	ND	NA		
4,4'-DDT	ND	NA		
Methoxychlor	ND	NA		
Endrin ketone	ND	NA		
alpha-Chlordane (A)	ND	NA		
gamma-Chlordane (A)	ND	NA		

continued-

Table A1-2 - continued

Chemical	Selected as Chemical of Potential Concern	Frequency of Detection	Range of U Values	Range of Detected Concentrations
Pesticides/PCBs				
Toxaphene	ND	NA		
Aroclor-1016	ND	0/20	0.19-19	-
Aroclor-1221	ND	0/20	0.19-19	-
Aroclor-1232	ND	0/20	0.19-19	-
Aroclor-1242	*	0/20	0.19-19	-
Aroclor-1248	*	0/20	0.19-19	-
Aroclor-1254	ND	0/20	0.38-38	-
Aroclor-1260	ND	0/20	0.38-38	-

TABLE A1-3 SUMMARY OF SAMPLING DATA FROM THE CARBON RUNOFF DEPOSITION AREA, ORMET[a]

Chemical	Selected as Chemical of Potential Concern[b]	Frequency of Detection[c]	Range of U Values[d]	Range of Detected Concentrations
INORGANICS				
Aluminum[d]	*	14/14	-	18,700-107,000
Antimony	*	8/14	7.3-8.3	9.5-56
Arsenic	*	14/14	-	3.8-663
Barium	*	14/14	-	137-309
Beryllium	*	14/14	-	1.5-7.8
Cadmium	*	2/14	1.2-1.8	1.2-2.0
Calcium	EN	14/14	-	2,130-194,000
Chromium (total)	*	14/14	-	14-47
Cobalt	*	12/14	1.1-1.2	1.8-23
Copper	EN	14/14	-	29-94
Iron	*	14/14	-	5,210-49,800
Lead	*	14/14	-	2.9-85
Magnesium	EN	14/14	-	2,110-3,860
Manganese	*	14/14	-	131-2,140
Mercury	*	7/14	0.13-0.23	0.17-0.31
Nickel	*	14/14	-	24-558
Potassium	EN	7/14	670-1,030	1,200-2,750

continued-

(a) Units are mg/kg for all values.
(b) Asterisk indicates chemical was selected for quantification in the risk assessment. Reasons for eliminating the chemical are:
ND: Not detected in any sample.
FD: Eliminated based on infrequent detection in samples.
EN: Eliminated based on essential nutritionality.
(c) Number of times chemical detected/number of samples taken.
(d) U values defined as the Instrument Detection Limit for CLP inorganic chemicals and the Contract-Required Detection Limit (adjusted for sample moisture and dilution) for CLP organic compounds.

Table A1-3 - continued

Chemical	Selected as Chemical of Potential Concern	Frequency of Detection	Range of U Values	Range of Detected Concentrations
INORGANICS - continued				
Selenium	EN	0/13	0.63-10	-
Silver	*	0/14	1.3-2.0	-
Sodium	*	14/14	-	1,960-11,500
Thallium	*	2/14	0.52-0.82	0.54-0.6
Vanadium	*	14/14	-	31-270
Zinc	EN	14/14	-	28-194
Cyanide	*	14/14	-	0.82-254
Non-CLP Inorganics				
Nitrogen, ammonia	*	NA(a)	-	-
Fluoride	*	14/14	-	64-270
Silica	*	8/14	8	14-29
Cyanide, total	*	11/14	1	3-130
Cyanide, amenable	*	2/14	1	3-28
Chloride	*	13/14	4	5-200
Sulfate	*	12/14	20-40	22-1,700
Tin, total	FD	NA	-	-
ORGANICS:				
Volatiles				
Chloromethane	ND	0/20	0.012-0.02	-
Bromomethane	ND	0/20	0.012-0.02	-
Vinyl chloride	ND	0/20	0.012-0.02	-
Chloroethane	ND	0/20	0.012-0.02	-

(a) NA - Compound not analyzed for.

continued-

Table A1-3 - continued

Chemical	Selected as Chemical of Potential Concern	Frequency of Detection	Range of U Values	Range of Detected Concentrations
Volatiles - continued				
Methylene chloride	*	8/20	0.002-0.03	0.018-0.033
Acetone	*	0/20	0.003-0.190	-
Carbon disulfide	*	0/20	0.006-0.01	-
1,1-Dichloroethene	FD	0/20	0.006-0.01	-
1,1-Dichloroethane	FD	0/20	0.006-0.01	-
1,2-Dichloroethene (total)	FD	0/20	0.006-0.01	-
Chloroform	*	13/20	0.008-0.009	0.004-0.01
1,2-Dichloroethane	ND	0/20	0.006-0.01	-
2-Butanone	*	1/20	0.012-0.02	0.057
1,1,1-Trichloroethane	*	0/20	0.006-0.01	-
Carbon tetrachloride	ND	0/20	0.006-0.01	-
Vinyl acetate	ND	0/20	0.012-0.02	-
Bromodichloromethane	ND	0/20	0.006-0.01	-
1,2-Dichloropropane	ND	0/20	0.006-0.01	-
cis-1,3-Dichloropropene	ND	0/20	0.006-0.01	-
Trichloroethene	*	0/20	0.006-0.01	-
Dibromochloromethane	ND	0/20	0.006-0.01	-
1,1,2-Trichloroethane	ND	0/20	0.006-0.01	-
Benzene	*	2/20	0.003-0.052	0.31-0.35
trans-1,3-Dichloropropene	ND	0/20	0.006-0.01	-
Bromoform	ND	0/20	0.006-0.01	-
4-Methyl-2-pentanone	FD	0/20	0.012-0.02	-
2-Hexanone	FD	0/20	0.012-0.02	-
Tetrachloroethene	*	6/20	0.006-0.01	0.002-0.011
1,1,2,2-Tetrachloroethane	*	0/20	0.006-0.01	-
Toluene	*	11/20	0.002-0.009	0.002-0.034
Chlorobenzene	*	7/20	0.006-0.01	0.006-0.18
Ethylbenzene	*	2/20	0.006-0.01	0.001-0.004
Styrene	*	2/20	0.006-0.01	0.007-0.008
Xylene (total)	FD	0/20	0.006-0.01	-

continued-

Table A1-3 - continued

Chemical	Selected as Chemical of Potential Concern	Frequency of Detection	Range of U Values	Range of Detected Concentrations
Semivolatiles				
Phenol	FD	0/16	0.41-0.66	-
bis(2-Chloroethyl) ether	FD	0/16	0.41-0.66	-
2-Chlorophenol	ND	0/16	0.41-0.66	-
1,3-Dichlorobenzene	ND	0/16	0.41-0.66	-
1,4-Dichlorobenzene	FD	0/16	0.41-0.66	-
Benzyl alcohol	ND	0/16	0.41-0.66	-
1,2-Dichlorobenzene	ND	0/16	0.41-0.66	-
2-Methylphenol	FD	0/16	0.41-0.66	-
bis(2-2-Chloroisopropyl) ether	FD	0/16	0.41-0.66	-
4-Methylphenol	*	1/16	0.41-0.66	0.055
N-Nitroso-di-n-dipropylamine	ND	0/16	0.41-0.66	-
Hexachloroethane	ND	0/16	0.41-0.66	-
Nitrobenzene	ND	0/16	0.41-0.66	-
Isophorone	FD	0/16	0.41-0.66	-
2-Nitrophenol	ND	0/16	0.41-0.66	-
2,4-Dimethylphenol	*	2/16	0.41-0.66	0.15-0.18
Benzoic acid	FD	1/17	2.1-3.3	0.069
bis(2-Chloroethoxy)methane	ND	0/16	0.41-0.66	-
2,4-Dichlorophenol	FD	0/16	0.41-0.66	-
1,2,4-Trichlorobenzene	FD	0/16	0.41-0.66	-
Naphthalene	*	10/18	0.47-0.66	0.07-0.57
4-Chloroanaline	ND	0/16	0.41-0.66	-
Hexachlorobutadiene	FD	0/16	0.41-0.66	-
4-Chloro-3-methylphenol	FD	0/16	0.41-0.66	-
2-Methylnaphthalene	*	5/17	0.41-0.66	0.053-0.22
Hexachlorocyclopentadiene	ND	0/16	0.41-0.66	-
2,4,6-Trichlorophenol	FD	0/16	0.41-0.66	-
2,4,5-Trichlorophenol	ND	0/16	2.1-3.3	-
2-Chloronaphthalene	FD	0/16	0.41-0.66	-

continued-

Table A1-3 - continued

Chemical	Selected as Chemical of Potential Concern	Frequency of Detection	Range of U Values	Range of Detected Concentrations
Semivolatiles - continued				
2-Nitroaniline	FD	0/16	2.1-3.3	-
Dimethylphthalate	FD	0/16	0.41-0.66	-
Acenaphthylene	*	0/16	0.41-0.66	-
2,6-Dinitrotoluene	FD	0/16	0.41-0.66	-
3-Nitroaniline	ND	0/16	2.1-3.3	-
Acenaphthene	*	11/18	0.41-0.66	0.067-1.4
2,4-Dinitrophenol	FD	0/16	2.1-3.3	-
4-Nitrophenol	ND	0/16	2.1-3.3	-
Dibenzofuran	*	11/18	0.41-0.66	0.073-0.87
2,4-Dinitrotoluene	ND	0/16	0.41-0.66	-
Diethylphthalate	ND	0/16	0.41-0.66	-
4-Chlorophenyl-phenylether	ND	0/16	0.41-0.66	-
Fluorene	*	10/18	0.11-0.66	0.056-0.64
4-Nitroaniline	ND	0/16	2.1-3.3	-
4,6-Dinitro-2-methylphenol	ND	0/16	2.1-3.3	-
N-Nitrosodiphenylamine	FD	0/16	0.41-0.66	-
4-Bromophenyl-phenylether	ND	0/16	0.41-0.66	-
Hexachlorobenzene	FD	0/16	0.41-0.66	-
Pentachlorophenol	ND	0/16	0.41-3.3	-
Phenanthrene	*	16/18	0.41-0.47	0.055-9.5
Anthracene	*	13/18	0.41-0.47	0.064-3.7
Di-n-butylphthalate	*	5/16	0.41-0.66	0.045-0.085
Fluoranthene	*	17/18	0.41	0.052-14
Pyrene	*	17/18	0.41	0.042-13
Butylbenzylphthalate	FD	1/16	0.41-0.66	0.13
3,3'-Dichlorobenzidine	FD	0/16	0.82-1.32	-
Benzo(a)anthracene	*	17/18	0.41	0.046-16
Chrysene	*	17/18	0.41	0.048-20
bis(2-Ethylhexyl)phthalate	*	15/18	0.19-1.1	0.042-0.82

continued-

Table A1-3 - continued

Chemical	Selected as Chemical of Potential Concern	Frequency of Detection	Range of U Values	Range of Detected Concentrations
Semivolatiles - continued				
Di-n-octylphthalate	*	15/16	0.056	0.41-0.66
Benzo(b)fluoranthene	*	16/18	0.41-0.47	0.08-24
Benzo(k)fluoranthene	*	15/18	0.41-0.47	0.086-19
Benzo(a)pyrene	*	15/18	0.41-0.47	0.097-19
Indeno(1,2,3-cd)pyrene	*	15/18	0.41-0.47	0.080-6.6
Dibenz(a,h)anthracene	*	10/18	0.41-0.55	0.15-1.7
Benzo(g,h,i)perylene	*	15/18	0.41-0.47	0.084-5.4
Pesticides/PCBs				
alpha-BHC	ND	NA	-	-
beta-BHC	ND	NA	-	-
delta-BHC	ND	NA	-	-
gamma-BHC	ND	NA	-	-
Heptachlor	ND	NA	-	-
Aldrin	ND	NA	-	-
Heptachlor epoxide	ND	NA	-	-
Endosulfan I (A)	ND	NA	-	-
Dieldrin	ND	NA	-	-
4,4'-DDE	ND	NA	-	-
Endrin	ND	NA	-	-
Endosulfan II (A)	ND	NA	-	-
4,4'-DDD	ND	NA	-	-
Endosulfan sulfate	ND	NA	-	-
4,4'-DDT	ND	NA	-	-
Methoxychlor	ND	NA	-	-
Endrin ketone	ND	NA	-	-
alpha-Chlordane (A)	ND	NA	-	-
gamma-Chlordane (A)	ND	NA	-	-

continued-

Table A1-3 - continued

Chemical	Selected as Chemical of Potential Concern	Frequency of Detection	Range of U Values	Range of Detected Concentrations
Pesticides/PCBs				
Toxaphene	ND	NA	-	-
Aroclor-1016	ND	NA	-	-
Aroclor-1221	ND	NA	-	-
Aroclor-1232	ND	NA	-	-
Aroclor-1242	*	NA	-	-
Aroclor-1248	*	NA	-	-
Aroclor-1254	ND	NA	-	-
Aroclor-1260	ND	NA	-	-

TABLE A1-4 SUMMARY OF SAMPLING DATA FROM THE CONSTRUCTION MATERIAL SCRAP DUMP, ORMET[a]

Chemical	Selected as Chemical of Potential Concern[b]	Frequency of Detection[c]	Range of U Values[d]	Range of Detected Concentrations
INORGANICS				
Aluminum[d]	*	5/5	-	58,800-121,000
Antimony	*	0/5	3.4-4.0	-
Arsenic	*	5/5	-	32.2-56.9
Barium	*	5/5	-	106-150
Beryllium	*	5/5	-	2.6-3.8
Cadmium	*	5/5	-	2.0-3.6
Calcium	EN	5/5	-	8,610-16,100
Chromium (total)	*	5/5	-	2.0-42.5
Cobalt	*	5/5	-	4.2-11.4
Copper	EN	5/5	-	303-542
Iron	*	5/5	-	21,800-27,800
Lead	*	5/5	-	54.7-84.1
Magnesium	EN	5/5	-	901-1,670
Manganese	*	5/5	-	330-1,060
Mercury	*	0/5	0.011-0.12	-
Nickel	5/5	-	-	36.6-62.5
Potassium	5/5	-	-	311-1,150

continued-

(a) Units are mg/kg for all values.
(b) Asterisk indicates chemical was selected for quantification in the risk assessment. Reasons for eliminating the chemical are:
ND: Not detected in any sample.
FD: Eliminated based on infrequent detection in samples.
EN: Eliminated based on essential nutritionality.
(c) Number of times chemical detected/number of samples taken.
(d) U values defined as the Instrument Detection Limit for CLP inorganic chemicals and the Contract-Required Detection Limit (adjusted for sample moisture and dilution) for CLP organic compounds.

Table A1-4 - continued

Chemical	Selected as Chemical of Potential Concern	Frequency of Detection	Range of U Values	Range of Detected Concentrations
INORGANICS - continued				
Selenium	EN	0/5	0.85-1.05	-
Silver	*	0/5	0.64-0.76	-
Sodium	*	5/5	-	22,300-48,700
Thallium	*	0/5	0.66-0.78	-
Vanadium	*	5/5	-	29.4-42.4
Zinc	EN	5/5	-	59.6-125
Cyanide	*	5/5	-	7.9-21.7
NON-CLP INORGANICS				
Nitrogen, Ammonia	*	5/5	-	70-110
Fluoride	*	5/5	-	440-540
Cyanide, total	*	5/5	-	7.9-21.7
Cyanide, amenable	*	0/5	2.5	-
Chloride	*	5/5	-	8-10
Sulfate	*	5/5	-	41-270
Tin, total	FD	NA(a)	-	-
ORGANICS:				
Volatiles				
Chloromethane	ND	0/5	0.12-0.13	-
Bromomethane	ND	0/5	0.12-0.13	-
Vinyl chloride	ND	0/5	0.12-0.13	-
Chloroethane	ND	0/5	0.12-0.13	-
Methylene chloride	*	5/5	-	0.002-0.092

(a) NA - Compound not analyzed for.

continued-

Table A1-4 - continued

Chemical	Selected as Chemical of Potential Concern	Frequency of Detection	Range of U Values	Range of Detected Concentrations
Volatiles - continued				
Acetone	*	5/5	-	0.098-0.27
Carbon disulfide	*	1/5	0.006	0.004
1,1-Dichloroethene	FD	0/5	0.006	-
1,1-Dichloroethane	FD	0/5	0.006	-
1,2-Dichloroethene (total)	FD	0/5	0.006	-
Chloroform	*	0/5	0.006	-
1,2-Dichloroethane	ND	0/5	0.006	-
2-Butanone	*	2/5	0.012-0.013	0.016-0.043
1,1,1-Trichloroethane	*	0/5	0.006	-
Carbon tetrachloride	ND	0/5	0.006	-
Vinyl acetate	ND	0/5	0.012-0.013	-
Bromodichloromethane	ND	0/5	0.006	-
1,2-Dichloropropane	ND	0/5	0.006	-
cis-1,3-Dichloropropene	ND	0/5	0.006	-
Trichloroethene	*	0/5	0.006	-
Dibromochloromethane	ND	0/5	0.006	-
1,1,2-Trichloroethane	ND	0/5	0.006	-
Benzene	*	0/5	0.006	-
trans-1,3-Dichloropropene	ND	0/5	0.006	-
Bromoform	ND	0/5	0.006	-
4-Methyl-2-pentanone	FD	1/5	0.012-0.013	0.031
2-Hexanone	FD	1/5	0.012-0.013	0.002
Tetrachloroethene	*	1/5	0.006	0.003
1,1,2,2-Tetrachloroethane	*	0/5	0.012-0.013	-
Toluene	*	1/5	0.006	0.002
Chlorobenzene	*	0/5	0.006	-
Ethylbenzene	*	3/5	0.006	0.002
Styrene	*	0/5	0.006	-
Xylene (total)	FD	2/5	0.006	0.002

continued-

Table A1-4 - continued

Chemical	Selected as Chemical of Potential Concern	Frequency of Detection	Range of U Values	Range of Detected Concentrations
Semivolatiles				
Phenol	FD	0/5	4-41	-
bis(2-Chloroethyl) ether	FD	0/5	4-41	-
2-Chlorophenol	ND	0/5	4-41	-
1,3-Dichlorobenzene	ND	0/5	4-41	-
1,4-Dichlorobenzene	FD	0/5	4-41	-
Benzyl alcohol	ND	0/5	4-41	-
1,2-Dichlorobenzene	ND	0/5	4-41	-
2-Methylphenol	FD	0/5	4-41	-
bis(2-2-Chloroisopropyl) ether	FD	0/5	4-41	-
4-Methylphenol	*	0/5	4-41	-
N-Nitroso-di-n-dipropylamine	ND	0/5	4-41	-
Hexachloroethane	ND	0/5	4-41	-
Nitrobenzene	ND	0/5	4-41	-
Isophorone	FD	0/5	4-41	-
2-Nitrophenol	ND	0/5	4-41	-
2,4-Dimethylphenol	*	0/5	4-41	-
Benzoic acid	FD	0/5	20-200	-
bis(2-Chloroethoxy)methane	ND	0/5	4-41	-
2,4-Dichlorophenol	FD	0/5	4-41	-
1,2,4-Trichlorobenzene	FD	0/5	4-41	-
Naphthalene	*	1/5	40-41	1.3
4-Chloroanaline	ND	0/5	4-41	-
Hexachlorobutadiene	FD	0/5	4-41	-
4-Chloro-3-methylphenol	FD	0/5	4-41	-
2-Methylnaphthalene	*	1/5	40-41	0.46
Hexachlorocyclopentadiene	ND	0/5	4-41	-
2,4,6-Trichlorophenol	FD	0/5	4-41	-
2,4,5-Trichlorophenol	ND	0/5	20-200	-
2-chloronaphthalene	FD	0/5	4-41	-

continued-

Table A1-4 - continued

Chemical	Selected as Chemical of Potential Concern	Frequency of Detection	Range of U Values	Range of Detected Concentrations
Semivolatiles - continued				
2-Nitroaniline	FD	0/5	20-200	-
Dimethylphthalate	FD	0/5	4-41	-
Acenaphthylene	*	0/5	4-41	-
2,6-Dinitrotoluene	FD	0/5	4-41	-
3-Nitroaniline	ND	0/5	20-200	-
Acenaphthene	*	5/5	-	5.1-13.0
2,4-Dinitrophenol	FD	0/5	20-200	-
4-Nitrophenol	ND	0/5	20-200	-
Dibenzofuran	*	2/5	40-41	2.7-8.5
2,4-Dinitrotoluene	ND	0/5	4-41	-
Diethylphthalate	ND	0/5	4-41	-
4-Chlorophenyl-phenylether	ND	0/5	4-41	-
Fluorene	*	4/5	40	4.1-11.0
4-Nitroaniline	ND	0/5	20-200	-
4,6-Dinitro-2-methylphenol	ND	0/5	20-200	-
N-Nitrosodiphenylamine	FD	0/5	4-41	-
4-Bromophenyl-phenylether	ND	0/5	4-41	-
Hexachlorobenzene	FD	0/5	4-41	-
Pentachlorophenol	ND	0/5	20-200	-
Phenanthrene	*	5/5	-	44-130
Anthracene	*	5/5	-	13-35
Di-n-butylphthalate	*	0/5	4-41	-
Fluoranthene	*	5/5	-	47-240
Pyrene	*	5/5	-	43-280
Butylbenzylphthalate	FD	0/5	4-41	-
3,3'-Dichlorobenzidine	FD	0/5	8-83	-
Benzo(a)anthracene	*	5/5	-	31-220
Chrysene	*	5/5	-	25-180
bis(2-Ethylhexyl)phthalate	*	0/5	4-41	-

-continued-

Table A1-4 - continued

Chemical	Selected as Chemical of Potential Concern	Frequency of Detection	Range of U Values	Range of Detected Concentrations
Semivolatiles - continued				
Di-n-octylphthalate	*	0/5	4-41	-
Benzo(b)fluoranthene	*	5/5	-	35-310
Benzo(k)fluoranthene	*	1/5	4-41	50
Benzo(a)pyrene	*	5/5	-	21-200
Indeno(1,2,3-cd)pyrene	*	4/5	40	18-160
Dibenz(a,h)anthracene	*	3/5	40-41	5.2-14
Benzo(g,h,i)perylene	*	3/5	4-40	35-220
Pesticides/PCBs				
alpha-BHC	ND	0/5	0.24-0.98	-
beta-BHC	ND	0/5	0.24-0.98	-
delta-BHC	ND	0/5	0.24-0.98	-
gamma-BHC (Lindane)	ND	0/5	0.24-0.98	-
Heptachlor	ND	0/5	0.24-0.98	-
Aldrin	ND	0/5	0.24-0.98	-
Heptachlor epoxide	ND	0/5	0.24-0.98	-
Endosulfan I	ND	0/5	0.24-0.98	-
Dieldrin	ND	0/5	0.48-2.0	-
4,4'-DDE	ND	0/5	0.48-2.0	-
Endrin	ND	0/5	0.48-2.0	-
Endosulfan II	ND	0/5	0.48-2.0	-
4,4'-DDD	ND	0/5	0.48-2.0	-
Endosulfan sulfate	ND	0/5	0.48-2.0	-
4,4'-DDT	ND	0/5	0.48-2.0	-
Methoxychlor	ND	0/5	2.4-9.8	-
Endrin ketone	ND	0/5	0.48-20	-
alpha-Chlordane	ND	0/5	2.4-9.8	-
gamma-Chlordane	ND	0/5	2.4-9.8	-

continued-

Table A1-4 - continued

Chemical	Selected as Chemical of Potential Concern	Frequency of Detection	Range of U Values	Range of Detected Concentrations
Pesticides/PCBs - continued				
Toxaphene	ND	0/5	4.8-20	-
Aroclor-1016	ND	0/5	2.4-9.8	-
Aroclor-1221	ND	0/5	2.4-9.8	-
Aroclor-1232	ND	0/5	2.4-9.8	-
Aroclor-1242	*	0/5	2.4-9.8	-
Aroclor-1248	*	5/5	-	3.6-22.6
Aroclor-1254	ND	0/5	4.8-20	-
Aroclor-1260	ND	0/5	4.8-20	-

TABLE A1-5 SUMMARY OF SEEP SAMPLING DATA, ORMET[a]

Chemical	Selected as Chemical of Potential Concern[b]	Frequency of Detection[c]	Range of U Values[d,e]	Range of Detected Concentrations[e]
INORGANICS				
Aluminum	*	12/12	-	0.384-1.05
Antimony	*	4/12	0.016-0.033	0.017-0.032
Arsenic	*	3/12	0.002-0.086	0.005-0.006
Barium	*	10/12	0.019-0.19	0.012-0.072
Beryllium	*	2/12	0.00029-0.05	0.00055-0.00064
Cadmium	*	4/12	0.002-0.004	0.02-0.03
Calcium	EN	12/12	-	3.97-177
Chromium (total)	*	5/12	0.003-0.03	0.023-0.06
Cobalt	*	7/12	0.007-0.07	0.0057-0.052
Copper	EN	9/12	0.0054	0.013-0.144
Iron	*	12/12	0.005	0.408-2.62
Lead	*	3/12	0.0023-0.023	0.003-0.005
Magnesium	EN	12/12	-	4.84-48.5
Manganese	*	12/12	-	0.003-31.3
Mercury	*	0/12	0.0002	-
Nickel	*	2/12	0.007-0.07	0.048-0.051

continued-

(a) Includes all seeps and the conduit.
(b) Asterisk indicates chemical was selected for quantification in the risk assessment. Reasons for eliminating the chemical are:
ND: Not detected in any sample.
FD: Eliminated based on infrequent detection in samples.
EN: Eliminated based on essential nutritionality.
(c) Number of times chemical detected/number of samples taken.
(d) U values defined as the Instrument Detection Limit for CLP inorganic chemicals and the Contract-Required Detection Limit (adjusted for sample moisture and dilution) for CLP organic compounds.
(e) Units are mg/L for all values.

Table A1-5 - continued

Chemical	Selected as Chemical of Potential Concern	Frequency of Detection	Range of U Values	Range of Detected Concentrations
INORGANICS - continued				
Potassium	EN	12/12	-	3.17-29.9
Selenium	EN	2/12	0.002-0.2	0.0137-0.02
Silver	*	3/12	0.003-0.03	0.018-0.049
Sodium	*	12/12	0.888	945-4,990
Thallium	*	0/12	0.0018-0.018	-
Vanadium	*	9/12	0.0032-0.06	0.006-0.029
Zinc	EN	11/12	0.006	0.006-0.029
Cyanide	*	5/6	0.01	0.163-4.383
NON-CLP INORGANICS				
Nitrogen, Ammonia	*	3/12	0.1-1.0	1.5-4.2
Fluoride	*	12/12	-	6.5-200
Silica	*	10/12	10	6-28
Cyanide, total	*	12/12	-	0.0794-8.8
Cyanide, amenable	*	8/12	0.005-0.01	0.0686-0.9
Chloride	*	12/12	-	39-17
Sulfate	*	12/12	-	210-6,100
Tin, Total	FD	2/12	0.01	0.01-0.07
ORGANICS:				
Volatiles				
Chloromethane	ND	0/12	0.01	-
Bromomethane	ND	0/12	0.01	-
Vinyl chloride	ND	0/12	0.01	-
Chloroethane	ND	0/12	0.01	-
Methylene chloride	*	7/12	0.003-0.007	0.002-0.003

continued-

Table A1-5 - continued

Chemical	Selected as Chemical of Potential Concern	Frequency of Detection	Range of U Values	Range of Detected Concentrations
Volatiles - continued				
Acetone	*	7/12	0.004-0.021	0.033-0.49
Carbon disulfide	*	0/12	0.005	-
1,1-Dichloroethene	FD	0/12	0.005	-
1,1-Dichloroethane	FD	0/12	0.005	-
1,2-Dichloroethene (total)	FD	2/12	0.005	0.004-0.007
Chloroform	*	0/12	0.005	-
1,2-Dichloroethane	ND	0/12	0.005	-
2-Butanone	*	0/12	0.01	-
1,1,1-Trichloroethane	*	3/12	0.005	0.005-0.015
Carbon tetrachloride	ND	0/12	0.005	-
Vinyl acetate	ND	0/12	0.01	-
Bromodichloromethane	ND	0/12	0.005	-
1,2-Dichloropropene	ND	0/12	0.005	-
cis-1,3-Dichloropropene	ND	0/12	0.005	-
Trichloroethene	*	1/12	0.005	0.002
Dibromochloromethane	ND	0/12	0.005	-
1,1,2-Trichloroethane	ND	0/12	0.005	-
Benzene	*	0/12	0.005	-
trans-1,3-Dichloropropene	ND	0/12	0.005	-
Bromoform	ND	0/12	0.005	-
4-Methyl-2-pentanone	FD	0/12	0.01	-
2-Hexanone	FD	0/12	0.01	-
Tetrachloroethene	*	1/12	0.005	0.001
1,1,2,2-Tetrachloroethane	*	0/12	0.005-0.01	-
Toluene	*	2/12	0.005	0.003-0.005
Chlorobenzene	*	2/12	0.005	0.043-0.044
Ethylbenzene	*	1/12	0.005	0.002
Styrene	*	1/12	0.005	0.025
Xylene (total)	FD	0/12	0.005	-

continued-

Table A1-5 - continued

Chemical	Selected as Chemical of Potential Concern	Frequency of Detection	Range of U Values	Range of Detected Concentrations
Semivolatiles				
Phenol	FD	1/13	0.01	0.004
bis(2-Chloroethyl) ether	FD	0/13	0.01	-
2-Chlorophenol	ND	0/13	0.01	-
1,3-Dichlorobenzene	ND	0/13	0.01	-
1,4-Dichlorobenzene	FD	0/13	0.01	-
Benzyl alcohol	ND	0/13	0.01	-
1,2-Dichlorobenzene	ND	0/13	0.01	-
2-Methylphenol	FD	0/13	0.01	-
bis(2-2-Chloroisopropyl) ether	FD	0/13	0.01	-
4-Methylphenol	*	0/13	0.01	-
N-Nitroso-di-n-dipropylamine	ND	0/13	0.01	-
Hexachloroethane	ND	0/13	0.01	-
Nitrobenzene	ND	0/13	0.01	-
Isophorone	FD	1/13	0.01	0.036
2-Nitrophenol	ND	0/13	0.01	-
2,4-Dimethylphenol	*	0/13	0.01	-
Benzoic acid	FD	0/13	0.05	-
bis(2-Chloroethoxy)methane	ND	0/13	0.01	-
2,4-Dichlorophenol	FD	0/13	0.01	-
1,2,4-Trichlorobenzene	FD	0/13	0.01	-
Naphthalene	*	0/13	0.01	-
4-Chloroanaline	ND	0/13	0.01	-
Hexachlorobutadiene	FD	0/13	0.01	-
4-Chloro-3-methylphenol	FD	0/13	0.01	-
2-Methylnaphthalene	*	0/13	0.01	-
Hexachlorocyclopentadiene	ND	0/13	0.01	-
2,4,6-Trichlorophenol	FD	0/13	0.01	-
2,4,5-Trichlorophenol	ND	0/13	0.05	-
2-chloronaphthalene	FD	0/13	0.01	-

continued-

Table A1-5 - continued

Chemical	Selected as Chemical of Potential Concern	Frequency of Detection	Range of U Values	Range of Detected Concentrations
Semivolatiles - continued				
2-Nitroaniline	FD	0/13	0.05	-
Dimethylphthalate	FD	0/13	0.01	-
Acenaphthylene	*	0/13	0.01	-
2,6-Dinitrotoluene	FD	0/13	0.01	-
3-Nitroaniline	ND	0/13	0.05	-
Acenaphthene	*	0/13	0.01	-
2,4-Dinitrophenol	FD	0/13	0.05	-
4-Nitrophenol	ND	0/13	0.05	-
Dibenzofuran	*	0/13	0.01	-
2,4-Dinitrotoluene	ND	0/13	0.01	-
Diethylphthalate	ND	0/13	0.01	-
4-Chlorophenyl-phenylether	ND	0/13	0.01	-
Fluorene	*	0/13	0.01	-
4-Nitroaniline	ND	0/13	0.05	-
4,6-Dinitro-2-methylphenol	ND	0/13	0.05	-
N-Nitrosodiphenylamine	FD	0/13	0.01	-
4-Bromophenyl-phenylether	ND	0/13	0.01	-
Hexachlorobenzene	FD	0/13	0.01	-
Pentachlorophenol	ND	0/13	0.05	-
Phenanthrene	*	0/13	0.01	-
Anthracene	*	0/13	0.01	-
Di-n-butylphthalate	*	0/13	0.01	-
Fluoranthene	*	1/13	0.01	0.004
Pyrene	*	1/13	0.01	0.003
Butylbenzylphthalate	FD	0/13	0.01	-
3,3'-Dichlorobenzidine	FD	0/13	0.02	-
Benzo(a)anthracene	*	0/13	0.01	-
Chrysene	*	0/13	0.01	-
bis(2-Ethylhexyl)phthalate	*	7/13	0.01	0.001-0.23

continued-

Table A1-5 - continued

Chemical	Selected as Chemical of Potential Concern	Frequency of Detection	Range of U Values	Range of Detected Concentrations
Semivolatiles - continued				
Di-n-octylphthalate	*	0/13	0.01	-
Benzo(b)fluoranthene	*	0/13	0.01	-
Benzo(k)fluoranthene	*	0/13	0.01	-
Benzo(a)pyrene	*	0/13	0.01	-
Indeno(1,2,3-cd)pyrene	*	0/13	0.01	-
Dibenz(a,h)anthracene	*	0/13	0.01	-
Benzo(g,h,i)perylene	*	0/13	0.01	-
Pesticides/PCBs				
alpha-BHC	ND	0/12	5E-5	-
beta-BHC	ND	0/12	5E-5	-
delta-BHC	ND	0/12	5E-5	-
gamma-BHC (Lindane)	ND	0/12	5E-5	-
Heptachlor	ND	0/12	5E-5	-
Aldrin	ND	0/12	5E-5	-
Heptachlor epoxide	ND	0/12	5E-5	-
Endosulfan I (A)	ND	0/12	5E-5	-
Dieldrin	ND	0/12	0.0001	-
4,4'-DDE	ND	0/12	0.0001	-
Endrin	ND	0/12	0.0001	-
Endosulfan II (A)	ND	0/12	0.0001	-
4,4'-DDD	ND	0/12	0.0001	-
Endosulfan sulfate	ND	0/12	0.0001	-
4,4'-DDT	ND	0/12	0.0001	-
Methoxychlor	ND	0/12	0.0005	-
Endrin ketone	ND	0/12	0.0001	-
alpha-Chlordane (A)	ND	0/12	0.0005	-
gamma-Chlordane (A)	ND	0/12	0.0005	-

continued-

Table A1-5 - continued

Chemical	Selected as Chemical of Potential Concern	Frequency of Detection	Range of U Values	Range of Detected Concentrations
Pesticides/PCBs - continued				
Toxaphene	ND	0/12	0.001	-
Aroclor-1016	ND	0/12	0.0005	-
Aroclor-1221	ND	0/12	0.0005	-
Aroclor-1232	ND	0/12	0.0005	-
Aroclor-1242	*	5/12	0.0005	0.00083-0.0074
Aroclor-1248	*	0/12	0.0005	-
Aroclor-1254	ND	0/12	0.001	-
Aroclor-1260	ND	0/12	0.001	-

TABLE A1-6 SUMMARY OF MONITORING WELL SAMPLING DATA, ORMET[a]

Chemical	Selected as Chemical of Potential Concern[b]	Frequency of Detection[c]	Range of U Values[d]	Range of Detected Concentrations	Background Concentration (MW19)
INORGANICS:					
Aluminum	*	55/56	0.019	0.029-178	8.3
Antimony	*	6/56	0.025	0.025-0.042	0.025U
Arsenic	*	51/56	0.0015	0.0018-0.394	0.0067
Barium	*	56/56	-	0.042-4.75	0.232
Beryllium	*	6/56	0.0015	0.00025-0.035	0.0015U
Cadmium	*	4/56	0.0041	0.0041-0.012	0.0041U
Calcium	EN	56/56	-	2.81-144	91.8
Chromium (total)	*	17/56	0.005	0.0058-0.401	0.0081U
Cobalt	*	43/56	0.0039-0.0064	0.0042-0.814	0.0083
Copper	EN	38/56	0.016-0.02	0.017-1.02	0.019
Iron	*	56/56	-	0.044-144	17.6
Lead	*	34/56	0.0023	0.0023-0.139	0.0063
Magnesium	EN	56/56	-	0.61-16.7	11.5
Manganese	*	55/56	0.001	0.01-15.4	0.23
Mercury	*	9/56	0.0002	0.00026-0.0033	0.0002U
Nickel	*	11/56	0.026-0.034	0.026-0.767	0.026U
Potassium	EN	17/56	2.3	4.36-42.1	10.9
Selenium	EN	5/56	0.0022-0.022	0.0023-0.027	0.022U

continued-

(a) Units are mg/L for all values.
(b) Asterisk indicates chemical was selected for quantification in the risk assessment. Reasons for eliminating the chemical are:
ND: Not detected in any sample.
FD: Eliminated based on infrequent detection in samples.
EN: Eliminated based on essential nutritionality.
(c) Number of times chemical detected/number of samples taken.
(d) U values defined as the Instrument Detection Limit for CLP inorganic chemicals and the Contract-Required Detection Limit (adjusted for sample moisture and dilution) for CLP organic compounds.

Table A1-6 - continued

Chemical	Selected as Chemical of Potential Concern	Frequency of Detection	Range of U Values	Range of Detected Concentrations	Background Concentration (MW19)
INORGANICS - continued					
Silver	*	0/56	0.0044	-	0.0044U
Sodium	*	56/56	-	18.7-2,640	32.2
Thallium	*	1/56	0.009-0.0018	0.0028	0.0018U
Vanadium	*	43/56	0.0026-0.006	0.0026-0.369	0.015
Zinc	EN	56/56	-	0.0087-0.449	0.139
Cyanide	*	51/56	0.01	0.011-18.6	0.01U
NON-CLP INORGANICS					
Nitrogen, ammonia	*	48/56	0.01-0.1	0.1-230	0.2
Fluoride	*	68/72	0.1	0.1-1,000	0.5-0.7
Silica	*	68/72	200	5-4,300	2-21
Cyanide, total	*	59/72	0.005-0.01	0.01-67	0.01-0.2
Cyanide, amenable	*	26/72	0.005-0.01	0.01-41.0	0.005-0.01
Chloride	*	56/56	-	5-320	38.0
Sulfate	*	66/72	1.0-500	8-850	50-83
Tin	FD	0/56	0.01	-	0.01
ORGANICS:					
Volatiles					
Chloromethane	ND	0/37	0.01	-	0.01U
Bromomethane	ND	0/37	0.01	-	0.01U
Vinyl chloride	ND	0/37	0.01	-	0.01U
Chloroethane	ND	0/37	0.01	-	0.01U
Methylene chloride	*	23/37	0.002-0.011	0.002-0.017	0.004
Acetone	*	22/37	0.01-0.025	0.001-0.029	0.002
Carbon disulfide	*	5/37	0.005	0.001-0.01	0.005U
1,1-Dichloroethene	FD	1/37	0.005	0.001	0.005U

-continued-

Table A1-6 - continued

Chemical	Selected as Chemical of Potential Concern	Frequency of Detection	Range of U Values	Range of Detected Concentrations	Background Concentration (MW19)
Volatiles - continued					
1,1-Dichloroethane	FD	3/37	0.005	0.001-0.005	0.005U
1,2-Dichloroethene (total)	FD	0/37	0.005	-	0.005U
Chloroform	*	2/37	0.005	0.003	0.005U
1,2-Dichloroethane	ND	0/37	0.005	-	0.005U
2-Butanone	*	0/37	0.002-0.01	-	0.01U
1,1,1-Trichloroethane	*	4/37	0.005	0.002-0.003	0.005U
Carbon tetrachloride	ND	0/37	0.005	-	0.005U
Vinyl acetate	ND	0/37	0.01	-	0.01U
Bromodichloromethane	ND	0/37	0.005	-	0.005U
1,2-Dichloropropene	ND	0/37	0.005	-	0.005U
cis-1,3-Dichloropropene	ND	0/37	0.005	-	0.005U
Trichloroethene	*	5/37	0.005	0.001-0.003	0.005U
Dibromochloromethane	ND	0/37	0.005	-	0.005U
1,1,2-Trichloroethane	ND	0/37	0.005	-	0.005U
Benzene	*	23/37	0.002-0.005	0.001-0.024	0.002
trans-1,3-Dichloropropene	ND	0/37	0.005	-	0.005U
Bromoform	ND	0/37	0.005	-	0.005U
4-Methyl-2-pentanone	FD	0/37	0.01	-	0.01U
2-Hexanone	FD	0/37	0.01	-	0.01U
Tetrachloroethene	*	6/37	0.005	0.005-0.022	0.005U
1,1,2,2-Tetrachloroethane	*	0/37	0.005	-	0.005U
Toluene	*	9/37	0.005	0.001-0.004	0.005U
Chlorobenzene	*	1/37	0.005	-	0.005U
Ethylbenzene	*	0/37	0.005	-	0.005U
Styrene	*	0/37	0.005	-	0.005U
Xylene (total)	FD	0/37	0.005	-	0.005U

-continued-

Table A1-6 - continued

Chemical	Selected as Chemical of Potential Concern	Frequency of Detection	Range of U Values	Range of Detected Concentrations	Background Concentration (MW19)
Semivolatiles					
Phenol	FD	0/56	0.01-0.02	-	0.01U
bis(2-Chloroethyl) ether	FD	0/56	0.01-0.02	-	0.01U
2-Chlorophenol	ND	0/56	0.01-0.02	-	0.01U
1,3-Dichlorobenzene	ND	0/56	0.01-0.02	-	0.01U
1,4-Dichlorobenzene	FD	0/56	0.01-0.02	-	0.01U
Benzyl alcohol	ND	0/56	0.01-0.02	-	0.01U
1,2-Dichlorobenzene	ND	0/56	0.01-0.02	-	0.01U
2-Methylphenol	FD	0/56	0.01-0.02	-	0.01U
bis(2-2-Chloroisopropyl) ether	FD	0/56	0.01-0.02	-	0.01U
4-Methylphenol	*	0/56	0.01-0.02	-	0.01U
N-Nitroso-di-n-dipropylamine	ND	0/56	0.01-0.02	-	0.01U
Hexachloroethane	ND	0/56	0.01-0.02	-	0.01U
Nitrobenzene	ND	0/56	0.01-0.02	-	0.01U
Isophorone	FD	0/56	0.01-0.02	-	0.01U
2-Nitrophenol	ND	0/56	0.01-0.02	-	0.01U
2,4-Dimethylphenol	*	0/56	0.01-0.02	-	0.01U
Benzoic acid	FD	0/56	0.05-0.10	-	0.05U
bis(2-Chloroethoxy)methane	ND	0/56	0.01-0.02	-	0.01U
2,4-Dichlorophenol	FD	0/56	0.01-0.02	-	0.01U
1,2,4-Trichlorobenzene	FD	0/56	0.01-0.02	-	0.01U
Naphthalene	*	0/56	0.01-0.02	-	0.01U
4-Chloroanaline	ND	0/56	0.01-0.02	-	0.01U
Hexachlorobutadiene	FD	0/56	0.01-0.02	-	0.01U
4-Chloro-3-methylphenol	FD	0/56	0.01-0.02	-	0.01U
2-Methylnaphthalene	*	0/56	0.01-0.02	-	0.01U
Hexachlorocyclopentadiene	ND	0/56	0.01-0.02	-	0.01U
2,4,6-Trichlorophenol	FD	0/56	0.02-0.02	-	0.01U
2,4,5-Trichlorophenol	ND	0/56	0.05-0.10	-	0.05U
2-chloronaphthalene	FD	0/56	0.01-0.02	-	0.01U

continued-

Table A1-6 - continued

Chemical	Selected as Chemical of Potential Concern	Frequency of Detection	Range of U Values	Range of Detected Concentrations	Background Concentration (MW19)
Semivolatiles - continued					
2-Nitroaniline	FD	0/56	0.05-0.10	-	0.05U
Dimethylphthalate	FD	0/56	0.01-0.02	-	0.01U
Acenaphthylene	*	0/56	0.01-0.02	-	0.01U
2,6-Dinitrotoluene	FD	0/56	0.01-0.02	-	0.01U
3-Nitroaniline	ND	0/56	0.05-0.10	-	0.05U
Acenaphthene	*	0/56	0.01-0.02	-	0.01U
2,4-Dinitrophenol	FD	0/56	0.05-0.10	-	0.05U
4-Nitrophenol	ND	0/56	0.05-0.10	-	0.05U
Dibenzofuran	*	0/56	0.01-0.02	-	0.01U
2,4-Dinitrotoluene	ND	0/56	0.01-0.02	-	0.01U
Diethylphthalate	ND	0/56	0.01-0.02	-	0.01U
4-Chlorophenyl-phenylether	ND	0/56	0.01-0.02	-	0.01U
Fluorene	*	0/56	0.01-0.02	-	0.01U
4-Nitroaniline	ND	0/56	0.05-0.10	-	0.05U
4,6-Dinitro-2-methylphenol	ND	0/56	0.05-0.10	-	0.05U
N-Nitrosodiphenylamine	FD	0/56	0.01-0.02	-	0.01U
4-Bromophenyl-phenylether	ND	0/56	0.01-0.02	-	0.01U
Hexachlorobenzene	FD	0/56	0.01-0.02	-	0.01U
Pentachlorophenol	ND	0/56	0.05-0.10	-	0.05U
Phenanthrene	*	1/56	0.01-0.02	0.004	0.01U
Anthracene	*	0/56	0.01-0.02	-	0.01U
Di-n-butylphthalate	*	9/56	0.01-0.02	0.002-0.003	0.01U
Fluoranthene	*	1/56	0.01-0.02	0.008	0.01U
Pyrene	*	1/56	0.01-0.02	0.003	0.01U
Butylbenzylphthalate	FD	1/56	0.01-0.02	0.003	0.01U
3,3'-Dichlorobenzidine	FD	0/56	0.02-0.04	-	0.02U
Benzo(a)anthracene	*	0/56	0.01-0.02	-	0.01U
Chrysene	*	0/56	0.01-0.02	-	0.01U
bis(2-Ethylhexyl)phthalate	*	42/56	0.01-0.02	0.02-0.11	0.004

-continued-

Table A1-6 - continued

Chemical	Selected as Chemical of Potential Concern	Frequency of Detection	Range of U Values	Range of Detected Concentrations	Background Concentration (MW19)
Semivolatiles - continued					
Di-n-octylphthalate	*	0/56	0.01-0.02	-	0.01U
Benzo(b)fluoranthene	*	0/56	0.01-0.02	-	0.01U
Benzo(k)fluoranthene	*	0/56	0.01-0.02	-	0.01U
Benzo(a)pyrene	*	0/56	0.01-0.02	-	0.01U
Indeno(1,2,3-cd)pyrene	*	0/56	0.01-0.02	-	0.01U
Dibenz(a,h)anthracene	*	0/56	0.01-0.02	-	0.01U
Benzo(g,h,i)perylene	*	0/56	0.01-0.02	-	0.01U
Pesticides/PCBs					
alpha-BHC	ND	0/37	5E-05	-	5E-05U
beta-BHC	ND	0/37	5E-05	-	5E-05U
delta-BHC	ND	0/37	5E-05	-	5E-05U
gamma-BHC	ND	0/37	5E-05	-	5E-05U
Heptachlor	ND	0/37	5E-05	-	5E-05U
Aldrin	ND	5/37	5E-05	-	5E-05U
Heptachlor epoxide	ND	5/37	5E-05	-	5E-05U
Endosulfan I (A)	ND	5/37	5E-05	-	5E-05U
Dieldrin	ND	5/37	0.0001	-	0.0001U
4,4'-DDE	ND	4/37	0.0001	-	0.0001U
Endrin	ND	4/37	0.0001	-	0.0001U
Endosulfan II (A)	ND	4/37	0.0001	-	0.0001U
4,4'-DDD	ND	0/37	0.0001	-	0.0001U
Endosulfan sulfate	ND	0/37	0.0001	-	0.0001U
4,4'-DDT	ND	0/37	0.0001	-	0.0001U
Methoxychlor	ND	0/37	0.0005	-	0.0005U
Endrin ketone	ND	0/37	0.0001	-	0.0001U
alpha-Chlordane (A)	ND	0/37	0.0005	-	0.0005U
gamma-Chlordane (A)	ND	0/37	0.0005	-	0.0005U

-continued

Table A1-6 - continued

Chemical	Selected as Chemical of Potential Concern	Frequency of Detection	Range of U Values	Range of Detected Concentrations	Background Concentration (MW19)
Pesticides/PCBs - continued					
Toxaphene	ND	0/37	0.001	-	0.001U
Aroclor-1016	ND	0/37	0.0005	-	0.0005U
Aroclor-1221	ND	0/37	0.0005	-	0.0005U
Aroclor-1232	ND	0/37	0.0005	-	0.0005U
Aroclor-1242	*	0/37	0.0005	-	0.0005U
Aroclor-1248	*	0/37	0.0005	-	0.0005U
Aroclor-1254	ND	0/37	0.001	-	0.001U
Aroclor-1260	ND	0/37	0.001	-	0.001U

TABLE A1-7 SUMMARY OF SEDIMENT SAMPLING DATA, OHIO RIVER[a]

Chemical	Selected as Chemical of Potential Concern[b]	Frequency of Detection[c]	Range of U Values[d]	Range of Detected Concentrations	Range of Background Concentrations[e]
INORGANICS:					
Aluminum	*	5/5	-	6,580-12,600	8,670-9,980
Antimony	*	0/5	6.5-11.0	-	6.2U-9.4
Arsenic	*	5/5	-	5.3-10.0	7.3-12.0
Barium	*	5/5	-	72-165	116-142
Beryllium	*	5/5	-	0.94-2.0	1-1.4
Cadmium	*	2/5	1.1-1.8	1.7-2.0	1U-1.1U
Calcium	EN	5/5	-	2,110-32,500	2,460-2,780
Chromium (total)	*	5/5	-	13-52	19-20
Cobalt	*	5/5	-	2.7-32	13-15
Copper	EN	5/5	-	30-119	28-29
Iron	*	5/5	-	12,500-43,500	38,400-47,700
Lead	*	5/5	-	20-92	17-20
Magnesium	EN	5/5	-	1,370-6,120	2,630-3,500
Manganese	*	5/5	-	519-1,490	615-820
Mercury	*	3/5	0.1-0.11	0.22-0.39	0.088U-0.12U
Nickel	*	5/5	-	10-73	26-32

continued-

(a) Units are mg/kg for all values.
(b) Asterisk indicates chemical was selected for quantification in the risk assessment. Reasons for eliminating the chemical are:
ND: Not detected in any sample.
FD: Eliminated based on infrequent detection in samples.
EN: Eliminated based on essential nutritionality.
(c) Number of times chemical detected/number of samples taken.
(d) U values defined as the Instument Detection Limit for CLP inorganic chemicals and the Contract-Required Detection Limit (adjusted for sample moisture and dilution) for CLP organic compounds.
(e) Range of concentrations from RS1 sampling location.

Table A1-7 - continued

Chemical	Selected as Chemical of Potential Concern	Frequency of Detection	Range of U Values	Range of Detected Concentrations	Range of Background Concentrations
INORGANICS - continued					
Potassium	EN	1/5	602-1,000	907	640-1,260
Selenium	EN	-(a)	-	-	-
Silver	*	0/5	1.2-1.9	-	1.1U-1.2U
Sodium	*	2/5	369-567	501-2,060	323U-362U
Thallium	*	0/5	0.47-0.79	-	0.45U-0.5U
Vanadium	*	5/5	-	8.9-17.0	17.0-18.0
Zinc	EN	5/5	-	106-524	118-132
Cyanide	*	4/5	0.95	1.1-42	0.63U-0.71U
NON-CLP INORGANICS					
Nitrogen, ammonia	*	4/5	12.5	43-88	15-23
Fluoride	*	5/5	-	2.3-83	4.3-5.2
Silica	*	5/5	-	11-33	16-42
Cyanide, total	*	3/5	1	1-39	1
Cyanide, amenable	*	0/5	1	-	1
Chloride	*	5/5	-	96-300	68-230
Sulfate	*	5/5	-	13-60	75-550
Tin, total	FD	NA	-	-	-
ORGANICS:					
Volatiles					
Chloromethane	ND	0/5	0.014-0.018	-	0.012U-0.014U
Bromomethane	ND	0/5	0.014-0.018	-	0.012U-0.014U
Vinyl chloride	ND	0/5	0.014-0.018	-	0.012U-0.014U
Chloroethane	ND	0/5	0.014-0.018	-	0.012U-0.014U
Methylene chloride	*	3/5	0.024-0.12	0.032-0.038	0.049-0.022U

(a) All values R-qualified - Unusable.

continued-

Table A1-7 - continued

Chemical	Selected as Chemical of Potential Concern	Frequency of Detection	Range of U Values	Range of Detected Concentrations	Range of Background Concentrations
Volatiles - continued					
Acetone	*	0/5	0.032-0.19	-	0.019U-0.033U
Carbon disulfide	*	0/5	0.007-0.009	-	0.006U-0.007U
1,1-Dichloroethene	FD	0/5	0.007-0.009	-	0.006U-0.007U
1,1-Dichloroethane	FD	0/5	0.007-0.009	-	0.006U-0.007U
1,2-Dichloroethene (total)	FD	0/5	0.007-0.009	-	0.006U-0.007U
Chloroform	*	2/5	0.007-0.009	0.006-0.007	0.006U-0.007U
1,2-Dichloroethane	ND	0/5	0.007-0.009	-	0.006U-0.007U
2-Butanone	*	1/5	0.014-0.018	0.12	0.012U-0.014U
1,1,1-Trichloroethane	*	0/5	0.007-0.009	-	0.006U-0.007U
Carbon tetrachloride	ND	0/5	0.007-0.009	-	0.006U-0.007U
Vinyl acetate	ND	0/5	0.014-0.018	-	0.012U-0.014U
Bromodichloromethane	ND	0/5	0.007-0.009	-	0.006U-0.007U
1,2-Dichloropropene	ND	0/5	0.007-0.009	-	0.006U-0.007U
cis-1,3-Dichloropropene	ND	0/5	0.007-0.009	-	0.006U-0.007U
Trichloroethene	*	0/5	0.007-0.009	-	0.006U-0.007U
Dibromochloromethane	ND	0/5	0.007-0.009	-	0.006U-0.007U
1,1,2-Trichloroethane	ND	0/5	0.007-0.009	-	0.006U-0.007U
Benzene	*	1/5	0.004-0.008	0.024	0.004U-0.008U
trans-1,3-Dichloropropene	ND	0/5	0.007-0.009	-	0.006U-0.007U
Bromoform	ND	0/5	0.007-0.009	-	0.006U-0.007U
4-Methyl-2-pentanone	FD	0/5	0.014-0.018	-	0.012U-0.014U
2-Hexanone	FD	0/5	0.014-0.018	-	0.012U-0.14U
Tetrachloroethene	*	0/5	0.007-0.009	-	0.006U-0.007U
1,1,2,2-Tetrachloroethane	*	0/5	0.007-0.009	-	0.006-0.007
Toluene	*	0/5	0.007-0.009	-	0.001-0.007U
Chlorobenzene	*	0/5	0.007-0.009	-	0.006U-0.007U
Ethylbenzene	*	0/5	0.007-0.009	-	0.006U-0.007U
Styrene	*	0/5	0.007-0.009	-	0.006U-0.007U
Xylene (total)	FD	0/5	0.007-0.009	-	0.006U-0.007U

continued-

Table A1-7 - continued

Chemical	Selected as Chemical of Potential Concern	Frequency of Detection	Range of U Values	Range of Detected Concentrations	Range of Background Concentrations
Semivolatiles					
Phenol	FD	0/23	0.52-44	-	0.38U-0.85U
bis(2-Chloroethyl) ether	FD	1/23	0.52-44	0.18	0.38U-0.85U
2-Chlorophenol	ND	0/23	0.52-44	-	0.38U-0.85U
1,3-Dichlorobenzene	ND	0/23	0.52-44	-	0.38U-0.85U
1,4-Dichlorobenzene	FD	2/23	0.52-44	0.063-0.11	0.38U-0.85U
Benzyl alcohol	ND	0/23	0.52-44	-	0.38U-0.85U
1,2-Dichlorobenzene	ND	0/23	0.52-44	-	0.38U-0.85U
2-Methylphenol	FD	0/23	0.52-44	-	0.38U-0.85U
bis(2-2-Chloroisopropyl) ether	FD	1/23	0.52-44	0.17	0.38U-0.85U
4-Methylphenol	*	0/23	0.52-44	-	0.38U-0.85U
N-Nitroso-di-n-dipropylamine	ND	0/23	0.52-44	-	0.38U-0.85U
Hexachloroethane	ND	0/23	0.52-44	-	0.38U-0.85U
Nitrobenzene	ND	0/23	0.52-44	-	0.38U-0.85U
Isophorone	FD	0/23	0.52-44	-	0.38U-0.85U
2-Nitrophenol	ND	0/23	0.52-44	-	0.38U-0.85U
2,4-Dimethylphenol	*	1/23	0.52-44	1.2	0.38U-0.85U
Benzoic acid	FD	1/23	2.6-210	0.38	1.9U-4.1U
bis(2-Chloroethoxy)methane	ND	0/23	0.52-44	-	0.38U-0.85U
2,4-Dichlorophenol	FD	1/23	0.52-44	2.3	0.38U-0.85U
1,2,4-Trichlorobenzene	FD	1/23	0.22-44	1.6	0.38U-0.85U
Naphthalene	*	18/23	0.56-44	0.07-1.8	0.07-0.85U
4-Chloroanaline	ND	0/23	0.44-44	-	0.38U-0.85U
Hexachlorobutadiene	FD	1/23	0.52-44	0.91	0.38U-0.85U
4-Chloro-3-methylphenol	FD	1/23	0.52-44	1.2	0.12-0.85U
2-Methylnaphthalene	*	14/23	0.52-44	0.098-0.74	0.038-0.85U
Hexachlorocyclopentadiene	ND	0/23	0.52-44	-	0.38U-0.85U
2,4,6-Trichlorophenol	FD	1/23	0.52-44	0.95	0.38U-0.85U
2,4,5-Trichlorophenol	ND	0/23	0.77-210	-	1.9U-4.1U
2-Chloronaphthalene	FD	1/23	0.52-44	0.92	0.38U-0.85U

continued-

Table A1-7 - continued

Chemical	Selected as Chemical of Potential Concern	Frequency of Detection	Range of U Values	Range of Detected Concentrations	Range of Background Concentrations
Semivolatiles - continued					
2-Nitroaniline	FD	1/23	2.6-210	1.0	1.9U-4.1U
Dimethylphthalate	FD	2/23	0.52-44	0.27-0.52	0.38U-0.85U
Acenaphthylene	*	13/23	0.56-44	0.078-1.3	0.38U-0.85U
2,6-Dinitrotoluene	FD	0/23	0.52-44	-	0.38U-0.85U
3-Nitroaniline	ND	0/23	2.6-210	-	1.9U-4.1U
Acenaphthene	*	22/23	6.9	0.058-17	0.11-0.85U
2,4-Dinitrophenol	FD	0/23	2.6-210	-	1.9U-4.1U
4-Nitrophenol	ND	0/23	2.6-210	-	1.9U-4.1U
Dibenzofuran	*	16/23	0.56-44	0.081-3.3	0.38U-0.85U
2,4-Dinitrotoluene	ND	0/23	0.52-44	-	0.38U-0.85U
Diethylphthalate	ND	0/23	0.52-44	-	0.38U-0.85U
4-Chlorophenyl-phenylether	ND	0/23	0.52-44	-	0.38U-0.85U
Fluorene	*	20/23	0.56-6.9	0.084-7.8	0.12-0.85U
4-Nitroaniline	ND	0/23	2.6-210	-	1.9U-4.1U
4,6-Dinitro-2-methylphenol	ND	0/23	2.6-210	-	1.9U-4.1U
N-Nitrosodiphenylamine	FD	1/23	0.55-44	0.14	0.38U-0.85U
4-Bromophenyl-phenylether	ND	0/23	0.52-44	-	0.38U-0.85U
Hexachlorobenzene	FD	0/23	0.52-44	-	0.38U-0.85U
Pentachlorophenol	ND	0/23	2.6-210	-	1.9U-4.1U
Phenanthrene	*	23/23	-	0.45-110	0.057-0.41
Anthracene	*	23/23	-	0.17-38	0.041-0.85U
Di-n-butylphthalate	*	1/23	0.52-44	0.058	0.035-0.85U
Fluoranthene	*	21/23	0.33-33	1.4-310	0.1-1.7
Pyrene	*	23/23	-	0.82-190	0.14-0.93
Butylbenzylphthalate	FD	0/23	0.52-44	-	0.38U-0.85U
3,3'-Dichlorobenzidine	FD	0/23	1.0-88	-	0.76U-1.7U
Benzo(a)anthracene	*	23/23	-	0.18-150	0.061-0.64
Chrysene	*	23/23	-	0.74-180	0.08U-0.91
bis(2-Ethylhexyl)phthalate	*	16/23	0.85-44	0.21-0.85	0.24-0.49

-continued-

Table A1-7 - continued

Chemical	Selected as Chemical of Potential Concern	Frequency of Detection	Range of U Values	Range of Detected Concentrations	Range of Background Concentrations
Semivolatiles - continued					
Di-n-octylphthalate	*	0/23	0.52-44	-	0.38U-0.85U
Benzo(b)fluoranthene	*	23/23	-	0.81-390	0.082-1.2
Benzo(k)fluoranthene	*	6/23	0.61-44	0.19-170	0.38U-0.85U
Benzo(a)pyrene	*	23/23	-	0.56-180	0.058-0.74
Indeno(1,2,3-cd)pyrene	*	22/23	6.9	0.61-91	0.38-0.85U
Dibenz(a,h)anthracene	*	17/23	0.56-6.9	0.093-22	0.38U-0.85U
Benzo(g,h,i)perylene	*	21/23	4.6-6.9	0.26-88	0.38-0.85U
Pesticides/PCBs					
alpha-BHC	ND	0/11	0.073-1.1	-	0.08U-0.21U
beta-BHC	ND	0/11	0.073-1.1	-	0.08U-0.21U
delta-BHC	ND	0/11	0.073-1.1	-	0.08U-0.21U
gamma-BHC	ND	0/11	0.073-1.1	-	0.08U-0.21U
Heptachlor	ND	0/11	0.073-1.1	-	0.08U-0.21U
Aldrin	ND	0/11	0.073-1.1	-	0.08U-0.21U
Heptachlor epoxide	ND	0/11	0.073-1.1	-	0.08U-0.21U
Endosulfan I	ND	0/11	0.073-1.1	-	0.08U-0.21U
Dieldrin	ND	0/11	0.15-2.1	-	0.16U-0.41U
4,4'-DDE	ND	0/11	0.15-2.1	-	0.16U-0.41U
Endrin	ND	0/11	0.15-2.1	-	0.16U-0.41U
Endosulfan II	ND	0/11	0.15-2.1	-	0.16U-0.41U
4,4'-DDD	ND	0/11	0.15-2.1	-	0.16U-0.41U
Endosulfan sulfate	ND	0/11	0.15-2.1	-	0.16U-0.41U
4,4'-DDT	ND	0/11	0.15-2.1	-	0.16U-0.41U
Methoxychlor	ND	0/11	0.73-11	-	0.8U-2.1U
Endrin ketone	ND	0/11	0.15-3.4	-	0.16U-0.41U
alpha-Chlordane	ND	0/11	0.73-11	-	0.8U-2.1U
gamma-ChlordaneND	0/11	0.73-11	-	0.8U-2.1U	

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Table A1-7 - continued

Chemical	Selected as Chemical of Potential Concern	Frequency of Detection	Range of U Values	Range of Detected Concentrations	Range of Background Concentrations
Pesticides/PCBs - continued					
Toxaphene	ND	0/11	1.5-21	-	1.6U-4.1U
Aroclor-1016	ND	0/11	0.73-11.0	-	0.8U-2.1U
Aroclor-1221	ND	0/11	0.73-11.0	-	0.8U-2.1U
Aroclor-1232	ND	0/11	0.73-11.0	-	0.8U-2.1U
Aroclor-1242	*	0/11	0.73-11.0	-	0.8U-2.1U
Aroclor-1248	*	6/11	0.73-2.1	1.04-97.5	0.8U-2.1U
Aroclor-1254	ND	0/11	1.5-21	-	1.60-4.1U
Aroclor-1260	ND	0/11	1.5-21	-	1.6U-4.1U

TABLE A1-8 SUMMARY OF SURFACE WATER SAMPLING DATA, OHIO RIVER[a]

Chemical	Selected as Chemical of Potential Concern[b]	Frequency of Detection[c]	Range of U Values[d]	Range of Detected Concentrations	Range of Background Concentrations[e]
INORGANICS:					
Total:					
Aluminum	*	4/4	-	0.826-2.88	2.12-2.32
Antimony	*	1/4	0.016	0.04	0.016U
Arsenic	*	2/4	0.004	0.005-0.011	0.004U
Barium	*	4/4	-	0.048-0.078	0.065-0.09
Beryllium	*	0/4	0.005	-	0.005U
Cadmium	*	0/4	0.002	-	0.002U
Calcium	EN	4/4	-	20.5-43.1	20.8-20.9
Chromium (total)	*	3/4	0.003	0.008-0.012	0.004-0.006
Cobalt	*	1/4	0.007	0.007	0.007U
Copper	EN	4/4	-	0.004-0.026	0.006-0.01
Iron	*	4/4	-	1.87-5.73	3.8-5.18
Lead	*	4/4	-	0.003-0.009	0.005-0.006
Magnesium	EN	4/4	-	5.92-7.19	6.1-6.21
Manganese	*	4/4	-	0.262-0.772	0.293-0.342
Mercury	*	0/4	0.0002	-	0.0002U
Nickel	*	2/4	0.007	0.01-0.012	0.007U

continued

(a) Units are mg/L for all values.
(b) Asterisk indicates chemical was selected for quantification in the risk assessment. Reasons for eliminating the chemical are:
ND: Not detected in any sample.
FD: Eliminated based on infrequent detection in samples.
EN: Eliminated based on essential nutritionality.
(c) Number of times chemical detected/number of samples taken.
(d) U values defined as the Instrument Detection Limit for CLP inorganic chemicals and the Contract-Required Detection Limit (adjusted for sample moisture and dilution) for CLP organic compounds.
(e) Results from SW1 sample locations.

Table A1-8 - continued

Chemical	Selected as Chemical of Potential Concern	Frequency of Detection	Range of U Values	Range of Detected Concentrations	Range of Background Concentrations
INORGANICS - continued					
Potassium	EN	4/4	-	1.72-2.99	2.07-2.08
Selenium	EN	0/4	0.004	-	0.004U
Silver	*	0/4	0.003	-	0.003U
Sodium	*	4/4	-	10.3-153	9.87-9.88
Thallium	*	0/4	0.003	-	0.003U
Vanadium	*	0/4	0.006	-	0.006U
Zinc	EN	4/4	-	0.023-0.066	0.032-0.042
Cyanide	*	NA			
Filtered:					
Aluminum		4/4	0.013	0.02-0.048	0.13U
Antimony		2/4	0.016	0.027-0.058	0.016U
Arsenic		2/4	0.004	0.005-0.01	0.004U
Barium		4/4	-	0.037-0.067	0.033B
Beryllium		0/4	0.005	-	0.005U
Cadmium		0/4	0.002	-	0.002U
Calcium		4/4	-	19.7-44.8	21.7-21.8
Chromium (total)		0/4	0.003	-	0.003U
Cobalt		0/4	0.007	-	0.007U
Copper		1/4	0.004	0.009	0.004U
Iron		4/4	-	0.057-0.812	0.042U
Lead		0/4	0.003	-	0.003U
Magnesium		4/4	-	5.5-7.46	6.17-6.23
Manganese		4/4	-	0.182-0.729	0.175-0.177
Mercury		0/4	0.0002	-	0.0002U
Nickel		0/4	0.007	-	0.007U
Potassium		4/4	-	1.66-3.04	1.74-1.78
Selenium		0/4	0.004	-	0.004U

continued-

Table A1-8 - continued

Chemical	Selected as Chemical of Potential Concern	Frequency of Detection	Range of U Values	Range of Detected Concentrations	Range of Background Concentrations
Filtered - continued					
Silver		0/4	0.003	-	0.003U
Sodium		4/4	-	10.6-162	10.1-10.3
Thallium		0/4	0.003	-	0.003U
Vanadium		0/4	0.006	-	0.006U
Zinc		1/4	0.006	0.013	0.006U
NON-CLP INORGANICS					
Nitrogen, ammonia	*	0/4	1	-	1U
Fluoride	*	4/4	-	0.1-12	0.1U
Silica	*	3/4	10	3-6	2U-3.0
Cyanide, total	*	3/4	0.005	0.0076-0.428	0.005U
Cyanide, amenable	*	1/4	0.005	0.078	0.005U
Chloride	*	4/4	-	13-41	14-17
Sulfate	*	4/4	-	65-110	63-67
Tin	FD	0/4	0.01	-	0.01U
ORGANICS:					
Volatiles					
Chloromethane	ND	0/4	0.01	-	0.01U
Bromomethane	ND	0/4	0.01	-	0.01U
Vinyl chloride	ND	0/4	0.01	-	0.01U
Chloroethane	ND	0/4	0.01	-	0.01U
Methylene chloride	*	4/4	-	0.001-0.002	0.001-0.005U
Acetone	*	4/4	-	0.011-0.02	0.008
Carbon disulfide	*	0/4	0.005	-	0.005U
1,1-Dichloroethene	FD	0/4	0.005	-	0.005U

continued-

Table A1-8 - continued

Chemical	Selected as Chemical of Potential Concern	Frequency of Detection	Range of U Values	Range of Detected Concentrations	Range of Background Concentrations
Volatiles - continued					
1,1-Dichloroethane	FD	0/4	0.005	-	0.005U
1,2-Dichloroethene (total)	FD	0/4	0.005	-	0.005U
Chloroform	*	0/4	0.005	-	0.005U
1,2-Dichloroethane	ND	0/4	0.005	-	0.005U
2-Butanone	*	0/4	0.01	-	0.01U
1,1,1-Trichloroethane	*	0/4	0.005	-	0.005U
Carbon tetrachloride	ND	0/4	0.005	-	0.005U
Vinyl acetate	ND	0/4	0.01	-	0.01U
Bromodichloromethane	ND	0/4	0.005	-	0.005U
1,2-Dichloropropene	ND	0/4	0.005	-	0.005U
cis-1,3-Dichloropropene	ND	0/4	0.005	-	0.005U
Trichloroethene	*	0/4	0.005	-	0.005U
Dibromochloromethane	ND	0/4	0.005	-	0.005U
1,1,2-Trichloroethane	ND	0/4	0.005	-	0.005U
Benzene	*	0/4	0.005	-	0.005U
trans-1,3-Dichloropropene	ND	0/4	0.005	-	0.005U
Bromoform	ND	0/4	0.005	-	0.005U
4-Methyl-2-pentanone	FD	0/4	0.01	-	0.01U
2-Hexanone	FD	0/4	0.01	-	0.01U
Tetrachloroethene	*	0/4	0.005	-	0.005U
1,1,2,2-Tetrachloroethane	*	0/4	0.01	-	0.01U
Toluene	*	0/4	0.005	-	0.005U
Chlorobenzene	*	0/4	0.005	-	0.005U
Ethyl benzene	*	0/4	0.005	-	0.005U
Styrene	*	0/4	0.005	-	0.005U
Xylenes (total)	FD	0/4	0.005	-	0.005U

continued-

Table A1-8 - continued

Chemical	Selected as Chemical of Potential Concern	Frequency of Detection	Range of U Values	Range of Detected Concentrations	Range of Background Concentrations
Semivolatiles					
Phenol	FD	0/4	0.01	-	0.01U
bis(2-Chloroethyl) ether	FD	0/4	0.01	-	0.01U
2-Chlorophenol	ND	0/4	0.01	-	0.01U
1,3-Dichlorobenzene	ND	0/4	0.01	-	0.01U
1,4-Dichlorobenzene	FD	0/4	0.01	-	0.01U
Benzyl alcohol	ND	0/4	0.01	-	0.01U
1,2-Dichlorobenzene	ND	0/4	0.01	-	0.01U
2-Methylphenol	FD	0/4	0.01	-	0.01U
bis(2-2-Chloroisopropyl) ether	FD	0/4	0.01	-	0.01U
4-Methylphenol	*	0/4	0.01	-	0.01U
N-Nitroso-di-n-dipropylamine	ND	0/4	0.01	-	0.01U
Hexachloroethane	ND	0/4	0.01	-	0.01U
Nitrobenzene	ND	0/4	0.01	-	0.01U
Isophorone	FD	0/4	0.01	-	0.01U
2-Nitrophenol	ND	0/4	0.01	-	0.01U
2,4-Dimethylphenol	*	0/4	0.01	-	0.01U
Benzoic acid	FD	0/4	0.05	-	0.05U
bis(2-Chloroethoxy) methane	ND	0/4	0.01	-	0.01U
2,4-Dichlorobenzene	FD	0/4	0.01	-	0.01U
1,2,4-Trichlorobenzene	FD	0/4	0.01	-	0.01U
Naphthalene	*	0/4	0.01	-	0.01U
4-Chloroanaline	ND	0/4	0.01	-	0.01U
Hexachlorobutadiene	FD	0/4	0.01	-	0.01U
4-Chloro-3-methylphenol	FD	0/4	0.01	-	0.01U
2-Methylnaphthalene	*	0/4	0.01	-	0.01U
Hexachlorocyclopentadiene	ND	0/4	0.01	-	0.01U
2,4,6-Trichlorophenol	FD	0/4	0.01	-	0.01U
2,4,5-Trichlorophenol	ND	0/4	0.05	-	0.05U
2-Chloronaphthalene	FD	0/4	0.01	-	0.01U

continued-

Table A1-8 - continued

Chemical	Selected as Chemical of Potential Concern	Frequency of Detection	Range of U Values	Range of Detected Concentrations	Range of Background Concentrations
Semivolatiles - continued					
2-Nitroaniline	FD	0/4	0.05	-	0.05U
Dimethylphthalate	FD	0/4	0.01	-	0.01U
Acenaphthylene	*	0/4	0.01	-	0.01U
2,6-Dinitrotoluene	FD	0/4	0.01	-	0.01U
3-Nitroaniline	ND	0/4	0.05	-	0.05U
Acenaphthene	*	0/4	0.01	-	0.01U
2,4-Dinitrophenol	FD	0/4	0.05	-	0.05U
4-Nitrophenol	ND	0/4	0.05	-	0.05U
Dibenzofuran	*	0/4	0.01	-	0.01U
2,4-Dinitrotoluene	ND	0/4	0.01	-	0.01U
Diethylphthalate	ND	0/4	0.01	-	0.01U
4-Chlorophenyl-phenyl ether	ND	0/4	0.01	-	0.01U
Fluorene	*	0/4	0.01	-	0.01U
4-Nitroaniline	ND	0/4	0.05	-	0.05U
4,6-Dinitro-2-methylphenol	ND	0/4	0.05	-	0.05U
N-Nitrosodiphenylamine	FD	0/4	0.01	-	0.01
4-Bromophenyl-phenylether	ND	0/4	0.01	-	0.01U
Hexachlorobenzene	FD	0/4	0.01	-	0.01U
Pentachlorophenol	ND	0/4	0.05	-	0.05U
Phenanthrene	*	0/4	0.01	-	0.01U
Anthracene	*	0/4	0.01	-	0.01U
Di-n-butylphthalate	*	0/4	0.01	-	0.01U
Fluoranthene	*	1/4	0.01	0.003	0.01U
Pyrene	*	1/4	0.01	0.003	0.01U
Butylbenzylphthalate	FD	0/4	0.01	-	0.01U
3,3'-Dichlorobenzidine	FD	0/4	0.02	-	0.02U
Benzo(a)anthracene	*	0/4	0.01	-	0.01U
Chrysene	*	1/4	0.01	0.003	0.01U
bis(2-Ethylhexyl)phthalate	*	0/4	0.01	-	0.01U

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Table A1-8 - continued

Chemical	Selected as Chemical of Potential Concern	Frequency of Detection	Range of U Values	Range of Detected Concentrations	Range of Background Concentrations
Semivolatiles - continued					
Di-n-octylphthalate	*	0/4	0.01	-	0.01U
Benzo(b)fluoranthene	*	0/4	0.01	-	0.01U
Benzo(k)fluoranthene	*	0/4	0.01	-	0.01U
Benzo(a)pyrene	*	0/4	0.01	-	0.01U
Indeno(1,2,3-cd)pyrene	*	0/4	0.01	-	0.01U
Dibenz(a,h,i)anthracene	*	0/4	0.01	-	0.01U
Benzo(g,h,i)perylene	*	0/4	0.01	-	0.01U
Pesticides/PCBs					
alpha-BHC	ND	0/4	5E-05	-	5E-5U
beta-BHC	ND	0/4	5E-05	-	5E-5U
delta-BHC	ND	0/4	5E-05	-	5E-5U
gamma-BHC	ND	0/4	5E-05	-	5E-5U
Heptachlor	ND	0/4	5E-05	-	5E-5U
Aldrin	ND	0/4	5E-05	-	5E-5U
Heptachlor epoxide	ND	0/4	5E-05	-	5E-5U
Endosulfan I	ND	0/4	5E-05	-	5E-5U
Dieldrin	ND	0/4	0.0001	-	0.0001U
4,4'-DDE	ND	0/4	0.0001	-	0.0001U
Endrin	ND	0/4	0.0001	-	0.0001U
Endosulfan II	ND	0/4	0.0001	-	0.0001U
4,4'-DD	ND	0/4	0.0001	-	0.0001U
Endosulfan sulfate	ND	0/4	0.0001	-	0.0001U
4,4'-DDT	ND	0/4	0.0001	-	0.0001U
Methoxychlor	ND	0/4	0.0005	-	0.0005U
Endrin ketone	ND	0/4	0.0001	-	0.0001U
alpha-Chlordane	ND	0/4	0.0005	-	0.0005U
gamma-Chlordane	ND	0/4	0.0005	-	0.0005U

continued-

Table A1-8 - continued

Chemical	Selected as Chemical of Potential Concern	Frequency of Detection	Range of U Values	Range of Detected Concentrations	Range of Background Concentrations
Pesticides/PCBs					
Toxaphene	ND	0/4	0.001	-	0.001U
Aroclor-1016	ND	0/4	0.0005	-	0.0005U
Aroclor-1221	ND	0/4	0.0005	-	0.0005U
Aroclor-1232	ND	0/4	0.0005	-	0.0005U
Aroclor-1242	ND	2/4	0.0005	0.001-0.0015	0.0005U
Aroclor-1248	ND	0/4	0.0005	-	0.0005U
Aroclor-1254	ND	0/4	0.001	-	0.001U
Aroclor-1260	ND	0/4	0.001	-	0.001U

TABLE A1-9 SUMMARY OF TENTATIVELY IDENTIFIED COMPOUNDS

TIC	Range of Concentrations, mg/kg	Area[(a)]	Range of Concentrations, mg/L	Area[(a)]
Ethane,1,1,2-trichloro-1,2,2-trifluoro	0.008-0.82	Ponds	0.002-0.022	GW
1H-Indenel-ethylidene	0.2-0.9	Ponds		
1,1'-Biphenyl	0.2	Ponds		
Naphthalene,1,8-dimethyl	0.340-0.36	Ponds		
Naphthalene,1-(2-propenyl)-	0.300-0.39	Ponds		
9H-Xanthene	0.045-1.4	Ponds		
9H-Fluoren-9-one	0.093-1.7	Ponds		
Dibenzothiophene	0.096-1.2	Ponds		
Phenanthrene,9-methyl	0.1-0.22	Ponds		
9,10-Anthracenedione	0.22-2.8	CRA,Ponds		
11H-Benzo(a)Fluorene	0.108-29.7	Ponds,RS		
Benzo(c)Phenanthrene or isomer	0.11-11.4	Ponds,RS		
Naphthalene,1,3-dimethyl	0.34-2.8	Ponds		
Naphthalene,2-phenyl	0.14-9.1	Ponds,RS		
Benzo(b)naphtho(2,3-D)furan	0.056-12.0	Ponds		
Benzo(j)Fluoranthene	0.34-140.0	Ponds		
Benzo(j)Fluoranthene or isomer	0.959-109.6	CRA,RS		
Phenanthrene,3-methyl	0.093-9.0	Ponds		
Pyrene,4-methyl	0.056-6.5	Ponds		
7H-Benzo(de)anthracen-7-one	0.096-3.8	Ponds		
Pentane,3-methyl	0.008-0.33	Ponds	0.015-0.023	Seeps
Naphthacene	1.5-8.4	Ponds		
1,3,5-Cycloheptatriene	14-220	Ponds		
Anthracene,2-methyl	0.047-1.4	Ponds		
Anthracene,1-methyl	0.11-26.0	Ponds		
Benzo(ghi)Fluoranthene	0.12-13.0	Ponds		
Ethanol,2,2'-Oxybis-diacetate	0.15-1.3	Ponds		
1,1-Biphenyl-2-fluoro	0.29-1.8	Ponds		
9H-carbozole-9-nitroso	0.14-2.3	Ponds		
Phenanthene,2,5-dimethyl	0.08-2.6	Ponds		
Silane,tetramethyl	0.011-0.04	Ponds		
Heptadecane	0.112-0.16	Ponds		
3-Penten-2-one,4-methyl	0.379-15.0	Ponds	0.010-4.3	GW
2-Pentanol,2,4-dimethyl	1.6-69.0	Ponds	0.022-0.014	GW

continued-

(a) CRA - Carbon Runoff Area
RS - River Sediments
GW - Groundwater
CMSD - Construction Material Scrap Dump

Table A1-9 - continued

TIC	Range of Concentrations, mg/kg	Area	Range of Concentrations, mg/L	Area
Pyrene,2-methyl	0.343-4.6	CRA,RS		
Pyrene,1-methyl	0.16-11.415	Ponds,RS		
Benz(a)anthracene,12-methyl	0.11-1.207	Ponds,CRA		
Benzo(b)naphtho(2,1-d) thiophene	0.120-15.0	Ponds		
5-12-Naphthacenedione	0.26	Ponds		
Anthracene,9-ethyl	0.32	Ponds		
Chrysene,3-methyl	0.385-6.6	CRA,Ponds		
Phenanthrene,4-methyl	0.12-1.9	Ponds		
Pyrene	18.0	Ponds		
Cyclopenta(cd)pyrene	0.29-0.50	Ponds		
Furan,tetrahydro	0.012	RS		
9H-Carbazole	6.849	RS		
3-Fluoranthenamine	0.22-0.39	Ponds		
Benzo(a)anthracene,9-methyl	0.39	Ponds		
2-2'-Bi-1,3-dioxolane	0.013-0.023	Ponds		
5-Hexen-2-one,5-methyl	0.271-0.282	Ponds		
Hexadecane	0.23-0.377	Ponds,RS		
Undecane,4,7-dimethyl	0.224-0.373	Ponds,CRA		
Dodecane,2,7,10-trimethyl	0.056	Ponds		
Hexane	0.008-0.017	Ponds		
1,3-Dioxolane	0.013-0.015	Ponds		
Benzo(h)quinoline	0.056	Ponds		
Hexane,3,3-dimethyl	6.5	Ponds		
D-galactitol,2-(acethanethyl amino)2-deoxy-3,4,6-tri	1.4	Ponds		
Propane,2-methoxy-2-methyl	0.018	Ponds		
Benzo(f)quinoline	0.300-0.6	Ponds		
Triphenylene,2-methyl	0.35-0.88	Ponds,RS		
Chrysene,3-methyl	0.29	Ponds		
Benzo(k)fluoranthene	0.67	Ponds		
Benz(e)acephenanthrylene	0.791-10.176	RS,CRA		
Pentane,2,2,3,4-Tetramethyl	0.34	Ponds		
11H-Benzo(b)fluorene	0.18-0.445	Ponds,CRA		
2,2'DI-1,3-dioxolane	0.012	Ponds		
3-Penten-2-one,3,4-dimethyl	2.5	Ponds		
Benzidine	0.25	Ponds		
9H-fluorene,9-methylene	0.74	Ponds		
5H-Indeno(1,2-B)pyridine	0.35	Ponds		
2-Pentanol,2,2-dimethyl	51.0	Ponds		
Benzenesulfonic acid, 4-hydroxy-	0.020	Ponds		
Phenanthrene,2-methyl	0.87	Ponds		

continued-

Table A1-9 - continued

TIC	Range of Concentrations, mg/kg	Area	Range of Concentrations, mg/L	Area
2-Methyl Propane	0.11	Ponds		
2-Methyl Butane	0.029	Ponds		
1,1,2-Trichloro-1,2,2-trifluoroethane	0.011	Ponds		
Methyl Cyclopentane	0.008	Ponds		
1,2 Dimethyl benzene	0.010-0.170	Ponds,RS		
Benzene,1,4-dimethyl	1.123-19.0	Ponds,RS		
Benzene,1,3,5-trimethyl	1.79	Ponds		
Benzene,1,2,4-trimethyl	1.58	Ponds		
Benzen,2-ethyl-1,4,-dimethyl	0.913	Ponds		
Decane,2,5,6-trimethyl	0.211	Ponds		
Naphthalene,2-ethyl	0.351-0.380	Ponds,RS		
Naphthalene,1,5-dimethyl	1.123	Ponds		
Naphthalene,1,4,6-trimethyl	0.983-1.053	Ponds		
Heptadecane,2,6-dimethyl	0.200-2.527	RS,Ponds		
Propane	0.006	Ponds		
2-Propanone	0.045	Ponds		
Propanol,2,2-dimethyl	0.009	Ponds		
Chrysene,5-methyl	0.410	Ponds		
Benzene,1,2-dimethyl	0.130	RS	0.008	SW
Benzene,1,3-dimethyl	0.200	RS	0.010-0.018	Seep
Silanol,trimethyl			0.003-0.025	MW,Seep
Acetamide			0.018	Seep
Cyclotrisiloxane,hexamethyl			0.022	Seep
2-Butenoic acid,3-methyl-methyl ester			0.11	Seep
Dinocap			0.036	Seep
Azetidine,3-methyl-1 (methylethyl)-			0.01	Seep
2-Butenoic acid,3-methyl			0.068	Seep
2-Pentanone,4-methoxy-4-methyl			0.012	Seep
3-Hexanol,5-methyl			0.02-0.1	Seep
5-Hepten-2-one,4,6-Dimethyl			0.01	Seep
Benzene,1,3,5,trimethyl			0.078	Seep
2-Hexane,4,4,5-trimethyl			0.028	Seep
2,5-Heptadien-4-one,2,6-dimethyl			0.098	Seep
Hexanedoic acid, mono (2-ethylhexyl)ester	15.113-42.198	CRA,RS	0.006-0.056	GW
Cyclotetra siloxane, octamethyl			0.019-0.180	GW
Ethane,1,1,2,2-Tetrachloro			0.026	Seep

continued-

Table A1-9 - continued

TIC	Range of Concentrations, mg/kg	Area	Range of Concentrations, mg/L	Area
Silane,Fluorotrimethyl			0.009	Seep
Ethene,1,2-Dichloro,cis or isomer			0.006	Seep
Cyclohexanone(ACN)			0.040	Seep
Butane,2,3-Dimethyl			0.006-0.009	Seep
Benzo(e)pyrene	56.0	CMSD		
Acetic acid, 1-methyl ester	0.508-2.88	CRA		
2-Hexanone,6-(acetoxy)	0.535-1.356	CRA,RS		
1,2-Benzenedicarboxylic acid butyl, 2-methylpropyl ester	0.414-1.133	RS		
Hexacedanoic acid	0.356-3.356	CRA,RS		
Hexadecanoic acid, dioctyl ester	0.479-47.355	RS,CRA	0.006	GW
Dodecane,1-iodo	0.226-0.741	RS		
Dodecane,1-iodo-or isomer	0.414	RS		
Decane,2,6,7-trimethyl	0.314-0.38	RS		
Propanoic acid, 2-methyl-1,-(1,1-dimethyl ethyl)-2-methyl-1,3-propyl	0.155-0.548	RS,CRA		
1H-Phenalene	0.443	RS		
Undecane,2,5-dimethyl	0.886	RS		
Benzene,1,1'-(1,2-ethylnediyl)bis	5.819	RS		
Benzene,1,1'-(1,3-butadiyne-1,4-diyl)bis	1.898	RS		
4-Dodecanol	0.190	RS		
Triphenylene	0.822-1.6	RS		
Triphenylene or isomer	0.696	RS		
Pyrene,1-methyl	11.415	RS		
Heptadecane 2,2-dimethyl	0.130-0.929	RS		
Octadecane acid	0.31	RS		
Benzo(b)naphtho(2,3-d)furan	0.155	RS		
Pentanoic acid	0.697	RS		
9-Hexadecanoic acid	0.349	RS		
Octadecanoic acid	0.343-1.177	CRA,RS		
Decane,2,6,8-trimethyl	0.13	RS		
1,1'-Biphenyl,2,4-Dichloro	0.66	RS		
1,1'-Biphenyl-2,3,4-Trichloro	0.43-2.3	RS		
Benzo(b)naphtho(2,3)furan	4.3	RS		
1,1':2',1"-Terphenyl	0.275-1.7	CRA,RS		
Benzo(b)naphtho(2,1-D) Thiophene	0.110-3.0	CRA,RS		

continued-

Table A1-9 - continued

TIC	Range of Concentrations, mg/kg	Area	Range of Concentrations, mg/L	Area
2,2'Binaphthalene	0.22-1.334	CRA		
9-Carbazole	0.169	Ponds		
2-Butanone,2,4-epoxy-3-ethyl	0.212	CRA		
Dibenzothiophene	0.106-0.192	CRA		
Tridecane,7-methyl	0.373	CRA		
Phosphoric acid (tris (3-methylphenyl)ester	0.64	CRA		
Benzo(a)anthracene,11-methyl	0.635	CRA		
Anthracene,9-phenyl	0.254-0.445	CRA		
2-Pentanone,4-hydroxy-4-methyl	2.542	CRA		
3-Penten-1-ol,2-methyl-	0.660-1.1	CRA	0.15	GW
Benzo(a)anthracene,3-methyl	1.724	CRA		
Acetic acid pentyl ester			0.014-0.052	GW
2-Propenoic acid, 2 methyl pentyl ester			0.044	GW
2-Propenoic acid, 2 methyl ethyl ester			0.042-0.09	GW
Hydroperoxide,1,dimethyl ethyl			0.016-0.064	GW
Cyclopentasiloxane,decamethyl			0.018	GW
1,2-Benzenedicarboxylic acid, diisooctyl ester			0.098	GW
2-Piperidinone			0.004	GW
1-Hexadecyne			0.024-0.170	GW
4-Penten-2-ol			0.078	
Propane,2-methyl			0.012	GW
Hexanoic acid,2-ethyl			0.010	GW
Oxetane,2,4-dimethyl-trans			0.010	GW
1,2,3,4-Cyclopentanetetrol			0.028	GW

TABLE A1-10 CHEMICAL DETECTED IN THE CAC RANNEY WELL

Chemical	Range of Detected Concentrations, µg/L
Acetone	10 to 43
Antimony	2 to 29
Barium	91 to 98
2-Butanone	2[(a)]
Calcium	61,000 to 64,300
Chloride	28 to 47
Chloroform	2 to 5
Chromium	3
1,1-Dichloroethane	1
Fluoride	0.42 to 0.63
Lead	15[(a)]
Magnesium	9,600 to 9,890
Manganese	1,180 to 1,350
Methylene chloride	5 to 15[(a)]
Nitrate	0.13 to 0.38
Potassium	2,120 to 2,480
Silver	5
Sodium	18,800 to 20,300
Sulfate	42 to 87
1,1,1-Trichloroethane	2[(a)]
Zinc	4 to 6[(a)]

(a) Compound also detected in associated blank.

APPENDIX 2

EVALUATION OF THE AIR PATHWAY AT ORMET

1.0 INTRODUCTION

One pathway by which humans may be exposed to site contaminants at the Ormet site is by inhalation of particulates from ambient air. Contaminants can enter the air by wind erosion of contaminated soil or pond solids. This appendix describes how the concentrations of respirable dust particles (PM_{10}) were estimated at each exposure point where air emissions were considered to be a potential exposure pathway.

At Ormet both monitoring data and modeling were utilized in the approach for quantifying the air pathway. Monitors were not placed at each exposure point where risk was evaluated. In addition, air monitoring by its very nature integrates all sources yet only the releases from the suspected waste areas are of concern in this risk assessment. The following documents the selected approach and presents the calculation of PM_{10} concentrations which provide input for exposure point concentrations.

2.0 EMISSION RATE FROM WIND EROSION OF PARTICULATES

2.1 Selection of Erodible Areas

The first step in analyzing the air pathway involving fugitive dusts at Ormet is calculation of PM_{10} emission rates for each area of the site where wind erosion can reasonably be expected to occur. The rate of PM_{10} emissions due to wind action is a complex function of wind speed, particle size distribution, extent of ground covered with vegetation and "roughness" of the surrounding terrain.

Based on information gathered during a site visit by Life Systems personnel and the particle size distribution data supplied by Ormet, it appears that the five sectors of Pond 5 are the only areas of the Site where wind erosion is expected to cause significant PM_{10} emission. The reasons for this conclusion are discussed below.

The potliner storage area is considered nonerodible because:

- The particle sizes of the surface material are large. The aggregate size distribution modes for samples from this area, calculated from particle size distribution data provided by Ormet, range from 3.4 to 7.2 mm (Table A2-1). This material is considered sufficiently coarse that emissions of respirable particles are not of concern.
- The high degree of vegetation cover. Vegetation cover was estimated at about 50% by Life Systems personnel during a site visit.
- The presence of numerous nonerodible elements over (objects greater than 1 cm in diameter) most of the unvegetated surface.

Ponds 1 through 4 were judged to be nonerodible because of the following observations made during the site visit:

- Ponds 1 through 4 were totally or partially crusted.

TABLE A2-1 AGGREGATE PARTICLE SIZE DISTRIBUTION MODE FOR SELECTED ORMET LOCATIONS

Location	Sample Number	Particle Size of Mode, mm
Pond 5-A	P0151886	1.4
Pond 5-B	P0151887	0.05
Pond 5-C	P0151888	1.4
Pond 5-D	P0151889	0.18
Pond 5-E	P0151890	0.85
SB-006[(a)]	P0151891	4.8
SB-008[(a)]	P0151892	7.2
SB-015[(a)]	P0151893	4.8
SB-016[(a)]	P0151894	3.4

(a) Sampled from the potliner storage area.

Crusting was determined by observation, kicking the surface and measuring the depth of the crust (1 inch) on Pond 4.

- Pond 4 was about 60% covered with moss.
- Pond 2 was approximately two-thirds under water.

According to Cowherd et al. (1985), crusted surfaces are either nonerodible or have a "limited erosion potential," depending on the nature and depth of the crust. The equation recommended by Cowherd et al. (1985) to calculate the emission rate for an area with "limited erosion potential" contains a parameter for frequency of disturbance. If the frequency of disturbance ("an action which results in the exposure of fresh surface material") is zero, then the calculated emission rate is zero. Since no disturbances are known or expected to occur on Ponds 1 through 4, no PM_{10} emissions are expected under current conditions. Should activity at the site disturb the ponds in the future, emissions might occur.

2.2 Calculation of Emission Rates

A separate emission rate was calculated for each of the five sectors of Pond 5 because the pond is large and the particle size distribution is not uniform for all sectors of the pond (Table A2-1). Emission rates were calculated based on the unlimited erosion potential equation (Cowherd et al. 1985), as follows:

$$E = 0.036\ (1-V)\ (u/ut)^3\ F(x)$$

where:

E = PM_{10} emission factor (g/m^2-hr), annual rate per unit area
V = fraction of surface vegetative cover
u = mean annual wind speed (m/s)
ut = threshold value of wind speed at 7 m (m/s)
x = 0.886 ut/u
$F(x)$ = function of x plotted in Cowherd et al. (1985), Figure 4-3.

The values for these parameters for each sector of Pond 5 are listed in Table A2-2. These values were derived or estimated as follows:

V — The value for vegetative cover (15%) for Pond 5 is an average value for the pond estimated by Life Systems' personnel during the site visit.

u — The average annual wind speed was calculated as 1.9 m/s by Energy and Environmental Management, Inc. for Ormet from two years of meteorological data.

TABLE A2-2 WIND EROSION EMISSION RATE (UNLIMITED POTENTIAL) FOR POND 5

Sector	TFV	C	V	u	ut	X	F(x)	E
5A	74	8.5	0.15	1.9	6.3E+00	2.9E+00	0.0093	2.2E-09
5B	18	8.5	0.15	1.9	1.5E+00	7.1E-01	1.82	3.0E-05
5C	74	8.5	0.15	1.9	6.3E+00	2.9E+00	0.0093	2.2E-09
5D	31	8.5	0.15	1.9	2.6E+00	1.2E+00	1.35	4.3E-06
5E	60	8.5	0.15	1.9	5.1E+00	2.4E+00	0.081	3.6E-08

$E = 0.036\ (1-V)(U/Ut)^3\ F(x)/3{,}600$ (Cowherd (1985), p. 34)
$Ut = (TFV)(C)/100$ (Cowherd, p. 37, 69)
$X = 0.886\ (Ut/U)$ (Cowherd, p. 34)

where:

TFV = Threshold Friction Velocity (cm/sec)
C = Roughness height correction factor
V = Fraction of contaminated surface vegetative cover
u = Mean annual wind speed (m/sec)
ut = Threshold value of wind speed at 7 m (m/sec)
F(x) = Function of x
E = Annual average wind erosion PM_{10} emission rate ($g/sec\text{-}m^2$)

ut The value of ut is a function of the Threshold Friction Velocity (TFV) and the roughness height (z_o). Estimation of the TFV requires information on the mode of the particle size distribution in soil. The aggregate size distribution mode for each sector of Pond 5 was calculated from the particle size distribution data provided by Ormet. The TFV for each sector was then estimated, based on the graph in Figure 3-4 of Cowherd et al. (1985). The roughness height is a function of the height of natural and man-made objects in the vicinity of the source. Under current land use conditions, the area surrounding Pond 5 has numerous trees and bushes, so the value of z_o was estimated to be 25 cm, based on the graph presented in Figure 3-6 of Cowherd et al. (1985). Employing this roughness height, the ratio of ut to TFV was estimated to be 8.5, based on the graph in Figure 4-1 of Cowherd et al. (1985). Ut was then calculated for each sector by multiplying the TFV by this ratio.

x This value is calculated as 0.886 (ut/u).

F(x) The (F(x) values for Sectors B and D were estimated from the graph in Figure 4-3 of Cowherd et al. (1985). The values for Sectors A, C and E were calculated by the equation:

$$F(x) = 0.18\ (8x^3 + 12x)\ \exp\ (-x^2)$$

since the values for x were greater than 2 for these sectors (Cowherd et al. 1985).

The emission rate calculated from this equation was divided by 3,600 sec/hr to obtain an emission rate in g/m^2-sec, the units required for emission rates in the Fugitive Dust Model. Emission rates (E) for the Pond 5 sectors range from 2.2E-09 to 3.0E-5 g/m^2-sec (Table A2-2).

3.0 CALCULATION OF PM_{10} CONCENTRATIONS IN AIR

Once a particle becomes airborne it is subjected to both transport and diffusion through the atmosphere. In transport, the particle will be carried by the air depending on the wind direction and wind speed. The turbulence in the atmosphere, as well as features in the surrounding area (valleys, mountains, buildings, etc.) will govern its diffusion. There are a number of atmospheric deposition and transport models that are used to predict where particulates are transported after release. The objective of such modeling is to predict the concentration of PM_{10} at the Ormet receptor locations likely to be affected by particulate emissions from the source areas.

3.1 Fugitive Dust Model

The Fugitive Dust Model (FDM) (Model Version 91028) was selected for modeling air transport of PM_{10} from the Pond 5 source areas at Ormet. The FDM is a computerized air quality model designed to calculate air concentrations of particulates from fugitive dust sources. A technical description of the model

is provided in the User's Guide (TRC 1990). The parameters required for the computer input file and the values selected for each are listed in Table A2-3. The significant parameter values selected for the input file are described below.

3.2 Input File Parameters

The input file for the FDM requires four major categories of information: information related to model options, source(s), receptor(s) and meteorological data. The values used for each information category are detailed below.

Model Options

Model options (switch settings and parameter values) are summarized in Table A2-3. The ranges of all options are specified in the User's Guide (TRC 1990). For the output file, only the long-term average concentration of PM_{10} in air at each exposure point was selected. Short-term concentrations were not calculated since only long-term (i.e., exposure durations greater than one year) were evaluated in the risk assessment.

Sources

The five sectors of Pond 5 were selected as the five area sources contributing to the PM_{10} concentration in air. The sectors of Pond 5 and the estimated dimensions of each are presented in Figure A2-1. The roughness height is identical to that used for calculating the emission rates (Section 2.2). The emission rates are the results of those calculations (Table A2-2). The wind speed dependence factor selected is zero; although, emissions from these sources are dependant on wind speed, that dependence is accounted for in the emission rate calculation. The values for X1 and Y1 are the coordinates of each source relative to a selected reference point (see Figure A2-1). The values for X2 and Y2 are the X and Y dimensions of each source area. The height of emissions is a default value of 0.5 m; the model does not accept a value less than 0.5. The rotation angle is the number of degrees that the X axes of the sources are rotated to the true X axis (the predominant wind direction) (see Figure A2-2).

Receptors

Four receptor locations were selected (Figure A2-2): (1) a hypothetical future residence built on the northeast perimeter of Pond 5, (2) a current worker in the recreation area north of Pond 5, (3) a current resident in Proctor, WV directly northeast of Pond 5 (USGS 1976) and (4) a current resident in Proctor, WV closest to Pond 5 (USGS 1976). Two Proctor locations were selected for the FDM, but only the location with the higher PM_{10} concentration (more conservative value) was used to calculate the exposure point concentrations. Coordinates for X and Y were measured from the reference point for each receptor. The receptor height (Z) was selected as 2 m for an individual (Receptor 2) and 3 m as an average value for a two-story residence (Receptors 1, 3 and 4).

TABLE A2-3 FUGITIVE DUST MODEL (FDM) VERSION 91028 JAN, 1991

```
 RUN TITLE:
     ORMET - POND 5

     INPUT FILE NAME: ORMET89.IN
     OUTPUT FILE NAME: ORMET89.OUT
     MET DATA READ FROM FILE NAME: ORMET89.MET


     CONVERGENCE OPTION 1=OFF, 2=ON                          1
     MET OPTION SWITCH, 1=CARDS, 2=PREPROCESSED              2
     PLOT FILE OUTPUT, 1=NO, 2=YES                           1
     MET DATA PRINT SWITCH, 1=NO, 2=YES                      1
     POST-PROCESSOR OUTPUT, 1=NO, 2=YES                      1
     DEP. VEL./GRAV. SETL. VEL., 1=DEFAULT, 2=USER           1
     PRINT 1-HOUR AVERAGE CONCEN, 1=NO, 2=YES                1
     PRINT 3-HOUR AVERAGE CONCEN, 1=NO, 2=YES                1
     PRINT 8-HOUR AVERAGE CONCEN, 1=NO, 2=YES                1
     PRINT 24-HOUR AVERAGE CONCEN, 1=NO, 2=YES               1
     PRINT LONG-TERM AVERAGE CONCEN, 1=NO, 2=YES             2
     BYPASS RAMMET CALMS RECOGNITION, 1=NO, 2=YES            1
     NUMBER OF SOURCES PROCESSED                             5
     NUMBER OF RECEPTORS PROCESSED                           4
     NUMBER OF PARTICLE SIZE CLASSES                         0
     NUMBER OF HOURS OF MET DATA PROCESSED                8760
     LENGTH IN MINUTES OF 1-HOUR OF MET DATA              60.
     ROUGHNESS LENGTH IN CM                               25.00
     SCALING FACTOR FOR SOURCE AND RECPTORS               1.0000
     PARTICLE DENSITY IN G/CM**3                           2.00
     ANEMOMETER HEIGHT IN M                               10.00

     PREPROCESSED METEOROLOGICAL DATA SELECTION SWITCHES
     11111111111111111111111111111111111111111111111111111111111111111111111111111111
     11111111111111111111111111111111111111111111111111111111111111111111111111111111
     11111111111111111111111111111111111111111111111111111111111111111111111111111111
     11111111111111111111111111111111111111111111111111111111111111111111111111111111
     1111111111111111111111111111111111111111111

     RECEPTOR COORDINATES (X,Y,Z)

(    90.,    30., 3.) (   190.,   -70., 2.) (   820.,   420., 3.)
(   340.,   540., 3.) (
```

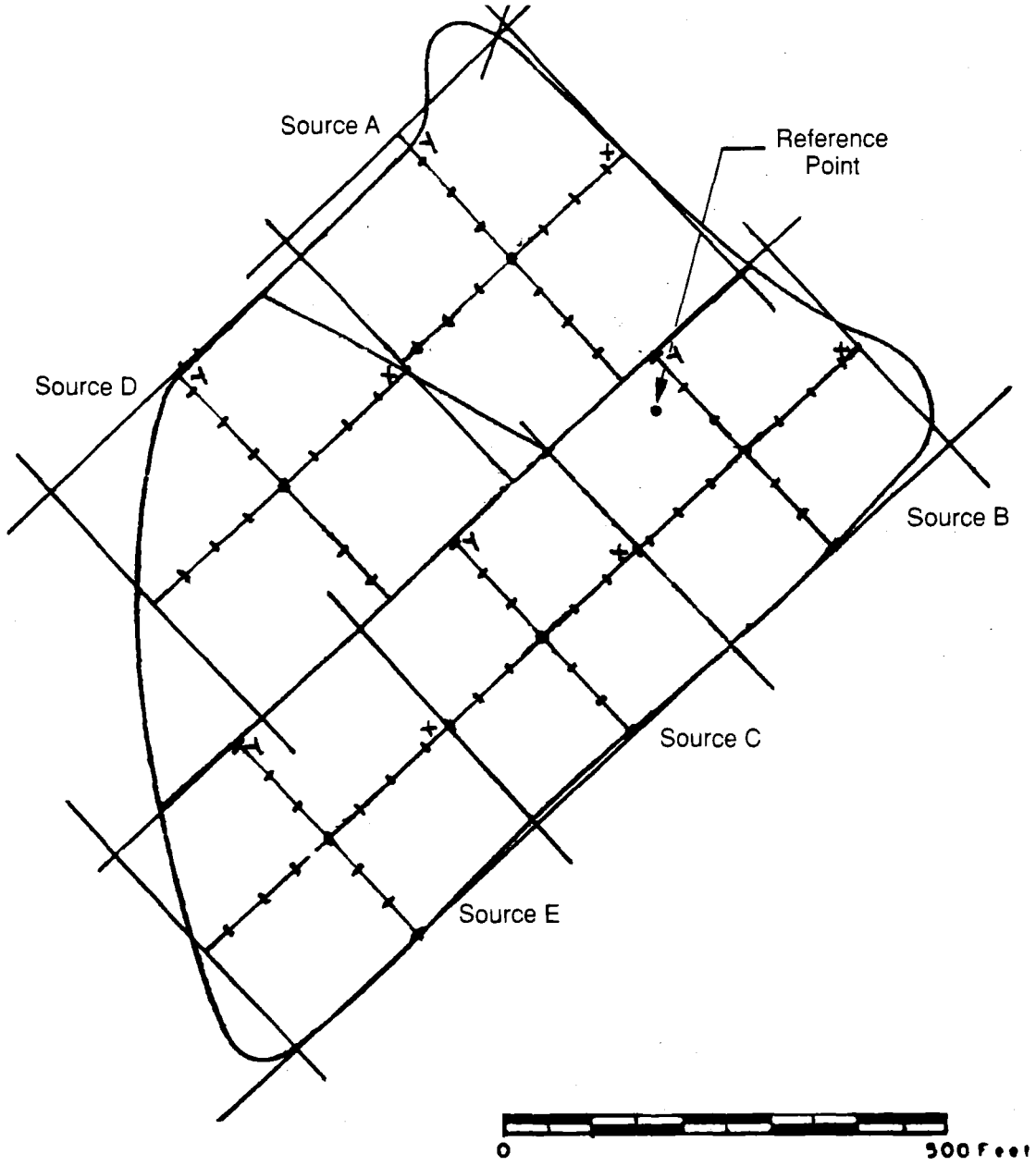
Table A2-3 - continued

SOURCE INFORMATION

TYPE	ENTERED EMIS. RATE (G/SEC, G/SEC/M OR G/SEC/M**2)	TOTAL EMISSION RATE (G/SEC)	WIND SPEED FAC.	X1 (M)	Y1 (M)	X2 (M)	Y2 (M)	HEIGHT (M)	WIDTH (M)
3	.000000002	.00003	.000	-2.	-76.	107.	116.	.50	25.00
3	.000030000	.28392	.000	14.	30.	104.	91.	.50	25.00
3	.000000002	.00002	.000	-82.	30.	91.	91.	.50	25.00
3	.000004300	.05613	.000	-113.	-70.	122.	107.	.50	25.00
3	.000000036	.00037	.000	-186.	30.	113.	91.	.50	25.00
TOTAL EMISSIONS		.34047							

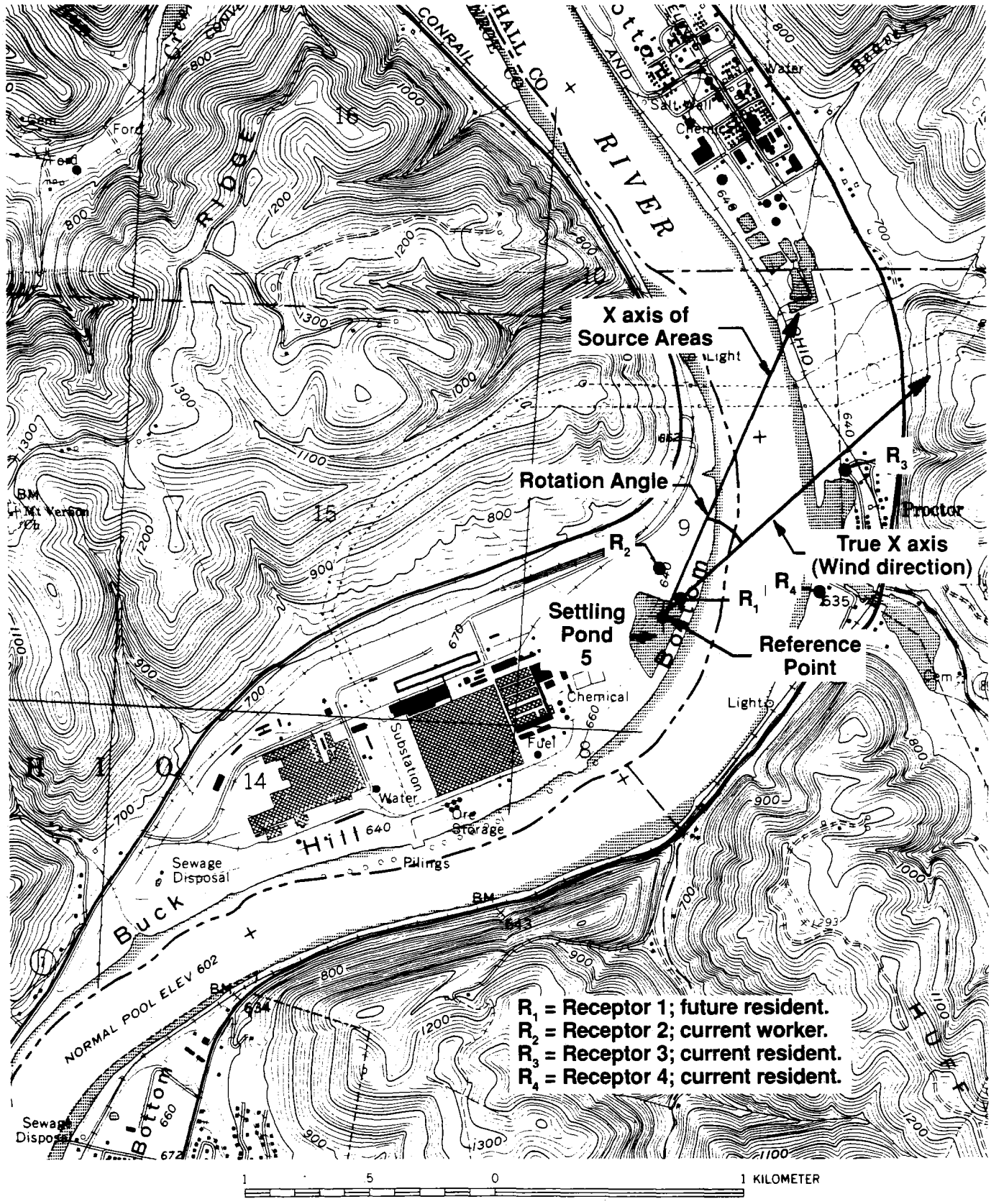
8760 HOUR AVERAGE FOR HOUR ENDING 8760
CONCENTRATIONS IN MICROGRAMS/M**3

(90.,	30.,	277.586)	(190.,	-70.,	13.201)	(820.,	420.,	5.911)
(340.,	540.,	3.805)	(					



Adapted from Geraghty and Miller (1988).

FIGURE A2-1 SOURCE AREAS FROM DISPOSAL POND 5



Adapted from USGS (1976)

FIGURE A2-2 RECEPTOR LOCATIONS

Meteorological Data

Meteorological data was provided as a pre-processed data file by Ormet (Simmons 1991). Two years (1989 and 1990) of data were provided, each year in a separate file. The model handles only one year of data. The data for 1989 was selected for use in the risk assessment, since the concentration values obtained using the two data sets were almost identical and the 1989 file contains meteorological data for the period during which PM_{10} monitoring data were collected.

3.3 Output File

The output of the FDM provides long-term average PM_{10} concentrations in air at the preselected receptor locations. These data were obtained for the four receptor locations described above and the values are listed in Table A2-4.

3.4 Reality Check

Since any modeling effort is based on assumptions and contains some measure of uncertainty, a reality check was performed. The purpose of the reality check was to verify the ability of the Cowherd emission model and the FDM to approximate actual measurements at ambient monitoring stations.

The complete text of the reality check is furnished as an attachment to this appendix (Metcalf & Eddy 1991). The reality check concluded that the modeling effort was predicting actual measurements within an acceptable range of uncertainty at all monitoring locations except AM2 (located on the levee of Pond 5) (Metcalf & Eddy 1991). During the monitoring program an average annual PM_{10} concentration of 42.5 $\mu g/m^3$ was measured at AM2 (Energy and Environmental Management, Inc. 1989). The PM_{10} average annual concentration calculated during the modeling effort was 278 $\mu g/m^3$, nearly seven times higher. The calculated modeling concentrations at all other monitors were lower than measured concentrations. This was expected since the monitors were measuring particulates not only from the Superfund site source area but the manufacturing process and any other sources in the area.

4.0 EXPOSURE POINT CONCENTRATIONS

Since the modeling approach clearly overestimated concentrations close to the source area (i.e., Pond 5), the measured PM_{10} concentration was used in the exposure point concentration calculation for the future hypothetical residence assumed on the northeast perimeter of Pond 5 (at the approximate location of AM2).

It is recognized that this measured concentration represents emissions from all sources, including the active facility. This total concentration was used, as opposed to an upwind/downwind difference, for several reasons. The active Ormet facility is located adjacent to the Superfund site of interest, and the emissions from this active facility were significant in amount and were released predominantly at ground level during the time when monitoring data were being collected. When the wind was from westerly

TABLE A2-4 PM_{10} CONCENTRATIONS IN AIR AT THE RECEPTORS

Receptor	Location	PM_{10} Concentration, $\mu g/m^3$
1	Northeast perimeter of Pond 5	278
2	Recreation Area North of Pond 5	13.2
3	Proctor, WV Northeast of Pond 5	5.9
4	Proctor, WV closest to Pond 5	3.8

directions, monitor AM4 was downwind of the active facility and upwind of the ponds, and monitor AM2 was downwind of both the active facility and the ponds. An evaluation of the data for 18 days on which the wind was persistently from westerly directions and on which no precipitation occurred, yields an average upwind concentration at AM4 of 93.5 $\mu g/m^3$ and an average downwind concentration of 51.6 $\mu g/m^3$. The average of the differences between the 18 observations at these two locations on those days is 42 $\mu g/m^3$. This would seem to indicate that the contribution of the ponds is negative or zero, but such a conclusion is wrong because the upwind monitor was not measuring a spatially uniform background concentration. Rather, it was measuring concentrations in the plume from a ground-level source, i.e., the active facility. Concentrations from this source can be expected to diminish rapidly with distance. As an example, the ratio of concentrations at AM2 to AM4 from a ground-level point source located 100 meters from AM4 during neutral meteorological conditions is approximately 24, given that AM2 is approximately 475 meters farther downwind than AM4. For example, if the source's contribution at AM4 was 93.5 $\mu g/m^3$, its contribution at AM2 might be 93.5/24, or only about 4 $\mu g/m^3$. This ratio will vary significantly based on meteorological conditions. Further, it does not account for times when the center of the plume from active facility impacts AM4 but misses AM2, nor does it consider times when the active facility is emitting and the ponds are not, and vice-versa. Altogether, these examples illustrate why concentrations at AM4 cannot simply be subtracted from those at AM2 to estimate impacts due to the ponds. Therefore, the exposure point concentration for the future hypothetical residence at the perimeter of Pond 5 is likely an overestimate but the magnitude of this overestimate is unknown.

For all other exposure points evaluated in the risk assessment, modeled PM_{10} were utilized. In order to obtain an exposure point concentration, the appropriate PM_{10} concentration was multiplied by the appropriate contaminant concentration (mass fraction) in the Pond 5 solids. These calculations are summarized in Worksheet POND5S.WQ1 in Appendix 3 (Pages A3-11 to A3-16).

5.0 UNCERTAINTIES

There are numerous uncertainties involved in modeling of any kind. In order to model, a number of assumptions must be made. The key model assumptions that introduce uncertainty are as follows:

Calculation of the Emission Rate

In order to determine the emission rate, the Cowherd model simplifies the calculation by assuming that the source area is uniformly contaminated and that wind erosion is continuous and steady. This is unlikely to be true and tends to result in an overestimate of emissions and ultimately risk. A number of site-specific parameters (including roughness height and percent of vegetation) must be assumed. At Ormet these were estimated from visual observations during site visits. These estimates are subjective and can result in either over or underestimates of the true emission rate.

Air Transport Modeling

The FDM is a relatively recent model and is still undergoing general validation. Several validation studies have been described (TRC 1991), however, they have in general focused on short-term (i.e., daily or hourly) time frames.

For the air pathway analysis at Ormet, on-site meteorological data and air monitoring data were available for only selected days over a 10-month period. In the reality check modeling, hourly average meteorological data were used on the days on which samples were collected to estimate 24-hour average concentrations. However, the emission rate used was an annual average estimate. This was consistent with how the emission rate was used in the initial modeling effort, which the reality check was designed to evaluate. Furthermore, the Cowherd emission factor equation (in fact, any available fugitive dust emission factor) is intended for annual average or short-term worst-case estimates. Of the two acceptable used of the equation, the long-term average is deemed more appropriate than an artifically conservative worst-case estimate of short-term emission rates.

For the risk assessment modeling, meteorological data were used from the Pittsburgh airport for the years 1989 and 1990, in conjunction with meteorological data collected on site from May 1988 through May 1990. Essentially, all the on-site data were used, with missing values and parameters filled in with Pittsburgh data. Typically, USEPA recommends the use of five years of meteorological data for annual-average modeling, but in this case, two years of data that included measurements made on site were considered more representative than additional years of totally off-site data. However, the relatively limited on-site data do not allow for evaluation of long-term trends or variations, so some uncertainty is introduced.

The reality check performed for this effort indicated that the model overestimated PM_{10} concentrations near the source area but results were more reasonable as the distance away from the source increased. The overprediction at AM2 does not imply that a similar overprediction would be expected at exposure points away from the source. There is no way of knowing exactly whether the model is over or under estimating PM_{10} concentrations at the exposure point farthest from the source (i.e., Proctor).

Use of the FDM also required a number of assumptions including roughness height and wind dependence. Since good meteorological data were available, assumptions regarding meteorological inputs to the model are less uncertain.

Another major source of uncertainty is the assumption that contaminant concentrations in PM_{10} are identical to contaminant concentrations in the pond solids. Since none of the monitoring samples were chemically analyzed, there is no conclusion that can be made regarding whether this assumption leads to an overestimate or underestimate of exposure point concentrations.

6.0 REFERENCES

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U.S. ENVIRONMENTAL PROTECTION AGENCY

TECHNICAL ENFORCEMENT SUPPORT
AT
HAZARDOUS WASTE SITES

TES X

CONTRACT NO. 68-W9-0007
WORK ASSIGNMENT NO. RO5026

TECHNICAL MEMORANDUM

METEOROLOGICAL DATA VERIFICATION AND AIR DISPERSION MODELING REALITY CHECK AT THE ORMET, OHIO, SITE

U.S. EPA REGION V

METCALF & EDDY, INC.
PROJECT NO. 250026-0001-626

WORK PERFORMED BY:

METCALF & EDDY, INC.
2800 CORPORATE EXCHANGE DRIVE, SUITE 250
COLUMBUS, OHIO 43231

May 3, 1991

INTRODUCTION

The purpose of this Technical Memorandum is to describe the verification and "reality check" analysis conducted by Metcalf & Eddy, Inc. (M&E) for the air dispersion modeling done by Life Systems, Inc. as part of its risk assessment for the Ormet site. This work was done under M&E's Technical Enforcement Support contract (TES X), under which M&E provides technical assistance to the United States Environmental Protection Agency (USEPA) in its enforcement activities at hazardous waste disposal sites.

As outlined by Schultz (1990), M&E was asked to perform three tasks: (1) to verify that the on-site meteorological data provided to Life Systems, Inc. by Ormet, Inc. had been processed appropriately and correctly for use in air dispersion modeling; (2) to evaluate the ability of the Cowherd emission factor equation (Cowherd, et al., 1985) coupled with the Fugitive Dust Model (FDM) (Winges, 1991) to approximate conditions at the Ormet site by comparing modeling results with monitoring data on selected days; and (3) to document Tasks 1 and 2 in a Technical Memorandum. This Technical Memorandum fulfills Task 3.

The activities and results comprising Tasks 1 and 2 are discussed below. Follwoing the description of the two tasks, the results are evaluated, and recommendations and interpretations regarding these results are presented. Essentially, M&E finds that the meteorological data provided by Ormet are acceptable for use in the risk assessment modeling performed by Life Systems, Inc., and that the Cowherd/FDM approach is capable of approximating actual conditions at the site within reasonable uncertainty limits.

TASK 1. METEOROLOGICAL DATA VERIFICATION

The meteorological data collected on site by Ormet consist of 5-minute average values of wind speed and wind direction. For air dispersion modeling purposes, these 5-minute values must be averaged to yield hourly values. Values for other meteorological parameters including temperature, mixing height, and atmospheric stability classification are also required on an hourly basis by the air dispersion model. Because the temperature and mixing height data were not collected at the Ormet site, they were obtained from the nearest National Weather Service station at the Pittsburgh Airport. Stability class values must be computed from other meteorological data collected routinely at National Weather Service stations, e.g., solar radiation intensity and atmospheric ceiling height. In addition, the hourly values must be converted to the standard "preprocessed" format for use in USEPA air dispersion models. The steps involved in processing the on-site and Pittsburgh meteorological data to generate air dispersion modeling input data are summarized in Figure 1.

In order to verify that meteorological data had been processed correctly by Ormet, M&E completed the following subtasks:

- Spot-checked calculations of hourly averages from on-site 5-minute data.
- Verified adjustments to wind speeds from 23.8 meters to 10 meters anemometer height.
- Procured Pittsburgh surface and upper air data.
- Verified Ormet's mixing of on-site and off-site data to prepare modeling files.

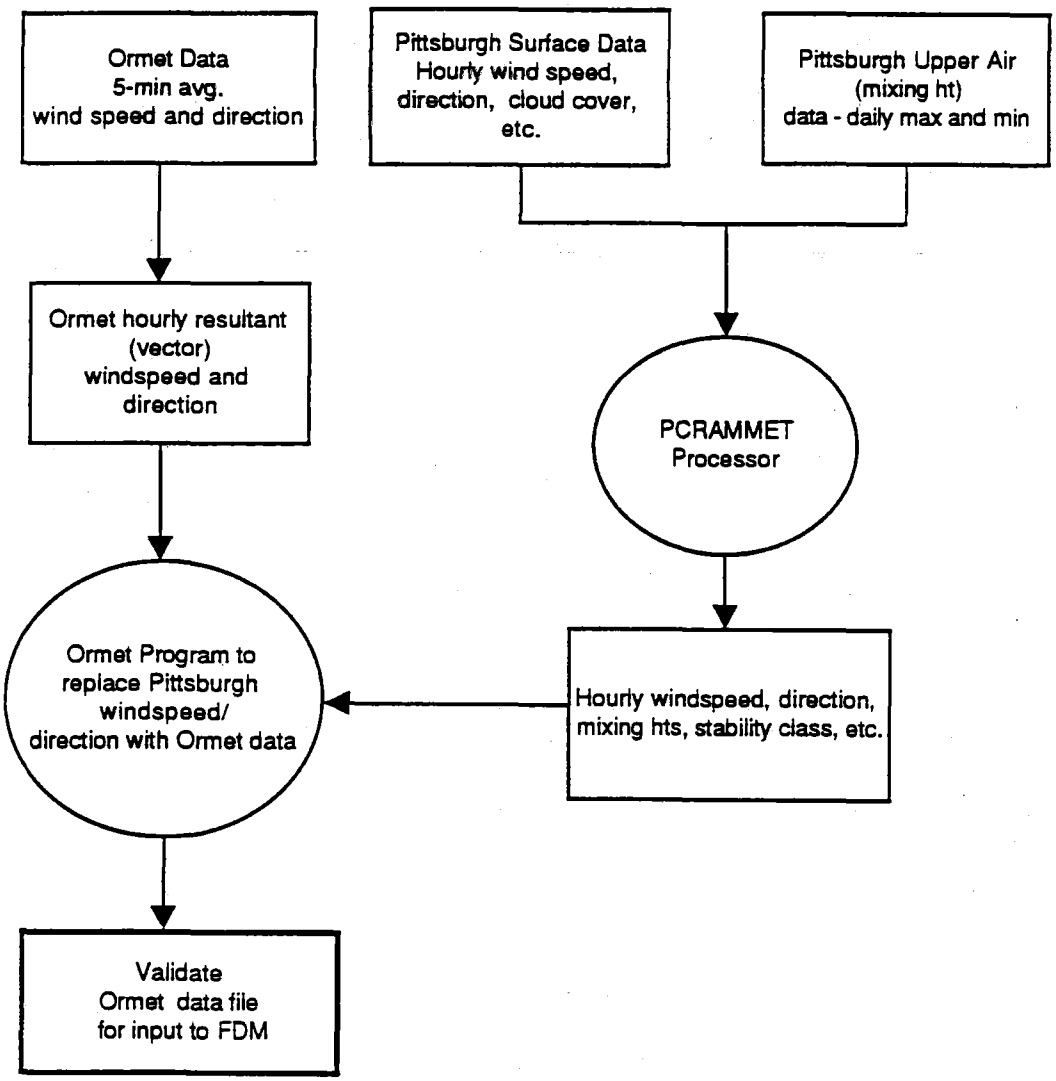


Figure 1
Meteorological Data Processing Steps
for FDM Model Input

Calculations Using On-site 5-minute Data

Ormet supplied computer disks containing files of 5-minute measurements of wind speed and direction covering the years 1988 through 1990. In addition, Ormet supplied meteorological data files for the years 1988 through 1990, formatted for use in dispersion modeling (Reggi, 1990; 1991). M&E compared the 5-minute raw data values with the hourly values in the Ormet modeling files to ensure that the modeling files were traceable to the on-site data.

Because of the volume of data provided, M&E elected to perform only spot checks of calculations on randomly selected hours. M&E determined the unit vector wind direction and mean scalar wind speeds for four randomly selected hours on each of four days (07/08/88, 08/19/88, 08/31/88, and 11/23/88).

Wind Direction: Unit vector wind directions were computed as outlined in USEPA (1987). As a first check, M&E's results were compared to those hourly values presented in Energy & Environmental Management, Inc. (1989). The values agreed exactly. M&E then compared its calculated results with the corresponding values in the Ormet modeling files. M&E's wind direction results matched the Ormet values exactly.

Wind Speed: The hourly average wind speeds calculated by M&E did not match those in the Ormet modeling files because the Ormet values were not computed exactly as outlined in USEPA (1987). Instead, they were computed by following the procedures in the USEPA computer program PCRAMMET. PCRAMMET reads wind speed values using an integer rather than a real number format, and this forces the hourly wind speed values to be rounded prior to conversion within PCRAMMET from units of knots to m/s. When M&E duplicated this rounding, the resulting hourly average wind speeds matched the Ormet values exactly.

Adjustments for Anemometer Height

The Ormet modeling files were supplied to M&E in two versions, labeled "original" (Reggi, 1990) and "revised" (Reggi, 1991). The wind speeds in the "original" files were actual measurements made at a height of 23.8 meters above the ground surface. Because FDM is written to accept only wind speeds measured at 10.0 meters, the actual measured wind speed values had to be adjusted to equivalent wind speeds at 10 meters for modeling. The "revised" Ormet files contained wind speed values that had been adjusted to equivalent 10-meter wind speeds using accepted USEPA methods (Catalano, et al., 1987). M&E verified Ormet's calculations by spot checking selected hours manually. All of the values that M&E checked agreed exactly.

Pittsburgh Airport Meteorological Data

For FDM modeling, measurements of meteorological parameters were needed that were not obtained on site by Ormet. Thus, Ormet supplemented the on-site data with the necessary measurements from the Pittsburgh airport weather station. These measurements include temperature, cloud cover, and twice daily mixing heights. The Pittsburgh data were included in processed form in the modeling files provided to M&E, but the original Pittsburgh data, prior to processing, were not supplied to M&E. Therefore, M&E obtained the needed Pittsburgh airport data for the years 1988 through 1990 from the SCRAM Bulletin Board, which is a computer bulletin board operated by the USEPA. Surface data (hourly wind speed and directions, temperatures, and cloud cover observations) and upper air data (daily morning and afternoon mixing heights) were downloaded. To confirm that the appropriate Pittsburgh data files had been used by Ormet, M&E spot-checked values of parameters that are not changed during the meteorological processing required prior to modeling. Specifically, hourly temperatures and daily ranges of mixing heights were checked and found to agree.

Meteorological Data Files Used in FDM Modeling

In addition to the measured parameters described above, certain hourly computed values are also required inputs for FDM modeling and were included in the Ormet data files. These computed values include hourly stability class designations and hourly mixing heights. Hourly mixing heights are computed from the morning and afternoon mixing height measurements included in the upper air data files. Stability class designations are computed from the hourly measurements of wind speed, ceiling height, time of day, and location.

To check these values, M&E ran the USEPA preprocessor program PCRAMMET (dated 90164) on the Pittsburgh data sets that were obtained from the SCRAM Bulletin Board. M&E compared values in the output file generated when PCRAMMET was run on the Pittsburgh data files with the values in the Ormet data files. Hourly mixing heights agreed exactly. Stability classifications agreed for most of the hours checked, but were slightly different for a few hours. The differences are attributable to the different wind speeds used in the Ormet files, i.e., the wind speeds and wind directions that were measured on site and checked previously.

TASK 2. AIR DISPERSION MODELING REALITY CHECK

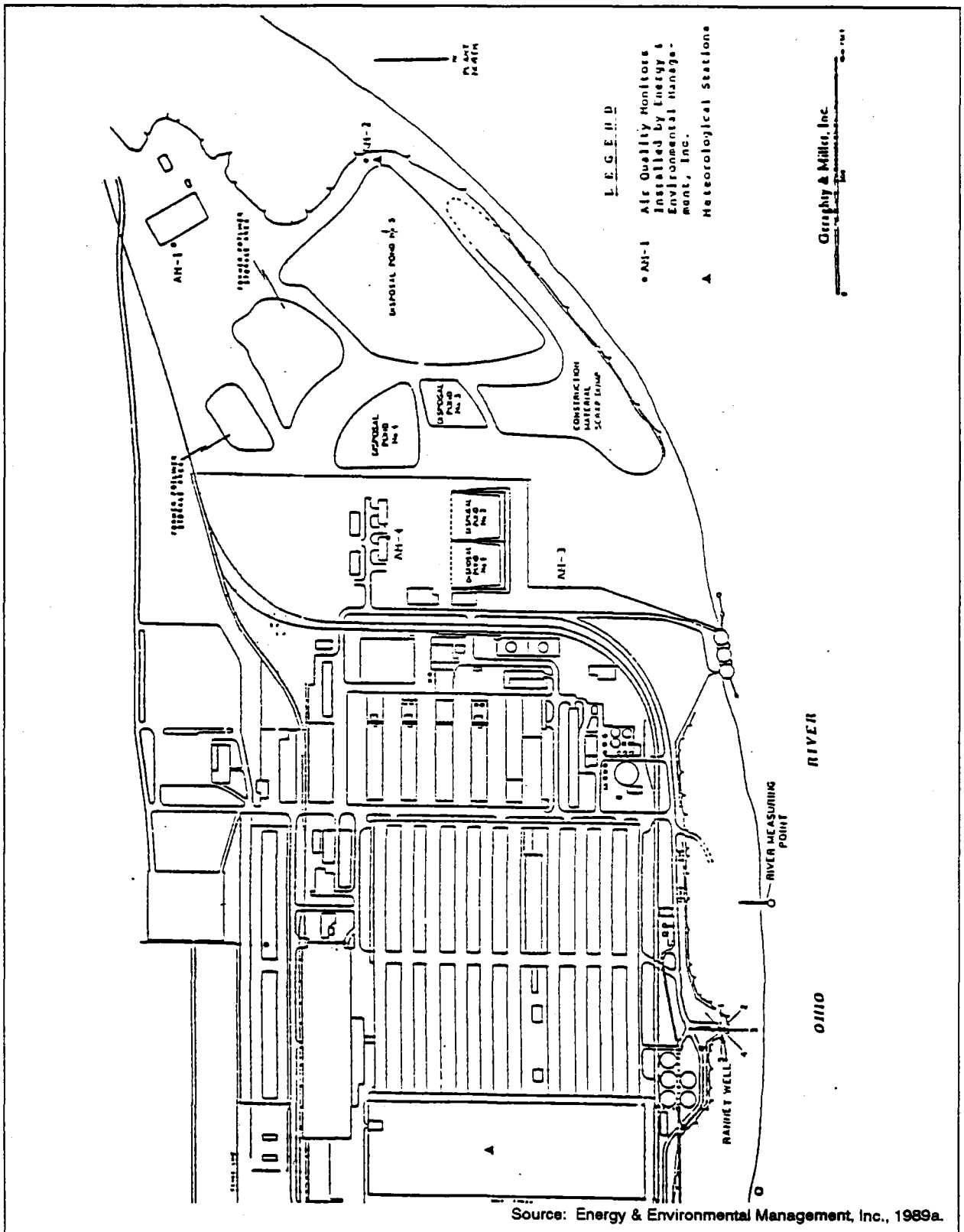
The purpose of this task was to evaluate the ability of the Cowherd emission factor equation (Cowherd, et al., 1985) coupled with the Fugitive Dust Model (FDM), as used by Life Systems in its risk assessment for the Ormet site (Donohue & Associates, Inc., 1991), to approximate conditions at the Ormet site. This was done by comparing modeling results with on-site monitoring data. Specifically, M&E completed the following subtasks:

- Selected approach for reality check comparisons.
- Verified emission rates and source characteristics used by Life Systems.
- Performed reality check modeling using FDM and compared results with appropriate monitoring data.
- Verified the risk assessment modeling.

Selection of Approach for Reality Check Comparisons.

Ormet conducted PM_{10} monitoring at four locations around the Ormet site on selected days during 1988, according to a schedule approved by the USEPA (Energy & Environmental Management, Inc., 1989). These locations are shown on Figure 2. Thus, on-site monitoring data are available for comparison with modeling results to allow a "reality check" of the model.

However, most of the 24-hour concentrations measured on site were affected by emissions from both the CERCLA site and the active industrial facility next to it. This complicates the reality check considerably because only the CERCLA site was modeled for the risk assessment. Therefore, M&E selected two approaches for evaluating the model's performance. The first approach is to compare short-term (24-hour) modeling data with upwind/downwind differences in the monitoring data on selected days at selected monitors. The second approach is to compare long-term averages of total concentrations measured at all four monitoring locations with corresponding modeling results.



Source: Energy & Environmental Management, Inc., 1989a.

Figure 2
Air Monitoring Locations at the Ormet Site

Short-term Approach: In the first approach, M&E selected days when two on-site monitors are expected (based on wind direction and persistence) to have measured concentrations due primarily to emissions from the site and not to emissions from the active industrial facility immediately adjacent to the site. Specifically, M&E selected seven days for modeling when the wind was persistently from the northeast or east, ensuring that monitor locations AM-3 and AM-4 were downwind of the CERCLA site and upwind of the industrial facility most of the sampling time. These are the same days identified in Ormet's upwind/downwind analysis as providing the best indication of site impacts (Reggi, 1989). Differences between the upwind concentrations (AM-1 and AM-2) and the downwind concentrations (AM-3 and AM-4) on the seven days selected provide the best estimates of site impacts and can be compared directly with modeling for those days. This approach is essentially a short-term comparison of a few 24-hour values.

Long-term Approach: The second approach provides a longer term comparison of total monitoring values with modeling values over the 10-month time period during which on-site monitoring occurred. In this approach, close agreement of modeling and monitoring values is not expected, however, the modeling results are expected to be lower than the monitoring results because the modeling does not include all the sources that potentially influenced the monitors, specifically, the active industrial facility sources.

FDM Input Verification.

M&E checked Life Systems' interpretations of particle size and site characteristics for use in the Cowherd emission rate equation (Cowherd, et al., 1985) and found them reasonable. In addition to the emission rate, M&E also examined the selection of FDM execution parameters by Life Systems. In particular, M&E considered the use of FDM's wind dependence factor and particle deposition features.

Emission Rate: In the Life Systems modeling, only Pond 5 was included as a fugitive dust source at the Ormet site. Although other areas of the site may contribute fugitive dust emissions occasionally, M&E concurs that Pond 5 is the biggest potential source, based on M&E's visual observations of the site and on the discussion of erosion potential by Cowherd, et al. (1985). For modeling purposes, Pond 5 was broken up into five sources, based on the surface soil particle size data. Breaking this large area up into additional sources might provide more accurate modeling results at receptors very near the pond (e.g., AM-2), but would probably not affect results farther away (e.g., in Proctor).

In addition, M&E checked the annual average wind speed of 1.9 m/s provided by Ormet for use in the Cowherd equation. M&E computed an average of the 5-minute data provided in computer files described above and obtained an arithmetic average of approximately 2.1 m/s. When adjusted to a 10-meter height, as explained above, the result was 1.9 m/s. This value is lower than one might expect looking at National Weather Service station data. However, it represents on-site data in a river valley rather than off-site data at a flat airport location. Thus, M&E considers the 1.9 m/s value to be appropriate for use in the emission rate equation.

Wind Dependence: The FDM model has the ability to allow the emission rate to vary with wind speed. This is accomplished by setting the wind dependence factor equal to some non-zero value in the FDM input data set. The wind speed dependence factor is an exponent in the following emission rate equation, which is built into FDM:

$$E = Qo\ u^{W}$$

where E is the emission rate ($g/s/m^2$),
Qo is a constant emission factor,
u is the wind speed (m/s), and
w is the wind dependence factor.

In Life Systems' modeling, w was set to zero, and Qo was determined from the Cowherd equation. With w set to zero, FDM multiplied the Cowherd emission rate, which is an average for the year, by the wind speed raised to the zeroth power, which is equal to one. This in effect defeats the FDM capability of allowing emission rate to vary with wind speed and forces the emission rate to be the same for all wind speeds.

Although this approach does not use the model's capabilities to their fullest, there would be significant inconsistencies in determining a value of w that would be appropriate for an emission rate determined from the Cowherd equation. This is because the Cowherd equation computes an average emission rate based on the expected value of the cube of the wind speed, as estimated from the cube of the annual average wind speed. It is not clear how the resulting emission rate would actually vary with wind speed in the form allowed by FDM, so the approach of setting w to zero is considered reasonable. Furthermore, this approach is consistent with the approach taken in other USEPA models that could have been used at this site, e.g., ISC (Wagner, 1987). The effect that this approach has on modeled concentrations was explored in the short-term reality check modeling described below.

Particle Deposition: FDM estimates particle deposition using a complex expression that accounts for gravitational settling and dry deposition through use of two parameters, both of which are functions of particle size. The parameters are settling velocity and deposition velocity. FDM will compute values of these two parameters based on the particle size distribution input by the user; or the parameter values may be input directly. In the Life Systems modeling, the particle size was assumed to be 10 micrometers. In actuality, the average particle size in the emission rates estimated using Cowherd's equation is probably less than 10 micrometers. If the actual particle size distribution in the air is less than 10 micrometers, FDM would tend to overpredict gravitational settling and may underpredict dry deposition. The resulting effects on FDM predicted concentrations would be a function of distance, roughness height, and friction velocity. The magnitude of such effects would be difficult to estimate.

Given that no data for particle size distribution in the air are available for the Ormet site, and given the dependence of any such distribution on wind speed as well as surface soil particle sizes, the Life Systems assumption of 10 micrometers is considered reasonable. Furthermore, the errors introduced into the FDM modeling due to particle size may tend to cancel each other out.

Reality Check Modeling.

In performing the reality check modeling, M&E first defined receptor locations to coincide with Ormet monitoring locations AM-1 through AM-4. Then, input source strengths and locations were set to be identical to those used by Life Systems in the risk assessment modeling (Donohue, et al., 1991). Next, FDM's meteorological control flags were set to compute concentrations on the selected days for the short-term and long-term comparisons, as discussed above. Finally, the FDM program was executed using the 1988 modeling meteorological data file provided by Ormet. All reality check modeling was done using FDM (version dated 91028).

Short-term Approach: For the short-term modeling, FDM was used to estimate concentrations at the AM-3 and AM-4 monitoring locations on the seven days discussed above. To evaluate the effects of different FDM program execution options, three runs were made using FDM. Run 1 was made using identical execution options as those used by Life Systems in the risk assessment modeling

(Donohue, et al., 1991). These included particle deposition calculations within FDM, assuming an average particle size of 10 micrometers. They also included a wind speed dependence factor of zero. In Run 2, particle deposition was not included in the calculations; and in Run 3, FDM's wind speed dependence factor was set to 1.9 instead of zero. (The value of 1.9 was selected because earlier modeling by Life Systems had been done using this value.)

In Table 1, results of the three FDM runs are shown along with monitored concentrations at AM-3 and AM-4 for the same time periods, presented under the "Measured Concentrations" heading. Under this heading, "Total PM_{10}" refers to the total measured at either AM-3 or AM-4, and "Est Impact" refers to the upwind/downwind differencing results as obtained by Ormet (Reggi, 1989). As shown, results for Run 1 match the "Est Impact" results for AM-3 much better than either of the other FDM runs. The modeled concentrations at AM-3 is about half the total measured at AM-3 and exceeds the estimated impact by about a factor of four. The modeled concentration at AM-4 is less than both the total measured concentrations and the estimated impact. Thus, overall agreement between FDM Run 1 results and the Ormet estimated impacts is within about a factor of four.

Long-term Approach: For the long-term comparisons, average concentrations at each of the four monitoring locations were modeled. Two slightly different meteorological scenarios were evaluated. First, the model was executed for only the days on which the monitors were operated. Second, the model was operated using all days in the 1988 meteorological data set. The purpose for examining both scenarios was to see if the days on which the monitors operated seemed to be biased toward low or high ambient concentrations.

Results of this modeling are shown in Table 2. The arithmetic means of all measured values for each monitor are tabulated under the heading "Measured." Modeling results for the first and second scenarios described above are tabulated under the headings "Monitor Days" and "All year," respectively. With the exception of AM-2, modeling results are below measured values. (The values at AM-2 are discussed further in the discussion section below.) Also, the results for both modeling scenarios are very similar, with the biggest difference occurring for AM-1. This suggests that the wind was toward AM-1 a larger fraction of the time over the entire year than on the monitoring days.

Verification of Risk Assessment Modeling.

M&E verified the risk assessment model execution by duplicating Life Systems' model runs on M&E computers. The purpose of this exercise was to confirm that the meteorological data supplied by Ormet to both M&E and Life Systems was identical and to verify that the copies of the FDM program used by Life Systems and M&E yielded the same results. M&E ran FDM (91028) with the inputs listed in Table A2-3 of Donohue and Associates, Inc. (1991) using the modeling data file supplied by Ormet for 1989. The resulting concentrations agreed within 0.001 micrograms per cubic meter.

DISCUSSION OF RESULTS

Results of the tasks described above are summarized and discussed below.

Task 1: Meteorological Data: In Task 1, M&E verified that the values checked in the Ormet modeling files could be traced to either on-site 5-minute measurements or to the appropriate Pittsburgh data. The differences noted by M&E in the wind speed measurements were caused by the way the USEPA computer program reads wind speed values as integers rather than real numbers, which effectively forces the numbers to be rounded off.

Table 1. Short-term FDM Comparison of Measured vs. Modeled Concentrations

Date	Measured Concentrations (ug/cu m)				Modeled Concentrations (ug/cu m)					
	Total PM10		Est. Impact		Run 1		Run 2		Run 3	
	AM-3	AM-4	AM-3	AM-4	AM-3	AM-4	AM-3	AM-4	AM-3	AM-4
04/10/88	37.1	36.5	6.6	6.0	4.1	0.01	20.9	0.1	15.7	0.1
04/22/88	22.0	27.1	2.0	4.9	7.3	2.6	39.4	8.9	32.5	6.8
05/04/88	void	69.4	void	39.1	6.8	1.6	36.5	5.2	30.3	4.4
07/08/88	108.2	107.3	9.3	7.0	16.2	2.6	80.8	5.9	56.9	4.3
08/31/88	30.0	37.1	0.2	7.3	32.4	1.2	106.0	6.5	71.6	5.9
09/24/88	20.4	23.8	1.8	-9.5	14.5	2.1	57.0	7.9	44.0	6.2
11/23/88	void	88.2	void	20.3	28	8	86.0	19.8	59.0	14.4
Average	31.1	55.6	4.0	10.7	15.6	2.6	60.9	7.8	44.3	6.0

Note: Run 1 was made using Life Systems input parameters.
Run 2 was made with no deposition.
Run 3 was made with the wind dependence factor set equal to 1.9.

Table 2. Long-term Comparison of Measured vs. Modeled Concentrations

	Annual Average Concentration (ug/m^3)		
		Modeled	Modeled
Location	Measured	(Monitor Days)	(All Year)
AM-1	4.16	1.4	3.9
AM-2	42.5	217.6	216.8
AM-3	52.7	3.8	2.3
AM-4	77.0	0.8	1.2

Although M&E only spot-checked values for a few hours on a few days, these time periods were selected without Ormet's knowledge or direction. Given this fact and the fact that all these data files are large and were processed by Ormet using standard computer programs for the purpose, M&E believes that the spot-checking is adequate to verify the contents of the Ormet files. Therefore, M&E concludes that the modeling data files provided by Ormet were generated correctly from the proper raw data and should be accepted for modeling purposes at the Ormet site.

Task 2: Reality Check: In Task 2, M&E conducted modeling using the same approach as in the risk assessment modeling done by Life Systems, except that the time periods modeled were different and the receptor locations were different. Both short-term and long-term comparisons were made and the effects of different FDM program execution options were also considered.

Table 1 shows the results of the FDM vs monitoring results for the seven days on which monitors AM-3 and AM-4 were persistently downwind of the site and upwind of the manufacturing facility. Comparison of the FDM results without wind dependence (Run 1), with Ormet's estimated impact monitored concentrations provides average modeling and monitoring values that agree within a factor of about four. For modeling efforts of this type, this is considered acceptable agreement in light of the following factors: (1) other sources were present in the area but not included in the modeling; (2) the terrain immediately around Pond 5 is not flat; (3) trees exist between Pond 5 and the monitoring locations; (4) AM-4 was not directly downwind of Pond 5 except on one day (11/23/88); (5) the model underpredicted by as much at AM-4 as it overpredicted at AM-3; and (6) the model validation studies presented in the FDM User's Manual (Winges, 1991) show differences between measured and modeled concentrations that vary from perfect agreement to factor-of-ten differences on different days.

Results from Runs 2 and 3 are also given in Table 1. These results demonstrate the effects of ignoring particle deposition and of allowing FDM to adjust the emission rate with wind speed. Neither of these approaches yields modeling results that agree with the monitoring results at AM-3 as well as the Life Systems approach in Run 1. As a result, the Life Systems approach is considered the more reasonable approach and is found to be capable of approximating concentrations around the Ormet site within acceptable uncertainty limits.

Table 2 shows measured vs. modeled concentrations at all four monitor locations. Because only the CERCLA site sources were included in the modeling, and because the monitors were downwind of both the site and the active facility during some of the monitoring days, the model should have estimated average concentrations at or below those measured. This expectation was met at all the monitor locations except AM-2. Overprediction by the model at AM-2 is not unexpected because of the proximity of the receptor to the edge of the area source (Pond 5). Estimates from any model, including FDM, that relies on Gaussian assumptions and Turner stability curves is subject to considerable error for receptors nearer than 100 m from the source. Furthermore, locating a receptor nearer than the length of a side of an area source is not recommended in the user's manuals for other models (e.g., ISC (Wagner, 1987)). This overprediction at AM-2, which is caused by the nearness to the area source, does not imply that the model overpredicts at receptors that are located farther away from the source. In fact, the results at the other monitoring locations demonstrate that the model does not consistently overpredict at such locations.

CONCLUSIONS

It is M&E's judgement that the meteorological data supplied by Ormet are acceptable and that the modeling approach taken by Life Systems is reasonable. Although additional refinement of the modeling effort could be done, e.g., including other source areas than Pond 5, it is not expected that the modeling results at receptors off site would be affected very much. Considering the uncertainties

in both monitoring data and modeling data, the differences in the two sets of concentrations are considered within reason.

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APPENDIX 3

EXPOSURE POINT CONCENTRATION WORKSHEETS

Exposure Point	Worksheet Name	Page Number
Future Drinking Water Well	MW-WQ1	A3-3
Plant Recreation Area	POND5S.WQ1	A3-11
Proctor, West Virginia	POND5S.WQ1	A3-11
Future Residence (Downwind of Pond 5)	POND5S.WQ1	A3-11
Future Residence (Pond 5)	POND5D.WQ1	A3-17
Future Residence (Pond 1 to 4)	POND1-4D.WQ1	A3-27
Future Residence (Potliner)	POTLNR.WQ1	A3-35
Future Residence (Carbon Runoff Area)	CRA.WQ1	A3-45
Future Residence (Construction Material Scrap Dump)	CMSD.WQ1	A3-52
Ohio River		
Surface Water	RIVWTR.WQ1	A3-60
Sediment	RIVSED.WQ1	A3-67
Backwater Area (004)		
Surface Water	BAKWAT.WQ1	A3-75
Sediment	BAKSED.WQ1	A3-83

EXPOSURE POINT
FILE NAME: MW.WQ1
DATE: 02/13/91
MEDIUM, UNITS: WATER, MG/L
SITE AREA: GROUNDWATER PLUME

INORGANICS		ALUMINUM		ANTIMONY		ARSENIC		BARIUM		BERYLLIUM		CADMIUM		CHROMIUM		COBALT		COPPER		IRON		LEAD		MANGANESE	
SAMPLE #	NOTES	CONC.	Q		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q
MW-1	PHASE 1	2.66		0.025	U	0.0024		0.081		0.0015	U	0.0041	U	0.005	U	0.0039	U	0.016	U	6.21		0.0036		0.379	
MW-2		3.95		0.025	U	0.394	N	0.548		0.0015	U	0.0049		0.026		0.327		0.68		34.2		0.0074		1	
MW-15		5.2		0.025	U	0.0045	N	0.239		0.0025		0.0041	U	0.005	U	0.0048		0.023		10.8		0.0049		0.117	
MW-16		5.74		0.025	U	0.063	N	0.176		0.0015	U	0.0041	U	0.0058		0.018		0.053		6.57		0.0029		0.22	
MW-17		0.353		0.025	U	0.0054	N	0.13		0.0015	U	0.0041	U	0.005	U	0.0056		0.045		0.973		0.0023	U	1.72	
MW-18		164		0.025	U	0.159	N	0.98		0.0071		0.0041	U	0.163		0.814		0.2		144		0.109		1.75	
MW-28		0.696		0.025	U	0.0015	UN	0.044		0.0015	U	0.0041	U	0.005	U	0.012		0.018		2.41		0.0085		0.035	
MW-29S		1.64		0.025	U	0.0052	N	0.072		0.0015	U	0.0041	U	0.005	U	0.0039	U	0.02		1.52		0.0023	U	0.094	
MW-29D		0.019	U	0.025	U	0.002		0.082		0.0015	U	0.0041	U	0.005	U	0.0039	U	0.016	U	0.082		0.0023	U	1.16	
MW-30		1.44		0.025	U	0.0018	N	0.281		0.0015	U	0.0041	U	0.005	U	0.0064	U	0.02	U	4.42		0.014	U	0.753	
MW-31		12		0.025	U	0.046	N	0.313		0.0015	U	0.0041	U	0.021		0.103		0.194		20.3		0.0075		1.93	
MW-32		1.28		0.025	U	0.014	N	0.066		0.0015	U	0.0041	U	0.005	U	0.032		0.074		4.05		0.0025		0.513	
MW-34S		11.5		0.025	U	0.0087	N	0.251		0.0015	U	0.0041	U	0.015		0.011		0.042		14.6		0.0046		0.416	
MW-34D		0.429		0.025	U	0.0031	N	0.085		0.0015	U	0.0041	U	0.005	U	0.0053		0.016	U	0.538		0.0023	U	0.762	
MW-35	DUP AVG	27.6		0.025	U	0.147	N	0.2995		0.002		0.0041	U	0.026		0.495		0.357		58.85		0.0105		0.398	
MW-36		1.67		0.025	U	0.0078	N	0.124		0.0015	U	0.0041	U	0.005	U	0.037		0.017		3.52		0.0025		0.332	
MW-37	DUP AVG	166.5		0.025	U	0.1655	N	4.48		0.033		0.0109		0.3575		0.1905		0.964		108.5		0.135		14.6	
MW-39S		32.8		0.025	U	0.016	EN	0.319		0.0015	U	0.0041	U	0.035		0.025		0.074		36.6		0.019		1.63	
MW-39D		0.406		0.025	U	0.0021	N	0.084		0.0015	U	0.0041	U	0.005	U	0.0039	U	0.018		0.36		0.0023	U	0.681	
MW-40S		2.08		0.025	U	0.018	EN	0.058		0.0015	U	0.0041	U	0.005	U	0.0071		0.037		1.89		0.0023	U	0.139	
MW-40D		7.07		0.025	U	0.018	N	0.141		0.0015	U	0.0041	U	0.007		0.011		0.037		7.81		0.0072		0.454	
MW-42S		0.173		0.025	U	0.002	N	0.042		0.0015	U	0.0041	U	0.005	U	0.0039	U	0.016	U	0.232		0.0023	U	0.237	
MW-42D		0.762		0.025	U	0.0028	N	0.086		0.0015	U	0.0041	U	0.005	U	0.0039	U	0.018		1.11		0.014		0.636	
N		23		23		23		23		23		23		23		23		23		23		23		23	
AVERAGE		2.0E+01		1.3E-02		4.7E-02		3.9E-01		2.6E-03		2.6E-03		3.0E-02		9.2E-02		1.3E-01		2.0E+01		1.5E-02		1.3E+00	
STD. DEV.		4.7E+01		0.0E+00		9.2E-02		9.2E-01		6.8E-03		1.9E-03		7.9E-02		2.0E-01		2.4E-01		3.7E+01		3.4E-02		3.0E+00	
95TH ARITH.	UPPER BOUND	3.6E+01		1.3E-02		8.0E-02		7.2E-01		5.0E-03		3.2E-03		5.8E-02		1.6E-01		2.1E-01		3.4E+01		2.8E-02		2.4E+00	

EXPOSURE POINT
FILE NAME: MW.WQ1
DATE: 02/13/91
MEDIUM, UNITS: WATER, MG
SITE AREA: GROUNDWATER PL

INORGANICS		MERCURY		NICKEL		SILVER		SODIUM		THALLIUM		VANADIUM		CYANIDE	
SAMPLE #	NOTES		Q		Q		Q		Q		Q		Q		Q
MW-1	PHASE 1	0.0002	U	0.026	U	0.0044	U	20.3		0.0018	U	0.006		0.01	U
MW-2		0.00095		0.18		0.0044	U	1450		0.0018	U	0.251		2.4	N
MW-15		0.0002	U	0.026	U	0.0044	U	34.4		0.0018	U	0.0059		0.256	N
MW-16		0.0002	U	0.028		0.0044	U	300		0.0018	U	0.018		1.47	N
MW-17		0.0002	U	0.026	U	0.0044	U	39.7		0.0018	U	0.0026	U	0.443	N
MW-18		0.0011		0.192		0.0044	U	2640		0.009	U	0.191		10.4	N
MW-28		0.0002	U	0.026	U	0.0044	U	83.3		0.0018	U	0.0026	U	2.76	N
MW-29S		0.0002	U	0.026	U	0.0044	U	224		0.0018	U	0.0044		0.587	N
MW-29D		0.0002	U	0.026	U	0.0044	U	60.4		0.0018	U	0.0026	U	0.144	
MW-30		0.0002	U	0.026	U	0.0044	U	18.7		0.0018	U	0.0044		0.01	UN
MW-31		0.0009		0.1		0.0044	U	703		0.0018	U	0.184		18.2	N
MW-32		0.0002	U	0.026	U	0.0044	U	234		0.0018	U	0.024		6.26	N
MW-34S		0.0002	U	0.026	U	0.0044	U	33.1		0.0018	U	0.018		18.6	N
MW-34D		0.0002	U	0.026	U	0.0044	U	32.4		0.0018	U	0.0026	U	0.055	
MW-35	DUP AVG	0.00033		0.098		0.0044	U	1665		0.0018	U	0.053		8.806	N
MW-36		0.0002	U	0.026	U	0.0044	U	161		0.0018	U	0.0063		7.39	N
MW-37	DUP AVG	0.00245		0.726		0.0044	U	1395		0.0018	U	0.3465		0.312	N
MW-39S		0.0002	U	0.046		0.0044	U	826		0.0018	U	0.053		1.95	N
MW-39D		0.0002	U	0.026	U	0.0044	U	53.9		0.0018	U	0.0026	U	0.135	N
MW-40S		0.0002	U	0.026	U	0.0044	U	445		0.0018	U	0.0056		0.907	N
MW-40D		0.0002	U	0.031		0.0044	U	258		0.0018	U	0.012		5.953	N
MW-42S		0.0002	U	0.026	U	0.0044	U	143		0.0018	U	0.0027		0.378	N
MW-42D		0.0002	U	0.026	U	0.0044	U	68.6		0.0018	U	0.0028		0.133	N
N		23		23		23		23		23		23		23	
AVERAGE		3.3E-04		6.9E-02		2.2E-03		4.7E+02		1.1E-03		5.2E-02		3.8E+00	
STD. DEV.		5.5E-04		1.5E-01		0.0E+00		6.9E+02		7.5E-04		9.5E-02		5.6E+00	
95TH ARITH. UPPER BOUND		5.3E-04		1.2E-01		2.2E-03		7.2E+02		1.3E-03		8.6E-02		5.8E+00	

GROUNDWATER
NON CLP INORGANICS
NR=NOT REQESTED

SAMPLE #	NOTES	NITROGEN AMMONIA	Q	FLUORIDE	Q	SILICA SIO2	Q	CYANIDE TOTAL	Q	CYANIDE AMENABLE	Q	CHLORIDE	Q	SULFATE	Q
MW-1	PHASE 1	0.1	U	0.2		13		0.01	U	0.01	U	41		37	
MW-2		12.5		330		1500		22		12		190		500	U
MW-15		0.2		0.2		24		0.43		0.1		45		75	
MW-16		3.6		61		150		4.6		0.01	U	44		86	
MW-17		1.1		5.2		19		1.3		0.46		32		52	
MW-18		6.8		820		1100		29		25		320		74	
MW-19		0.2		0.5		21		0.01	U	0.01	U	38		50	
MW-28		0.1	U	0.1	U	13		7.4		0.6		49		170	
MW-29S		1.7		44		9		0.99		0.37		28		110	
MW-29D		0.6		4.2		11		0.25		0.01	U	27		61	
MW-30		0.1	U	0.1	U	36		0.01		0.01	U	56		35	
MW-31		16		140		550		39		0.01	U	60		1	U
MW-32		7.6		39		56		7.2		0.3		53		59	
MW-34S		0.2		7.3		7		40		38		40		82	
MW-34D		0.1		4.4		174		0.07		0.01	U	30		54	
MW-35	DUP AVG	230		405		245		21.5		20.5		240		75.5	
MW-36		2.3		18		19		8.6		1.3		46		55	
MW-37	DUP AVG	4.5		920		2450		0.4		0.1		225		500	U
MW-39S		2.9		110		45		3.8		0.1		57		850	
MW-39D		0.2		6.1		25		0.17		0.03		5		61	
MW-40S		3.3		5.9		21		1.5		0.01	U	36		370	
MW-40D		5.4		36		47		7		0.01	U	36		160	
MW-42S		1.8		14		13		0.7		0.25		32		100	
MW-42D		0.4		6		9		0.16		0.01	U	28		62	
MW-2	PHASE 2			200		200	U	36.2		29.6				130	
MW-17				4.1		5		0.582		0.005	U			76	
MW-18				710		200	U	67		10.5				100	U
MW-31				110		200	U	4.8		3.94				200	
MW-34S	DUP AVG			6.3		7		0.1		0.03				103.5	
MW-35				71		32		8		0.0025				31	
MW-37				360		100		4.6		22.7				500	U
MW-42S				35		7		0.266		0.079				400	
N		24		32		32		32		32		24		32	
AVERAGE		1.3E+01		1.4E+02		2.2E+02		9.9E+00		5.2E+00		7.3E+01		1.4E+02	
STD. DEV.		4.6E+01		2.5E+02		5.2E+02		1.6E+01		1.0E+01		8.1E+01		1.6E+02	
95TH ARITH. UPPER BOUND		2.9E+01		2.1E+02		3.8E+02		1.5E+01		8.3E+00		1.0E+02		1.9E+02	

GROUNDWATER VOLATILES SAMPLE #	NOTES	METHYLENE CHLORIDE	Q	ACETONE	Q	CARBON DISULFIDE	Q	CHLOROFORM	2BUTANONE	Q	1,1,1TCA	Q	TCE	Q	BENZENE	Q	PCE	Q	1,1,2,2 PCA	Q	TOLUENE	Q	CHLORO BENZENE	Q
MW-1	PHASE 1																							
MW-2		0.002	BUJ	0.024	BUJ	0.005	UJ	0.005	U		0.01	UJB	0.005	UJ	0.001	J	0.002	BUJ	0.011	J	0.005	U	0.005	U	0.005	U
MW-15		0.003		0.002		0.005	U	0.005	U		0.01	U	0.005	U	0.005	U	0.002		0.005	U	0.005	U	0.005	U	0.005	U
MW-16		0.003	BUJ	0.005	BUJ	0.005	UJ	0.005	U		0.01	UJB	0.005	UJ	0.005	U	0.002	BUJ	0.006	J	0.005	U	0.005	U	0.005	U
MW-17		0.004		0.003		0.005	U	0.005	U		0.01	U	0.005	U	0.005	U	0.003		0.005	U	0.005	U	0.005	U	0.005	U
MW-18		0.008	BUJ	0.02	BUJ	0.01		0.005	UB		0.01	UJ	0.005	U	0.001	J	0.005	U	0.022	J	0.005	UJ	0.005	U	0.005	BUJ
MW-28		0.006		0.029		0.005	U	0.005	U		0.01	U	0.005	U	0.005	U	0.005		0.005	U	0.005	U	0.001		0.005	U
MW-29S		0.004		0.01		0.005	U	0.005	U		0.01	U	0.005	U	0.005	U	0.006		0.005	U	0.005	U	0.005	U	0.005	U
MW-29D		0.005		0.01	U	0.005	U	0.005	U		0.01	U	0.005	U	0.005	U	0.006		0.005	U	0.005	U	0.001		0.005	U
MW-30		0.006		0.005		0.005	U	0.005	U		0.01	U	0.002		0.005	U	0.004		0.005		0.005	U	0.001		0.005	U
MW-31		0.007		0.006		0.005	U	0.005	U		0.01	U	0.005	U	0.001		0.004		0.04		0.005	U	0.001		0.005	U
MW-32		0.006	BUJ	0.01	BUJ	0.005	U	0.005	UB		0.01	UJ	0.005	U	0.005	U	0.005	U	0.005	UJ	0.005	UJ	0.005	U	0.005	BUJ
MW-34S		0.002	BUJ	0.01	BUJ	0.005	J	0.003	J		0.01	U	0.005	U	0.005	U	0.002	BUJ	0.005	UJ	0.005	U	0.005	U	0.005	U
MW-34D		0.004	BUJ	0.015	BUJ	0.005	UJ	0.005	U		0.01	UJB	0.005	UJ	0.005	U	0.002	BUJ	0.005	UJ	0.005	U	0.005	U	0.005	U
MW-35	DUP AVG	0.003	BUJ	0.017	BUJ	0.0033		0.0028			0.002	BUJ	0.005	UJ	0.005	U	0.0025	BUJ	0.005	UJ	0.005	U	0.005	U	0.005	U
MW-36		0.006	BUJ	0.021	BUJ	0.001	J	0.005	U		0.01	UBJ	0.005	UJ	0.005	U	0.002	BUJ	0.005	UJ	0.005	U	0.005	U	0.005	U
MW-37	DUP AVG	0.0105	BUJ	0.0115	BUJ	0.0053		0.005	UB		0.01	UJ	0.005	U	0.005	U	0.005	U	0.005	UJ	0.005	U	0.005	U	0.005	BUJ
MW-39S		0.006		0.003		0.005	U	0.005	U		0.01	U	0.003		0.003		0.004		0.005	U	0.005	U	0.001		0.005	U
MW-39D		0.002		0.003		0.005	U	0.005	U		0.01	U	0.005	U	0.005	U	0.005		0.005	U	0.005	U	0.001		0.005	U
MW-40S		0.003		0.006		0.005	U	0.005	U		0.01	U	0.002		0.005	U	0.006		0.005	U	0.005	U	0.005	U	0.005	U
MW-40D		0.003		0.032		0.005	U	0.005	U		0.01	U	0.005	U	0.005	U	0.005		0.005	U	0.005	U	0.005	U	0.005	U
MW-42S		0.006		0.003		0.005	U	0.005	U		0.01	U	0.005	U	0.005	U	0.004		0.005	U	0.005	U	0.005	U	0.005	U
MW-42D		0.005		0.004		0.005	U	0.005	U		0.01	U	0.005	U	0.005	U	0.004		0.005	U	0.005	U	0.001		0.005	U
N		22		22		22		22	22		22		22		22		22		22		22		22		22	
AVERAGE		3.7E-03		8.1E-03		3.1E-03		2.5E-03	4.8E-03		2.5E-03		2.3E-03		3.3E-03		5.8E-03		2.5E-03		2.0E-03		2.5E-03	
STD. DEV.		1.8E-03		7.8E-03		1.8E-03		1.2E-04	8.5E-04		1.9E-04		5.5E-04		1.8E-03		8.9E-03		0.0E+00		7.2E-04		0.0E+00	
95TH ARITH.	UPPER BOUND	4.4E-03		1.1E-02		3.7E-03		2.6E-03	5.1E-03		2.5E-03		2.5E-03		3.9E-03		9.0E-03		2.5E-03		2.3E-03		2.5E-03	

GROUNDWATER VOLATILES SAMPLE #	NOTES	ETHYL BENZENE	Q	STYRENE	Q
MW-1	PHASE 1				
MW-2		0.005	U	0.005	U
MW-15		0.005	U	0.005	U
MW-16		0.005	U	0.005	U
MW-17		0.005	U	0.005	U
MW-18		0.005	U	0.005	UB
MW-28		0.005	U	0.005	U
MW-29S		0.005	U	0.005	U
MW-29D		0.005	U	0.005	U
MW-30		0.005	U	0.005	U
MW-31		0.005	U	0.005	U
MW-32		0.005	U	0.005	UB
MW-34S		0.005	U	0.005	U
MW-34D		0.005	U	0.005	U
MW-35	DUP AVG	0.005	U	0.005	U
MW-36		0.005	U	0.005	U
MW-37	DUP AVG	0.005	U	0.005	U
MW-39S		0.005	U	0.005	U
MW-39D		0.005	U	0.005	U
MW-40S		0.005	U	0.005	U
MW-40D		0.005	U	0.005	U
MW-42S		0.005	U	0.005	U
MW-42D		0.005	U	0.005	U
N		22		22	
AVERAGE		2.5E-03		2.5E-03	
STD. DEV.		0.0E+00		0.0E+00	
95TH ARITH.	UPPER BOUND	2.5E-03		2.5E-03	

GROUNDWATER SEMIVOLATILES		4-METHYL PHENOL		2,4DIMETH PHENOL		NAPTHALENE		2-METHYL NAPTHALENE		ACENAPH THYLENE		ACENAPH THENE		DIBENZO FURAN		FLUORENE		PHENAN THRENE		ANTHRA CENE		DI-N-BUTYL PHTHALATE		FLUORAN THENE	
SAMPLE #	NOTES		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q
MW-1	PHASE 1																								
MW-2		0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
MW-15		0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
MW-16		0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
MW-17		0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
MW-18		0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
MW-28		0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
MW-29S		0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
MW-29D		0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.003		0.01	U
MW-30		0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
MW-31		0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
MW-32		0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
MW-34S		0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
MW-34D		0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
MW-35	DUP AVG	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
MW-36		0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
MW-37	DUP AVG	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
MW-39S		0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.004		0.01	U	0.01	U	0.008	
MW-39D		0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
MW-40S		0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
MW-40D		0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.002		0.01	U
MW-42S		0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.002		0.01	U
MW-42D		0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.002		0.01	U
N		22		22		22		22		22		22		22		22		22		22		22		22	
AVERAGE		5.0E-03		5.0E-03		5.0E-03		5.0E-03		5.0E-03		5.0E-03		5.0E-03		5.0E-03		5.0E-03		5.0E-03		4.5E-03		5.1E-03	
STD. DEV.		0.0E+00		0.0E+00		0.0E+00		0.0E+00		0.0E+00		0.0E+00		0.0E+00		0.0E+00		2.1E-04		0.0E+00		1.1E-03		6.4E-04	
95TH ARITH.	UPPER BOUND	5.0E-03		5.0E-03		5.0E-03		5.0E-03		5.0E-03		5.0E-03		5.0E-03		5.0E-03		5.0E-03		5.0E-03		4.9E-03		5.4E-03	

GROUNDWATER SEMIVOLATILES		PYRENE		BENZO (A) ANTHRACENE		CHRYSENE		b2EHTHXL PHTHALATE		DI-N-OCTL PHTHALATE		BENZO (B) FLUORAN THENE		BENZO (K) FLUORAN THENE		BENZO (A) PYRENE		INDENO (1,2,3) PYRENE		DIBENZ (A,H) ANTHRACNE		BENZO (G,H,I) PERYLENE	
SAMPLE #	NOTES		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q
MW-1	PHASE 1																						
MW-2		0.01	U	0.01	U	0.01	U	0.003		0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
MW-15		0.01	U	0.01	U	0.01	U	0.003		0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
MW-16		0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
MW-17		0.01	U	0.01	U	0.01	U	0.02		0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
MW-18		0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
MW-28		0.01	U	0.01	U	0.01	U	0.003	BUJ	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
MW-29S		0.01	U	0.01	U	0.01	U	0.004		0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
MW-29D		0.01	U	0.01	U	0.01	U	0.004		0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
MW-30		0.01	U	0.01	U	0.01	U	0.005		0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
MW-31		0.01	U	0.01	U	0.01	U	0.003		0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
MW-32		0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
MW-34S		0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
MW-34D		0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
MW-35	DUP AVG	0.01	U	0.01	U	0.01	U	0.028		0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
MW-36		0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
MW-37	DUP AVG	0.01	U	0.01	U	0.01	U	0.0225		0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
MW-39S		0.003		0.01	U	0.01	U	0.003		0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
MW-39D		0.01	U	0.01	U	0.01	U	0.002		0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
MW-40S		0.01	U	0.01	U	0.01	U	0.005		0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
MW-40D		0.01	U	0.01	U	0.01	U	0.006		0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
MW-42S		0.01	U	0.01	U	0.01	U	0.004		0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
MW-42D		0.01	U	0.01	U	0.01	U	0.006		0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
N		22		22		22		22		22		22		22		22		22		22		22	
AVERAGE		4.9E-03		5.0E-03		5.0E-03		6.8E-03		5.0E-03		5.0E-03		5.0E-03		5.0E-03		5.0E-03		5.0E-03		5.0E-03	
STD. DEV.		4.3E-04		0.0E+00		0.0E+00		7.0E-03		0.0E+00		0.0E+00		0.0E+00		0.0E+00		0.0E+00		0.0E+00		0.0E+00	
95TH ARITH.	UPPER BOUND	5.1E-03		5.0E-03		5.0E-03		9.4E-03		5.0E-03		5.0E-03		5.0E-03		5.0E-03		5.0E-03		5.0E-03		5.0E-03	

GROUNDWATER PESTICIDES		AROCLOR 1242	AROCLOR 1248	AROCLOR 1254
SAMPLE #	NOTES	Q	Q	Q
MW-1	PHASE 1			
MW-2		0.0005 U	0.0005 U	0.001 U
MW-15		0.0005 U	0.0005 U	0.001 U
MW-16		0.0005 U	0.0005 U	0.001 U
MW-17		0.0005 U	0.0005 U	0.001 U
MW-18		0.0005 U	0.0005 U	0.001 U
MW-28		0.0005 U	0.0005 U	0.001 U
MW-29S		0.0005 U	0.0005 U	0.001 U
MW-29D		0.0005 U	0.0005 U	0.001 U
MW-30		0.0005 U	0.0005 U	0.001 U
MW-31		0.0005 U	0.0005 U	0.001 U
MW-32		0.0005 U	0.0005 U	0.001 U
MW-34S		0.0005 U	0.0005 U	0.001 U
MW-34D		0.0005 U	0.0005 U	0.001 U
MW-35	DUP AVG	0.0005 U	0.0005 U	0.001 U
MW-36		0.0005 U	0.0005 U	0.001 U
MW-37	DUP AVG	0.0005 U	0.0005 U	0.001 U
MW-39S		0.0005 U	0.0005 U	0.001 U
MW-39D		0.0005 U	0.0005 U	0.001 U
MW-40S		0.0005 U	0.0005 U	0.001 U
MW-40D		0.0005 U	0.0005 U	0.001 U
MW-42S		0.0005 U	0.0005 U	0.001 U
MW-42D		0.0005 U	0.0005 U	0.001 U
N		22	22	22
AVERAGE		2.5E-04	2.5E-04	5.0E-04
STD. DEV.		0.0E+00	0.0E+00	0.0E+00
95TH ARITH.	UPPER BOUND	2.5E-04	2.5E-04	5.0E-04

EXPOSURE POINT
FILE NAME: POND5S.WQ1
DATE: 04/30/91
MEDIUM, UNITS: SOIL,MG/KG
SITE AREA: POND 5

INORGANICS		ALUMINUM		ANTIMONY		ARSENIC		BARIUM		BERYLLIUM		CADMIUM		CHROMIUM		COBALT		COPPER		IRON		LEAD		MANGANESE	
SAMPLE #	DEPTH	CONC.	Q		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q
5A-0-1		78000		7.6		22	J*	144		13		1.1	U	12		3.8		17	EJ	6690		17	NJ	193	
5B-0-1		78800		8.7		29		131		12		1.2	U	16		4.6		20	EJ	5400		25	N	197	
5C-0-1		89900		11		27	J*	181		11		1.4	U	18		5.2		17	EJ	5870		29	N	160	
5D-0-1		91000		6.4	U	26		145		14		1	U	6.4		3.5		13	EJ	5570		13	NJ	112	
5E-0-1		84200		16		30		182		11		1.6	U	23		5.5		12	EJ	6330		23	NJ	226	
N		5		5		5		5		5		5		5		5		5		5		5		5	
AVERAGE		8.4E+04		9.3E+00		2.7E+01		1.6E+02		1.2E+01		6.3E-01		1.5E+01		4.5E+00		1.6E+01		6.0E+03		2.1E+01		1.8E+02	
STD. DEV.		6.0E+03		4.7E+00		3.1E+00		2.3E+01		1.3E+00		1.2E-01		6.3E+00		8.6E-01		3.3E+00		5.3E+02		6.4E+00		4.4E+01	
95TH ARITH. UPPER BOUND		9.0E+04		1.4E+01		3.0E+01		1.8E+02		1.3E+01		7.4E-01		2.1E+01		5.3E+00		1.9E+01		6.5E+03		2.7E+01		2.2E+02	

	PM10 UG/M3	EPCS											
FUTURE RESIDENT	42.5	3.8E-03	5.9E-07	1.3E-06	7.6E-06	5.7E-07	3.2E-08	8.9E-07	2.3E-07	8.0E-07	2.8E-04	1.2E-06	9.3E-06
CURRENT WORKER REC AREA	13.2	1.2E-03	1.8E-07	3.9E-07	2.4E-06	1.8E-07	9.8E-09	2.8E-07	7.1E-08	2.5E-07	8.6E-05	3.6E-07	2.9E-06
CURRENT RESIDENT PROCTOR	5.9	5.3E-04	8.1E-08	1.8E-07	1.1E-06	7.9E-08	4.4E-09	1.2E-07	3.2E-08	1.1E-07	3.8E-05	1.6E-07	1.3E-06

EXPOSURE POINT
FILE NAME: POND5S.WQ1
DATE: 04/30/91
MEDIUM, UNITS: SOIL,MG/KG
SITE AREA: POND 5

INORGANICS		MERCURY		NICKEL		SILVER		SODIUM		THALLIUM		VANADIUM		CYANIDE	
SAMPLE #	DEPTH		Q		Q		Q		Q		Q		Q		Q
5A-0-1		0.11	U	21		1.2	U	11100		0.67		16		92	
5B-0-1		0.14	U	19		1.3	U	12900		0.52	U	16		148	
5C-0-1		0.16	U	30		1.5	U	14500		0.64	U	20		194	
5D-0-1		0.12	U	20		1.1	U	24200		0.46	U	15		87	
5E-0-1		0.16	U	30		1.7	U	7590		0.7	U	23		195	
N		5		5		5		5		5		5		5	
AVERAGE		6.9E-02		2.4E+01		6.8E-01		1.4E+04		3.7E-01		1.8E+01		1.4E+02	
STD. DEV.		1.1E-02		5.5E+00		1.2E-01		6.2E+03		1.8E-01		3.4E+00		5.3E+01	
95TH ARITH. UPPER BOUND		8.0E-02		2.9E+01		7.9E-01		2.0E+04		5.3E-01		2.1E+01		1.9E+02	
	PM10 UG/M3														
FUTURE RESIDENT	42.5	3.4E-09		1.2E-06		3.4E-08		8.5E-04		2.3E-08		9.0E-07		8.2E-06	
CURRENT WORKER REC AREA	13.2	1.1E-09		3.9E-07		1.0E-08		2.6E-04		7.0E-09		2.8E-07		2.6E-06	
CURRENT RESIDENT PROCTOR	5.9	4.7E-10		1.7E-07		4.7E-09		1.2E-04		3.2E-09		1.3E-07		1.1E-06	

POND 5 SHALLOW NON CLP INORGANICS		NITROGEN AMMONIA		FLUORIDE		SILICA SIO2		CYANIDE TOTAL		CYANIDE AMENABLE		CHLORIDE		SULFATE	
SAMPLE #	DEPTH		Q		Q		Q		Q		Q		Q		Q
5A-0-1		26		85		8	U	150		1	U	10		34	
5B-0-1		17		200		8	U	170		1	U	10		78	
5C-0-1		18		270		8		250		1	U	15		130	
5D-0-1		24		190		8	U	180		1	U	4		41	
5E-0-1		13	U	150		14		430		1	U	36		150	
N		5		5		5		5		5		5		5	
AVERAGE		1.8E+01		1.8E+02		6.8E+00		2.4E+02		5.0E-01		1.5E+01		8.7E+01	
STD. DEV.		7.6E+00		6.8E+01		4.4E+00		1.1E+02		0.0E+00		1.2E+01		5.2E+01	
95TH ARITH. UPPER BOUND		2.6E+01		2.4E+02		1.1E+01		3.5E+02		5.0E-01		2.7E+01		1.4E+02	
	PM10 UG/M3	EPCS													
FUTURE RESIDENT	42.5	1.1E-06		1.0E-05		4.7E-07		1.5E-05		2.1E-08		1.1E-06		5.8E-06	
CURRENT WORKER REC AREA	13.2	3.4E-07		3.2E-06		1.4E-07		4.6E-06		6.6E-09		3.5E-07		1.8E-06	
CURRENT RESIDENT PROCTOR	5.9	1.5E-07		1.4E-06		6.5E-08		2.0E-06		3.0E-09		1.6E-07		8.0E-07	

POND 5 SHALLOW SEMIVOLATILES		4-METHYL PHENOL	2,4DIMETH PHENOL	NAPTHALENE	2-METHYL NAPTHALENE	ACENAPH THYLENE	ACENAPH THENE	DIBENZO FURAN	FLUORENE	PHENAN THRENE	ANTHRA CENE	DI-N-BUTYL PHTHALATE	FLUORAN THENE
SAMPLE #	DEPTH	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
5A-0-1		0.41 U	0.41 U	0.29 J	0.18	0.41 U	1.5	1.3	1.4	6.6	3.4	0.41 U	8.3
5B-0-1		5.5 U	5.5 U	0.54 J	0.32 J	2.2 J	5.5 U	1.8	2	21	7.3	5.5	27
5C-0-1		0.55 U	0.55 U	0.17 J	0.12 J	0.9	0.55 U	0.82	0.88	7.2	3.3	0.55 U	8.7
5D-0-1		0.41 U	0.41 U	0.14 J	0.12 J	0.41 U	0.64 J	0.67 J	0.53	5.6	2.2	0.41 U	8.2
5E-0-1		0.66 U	0.66 U	0.077 J	0.66 U	0.66 U	0.18 J	0.66 U	0.17 J	3	0.78	0.073 J	5
N		5	5	5	5	5	5	5	5	5	5	5	5
AVERAGE		7.5E-01	7.5E-01	2.4E-01	2.1E-01	7.7E-01	1.1E+00	9.8E-01	1.00E+00	8.7E+00	3.4E+00	1.3E+00	1.1E+01
STD. DEV.		1.1E+00	1.1E+00	1.8E-01	1.0E-01	8.5E-01	1.1E+00	5.7E-01	7.2E-01	7.1E+00	2.4E+00	2.4E+00	8.8E+00
95TH ARITH. UPPER BOUND		1.8E+00	1.8E+00	4.2E-01	3.1E-01	1.6E+00	2.1E+00	1.5E+00	1.7E+00	1.5E+01	5.7E+00	3.5E+00	2.0E+01
	PM10 UG/M3	EPCS											
FUTURE RESIDENT	42.5	7.7E-08	7.7E-08	1.8E-08	1.3E-08	6.7E-08	6.4E-08	6.5E-08	7.2E-08	6.6E-07	2.4E-07	1.5E-07	8.4E-07
CURRENT WORKER REC AREA	13.2	2.4E-08	2.4E-08	5.5E-09	4.1E-09	2.1E-08	2.0E-08	2.0E-08	2.2E-08	2.0E-07	7.5E-08	4.6E-08	2.6E-07
CURRENT RESIDENT PROCTOR	5.9	1.1E-08	1.1E-08	2.5E-09	1.8E-09	9.3E-09	8.9E-09	9.0E-09	9.9E-09	9.1E-08	3.4E-08	2.1E-08	1.2E-07

POND 5 SHALLOW SEMIVOLATILES		PYRENE		BENZO (A) ANTHRACENE		CHRYSENE		b2EHTHXL PHTHALATE		DI-N-OCTL PHTHALATE		BENZO (B) FLUORAN THENE		BENZO (K) FLUORAN THENE		BENZO (A) PYRENE		INDENO 1,2,3 PYRENE		DIBENZ A,H ANTHRACNE		BENZO G,H,I PERYLENE	
SAMPLE #	DEPTH		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q
5A-0-1		10		9.6		9.1		1.4	BUJ	0.41	U	15		10		11		3.7		0.78		3.5	
5B-0-1		19		17		17		1.4	BUJ	5.5	U	15		12		13		6.2		1.3		6	
5C-0-1		8.7		9.1		9.4		1.3	BUJ	0.55	U	13		5.9		7.4		1.8		0.7		2	
5D-0-1		8.1		7.3		8.1	B	1.1	BUJ	0.41	U	6.3		4.1		4.5		1.4		0.46		1.4	
5E-0-1		4		2.6		3.6		3.1	BUJ	0.66	U	3.7		2.1		2		1.5		0.37	J	1.6	
N		5		5		5		5		5		5		5		5		5		5		5	
AVERAGE		1.00E+01		9.1E+00		9.4E+00		8.3E-01		7.5E-01		1.1E+01		6.8E+00		7.6E+00		2.9E+00		7.2E-01		2.9E+00	
STD. DEV.		5.5E+00		5.2E+00		4.8E+00		4.1E-01		1.1E+00		5.3E+00		4.1E+00		4.5E+00		2.1E+00		3.6E-01		1.9E+00	
95TH ARITH. UPPER BOUND		1.5E+01		1.4E+01		1.4E+01		1.2E+00		1.8E+00		1.6E+01		1.1E+01		1.2E+01		4.9E+00		1.1E+00		4.7E+00	
	Pm10 UG/M3																						
FUTURE RESIDENT	42.5	6.5E-07		6.0E-07		6.0E-07		5.2E-08		7.7E-08		6.6E-07		4.6E-07		5.1E-07		2.1E-07		4.5E-08		2.0E-07	
CURRENT WORKER REC AREA	13.2	2.0E-07		1.9E-07		1.9E-07		1.6E-08		2.4E-08		2.1E-07		1.4E-07		1.6E-07		6.4E-08		1.4E-08		6.2E-08	
CURRENT RESIDENT PROCTOR	5.9	9.0E-08		8.3E-08		8.3E-08		7.2E-09		1.1E-08		9.2E-08		6.3E-08		7.0E-08		2.9E-08		6.3E-09		2.8E-08	

POND 5 SHALLOW PESTICIDES		AROCLOR 1242		AROCLOR 1248		AROCLOR 1254	
SAMPLE #	DEPTH		Q		Q		Q
5A-0-1		0.19	U	0.19	U	0.38	U
5B-0-1		1.9	U	1.9	U	3.8	U
5C-0-1		0.19	U	0.19	U	0.38	U
5D-0-1		0.19	U	0.19	U	0.38	U
5E-0-1		0.19	U	0.19	U	0.38	U
N		5		5		5	
AVERAGE		2.7E-01		2.7E-01		5.3E-01	
STD. DEV.		3.8E-01		3.8E-01		7.6E-01	
95TH ARITH. UPPER BOUND		6.3E-01		6.3E-01		1.3E+00	

	Pm10 UG/M3	EPCS		
FUTURE RESIDENT	42.5	2.7E-08	2.7E-08	5.4E-08
CURRENT WORKER REC AREA	13.2	8.3E-09	8.3E-09	1.7E-08
CURRENT RESIDENT PROCTOR	5.9	3.7E-09	3.7E-09	7.4E-09

EXPOSURE POINT
FILE NAME: POND5D.WQ1
DATE: 02/13/91
MEDIUM, UNITS: SOIL, MG/KG
SITE AREA: POND 5 0-12" DEPTH

INORGANICS		ALUMINUM		ANTIMONY		ARSENIC		BARIUM		BERYLLIUM		CADMIUM		CHROMIUM		COBALT		COPPER		IRON		LEAD	
SAMPLE #	DEPTH	CONC.	Q		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q
5A-0-1		78000		7.6		22	J*	144		13		1.1	U	12		3.8		17	EJ	6690		17	NJ
5A-5-8		90700		13		36		121		5.5		1.4	U	10	NJ	6		16		3970		23	
5A-10-13		67400		12		29		107		4.8		1.5	U	11	NJ	5.2		24		3690		29	
5B-0-1		78800		8.7		29		131		12		1.2	U	16		4.6		20	EJ	5400		25	N
5B-5-8	DUP AVG	149000		12.2		38		189		7		1.35	U	16.25	NJ	9.55		31.5		7170		28	
5B-10-13		91300		9.2	U	49		121		4.6		1.5	U	11	NJ	8		28		4550		36	
5C-0-1		89900		11		27	J*	181		11		1.4	U	18		5.2		17	EJ	5870		29	N
5C-5-8		95500		12		41	NJ*	128		6.6	EJ	1.4	U	15	EJ	7.3		22	NJ	5420		25	*
5C-10-13		91200		17		54	NJ*	123		5.4	EJ	1.6	U	13	EJ	8.6		33	NJ	4610		31	*
5D-0-1		91000		6.4	U	26		145		14		1	U	6.4		3.5		13	EJ	5570		13	NJ
5D-5-8		86300		12		29	J	133		5.6		1.3	U	10	NJ	4.6		19		5170		17	
5D-10-INT		85800		8.7		38		147		6		1.4	U	16	NJ	6.2		36		5680		28	
5E-0-1		84200		16		30		182		11		1.6	U	23		5.5		12	EJ	6330		23	NJ
5E-5-8		86300	EJ	22		37		142		4.7		1.5	U	13	ENJ	8.4	EJ	27	EJ	4870		34	
5E-10-13	DUP AVG	78350	EJ	25.5		36.5		116.5		4.75		1.5	U	16	ENJ	9.2	EJ	29	EJ	4580		32	
N		15		15		15		15		15		15		15		15		15		15		15	
AVERAGE		9.0E+04		1.2E+01		3.5E+01		1.4E+02		7.7E+00		6.9E-01		1.4E+01		6.4E+00		2.3E+01		5.3E+03		2.6E+01	
STD. DEV.		1.8E+04		6.0E+00		8.7E+00		2.5E+01		3.4E+00		8.6E-02		4.0E+00		2.0E+00		7.5E+00		9.7E+02		6.6E+00	
95TH UPPER BOUND		9.8E+04		1.5E+01		3.9E+01		1.5E+02		9.3E+00		7.3E-01		1.6E+01		7.3E+00		2.6E+01		5.7E+03		2.9E+01	

EXPOSURE POINT
FILE NAME: POND5D.WQ1
DATE: 02/13/91
MEDIUM, UNITS: SOIL,MG/KG
SITE AREA: POND 5 0-12'

INORGANICS		MANGANESE		MERCURY		NICKEL		SILVER		SODIUM		THALLIUM		VANADIUM		CYANIDE	
SAMPLE #	DEPTH		Q		Q		Q		Q		Q		Q		Q		Q
5A-0-1		193		0.11	U	21		1.2	U	11100		0.67		16		92	
5A-5-8		99		0.15	U	75	NJ	1.5	U	12200	EJ	0.63	U	44	ENJ	294	
5A-10-13		81		0.22		57	NJ	1.6	U	10600	EJ	0.65	U	45	ENJ	222	
5B-0-1		197		0.14	U	19		1.3	U	12900		0.52	U	16		148	
5B-5-8	DUP AVG	134		0.0735		107	NJ	1.4	U	51750	EJ	0.58	U	58	ENJ	204	
5B-10-13		92		0.15		86	NJ	1.6	U	21700	EJ	0.65	U	69	ENJ	171	
5C-0-1		160		0.16	U	30		1.5	U	14500		0.64	U	20		194	
5C-5-8		113		0.16	U	71		1.5	U	23300	EJ	0.62	U	39	EJ	160	*
5C-10-13		105		0.19	U	91		1.7	U	16500	EJ	0.71	U	65	EJ	170	*
5D-0-1		112		0.12	U	20		1.1	U	24200		0.46	U	15		87	
5D-5-8		102		0.13	U	28	NJ	1.4	U	12100	EJ	0.59	U	22	ENJ	180	
5D-10-INT		98		0.16	U	69	NJ	1.5	U	19800	EJ	0.62	U	48	ENJ	115	
5E-0-1		226		0.16	U	30		1.7	U	7590		0.7	U	23		195	
5E-5-8		105		0.18	U	122	NJ	1.6	U	13000	EJ	0.67	U	68	NJ	251	*
5E-10-13	DUP AVG	79.5		0.145	U	113	NJ	1.4		15850	EJ	0.665	U	77.5	NJ	216	
N		15		15		15		15		15		15		15		15	
AVERAGE		1.3E+02		9.0E-02		6.3E+01		7.8E-01		1.8E+04		3.3E-01		4.2E+01		1.8E+02	
STD. DEV.		4.6E+01		4.2E-02		3.6E+01		1.9E-01		1.1E+04		9.8E-02		2.2E+01		5.6E+01	
95TH UPPER BOUND		1.5E+02		1.1E-01		7.9E+01		8.7E-01		2.3E+04		3.8E-01		5.2E+01		2.1E+02	

POND 5 DEEP NON CLP INORGANICS		NITROGEN AMMONIA		FLUORIDE		SILICA SIO2		CYANIDE TOTAL		CYANIDE AMENABLE		CHLORIDE		SULFATE	
SAMPLE #	DEPTH		Q		Q		Q		Q		Q		Q		Q
5A-0-1		26		85		8	U	150		1	U	10		34	
5A-5-8		95		360		34		400		1	U	57		210	
5A-10-13		120		260		21		200		1	U	8		690	
5B-0-1		17		200		8	U	170		1	U	10		78	
5B-5-8	DUP AVG	556		680		8	U	230		1	U	33		890	
5B-10-13		70		98		50		180		1	U	57		1100	
5C-5-8		100		600		14		220		1	U	87		470	
5C-10-13		89		660		14		170		1	U	26		1200	
5D-0-1		24		190		8	U	180		1	U	4		41	
5D-5-8		110		210		31		330		1	U	56		130	
5D-10-INT		75		410		15		220		1	U	10		290	
5E-0-1		13	U	150		14		430		1	U	36		150	
5E-5-8		16		520		63		200		1	U	56		1100	
5E-10-13	DUP AVG	50.5		415		18.5		185		45		17.5		1785	
N		14		14		14		14		14		14		14	
AVERAGE		9.7E+01		3.5E+02		2.1E+01		2.3E+02		3.7E+00		3.3E+01		5.8E+02	
STD. DEV.		1.4E+02		2.1E+02		1.8E+01		8.8E+01		1.2E+01		2.6E+01		5.5E+02	
95TH UPPER BOUND		1.6E+02		4.4E+02		2.9E+01		2.7E+02		9.3E+00		4.5E+01		8.4E+02	

POND 5 DEEP VOLATILES		METHYLENE CHLORIDE		ACETONE		CARBON DISULFIDE		CHLOROFORM		2BUTANONE		1,1,1TCA		TCE		BENZENE		PCE		1,1,2,2-PCA		TOLUENE	
SAMPLE #	DEPTH		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q
5A-0-1		0.13	B	0.004	BUJ	0.005	U	0.005	U	0.01	UJ	0.005	U	0.005	U	0.005	BUJ	0.005	U	0.005	U	0.005	U
5A-5-8		0.003		0.005	JB[]	0.009	U	0.005	J	0.017	UJ	0.009	UJ	0.009	U	0.002	JB[]	0.009	U	0.009	UJ	0.002	J
5A-10-13		0.004		0.004	JB[]	0.004	J	0.004	J	0.017	UJ	0.008	UJ	0.008	U	0.004	JB[]	0.008	U	0.008	UJ	0.002	J
5B-0-1		0.086	B	0.015	BUJ	0.01	U	0.01	U	0.02	UJ	0.01	U	0.01	U	0.006	BUJ	0.01	U	0.01	U	0.004	J
5B-5-8	DUP AVG	0.0025	J	0.0045	JB[]	0.0085	UJ	0.012		0.0175	U	0.0085	U	0.0085	U	0.0025		0.0085	U	0.0085	U	0.003	
5B-10-13		0.63	BUJ	0.07	BUJ	0.06		0.018		0.02	UJ	0.01	UJ	0.01	U	0.005	BUJ[]	0.01	U	0.01	U	0.01	U
5C-0-1		0.01	BUJ	0.009	BUJ	0.01	U	0.01	U	0.02	UJ	0.01	U	0.01	U	0.006	BUJ	0.01	U	0.01	U	0.002	J
5C-5-8		0.061	BUJ	0.086	BUJ	0.061	J	0.015	J	0.016	UJ	0.008	UJ	0.008	UJ	0.004	BUJ[]	0.008	UJ	0.008	UJ	0.008	UJ
5C-10-13		0.12	BUJ	0.061	BUJ	0.061	BJ	0.011	J	0.02	UJ	0.01	UJ	0.01	UJ	0.006	BUJ[]	0.01	UJ	0.01	UJ	0.002	JBU
5D-0-1		0.09	B	0.011	BUJ	0.005	U	0.005	U	0.01	UJ	0.005	U	0.005	U	0.005	BUJ	0.005	U	0.005	U	0.005	U
5D-5-8		0.003	J	0.005	JB[]	0.002	J	0.004	J	0.016	UJ	0.008	UJ	0.008	U	0.002	JB[]	0.008	U	0.008	UJ	0.002	J
5D-10-INT		0.004	J	0.009	JB[]	0.008	UJ	0.004	J	0.016	UJ	0.008	UJ	0.008	UJ	0.003	JB[]	0.008	UJ	0.008	UJ	0.002	J
5E-0-1		0.012	BUJ	0.008	BUJ	0.01	U	0.01	U	0.02	UJ	0.01	U	0.01	U	0.01	BUJ	0.01	U	0.01	U	0.006	
5E-5-8		0.198	B	0.024	BUJ	0.009	UJ	0.017		0.018	UJ	0.009	U	0.009	U	0.003	J	0.009	U	0.009	U	0.009	U
5E-10-13	DUP AVG	0.0605	B	0.014	JB[]	0.011		0.0195	J	0.0185	UJ	0.009	UJ	0.009	UJ	0.003	J	0.009	UJ	0.009	UJ	0.009	UJ
N		15		15		15		15		15		15		15		15		15		15		15	
AVERAGE		6.7E-02		1.2E-02		1.6E-02		8.6E-03		8.5E-03		4.3E-03		4.3E-03		2.9E-03		4.3E-03		4.3E-03		3.1E-03	
STD. DEV.		9.0E-02		1.3E-02		2.3E-02		6.1E-03		1.6E-03		8.2E-04		8.2E-04		7.9E-04		8.2E-04		8.2E-04		1.4E-03	
95TH UPPER BOUND		1.1E-01		1.8E-02		2.6E-02		1.1E-02		9.3E-03		4.6E-03		4.6E-03		3.2E-03		4.6E-03		4.6E-03		3.8E-03	

POND 5 DEEP VOLATILES		CHLORO BENZENE		ETHYL BENZENE		STYRENE	
SAMPLE #	DEPTH		Q		Q		Q
5A-0-1		0.005	U	0.005	U	0.005	U
5A-5-8		0.009	U	0.009	U	0.009	U
5A-10-13		0.008	U	0.008	U	0.008	U
5B-0-1		0.01	U	0.01	U	0.01	U
5B-5-8	DUP AVG	0.0085	U	0.0085	U	0.0085	U
5B-10-13		0.01	U	0.01	U	0.01	U
5C-0-1		0.01	U	0.01	U	0.01	U
5C-5-8		0.008	UJ	0.008	UJ	0.008	UJ
5C-10-13		0.01	UJ	0.01	UJ	0.01	UJ
5D-0-1		0.002	J	0.005	U	0.005	U
5D-5-8		0.008	U	0.008	U	0.008	U
5D-10-INT		0.008	UJ	0.008	UJ	0.008	UJ
5E-0-1		0.01	U	0.01	U	0.01	U
5E-5-8		0.009	U	0.009	U	0.009	U
5E-10-13	DUP AVG	0.009	UJ	0.009	UJ	0.009	UJ
N		15		15		15	
AVERAGE		4.2E-03		4.3E-03		4.3E-03	
STD. DEV.		9.0E-04		8.2E-04		8.2E-04	
95TH UPPER BOUND		4.6E-03		4.6E-03		4.6E-03	

POND 5 DEEP SEMIVOLATILES		4-METHYL PHENOL		2,4DIMETH PHENOL		NAPTHALENE		2-METHYL NAPTHALENE		ACENAPH THYLENE		ACENAPH THENE		DIBENZO FURAN		FLUORENE		PHENAN THRENE		ANTHRA CENE		DI-N-BUTYL PHTHALATE	
SAMPLE #	DEPTH		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q
5A-0-1		0.41	U	0.41	U	0.29	J	0.18		0.41	U	1.5		1.3		1.4		6.6		3.4		0.41	U
5A-5-8		0.55	U	0.55	U	0.18	J	0.094		0.55	U	0.33	J	0.33		0.23	J	3.8		1		0.52	BUJ
5A-10-13		0.55	U	0.55	U	0.81	J	0.4		0.55	U	1.1		1.2		0.57		6.1		2.8		0.18	BUJ
5B-0-1		5.5	U	5.5	U	0.54	J	0.32	J	2.2	J	5.5	U	1.8		2		21		7.3		5.5	
5B-5-8	DUP AVG	0.47	U	0.47	U	0.177		0.146		0.47	U	0.298		0.297		0.42		4.1		0.805		0.262	U
5B-10-13		0.66	U	0.66	U	0.076	J	0.66	U	0.66	U	0.16	J	0.15	J	0.065	J	2.5		0.48	J	0.66	UB
5C-0-1		0.55	U	0.55	U	0.17	J	0.12	J	0.9		0.55	U	0.82		0.88		7.2		3.3		0.55	U
5C-5-8		0.47	U	0.47	U	0.52	J	0.26		0.47	U	0.14	J	0.13	J	0.85	J	2		0.44	J	0.47	U
5C-10-13		0.55	U	0.55	U	0.31	J	0.15	J	0.55	U	0.38	J	0.48	J	0.16	J	4.7		1.1		0.55	UB
5D-0-1		0.41	U	0.41	U	0.14	J	0.12	J	0.41	U	0.64	J	0.67	J	0.53		5.6		2.2		0.41	U
5D-5-8		0.47	U	0.47	U	0.59		0.26	J	0.47	U	0.76		0.9		0.5		6.2		2.1		0.089	BJU
5D-10-INT		0.47	U	0.47	U	3.7	J	1.7		0.47	U	5.3		0.59		0.35	J	5.1		1.3		0.098	JUB
5E-0-1		0.66	U	0.66	U	0.077	J	0.66	U	0.66	U	0.18	J	0.66	U	0.17	J	3		0.78		0.073	J
5E-5-8		0.55	U	0.55	U	0.33	J	0.17	J	0.55	U	0.69		0.61		0.48	J	5.3		2		1.1	BUJ
5E-10-13	DUP AVG	0.66	U	0.66	U	0.18	J	0.0885	J	0.66	U	0.415	J	0.395	J	0.295	J	4.5		1.235		3.45	BUJ
N		15		15		15		15		15		15		15		15		15		15		15	
AVERAGE		4.3E-01		4.3E-01		5.4E-01		3.1E-01		4.4E-01		9.9E-01		6.7E-01		5.9E-01		5.8E+00		2.0E+00		6.6E-01	
STD. DEV.		6.4E-01		6.4E-01		9.0E-01		4.0E-01		5.2E-01		1.4E+00		4.7E-01		5.2E-01		4.5E+00		1.8E+00		1.4E+00	
95TH UPPER BOUND		7.2E-01		7.2E-01		9.5E-01		4.9E-01		6.7E-01		1.6E+00		8.8E-01		8.3E-01		7.9E+00		2.8E+00		1.3E+00	

POND 5 DEEP SEMIVOLATILES		FLUORAN THENE		PYRENE		BENZO (A) ANTHRACENE		CHRYSENE		b2EHTHXL PHTHALATE		DI-N-OCTL PHTHALATE		BENZO (B) FLUORAN THENE		BENZO (K) FLUORAN THENE		BENZO (A) PYRENE		INDENO 1,2,3 PYRENE		DIBENZ A,H ANTHRACNE		BENZO G,H,I PERYLENE
SAMPLE #	DEPTH		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q	
5A-0-1		8.3		10		9.6		9.1		1.4	BUJ	0.41	U	15		10		11		3.7		0.78		3.5
5A-5-8		5.5		3.6		2.5		2.5		0.13	BUJ	0.55	U	2.1		1.3		1.3		1.3		0.25		0.93
5A-10-13		6.3		7.4		5.5		5.1		0.15	BUJ	0.55	U	3.1		2.4		2.8		1.5		0.32	J	1.2
5B-0-1		27		19		17		17		1.4	BUJ	5.5	U	15		12		13		6.2		1.3		6
5B-5-8	DUP AVG	4.5		4.5		2.9		2.75		0.11	BUJ	0.47	U	1.55		1.21		1.6		0.92		0.237		0.885
5B-10-13		3.4		3		1.5		1.7		0.16	JBU	0.66	U	0.91		0.75		0.62		0.3		0.1		0.42
5C-0-1		8.7		8.7		9.1		9.4		1.3	BUJ	0.55	U	13		5.9		7.4		1.8		0.7		2
5C-5-8		2.7		2.3		1		1.1		0.14	BUJ	0.47	U	0.6		0.46	J	0.43	J	0.38	J	0.092	J	0.49
5C-10-13		5.4		5.9		2.8		3.1		0.55	UB	0.55	U	1.2		1.2		1.2		0.83		0.18	J	0.83
5D-0-1		8.2		8.1		7.3		8.1	B	1.1	BUJ	0.41	U	6.3		4.1		4.5		1.4		0.46		1.4
5D-5-8		6.5		5.2		4.3		4		0.11	JBU	0.47	U	2.9		1.9		2.5		2	J	0.2		1.7
5D-10-INT		6.9		3.8		2.5		2.3		0.13	JBU	0.47	U	1.2		1		1.2		0.25	J	0.13	J	0.65
5E-0-1		5		4		2.6		3.6		3.1	BUJ	0.66	U	3.7		2.1		2		1.5		0.37	J	1.6
5E-5-8		6.4		5.2		4.1		4		0.33	BUJ	0.55	U	3.5		2.5	J	2.2		2	J	0.42	J	1.7
5E-10-13	DUP AVG	5.55		4.9		2.85		2.8		0.325	BUJ	0.66	U	1.6		1.35		1.42		1.1		0.29		1.035
N		15		15		15		15		15		15		15		15		15		15		15		15
AVERAGE		7.4E+00		6.4E+00		5.0E+00		5.1E+00		3.5E-01		4.3E-01		4.8E+00		3.2E+00		3.5E+00		1.7E+00		3.9E-01		1.6E+00
STD. DEV.		5.7E+00		4.1E+00		4.2E+00		4.2E+00		4.2E-01		6.4E-01		5.2E+00		3.5E+00		3.9E+00		1.5E+00		3.2E-01		1.4E+00
95TH UPPER BOUND		9.9E+00		8.2E+00		7.0E+00		7.0E+00		5.4E-01		7.2E-01		7.1E+00		4.8E+00		5.3E+00		2.4E+00		5.4E-01		2.3E+00

POND 5 DEEP SEMIVOLATILES		4-METHYL PHENOL		2,4DIMETH PHENOL		NAPTHALENE		2-METHYL NAPTHALENE		ACENAPH THYLENE		ACENAPH THENE		DIBENZO FURAN		FLUORENE		PHENAN THRENE		ANTHRA CENE		DI-N-BUTYL PHTHALATE		FLUORAN THENE	
SAMPLE #	DEPTH		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q
5A-0-1		0.41	U	0.41	U	0.29	J	0.18		0.41	U	1.5		1.3		1.4		6.6		3.4		0.41	U	8.3	
5A-5-8		0.55	U	0.55	U	0.18	J	0.094		0.55	U	0.33	J	0.33		0.23	J	3.8		1		0.52	BUJ	5.5	
5A-10-13		0.55	U	0.55	U	0.81	J	0.4		0.55	U	1.1		1.2		0.57		6.1		2.8		0.18	BUJ	6.3	
5B-0-1		5.5	U	5.5	U	0.54	J	0.32	J	2.2	J	5.5	U	1.8		2		21		7.3		5.5		27	
5B-5-8	DUP AVG	0.47	U	0.47	U	0.177		0.146		0.47	U	0.298		0.297		0.42		4.1		0.805		0.262	U	4.5	
5B-10-13		0.66	U	0.66	U	0.076	J	0.66	U	0.66	U	0.16	J	0.15	J	0.065	J	2.5		0.48	J	0.66	UB	3.4	
5C-0-1		0.55	U	0.55	U	0.17	J	0.12	J	0.9		0.55	U	0.82		0.88		7.2		3.3		0.55	U	8.7	
5C-5-8		0.47	U	0.47	U	0.52	J	0.26		0.47	U	0.14	J	0.13	J	0.85	J	2		0.44	J	0.47	U	2.7	
5C-10-13		0.55	U	0.55	U	0.31	J	0.15	J	0.55	U	0.38	J	0.48	J	0.16	J	4.7		1.1		0.55	UB	5.4	
5D-0-1		0.41	U	0.41	U	0.14	J	0.12	J	0.41	U	0.64	J	0.67	J	0.53		5.6		2.2		0.41	U	8.2	
5D-5-8		0.47	U	0.47	U	0.59		0.26	J	0.47	U	0.76		0.9		0.5		6.2		2.1		0.089	BJU	6.5	
5D-10-INT		0.47	U	0.47	U	3.7	J	1.7		0.47	U	5.3		0.59		0.35	J	5.1		1.3		0.098	JUB	6.9	
5E-0-1		0.66	U	0.66	U	0.077	J	0.66	U	0.66	U	0.18	J	0.66	U	0.17	J	3		0.78		0.073	J	5	
5E-5-8		0.55	U	0.55	U	0.33	J	0.17	J	0.55	U	0.69		0.61		0.48	J	5.3		2		1.1	BUJ	6.4	
5E-10-13	DUP AVG	0.66	U	0.66	U	0.18	J	0.0885	J	0.66	U	0.415	J	0.395	J	0.295	J	4.5		1.235		3.45	BUJ	5.55	
N		15		15		15		15		15		15		15		15		15		15		15		15	
AVERAGE		4.3E-01		4.3E-01		5.4E-01		3.1E-01		4.4E-01		9.9E-01		6.7E-01		5.9E-01		5.8E+00		2.0E+00		6.6E-01		7.4E+00	
STD. DEV.		6.4E-01		6.4E-01		9.0E-01		4.0E-01		5.2E-01		1.4E+00		4.7E-01		5.2E-01		4.5E+00		1.8E+00		1.4E+00		5.7E+00	
95TH UPPER BOUND		7.2E-01		7.2E-01		9.5E-01		4.9E-01		6.7E-01		1.6E+00		8.8E-01		8.3E-01		7.9E+00		2.8E+00		1.3E+00		9.9E+00	

POND 5 DEEP SEMIVOLATILES		PYRENE		BENZO (A) ANTHRACENE		CHRYSENE		b2EHTHXL PHTHALATE		DI-N-OCTL PHTHALATE		BENZO (B) FLUORAN THENE		BENZO (K) FLUORAN THENE		BENZO (A) PYRENE		INDENO 1,2,3 PYRENE		DIBENZ A,H ANTHRACNE		BENZO G,H,I PERYLENE	
SAMPLE #	DEPTH		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q
5A-0-1		10		9.6		9.1		1.4	BUJ	0.41	U	15		10		11		3.7		0.78		3.5	
5A-5-8		3.6		2.5		2.5		0.13	BUJ	0.55	U	2.1		1.3		1.3		1.3		0.25		0.93	
5A-10-13		7.4		5.5		5.1		0.15	BUJ	0.55	U	3.1		2.4		2.8		1.5		0.32	J	1.2	
5B-0-1		19		17		17		1.4	BUJ	5.5	U	15		12		13		6.2		1.3		6	
5B-5-8	DUP AVG	4.5		2.9		2.75		0.11	BUJ	0.47	U	1.55		1.21		1.6		0.92		0.237		0.885	
5B-10-13		3		1.5		1.7		0.16	JBU	0.66	U	0.91		0.75		0.62		0.3		0.1		0.42	
5C-0-1		8.7		9.1		9.4		1.3	BUJ	0.55	U	13		5.9		7.4		1.8		0.7		2	
5C-5-8		2.3		1		1.1		0.14	BUJ	0.47	U	0.6		0.46	J	0.43	J	0.38	J	0.092	J	0.49	J
5C-10-13		5.9		2.8		3.1		0.55	UB	0.55	U	1.2		1.2		1.2		0.83		0.18	J	0.83	J
5D-0-1		8.1		7.3		8.1	B	1.1	BUJ	0.41	U	6.3		4.1		4.5		1.4		0.46		1.4	
5D-5-8		5.2		4.3		4		0.11	JBU	0.47	U	2.9		1.9		2.5		2	J	0.2		1.7	
5D-10-INT		3.8		2.5		2.3		0.13	JBU	0.47	U	1.2		1		1.2		0.25	J	0.13	J	0.65	
5E-0-1		4		2.6		3.6		3.1	BUJ	0.66	U	3.7		2.1		2		1.5		0.37	J	1.6	
5E-5-8		5.2		4.1		4		0.33	BUJ	0.55	U	3.5		2.5	J	2.2		2	J	0.42	J	1.7	J
5E-10-13	DUP AVG	4.9		2.85		2.8		0.325	BUJ	0.66	U	1.6		1.35		1.42		1.1		0.29		1.035	
N		15		15		15		15		15		15		15		15		15		15		15	
AVERAGE		6.4E+00		5.0E+00		5.1E+00		3.5E-01		4.3E-01		4.8E+00		3.2E+00		3.5E+00		1.7E+00		3.9E-01		1.6E+00	
STD. DEV.		4.1E+00		4.2E+00		4.2E+00		4.2E-01		6.4E-01		5.2E+00		3.5E+00		3.9E+00		1.5E+00		3.2E-01		1.4E+00	
95TH UPPER BOUND		8.2E+00		7.0E+00		7.0E+00		5.4E-01		7.2E-01		7.1E+00		4.8E+00		5.3E+00		2.4E+00		5.4E-01		2.3E+00	

POND 5 DEEP PESTICIDES		AROCLOR 1242		AROCLOR 1248		AROCLOR 1254	
SAMPLE #	DEPTH		Q		Q		Q
5A-0-1		0.19	U	0.19	U	0.38	U
5A-5-8		0.19	U	0.19	U	0.38	U
5A-10-13		0.19	U	0.19	U	0.38	U
5B-0-1		1.9	U	1.9	U	3.8	U
5B-5-8	DUP AVG	0.19	U	0.19	U	0.38	U
5B-10-13		0.19	U	0.19	U	0.38	U
5C-0-1		0.19	U	0.19	U	0.38	U
5C-5-8		0.19	U	0.19	U	0.38	U
5C-10-13		0.19	U	0.19	U	0.38	U
5D-0-1		0.19	U	0.19	U	0.38	U
5D-5-8		0.19	U	0.19	U	0.38	U
5D-10-INT		0.19	U	0.19	U	0.38	U
5E-0-1		0.19	U	0.19	U	0.38	U
5E-5-8		0.19	U	0.19	U	0.38	U
5E-10-13	DUP AVG	1.045	U	1.045	U	2.09	U
N		15		15		15	
AVERAGE		1.8E-01		1.8E-01		3.6E-01	
STD. DEV.		2.4E-01		2.4E-01		4.8E-01	
95TH UPPER BOUND		2.9E-01		2.9E-01		5.8E-01	

EXPOSURE POINT
FILE NAME: POND1-4D.WQ1
DATE: 02/13/91
MEDIUM, UNITS: SOIL,MG/KG
SITE AREA: PONDS 1-4 0-12' DEPTH

INORGANICS		ALUMINUM		ANTIMONY		ARSENIC		BARIUM		BERYLLIUM		CADMIUM		CHROMIUM		COBALT		COPPER		IRON		LEAD		MANGANESE	
SAMPLE #	DEPTH	CONC.	Q		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q
1A-0-1		40000		13		15	*	113		3.1		0.88	U	11		5.2		47	EJ	3690		19	N	70	
1A-1-4	DUP AVG	65900		13.5		37		141		3.75		1.35	U	24		8.8		74.5	EJ	6155		39	N	144.5	
1A-4-INT		64300		30		64	*	54		3.6		1.6	U	59		14		101	EJ	9330		122	N	227	
2A-0-1		67400		6.7	U	20		102		4.8		1.1	U	6.4		3.6		114	EJ	4690		19	NJ	129	
2A-1-3		56900		11		22		106		5.3		1.2	U	18		4.2		88	EJ	4520		23	N	172	
2A-3-INT		54200		11		24		116		3.4		1.2	U	17		5.2		70	EJ	4560		25	N	155	
3A-0-1		88900		8.3	U	50	J*	118		4.1		1.4	U	41		12		72	EJ	7150		80	N	142	
3A-2-5		53800	EJ	41		119		76		3.4		1.8	U	104	ENJ	19	EJ	106	EJ	10600		154		171	
3A-6-9	DUP AVG	64700	EJ	34.5		110		44		3.3		1.75	U	94	ENJ	15.5	EJ	101	EJ	10650		148.5		207.5	
3A-10-INT		72900	EJ	29		123		39		2.9		1.7	U	119	ENJ	18	EJ	130	EJ	13600		214		207	
4A-0-1		50600		22		52	J*	308		3.5		1.5	U	45		14		76	EJ	9690		141	N	139	
4A-1-4		48700		15		56	J*	75		3.5		1.5	U	63		16		62	EJ	9690		183	N	147	
4A-4-INT		76800		14		98	J*	76		3.2		1.6	U	52		14		100	EJ	9850		120	N	140	
4B-0-1	DUP AVG	51400		20		42.5	J	635.5		3.65		1.6	U	37.5		13.5		60.5	EJ	8355		136.5	N	128.5	
4B-1-4		58000		25		57	J*	80		4.3		1.8	U	64		16		68	EJ	10000		212	N	120	
4B-4-7	DUP AVG	72250		21		75.5		62		3.6		1.65	U	61.5		15		88.5	EJ	9355		155		161	
4B-8-INT		72300	EJ	32		74		42		2.3		1.5	U	48	ENJ	13	EJ	126	EJ	7190		128		102	
N		17		17		17		17		17		17		17		17		17		17		17		17	
AVERAGE		6.3E+04		2.0E+01		6.1E+01		1.3E+02		3.6E+00		7.4E-01		5.1E+01		1.2E+01		8.7E+01		8.2E+03		1.1E+02		1.5E+02	
STD. DEV.		1.1E+04		1.1E+01		3.5E+01		1.4E+02		7.0E-01		1.3E-01		3.2E+01		4.9E+00		2.4E+01		2.7E+03		6.7E+01		3.9E+01	
95TH UPPER BOUND		6.8E+04		2.5E+01		7.6E+01		1.9E+02		3.9E+00		7.9E-01		6.5E+01		1.4E+01		9.7E+01		9.3E+03		1.4E+02		1.7E+02	

EXPOSURE POINT
FILE NAME: POND1-4D.WQ1
DATE: 02/13/91
MEDIUM, UNITS: SOIL, MG/KG
SITE AREA: PONDS 1-4 0-

INORGANICS		MERCURY		NICKEL		SILVER		SODIUM		THALLIUM		VANADIUM		CYANIDE	
SAMPLE #	DEPTH		Q		Q		Q		Q		Q		Q		Q
1A-0-1		0.088	U	62		0.95	U	6760		0.41	U	36		137	
1A-1-4	DUP AVG	0.31		151.5		1.45	U	17150		0.605	U	144.5		86	
1A-4-INT		0.17	U	488		1.8	U	18100		0.72	U	564		46	
2A-0-1		0.11	U	27		1.2	U	7680		0.47	U	20		60	
2A-1-3		0.15	U	37		1.3	U	6410		0.51	U	32		104	
2A-3-INT		0.14		59		1.3	U	10500		0.53	U	60		137	
3A-0-1		0.45		199		1.5	U	13300		0.59	U	204		0.85	U
3A-2-5		0.2	U	399	NJ	1.9	U	16600	EJ	0.8	U	503	NJ	88	*
3A-6-9	DUP AVG	0.18	U	419	NJ	1.85	U	12550	EJ	0.775	U	521	NJ	7.65	
3A-10-INT		0.17	U	581	NJ	1.8	U	11200	EJ	0.75	U	741	NJ	3.1	*
4A-0-1		0.17	U	342		1.6	U	11000		0.66	U	490		66	
4A-1-4		0.17	U	357		1.6	U	8740		0.65	U	425		87	
4A-4-INT		0.15	U	498		1.7	U	7470		0.68	U	603		19	
4B-0-1	DUP AVG	0.18	U	307.5		1.7	U	13950		0.7	U	402.5		59	
4B-1-4		0.19	U	358		1.9	U	11500		0.75	U	484		142	
4B-4-7	DUP AVG	0.155	U	464		1.75	U	10050		0.715	U	633		21.5	
4B-8-INT		0.14	U	656	NJ	1.7	U	8830	EJ	0.68	U	555	NJ	1.8	*
N		17		17		17		17		17		17		17	
AVERAGE		1.2E-01		3.2E+02		7.9E-01		1.1E+04		3.2E-01		3.8E+02		6.3E+01	
STD. DEV.		1.0E-01		2.0E+02		1.4E-01		3.6E+03		5.6E-02		2.4E+02		4.9E+01	
95TH UPPER BOUND		1.6E-01		4.0E+02		8.5E-01		1.3E+04		3.5E-01		4.8E+02		8.4E+01	

PONDS 1-4 DEEP NON CLP INORGANICS		NITROGEN AMMONIA		FLUORIDE		SILICA SIO2		CYANIDE TOTAL		CYANIDE AMENABLE		CHLORIDE		SULFATE	
SAMPLE #	DEPTH		Q		Q		Q		Q		Q		Q		Q
1A-0-1		20		280		22		210		120		10		230	
1A-1-4	DUP AVG	120		600		11		82.5		7		41.5		645	
1A-4-INT		24		180		21		17		4		34		740	
2A-0-1		20		150		11		120		87		6		82	
2A-1-3		13		200		28		130		99		10		240	
2A-1-3-INT		19		320		34		150		20		75		550	
3A-0-1		13	U	310		9		10		3.9		4	U	45	
3A-2-5		13	U	47		20		76		1	U	4		2200	
3A-6-9	DUP AVG	13	U	30		26		3.5		1	U	4		3250	
3A-10-INT		13	U	31		27		1	U	1	U	8		4500	
4A-0-1		13	U	59		12		75		49		5		710	
4A-4-INT		13	U	36		37		17		1		8		2200	
4B-0-1	DUP AVG	13	U	74		13.5		29		6.25		3		620	
4B-1-4		13	U	39		57		110		1	U	4		950	
4B-4-7	DUP AVG	13	U	35		53		35.5		2		5		1800	
4B-8-INT		13	U	32		44		1	U	1	U	6		2400	
4C-0-1		18		270		8		250		1	U	15		130	
N		17		17		17		17		17		17		17	
AVERAGE		1.8E+01		1.6E+02		2.6E+01		7.7E+01		2.4E+01		1.4E+01		1.3E+03	
STD.DEV.		2.7E+01		1.6E+02		1.5E+01		7.6E+01		4.0E+01		1.9E+01		1.3E+03	
95TH UPPER BOUND		2.9E+01		2.3E+02		3.2E+01		1.1E+02		4.0E+01		2.2E+01		1.8E+03	

PONDS 1-4 DEEP VOLATILES		METHYLENE CHLORIDE		ACETONE		CARBON DISULFIDE		CHLOROFORM		2BUTANONE		1,1,1TCA		TCE		BENZENE		PCE		1,1,2,2, PCA		TOLUENE		CHLORO BENZENE	
SAMPLE #	DEPTH		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q
1A-0-1		0.023	BUJ	0.045	BUJ	0.005	U	0.005	U	0.01	UJ	0.004	J[]	0.005	U	0.004	J[]	0.005	U	0.005	U	0.005	U	0.005	U
1A-1-4	DUP AVG	0.019	BUJ	0.03	BUJ	0.005	UJ	0.003	BUJ	0.01	UJ	0.005	UJ	0.005	UJ	0.004	BUJ	0.005	UJ	0.005	UJ	0.003	BUJ	0.005	UJ
1A-4-INT		0.011	BUJ	0.059	BUJ	0.01	U	0.004		0.02	UJ	0.01	U	0.01	U	0.004		0.01	U	0.01	U	0.002	J	0.01	U
2A-0-1		0.051	B	0.02	BUJ	0.005	UJ	0.005	J	0.01	UJ	0.005	UJ	0.005	UJ	0.003	BUJ	0.005	UJ	0.005	UJ	0.004	BUJ	0.005	UJ
2A-1-3		0.13	B	0.034	BUJ	0.005	UJ	0.005		0.01	UJ	0.005	UJ	0.005	UJ	0.004	BUJ	0.005	UJ	0.005	UJ	0.004	BUJ	0.005	UJ
2A-3-INT		0.036	B	0.03	BUJ	0.01	UJ	0.01	J	0.02	UJ	0.01	UJ	0.01	UJ	0.006	BUJ	0.01	UJ	0.01	UJ	0.005	BUJ	0.01	UJ
3A-0-1		0.013	BUJ	0.011	BUJ	0.01	U	0.01	U	0.02	UJ	0.01	U	0.01	U	0.005	BUJ	0.01	U	0.01	U	0.002		0.01	U
3A-2-5		0.017	BUJ	0.028	BUJ	0.011	UJ	0.009	J	0.021	UJ	0.011	U	0.011	U	0.004	J	0.011	U	0.011	U	0.011	U	0.011	U
3A-6-9	DUP AVG	0.01	BUJ	0.0185	JB[]	0.011	UJ	0.011		0.0215	UJ	0.011	U	0.011	U	0.0025	J	0.011	U	0.011	U	0.011	U	0.011	U
3A-10-INT		0.042	BUJ	0.009	JB[]	0.01	UJ	0.039		0.021	UJ	0.01	U	0.01	U	0.003	J	0.01	U	0.01	U	0.01	U	0.01	U
4A-0-1		0.017	BUJ	0.04	BUJ	0.01	U	0.01	U	0.02	UJ	0.01	U	0.01	U	0.004	BUJ	0.01	U	0.01	U	0.002	J	0.01	U
4A-1-4		0.034		0.034	BUJ	0.0035		0.007		0.015	UJ	0.0075	U	0.0075	U	0.003		0.002		0.0075	U	0.0015		0.0075	U
4A-4-INT		0.01	BUJ	0.16	BUJ	0.005	U	0.002	BUJ	0.01	UJ	0.005	U	0.002	J	0.004	BUJ	0.047		0.005	U	0.005	UB	0.005	U
4B-0-1	DUP AVG	0.048		0.115		0.01	U	0.01	U	0.0095		0.01	U	0.01	U	0.004		0.01	U	0.01	U	0.01	U	0.01	U
4B-1-4		0.011	BUJ	0.14	BUJ	0.01	U	0.01	UB	0.02	UJ	0.01	U	0.01	U	0.006	BUJ	0.01	U	0.01	U	0.01	UB	0.01	U
4B-4-7	DUP AVG	0.0905	B	0.042	BUJ	0.004		0.016		0.02	UJ	0.01	U	0.01	U	0.004	BUJ	0.01	U	0.01	UJ	0.0035	BUJ	0.01	U
4B-8-INT		0.016	BUJ	0.013	JB[]	0.009	UJ	0.01		0.019	UJ	0.009	U	0.009	U	0.003	J	0.009	U	0.009	U	0.009	U	0.009	U
N		17		17		17		17		17		17		17		17		17		17		17		17	
AVERAGE		2.8E-02		2.9E-02		4.1E-03		8.3E-03		8.4E-03		4.3E-03		4.2E-03		2.8E-03		6.7E-03		4.2E-03		3.1E-03		4.2E-03	
STD. DEV.		3.5E-02		3.0E-02		1.2E-03		8.8E-03		2.4E-03		1.1E-03		1.3E-03		8.3E-04		1.0E-02		1.2E-03		1.5E-03		1.2E-03	
95TH UPPER BOUND		4.3E-02		4.2E-02		4.7E-03		1.2E-02		9.4E-03		4.8E-03		4.7E-03		3.1E-03		1.1E-02		4.7E-03		3.8E-03		4.7E-03	

PONDS 1-4 DEEP VOLATILES		ETHYL BENZENE		STYRENE	
SAMPLE #	DEPTH		Q		Q
1A-0-1		0.005	U	0.005	U
1A-1-4	DUP AVG	0.005	UJ	0.005	UJ
1A-4-INT		0.01	U	0.01	U
2A-0-1		0.005	UJ	0.005	UJ
2A-1-3		0.005	UJ	0.005	UJ
2A-3-INT		0.01	UJ	0.002	J
3A-0-1		0.01	U	0.01	U
3A-2-5		0.011	U	0.011	U
3A-6-9	DUP AVG	0.011	U	0.011	U
3A-10-INT		0.01	U	0.01	U
4A-0-1		0.01	U	0.01	U
4A-1-4		0.0075	U	0.0075	U
4A-4-INT		0.005	U	0.005	U
4B-0-1	DUP AVG	0.01	U	0.01	U
4B-1-4		0.01	U	0.01	U
4B-4-7	DUP AVG	0.01	U	0.01	U
4B-8-INT		0.009	U	0.009	U
N		17		17	
AVERAGE		4.2E-03		4.0E-03	
STD. DEV.		1.2E-03		1.3E-03	
95TH UPPER BOUND		4.7E-03		4.6E-03	

PONDS 1-4 DEEP SEMIVOLATILES		4-METHYL PHENOL		2,4DIMETH PHENOL		NAPTHALENE		2-METHYL NAPTHALENE		ACENAPH THYLENE		ACENAPH THENE		DIBENZO FURAN		FLUORENE		PHENAN THRENE		ANTHRA CENE		DI-N-BUTYL PHTHALATE		FLUORAN THENE	
SAMPLE #	DEPTH		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q
1A-0-1		0.55	U	0.55	U	0.94	J	0.45	J	0.55	U	1.3	J	1.9	J	0.99	J	7.8	J	3.2	J	0.55	U	8.5	J
1A-1-4	DUP AVG	1.855	U	1.855	U	0.22	J	0.15	J	1.855	U	0.38		0.665		0.38		2.6		2.1		1.7525		16.75	
1A-4-INT		0.55	U	0.55	U	0.55	U	0.55	U	0.55	U	0.55	U	0.55	U	0.55	U	0.89		0.31		0.092	BUJ	1.1	
2A-0-1		4.1	U	4.1	U	0.8	J	0.5		4.1	U	2.1		2.4		1.4		30		7.4		4.1	U	52	
2A-1-3		0.55	U	0.55	U	0.32	J	0.2	J	0.55	U	0.38	J	0.84		0.3	J	4.2		1.6		0.55	U	5.2	
2A-3-INT		0.55	U	0.55	U	0.93		0.46	J	0.099		0.42		1.3		0.2	J	6.6		2.4		0.55	UB	7.4	
3A-0-1		0.55	U	0.55	U	0.55	U	0.55	U	0.55	U	0.19	J	0.15		0.13	J	3		0.83		0.55	U	7.8	
3A-2-5		0.66	U	0.66	U	0.66	U	0.66	U	0.066	J	0.66	U	1.2		0.3	J	13		3.9		0.87	BUJ	17	
3A-6-9	DUP AVG	0.66	U	0.66	U	0.66	U	0.66	U	0.66	U	0.66	U	0.325	J	0.075	J	4.75		0.48		0.735	U	6.8	
3A-10-INT		0.66	U	0.66	U	0.66	U	0.66	U	0.66	U	0.66	U	0.59	J	0.46	J	7.6		1.5		1.1	BUJ	6.6	
4A-0-1		0.66	U	0.66	U	0.66	U	0.66	U	0.66	U	0.66	U	0.66	U	0.66	U	0.34	J	0.73		0.66	U	1.9	
4A-0-1		6.6	U	6.6	U	6.6	U	6.6	U	6.6	U	6.6	U	6.6	U	6.6	U	2.5	J	3.1	J	6.6	UB	46	
4A-4-INT		0.55	U	0.55	U	0.55	U	0.55		0.55	U	0.55	U	0.55	U	0.55	U	1.4		1.1		0.55	UB	13	
4B-0-1	DUP AVG	19.8	U	19.8	U	19.8	U	19.8	U	19.8	U	19.8	U	19.8	U	19.8	U	4.65		10		19.8	U	17.5	
4B-1-4		6.6	U	6.6	U	6.6	U	6.6	U	6.6	U	6.6	U	0.65	J	1	J	56		44		6.6	UB	150	
4B-4-7	DUP AVG	1.98	U	1.98	U	1.98	U	1.98	U	1.98	U	1.98	U	0.885		0.885		6.4		3.7		1.98	UB	26.5	
4B-8-INT		0.55	U	0.55	U	0.55	U	0.55	U	0.55	U	0.55	U	0.55	U	0.55	U	0.59		0.076	J	0.079	BUJ	3.2	
N		17		17		17		17		17		17		17		17		17		17		17		17	
AVERAGE		1.4E+00		1.4E+00		1.4E+00		1.3E+00		1.4E+00		1.4E+00		1.5E+00		1.2E+00		9.0E+00		5.1E+00		1.4E+00		2.3E+01	
STD. DEV.		2.4E+00		2.4E+00		2.4E+00		2.4E+00		2.4E+00		2.4E+00		2.3E+00		2.4E+00		1.4E+01		1.0E+01		2.4E+00		3.6E+01	
95TH UPPER BOUND		2.4E+00		2.4E+00		2.4E+00		2.3E+00		2.4E+00		2.5E+00		2.5E+00		2.2E+00		1.5E+01		9.5E+00		2.5E+00		3.8E+01	

PONDS 1-4 DEEP SEMIVOLATILES		PYRENE		BENZO (A) ANTHRACENE		CHRYSENE		b2EHTHXL PHTHALATE		DI-N-OCTL PHTHALATE		BENZO (B) FLUORAN THENE		BENZO (K) FLUORAN THENE		BENZO (A) PYRENE		INDENO 1,2,3 PYRENE		DIBENZ A,H ANTHRACNE		BENZO G,H,I PERYLENE	
SAMPLE #	DEPTH		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q
1A-0-1		9.9	J	9.2	J	9.5	J	1.3	BUJ	0.55	U	9.9	J	5.5	J	6.5	J	1.1	J	0.32	J	1.2	J
1A-1-4	DUP AVG	19.7		12.2		17.05		1.405	U	1.855	U	10.65		5.7		5.25		2.75		0.675		2.45	
1A-4-INT		8.5		4.4		10		3.4	BUJ	0.55	U	4.2		1.8		1.3		0.64		0.17		0.44	
2A-0-1		37		33		38		1.3	BUJ	4.1	U	29		24		22		15		3		12	
2A-1-3		4.1		4.1		4.3		2.1	BUJ	0.55	U	5		2.7		2.9		1.3		0.4		1.3	
2A-3-INT		5.8		4.9		5.4		2.6	BUJ	0.55	U	4.2		2.5		2.5		0.67		0.21	J	0.63	
3A-0-1		4.7		4.9		7.1		0.065	BUJ	0.55	U	4.5		2.8		2.3		0.85		0.21	J	0.74	
3A-2-5		26		21		22		2.1	BUJ	0.66	U	4.7		3.6		6.1		2.5		0.97		2	
3A-6-9	DUP AVG	5.25		1.85		3.85		2.15	BUJ	0.66	U	0.785		0.42		0.66	U	0.66	U	0.66	U	0.66	U
3A-10-INT		4.8		0.84		1.1		0.15	BUJ	0.66	U	0.21	J	0.66	U	0.66	U	0.66	U	0.66	U	0.66	U
4A-0-1		1.4		5.3		12		0.16	BUJ	0.66	U	18		20		5.8		2.9		0.81		2.2	
4A-0-1		55		24		39		1.9	BUJ	6.6	U	20		6.2		5.5	J	3	J	0.91	J	2.3	J
4A-4-INT		9.4		6.8		10		3.9	BUJ	0.55	U	34		1.8		1.3		0.42	J	0.16	J	0.35	J
4B-0-1	DUP AVG	8.5		63.5		125		17.55	U	19.8	U	135		68.5		52		32.5		8.9		34	
4B-1-4		6.6	U	100		130		6.6	UB	6.6	U	97		45		36		15	J	4.8	J	14	J
4B-4-7	DUP AVG	8.45		14		21.5		2.45		1.98	U	15.25		6.4		5.15		3.45		1.225		2.8	
4B-8-INT		1.5		0.53	J	1.4		1.8	BUJ	0.55	U	0.22	J	0.096	J	0.55	U	0.55	UJ	0.55	UJ	0.55	UJ
N		17		17		17		17		17		17		17		17		17		17		17	
AVERAGE		1.3E+01		1.8E+01		2.7E+01		1.6E+00		1.4E+00		2.3E+01		1.2E+01		9.1E+00		4.9E+00		1.4E+00		4.5E+00	
STD. DEV.		1.4E+01		2.6E+01		4.0E+01		2.0E+00		2.4E+00		3.7E+01		1.9E+01		1.4E+01		8.5E+00		2.3E+00		8.6E+00	
95TH UPPER BOUND		1.9E+01		2.9E+01		4.4E+01		2.4E+00		2.4E+00		3.9E+01		2.0E+01		1.5E+01		8.5E+00		2.4E+00		8.2E+00	

PONDS 1-4 DEEP PESTICIDES		AROCLOR 1242		AROCLOR 1248		AROCLOR 1254	
SAMPLE #	DEPTH		Q		Q		Q
1A-0-1		0.19	U	0.19	U	0.38	U
1A-1-4	DUP AVG	1.045	U	1.045	U	2.09	U
1A-4-INT		0.19	U	0.19	U	0.38	U
2A-0-1		1.9	U	1.9	U	3.8	U
2A-1-3		0.19	U	0.19	U	0.38	U
2A-3-INT		0.19	U	0.19	U	0.38	U
3A-0-1		0.19	U	0.19	U	0.38	U
3A-2-5		1.9	U	1.9	U	3.8	U
3A-6-9	DUP AVG	0.19	U	0.19	U	0.38	U
3A-10-INT		1.9	U	1.9	U	3.8	U
4A-0-1		1.9	U	1.9	U	3.8	U
4A-1-4		1.9	U	1.9	U	3.8	U
4A-4-INT		0.19	U	0.19	U	0.38	U
4B-0-1	DUP AVG	1.9	U	1.9	U	3.8	U
4B-1-4		1.9	U	1.9	U	3.8	U
4B-4-7	DUP AVG	1.045	U	1.045	U	2.09	U
4B-8-INT		0.19	U	0.19	U	0.38	U
N		17		17		17	
AVERAGE		5.0E-01		5.0E-01		9.9E-01	
STD. DEV.		4.1E-01		4.1E-01		8.3E-01	
95TH UPPER BOUND		6.7E-01		6.7E-01		1.3E+00	

EXPOSURE POINT
FILE NAME: POTLNR.WQ1
DATE: 02/13/91
MEDIUM, UNITS: SOIL,MG/KG
SITE AREA: POT LINER AREA

CLP INORGANICS		ALUMINUM		ANTIMONY		ARSENIC		BARIUM		BERYLLIUM		CADMIUM		CHROMIUM		COBALT		COPPER		IRON		LEAD		MANGANESE	
SAMPLE #	DEPTH	CONC.	Q		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q
SB-006-0-2	0-2'	13500		12	UN	3	S	38		0.97		1.1	U	4.9		5.1	E	8.2	E	21500		8.5		626	
SB-008-0-2		30300		12	UN	10		56		1.3		1.1	U	9		1.1	UE	30		6690		21		198	
SB-015-0-2		42500		12	UN	11		136		2.2		1.1	U	9.9		2.7	E	24	E	21100		23		734	
SB-016-0-2		14900		12	UN	16		45		0.92		1.1	U	29		5.4	E	277	E	28900		39		1690	
SB-006-2-4	2-4'	7830		11	UN	3.2		54		0.95		1.1	U	6.8		4.5	E	12	E	25900		8		621	
SB-008-2-4		11700		13	UN	13		93		1		1.2	U	11		2.7	E	27	E	26000		16		844	
SB-015-2-4		6000		11	UN	10		124		1.5		1.1	U	9.8		5.6	E	26	E	20900		11		595	
SB-016-2-4		35100		12	UN	5		33		0.98		1.1	U	61		2.8	E	391	E	29800		50		914	
SB-006-4-6	4-6'	4260		11	UN	4.2		38		0.93		1.1	U	5.7		5	E	10	E	20200		7.8		419	
SB-008-4-6		2560		11	UN	5.4		35		0.23		1	U	5		2.7	E	8.2	E	17100		7.6		463	
SB-015-4-6		8240		15	UN	9.3		107		1.2		1.4	U	9.2		6	E	25	E	25600		18		1620	
SB-016-4-6		22600		13	UN	13		48		0.9		1.2	U	168		12	E	791	E	106000		43		3220	
SB-006-6-8	6-8'	3300		11	UN	8.1		35		0.64		1.1	U	5		3.3	E	8.6	E	19700		11		430	
SB-008-6-8		3810		11	UN	9.1		36		0.28		1.1	U	5.4		1.9	E	8.2	E	18400		8.8		680	
SB-015-6-8		5600		14	UN	25		56		1.2		1.3	U	7.6		6.6	E	20	E	23600		15		785	
SB-016-6-8		10600		12	UN	20		88		0.96		1.1	U	23		9.9	E	184	E	33200		74		913	
SB-006-8-10	8-10'	3040		12	UN	6.4		37		0.9		1.1	U	4.8		4.5	E	13	E	29100		7.3		732	
SB-008-8-10		4470		11	UN	6.6		51		0.37		1	U	5.3		2.7	E	8.6	E	17400		7.2		739	
SB-015-8-10		4450		11	UN	7.4		34		0.93		1	U	7.4		5.7	E	15	E	20000		7.9		628	
SB-016-8-10		9710		11	UN	12		73		0.88		1.1	U	51		13	E	199	E	45100		21		1360	
N		20		20		20		20		20		20		20		20		20		20		20		20	
AVERAGE		1.2E+04		6.0E+00		9.9E+00		6.1E+01		9.6E-01		5.6E-01		2.2E+01		5.1E+00		1.0E+02		2.8E+04		2.0E+01		9.1E+02	
STD. DEV.		1.2E+04		5.6E-01		5.6E+00		3.2E+01		4.3E-01		4.8E-02		3.8E+01		3.2E+00		1.9E+02		2.0E+04		1.8E+01		6.6E+02	
95TH UPPER BOUND		1.7E+04		6.2E+00		1.2E+01		7.3E+01		1.1E+00		5.8E-01		3.7E+01		6.4E+00		1.8E+02		3.6E+04		2.7E+01		1.2E+03	

EXPOSURE POINT
FILE NAME: POTLNR.WQ1
DATE: 02/13/91
MEDIUM, UNITS: SOIL,MG/KG
SITE AREA: POT LINER AREA

CLP INORGANICS		MERCURY		NICKEL		SILVER		SODIUM		THALLIUM		VANADIUM		CYANIDE	
SAMPLE #	DEPTH		Q		Q		Q		Q		Q		Q		Q
SB-006-0-2	0-2'	0.087	U	8.5	U	1.7	U	10600		0.49	U	11	E	647	
SB-008-0-2		0.062	U	12		1.7	U	10900		0.48	U	11	E	34	
SB-015-0-2		0.099	U	17		1.7	U	12600		0.48	U	21	E	243	
SB-016-0-2		0.1	U	64		1.8	U	2370		0.5	U	36	E	6.9	
SB-006-2-4	2-4'	0.096	U	8.4	U	1.7	U	4050		0.47	U	15	E	161	
SB-008-2-4		0.079	U	17		2	U	6540		0.55	U	19	E	228	
SB-015-2-4		0.089	U	22		1.7	U	14200		0.47	U	13	E	110	
SB-016-2-4		0.089		0.59		1.8	U	4600		0.49	U	20	E	5.6	
SB-006-4-6	4-6'	0.095	U	9		1.7	U	2300		0.46	U	14	E	11	
SB-008-4-6		0.074	U	8.8		1.7	U	352	U	0.46	U	6.1	E	20	
SB-015-4-6		0.12	U	19		2.3	U	1390		0.63	U	18	E	61	
SB-016-4-6		0.072	U	146		11		7830		0.54	U	62	E	3.7	
SB-006-6-8	6-8'	0.095	U	8.4	U	1.7	U	1190		0.48	U	10	E	7.9	
SB-008-6-8		0.07	U	8.3	U	1.7	U	359	U	0.46	U	8.5	E	58	
SB-015-6-8		0.098		15		2.1	U	446	U	0.59	U	13	E	2.7	
SB-016-6-8		0.11	U	28		1.8	U	3770		0.49	U	27	E	5.3	
SB-006-8-10	8-10'	0.099	U	11		1.7	U	1640		0.48	U	16	E	7.8	
SB-008-8-10		0.067	U	11		1.7	U	1860		0.46	U	9.9	E	56	
SB-015-8-10		0.065	U	13		1.7	U	354	U	0.46	U	12	E	16	
SB-016-8-10		0.11	U	57		1.7	U	2950		0.47	U	34	E	4.8	
N		20		20		20		20		20		20		20	
AVERAGE		4.9E-02		2.3E+01		1.4E+00		4.5E+03		2.5E-01		1.9E+01		8.4E+01	
STD. DEV.		1.7E-02		3.3E+01		2.3E+00		4.4E+03		2.3E-02		1.3E+01		1.5E+02	
95TH UPPER BOUND		5.6E-02		3.6E+01		2.3E+00		6.2E+03		2.6E-01		2.4E+01		1.4E+02	

N

POTLINER
NON CLP INORGANICS

SAMPLE #		CYANIDE	Q	AMMONIA-N	Q	FLUORIDE	Q	SODIUM	Q
SB-001		1		12.5	U	590		67000	
		1	U	23		620		16000	
		1	U	16		450		2100	
		1	U	12.5	U	72		310	
		1	U	12.5	U	54		380	
SB-002		1	U	17		92		590	
		4		70		84		460	
		3		53		51		380	
		1	U	12.5	U	31		250	U
		1	U	12.5	U	24		260	
SB-003		1		13		470		2100	
		1		15		260		1800	
		1	U	12.5	U	13		250	U
		1	U	20		35		250	U
		1	U	12.5	U	21		250	U
SB-004		1	U	12.5	U	14		490	
		1	U	12.5	U	9		250	U
		1	U	12.5	U	1.1		250	U
		1	U	12.5	U	1.3		250	U
		1	U	12.5	U	1.8		250	U
SB-005		1	U	12.5	U	8		250	U
		1	U	12.5	U	1.5		250	U
		1	U	12.5	U	1.7		250	U
		1	U	12.5	U	0.9		250	U
		1	U	12.5	U	0.6		250	U
SB-006	DUP AVG	1500		27.12		2.4		7900	
		190		80		140		2700	
		19		45		110		880	
		15		60		51		1200	
		8		63		42		1100	
SB-007		360		29		680		3800	
	DUP AVG	153.5		12.125		280		4950	
		12		19		190		2600	
		14		25		210		3100	
		14		30		280		2700	
SB-008		80		360		810		17000	
		230		140		1500		6700	
	DUP AVG	247		91.5		542.5		3550	
		120		56		290		1100	
		91		18		840		2500	
SB-009		22		35		500		30000	
		100		13		660		54000	
		2		13		690		2200	
	DUP AVG	2		12.5	U	480		1950	
		2		12.5	U	450		1400	
SB-010		170		12.5	U	600		7800	
		42		12.5	U	510		3200	
		13		12.5	U	190		1300	
		2		12.5	U	410		1500	
	DUP AVG	0.75		12.5	U	315		1200	
SB-0-11	DUP AVG	21.5		12.5	U	330		3010	

POTLINER
NON CLP INORGANICS

SAMPLE #		CYANIDE	Q	AMMONIA-N	Q	FLUORIDE	Q	SODIUM	Q
		27		12.5	U	240		870	
		5		12.5	U	350		760	
		1	U	12.5	U	220		760	
		1	U	12.5	U	270		830	
SB-012		1	U	12.5	U	150		450	
		1	U	12.5	U	21		250	U
	DUP AVG	1	U	12.5	U	0.75		250	U
		1	U	12.5	U	9.7		250	U
		1	U	12.5		1.6		250	U
SB-013		1	U	12.5	U	120		250	U
	DUP AVG	1	U	12.5	U	31.5		250	U
		1	U	12.5	U	1		250	U
		1	U	12.5	U	1		250	U
		1	U	12.5	U	1.6		250	U
SB-014		11		12.5	U	160		3600	
		1	U	12.5	U	71		1100	
		1	U	12.5	U	73		910	
	DUP AVG	1	U	12.5	U	106.5		860	
		1	U	12.5	U	160		870	
SB-015		180		25		980		11000	
		160		38		580		3700	
		23		13		200		1100	
		2		12.5	U	30		250	U
	DUP AVG	23.5		12.5	U	23		285	
SB-016		9		12.5	U	240		1900	
		5		12.5	U	240		4700	
		8		12.5	U	260		3500	
		4		12.5	U	170		700	
		3		13		220		1600	
SB-017		3		12.5	U	24		350	
		1	U	12.5	U	5.9		250	U
		1	U	12.5	U	0.4	U	250	U
		1	U	12.5	U	0.4		250	U
		1	U	12.5	U	0.4	U	250	U
SB-018		1		13		39		310	
		1	U	12.5	U	7.7		250	U
	DUP AVG	1	U	12.5	U	0.95		250	U
		1	U	13		2.1		250	U
		1	U	12.5	U	2.5		250	U
SB-019		1	U	13		31		300	
		4		12.5	U	1.9		250	U
		1	U	12.5	U	0.5		250	U
		1	U	12.5	U	4.1		250	U
		1	U	12.5	U	0.9		250	U
SB-020		3		13		7.9		740	
		1	U	12.5	U	3		400	
		1	U	12.5	U	0.4		360	
		1	U	12.5	U	0.3		250	U
		1	U	12.5	U	11		340	
SB-021		1	U	12.5	U	50		430	
		1	U	12.5	U	0.7		250	U

POTLINER
NON CLP INORGANICS

SAMPLE #		CYANIDE	Q	AMMONIA-N	Q	FLUORIDE	Q	SODIUM	Q
	DUP AVG	1	U	12.5	U	0.65		250	
		1	U	12.5	U	1		250	U
		1	U	12.5	U	0.7		250	U
SB-022		1	U	12.5	U	37		250	U
		1	U	12.5	U	28		250	U
	DUP AVG	1	U	12.5	U	36		250	U
		1	U	12.5	U	18		250	U
		1	U	12.5	U	10		250	U
SB-023		1	U	12.5	U	120		490	
		1	U	12.5	U	1.5		250	U
		1	U	12.5	U	2.3		250	U
		1	U	12.5	U	0.9		250	U
		1	U	12.5	U	1.1		250	U
SB-024		6		12.5	U	0.4		470	
		1	U	12.5	U	0.4	U	250	U
		1	U	12.5	U	1.1		250	U
		1	U	12.5	U	0.9		250	U
		1	U	12.5	U	0.9		250	U
N		120		120		120		120	
AVERAGE		3.3E+01		1.7E+01		1.6E+02		2.6E+03	
STD. DEV.		1.5E+02		3.7E+01		2.5E+02		8.5E+03	
95TH UPPER BOUND		5.5E+01		2.3E+01		2.0E+02		3.9E+03	

POTLINER VOLATILES		METHYLENE CHLORIDE		ACETONE		CARBON DISULFIDE		CHLOROFORM		2BUTANONE		1,1,1TCA		TCE		BENZENE		PCE		1,1,2,2, PCA		TOLUENE		CHLORO BENZENE	
SAMPLE #	DEPTH		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q
SB-006-0-2	0-2'	0.005	J	0.076	B	0.015	U	0.015	U	0.088	B	0.015	U	0.015	U	0.015	U	0.015	U	0.015	U	0.015	U	0.015	U
SB-008-0-2		0.007	J	0.097	B	0.015	U	0.015	U	0.03	U	0.015	U	0.015	U	0.015	U	0.015	U	0.015	U	0.015	U	0.015	U
SB-015-0-2		0.012	[]	0.12	B	0.015	U	0.015	U	0.095	BUJ	0.015	U	0.015	U	0.015	U	0.015	U	0.015	U	0.015	U	0.015	U
SB-016-0-2		0.008	J	0.11	B	0.015	U	0.015	U	0.03	B	0.015	U	0.015	U	0.015	U	0.015	U	0.015	U	0.015	U	0.015	U
SB-006-2-4	2-4'	0.004	J	0.1	B	0.015	U	0.015	U	0.079	B	0.015	U	0.015	U	0.015	U	0.015	U	0.015	U	0.015	U	0.015	U
SB-008-2-4		0.004	J	0.044	B	0.015	U	0.015	U	0.03	U	0.015	U	0.015	U	0.015	U	0.015	U	0.015	U	0.015	U	0.015	U
SB-015-2-4		0.015	U	0.084	B	0.015	U	0.015	U	0.089	BUJ	0.015	U	0.015	U	0.015	U	0.015	U	0.015	U	0.015	U	0.015	U
SB-016-2-4		0.015		0.14	B	0.015	U	0.015	U	0.025	BJ	0.015	U	0.015	U	0.015	U	0.015	U	0.015	U	0.015	U	0.015	U
SB-006-4-6	4-6'	0.005	J	0.1	B	0.015	U	0.015	U	0.05	B	0.015	U	0.015	U	0.015	U	0.015	U	0.015	U	0.015	U	0.015	U
SB-008-4-6		0.004	J	0.029	B	0.015	U	0.015	U	0.03	U	0.015	U	0.015	U	0.015	U	0.015	U	0.015	U	0.015	U	0.015	U
SB-015-4-6		0.018		0.091	B	0.015	U	0.015	U	0.073	BUJ	0.015	U	0.015	U	0.015	U	0.015	U	0.015	U	0.015	U	0.015	U
SB-016-4-6		0.02		0.16	B	0.015	U	0.015	U	0.027	BJ	0.015	U	0.015	U	0.015	U	0.015	U	0.015	U	0.015	U	0.015	U
SB-006-6-8	6-8'	0.004	J	0.085	B	0.015	U	0.015	U	0.074	B	0.015	U	0.015	U	0.015	U	0.015	U	0.015	U	0.015	U	0.015	U
SB-008-6-8		0.004	B	0.051	B	0.015	U	0.015	U	0.03	BUJ	0.015	U	0.015	U	0.015	U	0.015	U	0.015	U	0.015	U	0.015	U
SB-015-6-8		0.015	U	0.061	B	0.015	U	0.015	U	0.068	BUJ	0.015	U	0.015	U	0.015	U	0.015	U	0.015	U	0.015	U	0.015	U
SB-016-6-8		0.015	U	0.071	B	0.015	U	0.015	U	0.029	BJ	0.015	U	0.015	U	0.015	U	0.015	U	0.015	U	0.015	U	0.015	U
SB-006-8-10	8-10'	0.005	J	0.099	B	0.015	U	0.015	U	0.006	JB	0.015	U	0.015	U	0.015	U	0.015	U	0.015	U	0.015	U	0.007	J
SB-008-8-10		0.005	[]	0.056	B	0.015	U	0.015	U	0.03	UB	0.015	U	0.015	U	0.015	U	0.015	U	0.015	U	0.015	U	0.015	U
SB-015-8-10		0.011	J	0.12	B	0.015	U	0.015	U	0.043	B	0.015	U	0.015	U	0.015	U	0.015	U	0.015	U	0.015	U	0.005	J
SB-016-8-10		0.01	J	0.12	BU	0.015	U	0.015	U	0.042	BU	0.015	U	0.015	U	0.015	U	0.015	U	0.015	U	0.015	U	0.015	U
N		20		20		20		20		20		20		20		20		20		20		20		20	
AVERAGE		8.2E-03		8.8E-02		7.5E-03		7.5E-03		3.5E-02		7.5E-03		7.5E-03		7.5E-03		7.5E-03		7.5E-03		7.5E-03		7.4E-03	
STD. DEV.		4.8E-03		3.3E-02		0.0E+00		0.0E+00		2.3E-02		0.0E+00		0.0E+00		0.0E+00		0.0E+00		0.0E+00		0.0E+00		5.6E-04	
95TH UPPER BOUND		1.0E-02		1.0E-01		7.5E-03		7.5E-03		4.4E-02		7.5E-03		7.5E-03		7.5E-03		7.5E-03		7.5E-03		7.5E-03		7.6E-03	

POTLINER VOLATILES		ETHYL BENZENE		STYRENE	
SAMPLE #	DEPTH		Q		Q
SB-006-0-2	0-2'	0.015	U	0.015	U
SB-008-0-2		0.015	U	0.015	U
SB-015-0-2		0.015	U	0.015	U
SB-016-0-2		0.015	U	0.015	U
SB-006-2-4	2-4'	0.015	U	0.015	U
SB-008-2-4		0.015	U	0.015	U
SB-015-2-4		0.015	U	0.015	U
SB-016-2-4		0.015	U	0.015	U
SB-006-4-6	4-6'	0.015	U	0.015	U
SB-008-4-6		0.015	U	0.015	U
SB-015-4-6		0.015	U	0.015	U
SB-016-4-6		0.015	U	0.015	U
SB-006-6-8	6-8'	0.015	U	0.015	U
SB-008-6-8		0.015	U	0.015	U
SB-015-6-8		0.015	U	0.015	U
SB-016-6-8		0.015	U	0.015	U
SB-006-8-10	8-10'	0.015	U	0.015	U
SB-008-8-10		0.015	U	0.015	U
SB-015-8-10		0.015	U	0.015	U
SB-016-8-10		0.015	U	0.015	U
N		20		20	
AVERAGE		7.5E-03		7.5E-03	
STD. DEV.		0.0E+00		0.0E+00	
95TH UPPER BOUND		7.5E-03		7.5E-03	

POTLINER SEMIVOLATILES		4-METHYL PHENOL		2,4DIMETH PHENOL		NAPTHALENE		2-METHYL NAPTHALENE		ACENAPH THYLENE		ACENAPH THENE		DIBENZO FURAN		FLUORENE		PHENAN THRENE		ANTHRA CENE		DI-N-BUTYL PHTHALATE		FLUORAN THENE	
SAMPLE #	DEPTH		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q
SB-006-0-2	0-2'	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.043		0.4	U
SB-008-0-2		1.3	J	10	U	80		32		1.4	J	140		120		140		450		170		10	U	410	
SB-015-0-2		0.21	J	2	U	4.5		1.6	J	2	U	6.2		5.2		4.4		28		11		2	U	32	
SB-016-0-2		32	U	32	U	46		21	J	32	U	100		38		59		370		130		32	U	580	
SB-006-2-4	2-4'	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
SB-008-2-4		0.4	U	0.4	U	0.53		0.33	J	0.4	U	2.4		1.7		1.9		10		4.4		0.047	J	12	
SB-015-2-4		0.23	J	0.072	J	5		2.2		0.4	U	2.5		2.8		2.3		8.2		3.5		0.4	U	7.6	
SB-016-2-4		3.4	J	1.8	J	73		39		17	U	180		60		85		420		180		17	U	530	
SB-006-4-6	4-6'	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.051	J	0.4	U
SB-008-4-6		0.4	U	0.4	U	0.071	J	0.037	J	0.4	U	0.25	J	0.25	J	0.25	J	2.5		0.7		0.063	J	2.2	
SB-015-4-6		0.31	J	0.11	J	6.6		3.7		0.062	J	4.5		4.7		4.4		15		6.4		0.4	U	13	
SB-016-4-6		12	U	12	U	21		8.2		12	U	27		13		18		150		40		12	U	160	
SB-006-6-8	6-8'	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.048	J	0.4	U
SB-008-6-8		0.4	U	0.4	U	0.18	J	0.09	J	0.4	U	0.6		0.44		0.55	U	3.8		1.3		0.05	J	3.9	
SB-015-6-8		0.4	U	0.4	U	0.13	J	0.037	J	0.4	U	0.046	J	0.06	J	0.064	J	0.34	J	0.099	J	0.4	U	0.29	J
SB-016-6-8		2	U	2	U	9.2		4.2		2	U	6		4.5		6.3		23		9		2	U	28	
SB-006-8-10	8-10'	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.063	J	0.4	U
SB-008-8-10		0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.043	J	0.4	U	0.18	J	0.045	J	0.4	U	0.2	J
SB-015-8-10		0.4	U	0.4	U	0.14	J	0.4	U	0.4	U	0.4	U	0.4	U	0.04	J	0.19	J	0.053	J	0.4	U	0.18	J
SB-016-8-10		2	U	2	U	5		2.1		2	U	4.3		2.7		37		17		5.8		2	U	24	
N		20		20		20		20		20		20		20		20		20		20		20		20	
AVERAGE		1.6E+00		1.7E+00		1.3E+01		5.8E+00		1.9E+00		2.4E+01		1.3E+01		1.8E+01		7.5E+01		2.8E+01		2.0E+00		9.0E+01	
STD. DEV.		3.7E+00		3.7E+00		2.4E+01		1.1E+01		4.0E+00		5.2E+01		2.9E+01		3.7E+01		1.5E+02		5.8E+01		4.1E+00		1.9E+02	
95TH UPPER BOUND		3.0E+00		3.2E+00		2.2E+01		1.0E+01		3.4E+00		4.4E+01		2.4E+01		3.2E+01		1.3E+02		5.1E+01		3.6E+00		1.6E+02	

POTLINER SEMIVOLATILES		PYRENE		BENZO (A) ANTHRACENE		CHRYSENE		b2EHTHXL PHTHALATE		DI-N-OCTL PHTHALATE		BENZO (B) FLUORAN THENE		BENZO (K) FLUORAN THENE		BENZO (A) PYRENE		INDENO 1,2,3 PYRENE		DIBENZ A,H ANTHRACNE		BENZO G,H,I PERYLENE	
SAMPLE #	DEPTH		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q
SB-006-0-2	0-2'	0.4	U	0.4	U	0.4	U	0.2	B	0.4	U	0.056		0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
SB-008-0-2		470		330		260		1.7	JB	10	U	390		180		270		110		220		99	
SB-015-0-2		39		30		28		1.1	JB	2	U	27		9.1		23		0.71	J	0.88	J	2	U
SB-016-0-2		500		460		440		32	U	32	U	580		270		420		120		30	J	120	
SB-006-2-4	2-4'	0.4	U	0.4	U	0.4	U	0.35	JB	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
SB-008-2-4		11		7.9		6.8		0.4	U	0.4	U	7.2		2.1		5.4		2		0.52	J	1.7	
SB-015-2-4		7.7		5.9		5.6		0.4	U	0.4	U	6.2		0.83		4.3		1.7		0.48		1.1	
SB-016-2-4		820		750		470		17	U	17	U	1200	E	1200		710		180		50		120	
SB-006-4-6	4-6'	0.4	U	0.4	U	0.4	U	0.66	B	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
SB-008-4-6		1.8		0.95		0.84		1.3	B	0.4	U	0.55		0.88		0.63		0.47		0.086	J	0.48	
SB-015-4-6		19		12		10		0.4	U	0.4	U	11		4.6		9		3.3		0.89		2.2	
SB-016-4-6		210		210		190		12	U	12	U	310		310		200		130		32		100	
SB-006-6-8	6-8'	0.4	U	0.4	U	0.4	U	0.71		0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
SB-008-6-8		3.7		2		1.8		1.5	B	0.4	U	1.5		0.98		1.4		0.96		0.17	J	0.89	
SB-015-6-8		0.26	J	0.14	J	0.13	J	0.34	JB	0.4	U	0.11	J	0.079	J	0.11	J	0.089	J	0.4	U	0.11	J
SB-016-6-8		29		22		20		0.54	JB	2	U	23		11		18		6		1.5		5.4	
SB-006-8-10	8-10'	0.4	U	0.4	U	0.4	U	1.1	B	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
SB-008-8-10		0.17	J	0.093	J	0.081	J	0.27	JB	0.4	U	0.095	J	0.04	U	0.056	J	0.061	J	0.4	U	0.085	J
SB-015-8-10		0.12	J	0.076	J	0.074	J	0.46	B	0.067		0.4	U	0.4	U	0.043	J	0.4	U	0.4	U	0.4	U
SB-016-8-10		21		18		16		0.74	JB	2	U	20		8.8		16		4.2		1.1	J	4.1	
N		20		20		20		20		20		20		20		20		20		20		20	
AVERAGE		1.1E+02		9.3E+01		7.3E+01		2.1E+00		2.0E+00		1.3E+02		1.00E+02		8.4E+01		2.8E+01		1.7E+01		2.3E+01	
STD. DEV.		2.3E+02		2.0E+02		1.5E+02		3.9E+00		4.0E+00		3.0E+02		2.8E+02		1.9E+02		5.6E+01		5.0E+01		4.5E+01	
95TH UPPER BOUND		1.9E+02		1.7E+02		1.3E+02		3.6E+00		3.6E+00		2.4E+02		2.1E+02		1.6E+02		5.0E+01		3.6E+01		4.0E+01	

POTLINER PESTICIDES		AROCLOR 1242	AROCLOR 1248	AROCLOR 1254
SAMPLE #	DEPTH	Q	Q	Q
SB-006-0-2	0-2'	0.19 U	0.19 U	0.38 U
SB-008-0-2		1.9 U	1.9 U	3.8 U
SB-015-0-2		0.95 U	0.95 U	1.9 U
SB-016-0-2		9.5 U	9.5 U	19 U
SB-006-2-4	2-4'	0.19 U	0.19 U	0.38 U
SB-008-2-4		0.38 U	0.38 U	0.76 U
SB-015-2-4		0.38 U	0.38 U	0.76 U
SB-016-2-4		19 U	19 U	38 U
SB-006-4-6	4-6'	0.19 U	0.19 U	0.38 U
SB-008-4-6		0.19 U	0.19 U	0.38 U
SB-015-4-6		0.38 U	0.38 U	0.76 U
SB-016-4-6		3.8 U	3.8 U	7.6 U
SB-006-6-8	6-8'	0.19 U	0.19 U	0.38 U
SB-008-6-8		0.19 U	0.19 U	0.38 U
SB-015-6-8		0.19 U	0.19 U	0.38 U
SB-016-6-8		0.95 U	0.95 U	1.9 U
SB-006-8-10	8-10'	0.19 U	0.19 U	0.38 U
SB-008-8-10		0.19 U	0.19 U	0.38 U
SB-015-8-10		0.19 U	0.19 U	0.38 U
SB-016-8-10		0.95 U	0.95 U	1.9 U
N		20	20	20
AVERAGE		1.0E+00	1.0E+00	2.0E+00
STD. DEV.		2.3E+00	2.3E+00	4.5E+00
95TH UPPER BOUND		1.9E+00	1.9E+00	3.8E+00

EXPOSURE POINT
FILE NAME: CRA.WQ1
DATE: 02/13/91
MEDIUM, UNITS: SOIL,MG/KG
SITE AREA: CARBON RUNOFF AREA

INORGANICS		ALUMINUM		ANTIMONY		ARSENIC		BARIUM		BERYLLIUM		CADMIUM		CHROMIUM		COBALT		COPPER		IRON		LEAD		MANGANESE	
SAMPLE #	NOTES	CONC.	Q		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q
CRA-A1-C		63400		56		26	NJ	309		3.5		1.4	U	21		1.8		59	NJ	7650		42		592	
CRA-A1-S		21900		9.5		17	SNJ	170		2		1.2	U	20		1.1	U	50	NJ	34800		42		510	
CRA-A2-S		25600		7.5	U	8.3	NJ	197		2		1.2		22		1.2	U	52	NJ	36300		55		594	
CRA-A2-C		63000		38		29	NJ	137		4.2		1.3	U	14		1.9		50	NJ	5910		24		149	
CRA-B1-C	DUP AVG	79500		20.5		75.5		206.5		4.25		1.8	UN	43	E	16.5		84.5		11150		80.5		276.5	N
CRA-B2-C		56500		20		83		138		3.3		2	N	31		12		68	E	11200		66		265	N
CRA-B2-S	DUP AVG	19750		7.65	U	20.7		257		1.6		1.25	UN	25	E	18		32	E	46250		36		1600	N
CRA-B1-S		21600		7.5	U	3.8		231		1.5		1.2	UN	25	E	23		29	E	38600		2.9		2140	N
CRA-C1-C		107000		23		663		217		7.8		1.7	UN	20	E	9.7		38	E	8640		53		215	
CRA-C1-S		18700		7.5	U	26	S	278		1.9		1.2	UN	26	E	18		40	E	44000		39		1410	N
CRA-C2-S		20200		8.3	U	33		241		2		1.4	UN	27	E	19		48	E	45300		45		1270	N
CRA-C2-C		84000		20		44		143		6.7		1.5	UN	14	E	7		32	E	5210		30		131	N
N		12		12		12		12		12		12		12		12		12		12		12		12	
AVERAGE		4.8E+04		1.7E+01		8.6E+01		2.1E+02		3.4E+00		8.5E-01		2.4E+01		1.1E+01		5.0E+01		2.5E+04		4.3E+01		7.6E+02	
STD. DEV.		3.1E+04		1.6E+01		1.8E+02		5.6E+01		2.1E+00		4.0E-01		7.8E+00		8.2E+00		1.9E+01		1.7E+04		2.0E+01		6.7E+02	
95TH UPPER BOUND		6.5E+04		2.6E+01		1.8E+02		2.4E+02		4.5E+00		1.1E+00		2.8E+01		1.5E+01		6.0E+01		3.4E+04		5.3E+01		1.1E+03	

EXPOSURE POINT
FILE NAME: CRA.W01
DATE: 02/13/91
MEDIUM, UNITS: SOIL,
SITE AREA: CARBON RUND

INORGANICS		MERCURY		NICKEL		SILVER		SODIUM		THALLIUM		VANADIUM		CYANIDE	
SAMPLE #	NOTES		Q		Q		Q		Q		Q		Q		Q
CRA-A1-C		0.13	U	94	EJ	1.5	U	7830	EJ	0.63	U	80	EJ	13	
CRA-A1-S		0.19		24	EJ	1.3	U	1960	EJ	0.54		32	EJ	21	
CRA-A2-S		0.18		43	EJ	1.3	U	3490	EJ	0.6		38	EJ	8.9	
CRA-A2-C		0.2		84	EJ	1.4	U	9310	EJ	0.58	U	73	EJ	101	
CRA-B1-C	DUP AVG	0.207		324.5		2	U	11150		0.785	U	240.5		72.5	
CRA-B2-C		0.18	U	558		1.7	U	10100		0.68	U	233		44	
CRA-B2-S	DUP AVG	0.12		33		1.35	U	2300		0.555	U	33		0.91	
CRA-B1-S		0.14	U	42		1.3	U	2790		0.52	U	41		10	
CRA-C1-C		0.18	U	106		1.9	U	10900		0.82	U	67		191	
CRA-C1-S		0.31		37		1.3	U	2290		0.54	U	31		18	
CRA-C2-S		0.24		37		1.5	U	3740		0.59	U	32		25	
CRA-C2-C		0.17	U	61		1.6	U	8410		0.68	U	36		254	
N		12		12		12		12		12		12		12	
AVERAGE		1.5E-01		1.2E+02		7.6E-01		6.2E+03		3.6E-01		7.8E+01		6.3E+01	
STD. DEV.		7.8E-02		1.6E+02		1.2E-01		3.7E+03		1.1E-01		7.6E+01		8.1E+01	
95TH UPPER BOUND		1.9E-01		2.0E+02		8.2E-01		8.1E+03		4.2E-01		1.2E+02		1.1E+02	

CARBON RUN OFF
NON CLP INORGANICS

SAMPLE #	NOTES	NITROGEN AMMONIA	Q	FLUORIDE	Q	SILICA SIO2	Q	CYANIDE TOTAL	Q	CYANIDE AMENABLE	Q	CHLORIDE	Q	SULFATE	Q
CRA-A1-C				170		16		73		1	U	32		170	
CRA-A1-S				120		8	U	7		1	U	100		1700	
CRA-A2-C				170		16		94		1	U	32		880	
CRA-A2-S				150		8	U	1	U	1	U	180		1400	
CRA-B2-C				94		29		39		1	U	8		110	
CRA-B2-S	DUP AVG			71		8	U	1	U	1	U	120		170	
CRA-B1-C	DUP AVG			155		21.5		56		15.5		3.5		120	
CRA-B1-S				150		14		3		1	U	110		160	
CRA-C1-C				170		15		48		1	U	8		22	
CRA-C1-S				120		8	U	3		1	U	120		20	U
CRA-C2-C				200		14		130		1	U	9		120	
CRA-C2-S				270		8	U	11		1	U	200		160	
N				12		12		12		12		12		12	
AVERAGE				1.5E+02		1.2E+01		3.9E+01		1.0E+00		7.7E+01		4.2E+02	
STD. DEV.				5.1E+01		8.2E+00		4.3E+01		4.3E+00		7.0E+01		5.8E+02	
95TH UPPER BOUND				1.8E+02		1.6E+01		6.1E+01		4.0E+00		1.1E+02		7.2E+02	

CARBON RUN OFF

VOLATILES MG/KG		METHYLENE CHLORIDE		ACETONE		CARBON DISULFIDE		CHLOROFORM		2BUTANONE		1,1,1TCA		TCE		BENZENE		PCE		1,1,2,2-PCA		TOLUENE		CHLORO BENZENE	
SAMPLE #	NOTES		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q
CRA-A1-C		0.026	J	0.11	BUJ	0.009	UJ	0.009	UJ	0.018	UJ	0.009	UJ	0.009	UJ	0.005	JUB	0.004	J	0.009	UJ	0.009	UBJ	0.009	UJ
CRA-A1-S		0.033	J	0.19	BUJ	0.008	UJ	0.008	U	0.057	J	0.008	U	0.008	U	0.008	BUJ	0.002	J	0.008	U	0.003	UBJ	0.18	
CRA-A2-C		0.023	J	0.13	BUJ	0.008	UJ	0.008	UJ	0.016	UJ	0.008	U	0.008	U	0.003	BUJ	0.008	UJ	0.008	UJ	0.003	UBJ	0.008	UJ
CRA-A2-S		0.022	J	0.094	BUJ	0.008	UJ	0.008	U	0.016	UJ	0.008	U	0.008	U	0.004	BUJ	0.008	U	0.008	U	0.002	BUJ	0.008	U
CRA-B1-C	DUP AVG	0.003	BUJ	0.011	BUJ	0.009	UJ	0.0075	J	0.018	UJ	0.009	UJ	0.009	UJ	0.0045	BUJ	0.009	UJ	0.009	UJ	0.0025	J	0.0385	J
CRA-B1-S		0.024	J	0.052	BUJ	0.006	UJ	0.006		0.012	UJ	0.006	U	0.006	U	0.006	BUJ	0.006	U	0.006	U	0.006	UB	0.006	U
CRA-B2-C		0.002	JBU	0.007	BUJ	0.01	U	0.008	J	0.02	UJ	0.01	U	0.01	U	0.004	BUJ	0.01	U	0.01	U	0.002	J	0.01	U
CRA-B2-S	DUP AVG	0.011		0.018	BUJ	0.007	U	0.006		0.014	UJ	0.007	U	0.007	U	0.0035	BUJ	0.00525		0.007	U	0.0025	J	0.072	
CRA-C1-C		0.008	UJ	0.022	BUJ	0.008	UJ	0.008	UJ	0.016	UJ	0.008	UJ	0.008	UJ	0.052	BUJ	0.008	UJ	0.008	UJ	0.002	BUJ	0.008	UJ
CRA-C1-S		0.027	B	0.009	BUJ	0.007	U	0.008		0.014	UJ	0.007	U	0.007	U	0.35	B	0.011		0.007	U	0.034		0.007	U
CRA-C2-C		0.032	J	0.072	BUJ	0.008	UJ	0.008	UJ	0.016	UJ	0.008	UJ	0.008	UJ	0.018	BUJ	0.008	UJ	0.008	UJ	0.003	BUJ	0.008	UJ
CRA-C2-S		0.002	BUJ	0.012	BUJ	0.007	U	0.007	B	0.014	UJ	0.007	U	0.007	U	0.003	BUJ	0.007	U	0.007	U	0.007	U	0.007	U
N		12		12		12		12		12		12		12		12		12		12		12		12	
AVERAGE		1.7E-02		3.0E-02		4.0E-03		5.6E-03		1.2E-02		4.0E-03		4.0E-03		3.4E-02		4.5E-03		4.0E-03		4.9E-03		2.7E-02	
STD. DEV.		1.3E-02		3.0E-02		5.4E-04		1.7E-03		1.4E-02		5.4E-04		5.4E-04		1.00E-01		2.2E-03		5.4E-04		9.2E-03		5.3E-02	
95TH UPPER BOUND		2.4E-02		4.6E-02		4.2E-03		6.5E-03		1.9E-02		4.2E-03		4.2E-03		8.6E-02		5.7E-03		4.2E-03		9.7E-03		5.4E-02	

CARBON RUN OFF

VOLATILES MG/KG		ETHYL BENZENE		STYRENE	
SAMPLE #	NOTES		Q		Q
CRA-A1-C		0.009	UJ	0.009	UJ
CRA-A1-S		0.008	U	0.008	U
CRA-A2-C		0.008	UJ	0.008	UJ
CRA-A2-S		0.008	U	0.008	U
CRA-B1-C	DUP AVG	0.009	UJ	0.009	UJ
CRA-B1-S		0.006	U	0.006	U
CRA-B2-C		0.01	U	0.01	U
CRA-B2-S	DUP AVG	0.007	U	0.007	U
CRA-C1-C		0.008	UJ	0.008	UJ
CRA-C1-S		0.001	J	0.008	
CRA-C2-C		0.008	UJ	0.008	UJ
CRA-C2-S		0.007	U	0.007	U
N		12		12	
AVERAGE		3.8E-03		4.3E-03	
STD. DEV.		1.0E-03		1.3E-03	
95TH UPPER BOUND		4.3E-03		5.0E-03	

CARBON RUN OFF
SEMIVOLATILES
UG/KG

SAMPLE #	DEPTH	4-METHYL PHENOL	Q	2,4DIMETH PHENOL	Q	NAPTHALENE	Q	2-METHYL NAPTHALENE	Q	ACENAPH THYLENE	Q	ACENAPH THENE	Q	DIBENZO FURAN	Q	FLUORENE	Q	PHENAN THRENE	Q	ANTHRA CENE	Q	DI-N-BUTYL PHTHALATE	Q	FLUORAN THENE	Q
CRA-A1-C		0.55	U	0.55	U	0.16	J	0.083	J	0.55	U	0.56		0.29	J	0.32		3.7		0.94		0.085	J	7.2	
CRA-A1-S		0.055	J	0.15	J	0.07	J	0.55	U	0.55	U	0.17	J	0.073	J	0.19	J	0.48	J	0.18	J	0.063	J	1.6	
CRA-A2-C		0.55	U	0.55	U	0.082	J	0.053	J	0.55	U	0.24	J	0.29	J	0.22	J	4.1		1.1		0.55	U	7.3	
CRA-A2-S		0.55	U	0.18	J	0.55	U	0.55	U	0.55	U	0.067	J	0.55	U	0.056	J	0.11	J	0.064	J	0.55	U	0.57	
CRA-B2-C		0.66	U	0.66	U	0.66	U	0.66	U	0.66	U	0.66	U	0.66	U	0.061	J	0.81		0.13		0.66	U	2	
CRA-B2-S	DUP AVG	0.47	U	0.47	U	0.47	U	0.47	U	0.47	U	0.47	U	0.47	U	0.47	U	0.145		0.47	U	0.0485	J	0.081	J
CRA-B1-C	DUP AVG	0.66	U	0.66	U	0.2		0.66	U	0.66	U	0.255		0.25	J	0.207		3.15		0.4	J	0.66	U	6.4	
CRA-B1-S		0.41	U	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U,	0.41	U	0.41	U	0.41	U	0.41	U
CRA-C1-C		0.55	U	0.55	U	0.16	J	0.55	U	0.55	U	0.26	J	0.15	J	0.13	J	2.9		0.69		0.55	U	5.1	
CRA-C1-S		0.47	U	0.47	U	0.47	U	0.47	U	0.47	U	0.47	U	0.47	U	0.47	U	0.07	J	0.47	U	0.47	U	0.11	J
CRA-C2-C		0.55	U	0.55	U	0.35	J	0.1	J	0.55	U	0.65		0.43	J	0.3	J	5.5		1.8		0.55	U	9.1	
CRA-C2-S		0.47	U	0.47	U	0.47	U	0.47	U	0.47	U	0.47	U	0.47	U	0.47	U	0.14	J	0.47	U	0.06	J	0.25	J
N		12		12		12		12		12		12		12		12		12		12		12		12	
AVERAGE		2.5E-01		2.5E-01		2.1E-01		2.2E-01		2.7E-01		2.9E-01		2.5E-01		2.0E-01		1.8E+00		5.2E-01		2.0E-01		3.3E+00	
STD. DEV.		7.2E-02		5.5E-02		8.6E-02		9.3E-02		3.7E-02		1.6E-01		8.9E-02		8.2E-02		2.0E+00		5.2E-01		1.1E-01		3.4E+00	
95TH UPPER BOUND		2.9E-01		2.8E-01		2.6E-01		2.7E-01		2.9E-01		3.7E-01		3.0E-01		2.4E-01		2.8E+00		7.9E-01		2.6E-01		5.1E+00	

CARBON RUN OFF
SEMIVOLATILES
MG/KG

SAMPLE #	DEPTH	PYRENE	Q	BENZO (A) ANTHRACENE	Q	CHRYSENE	Q	b2EHTHXL PHTHALATE	Q	DI-N-OCTL PHTHALATE	Q	BENZO (B) FLUORAN THENE	Q	BENZO (K) FLUORAN THENE	Q	BENZO (A) PYRENE	Q	INDENO 1,2,3 PYRENE	Q	DIBENZ A,H ANTHRACNE	Q	BENZO G,H,I PERYLENE	Q	AROCLOR 1248	Q
CRA-A1-C		7.4		4.7		5.3		0.091	J	0.55	U	3.5		2		3.4		1.6		0.35	J	1.1			
CRA-A1-S		1.3		0.69		0.77		0.1	J	0.55	U	0.83		0.66		0.72		0.66		0.15	J	0.49	J		
CRA-A2-C		5.4		4.2		4.9		0.084	J	0.55	U	3.4		2		2.5		1.8		0.42	J	0.89			
CRA-A2-S		0.41	J	0.27	J	0.3	J	0.07	J	0.55	U	0.44	J	0.35	J	0.33	J	0.15	J	0.55	U	0.12	J		
CRA-B2-C		1.3		1.1		1.6		0.068	J	0.66	U	2.8		2.7		1.2		0.8		0.23	J	0.42	J		
CRA-B2-S	DUP AVG	0.063	J	0.0485	J	0.0605	J	0.093		0.47	U	0.1575		0.47	U	0.47	U	0.47	U	0.47	U	0.47	U		
CRA-B1-C	DUP AVG	4.1		3		5.2		0.0805		0.66	U	4.65		1.95		1.75		0.925		0.275		0.46			
CRA-B1-S		0.41	U	0.41	U	0.41	U	0.042	J	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U		
CRA-C1-C		4.5		3.4		3.7		0.18	J	0.056	J	5.1		3.2		4.3		1.8		0.42	J	1.2			
CRA-C1-S		0.097	J	0.073	J	0.085	J	0.063	J	0.47	U	0.11	J	0.086	J	0.097	J	0.08	J	0.47		0.067	J		
CRA-C2-C		7.2		8.3		8.3		0.074	J	0.55	U	17		14		12		5.7		1.4		3.4			
CRA-C2-S		0.21	J	0.16	J	0.19	J	0.15	J	0.47	U	0.17	J	0.17	J	0.16	J	0.11	J	0.47	U	0.084	J		
SAMPLE 1	11-28-90																							56	
N		12		12		12		12		12		12		12		12		12		12		12		1	
AVERAGE		2.7E+00		2.2E+00		2.6E+00		9.1E-02		2.5E-01		3.2E+00		2.3E+00		2.2E+00		1.2E+00		3.9E-01		7.2E-01		5.6E+01	
STD. DEV.		2.9E+00		2.6E+00		2.8E+00		3.8E-02		7.2E-02		4.7E+00		3.8E+00		3.4E+00		1.6E+00		3.3E-01		9.3E-01		0.0E+00	
95TH UPPER BOUND		4.2E+00		3.5E+00		4.0E+00		1.1E-01		2.9E-01		5.7E+00		4.3E+00		4.0E+00		2.0E+00		5.6E-01		1.2E+00		5.6E+01	

EXPOSURE POINT
FILE NAME: CMSD.WQ1
DATE: 02/13/91
MEDIUM, UNITS: SOIL,MG/KG
SITE AREA: CONSTRUCTION MATERIAL SCRAP DUMP

INORGANICS		ALUMINUM		ANTIMONY		ARSENIC		BARIUM		BERYLLIUM		CADMIUM		CHROMIUM		COBALT		COPPER		IRON		LEAD		MANGANESE		MERCURY	
SAMPLE #	NOTES	CONC.	Q		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q
CMSD-1		121000		3.4	UN	53.7		125		3.8		3.6		30.2	N	7.5	B	429		26900		83.9		436	N	0.09	U
CMSD-2		58800		4	UN	32.2		111		2.8		2.3		2.3	BN	11.4	B	333		23900		57.8		1060	N	0.011	U
CMSD-3	DUP AVG	84350		3.8	UN	48.4		128.5		2.55		2.4		22.25	N	4.9	B	511.5		26250		69.4		427.5	N	0.095	U
CMSD-4		98500		4	UN	56.9		106		3		3		16.7	N	5.5	B	303		21800		70.7		330	N	0.12	U
N		4		4		4		4		4		4		4		4		4		4		4		4		4	
AVERAGE		9.1E+04		1.9E+00		4.8E+01		1.2E+02		3.0E+00		2.8E+00		1.8E+01		7.3E+00		3.9E+02		2.5E+04		7.0E+01		5.6E+02		4.0E-02	
STD. DEV.		2.6E+04		1.4E-01		1.1E+01		1.1E+01		5.4E-01		6.0E-01		1.2E+01		2.9E+00		9.5E+01		2.3E+03		1.1E+01		3.3E+02		2.4E-02	
95TH UPPER BOUND		1.2E+05		2.1E+00		6.1E+01		1.3E+02		3.7E+00		3.5E+00		3.2E+01		1.1E+01		5.1E+02		2.7E+04		8.3E+01		9.6E+02		6.7E-02	

EXPOSURE POINT
FILE NAME: CMSD.WQ1
DATE: 02/13/91
MEDIUM, UNITS: SOIL,
SITE AREA: CONSTRUCTIO

INORGANICS		NICKEL		SILVER		SODIUM		THALLIUM		VANADIUM		CYANIDE	
SAMPLE #	NOTES		Q		Q		Q		Q		Q		Q
CMSD-1		58.8		0.64	U	44100		0.73	UNW	42.4		19.4	
CMSD-2		46.7		0.76	U	22300		0.74	UN	36.6		7.9	
CMSD-3	DUP AVG	57.85		0.72	U	23450		0.69	U	36.95		11.65	
CMSD-4		36.6		0.75	U	48700		0.78	UNW	29.4		21.7	
N		4		4		4		4		4		4	
AVERAGE		5.0E+01		3.6E-01		3.5E+04		3.7E-01		3.6E+01		1.5E+01	
STD. DEV.		1.0E+01		2.7E-02		1.4E+04		1.8E-02		5.3E+00		6.5E+00	
95TH UPPER BOUND		6.2E+01		3.9E-01		5.1E+04		3.9E-01		4.3E+01		2.3E+01	

SCRAP DUMP NON CLP INORGANICS		NITROGEN AMMONIA		FLUORIDE		CYANIDE TOTAL		CYANIDE AMENABLE		CHLORIDE		SULFATE	
SAMPLE #	NOTES		Q		Q		Q		Q		Q		Q
CMSD-1		110		540		19.4		2.5	U	10		41	
CMSD-2		90		440		7.9		2.5	U	10		270	
CMSD-3	DUP AVG	84		450		11.65		2.5	U	9		72	
CMSD-4		99		480		21.7		2.5	U	10		82	
N		4		4		4		4		4		4	
AVERAGE		9.6E+01		4.8E+02		1.5E+01		1.3E+00		9.8E+00		1.2E+02	
STD. DEV.		1.1E+01		4.5E+01		6.5E+00		0.0E+00		5.0E-01		1.0E+02	
95TH UPPER BOUND		1.1E+02		5.3E+02		2.3E+01		1.3E+00		1.0E+01		2.4E+02	

SCRAP DUMP VOLATILES		METHYLENE CHLORIDE		ACETONE		CARBON DISULFIDE		CHLOROFORM		2BUTANONE		1,1,1TCA		TCE		BENZENE		PCE		1,1,2,2-PCA		TOLUENE		CHLORO BENZENE		ETHYL BENZENE	
SAMPLE #	NOTES		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q
CMSD-1		0.091	B	0.27	E	0.004	J	0.006	U	0.043		0.006	U	0.006	U	0.006	U	0.006	U	0.012	U	0.002	J	0.006	U	0.002	BJ
CMSD-2		0.002	BJ	0.098		0.006	U	0.006	U	0.016		0.006	U	0.006	U	0.006	U	0.003	J	0.012	U	0.006	U	0.006	U	0.006	U
CMSD-3	DUP AVG	0.0905	B	0.115		0.006	U	0.006	U	0.0125	U	0.006	U	0.006	U	0.006	U	0.006	U	0.0125		0.006	U	0.006	U	0.0025	
CMSD-4		0.11	B	0.16		0.006	U	0.006	U	0.012	U	0.006	U	0.006	U	0.006	U	0.006	U	0.012	U	0.006	U	0.006	U	0.002	BJ
N		4		4		4		4		4		4		4		4		4		4		4		4		4	
AVERAGE		7.3E-02		1.6E-01		3.3E-03		3.0E-03		1.8E-02		3.0E-03		3.0E-03		3.0E-03		3.0E-03		7.6E-03		2.8E-03		3.0E-03		2.4E-03	
STD. DEV.		4.8E-02		7.7E-02		5.0E-04		0.0E+00		1.7E-02		0.0E+00		0.0E+00		0.0E+00		0.0E+00		3.3E-03		5.0E-04		0.0E+00		4.8E-04	
95TH UPPER BOUND		1.3E-01		2.5E-01		3.8E-03		3.0E-03		3.8E-02		3.0E-03		3.0E-03		3.0E-03		3.0E-03		1.1E-02		3.3E-03		3.0E-03		2.9E-03	

SCRAP DUMP
VOLATILES

		STYRENE	
SAMPLE #	NOTES		Q
CMSD-1		0.006	U
CMSD-2		0.006	U
CMSD-3	DUP AVG	0.006	U
CMSD-4		0.006	U
N		4	
AVERAGE		3.0E-03	
STD. DEV.		0.0E+00	
95TH UPPER BOUND		3.0E-03	

SCRAP DUMP SEMIVOLATILES		4-METHYL PHENOL		2,4DIMETH PHENOL		NAPTHALENE		2-METHYL NAPTHALENE		ACENAPH THYLENE		ACENAPH THENE		DIBENZO FURAN		FLUORENE		PHENAN THRENE		ANTHRA CENE		DI-N-BUTYL PHTHALATE		FLUORAN THENE		PYRENE	
SAMPLE #	NOTES		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q
CMSD-1		40	U	40	U	40	U	40	U	40	U	6.6	J	40	U	4.1	J	59		19	J	40	U	95		110	
CMSD-2		4	U	4	U	1.3	J	0.46	J	4	U	5.1		2.7	J	4.3		44		14		4	U	47		43	
CMSD-3	DUP AVG	40.5	U	40.5	U	40.5	U	40.5	U	40.5	U	9.1	J	40.5	U	12.75		84.5		23	J	40.5	U	168.5		195	
CMSD-4		40	U	40	U	40	U	40	U	40	U	13	J	8.5	J	11	J	130		35	J	40	U	160		130	
N		4		4		4		4		4		4		4		4		4		4		4		4		4	
AVERAGE		1.6E+01		1.6E+01		1.5E+01		1.5E+01		1.6E+01		8.5E+00		1.3E+01		8.0E+00		7.9E+01		2.3E+01		1.6E+01		1.2E+02		1.2E+02	
STD. DEV.		9.0E+00		9.0E+00		9.4E+00		9.8E+00		9.0E+00		3.5E+00		8.7E+00		4.5E+00		3.8E+01		9.0E+00		9.0E+00		5.7E+01		6.3E+01	
95TH UPPER BOUND		2.6E+01		2.6E+01		2.6E+01		2.7E+01		2.6E+01		1.3E+01		2.3E+01		1.3E+01		1.2E+02		3.3E+01		2.6E+01		1.9E+02		1.9E+02	

SCRAP DUMP SEMIVOLATILES		BENZO (A) ANTHRACENE	CHRYSENE	b2EHTHXL PHTHALATE	DI-N-OCTL PHTHALATE	BENZO (B) FLUORAN THENE	BENZO (K) FLUORAN THENE	BENZO (A) PYRENE	INDENO 1,2,3 PYRENE	DIBENZ A,H ANTHRACNE	BENZO G,H,I PERYLENE
SAMPLE #	NOTES	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
CMSD-1		68	85	40 U	40 U	84	40 U	50	49	14 J	35
CMSD-2		31	25	4 U	4 U	35	4 U	21	18	5.2	4 U
CMSD-3	DUP AVG	145	128	40.5 U	40.5 U	201.5	40.5 U	130.5	102.5	17.25	137.5
CMSD-4		56	47	40 U	40 U	46	50	46	40 U	40 U	40 U
N		4	4	4	4	4	4	4	4	4	4
AVERAGE		7.5E+01	7.1E+01	1.6E+01	1.6E+01	9.2E+01	2.3E+01	6.2E+01	4.7E+01	1.4E+01	4.9E+01
STD. DEV.		4.9E+01	4.5E+01	9.0E+00	9.0E+00	7.6E+01	2.0E+01	4.8E+01	3.9E+01	6.4E+00	6.1E+01
95TH UPPER BOUND		1.3E+02	1.2E+02	2.6E+01	2.6E+01	1.8E+02	4.6E+01	1.2E+02	9.4E+01	2.2E+01	1.2E+02

SCRAP DUMP PESTICIDES		AROCLOR 1242	AROCLOR 1248	AROCLOR 1254
SAMPLE #	NOTES	Q	Q	Q
CMSD-1		2.4 U	3.6	4.9 U
CMSD-2		9.8 U	22.6	20 U
CMSD-3	DUP AVG	2.45 U	6.4925	4.9 U
CMSD-4		2.4 U	4.55	4.9 U
N		4	4	4
AVERAGE		2.1E+00	9.3E+00	4.3E+00
STD. DEV.		1.8E+00	8.9E+00	3.8E+00
95TH UPPER BOUND		4.3E+00	2.0E+01	8.8E+00

EXPOSURE POINT
FILE NAME: RIVWTR.WQ1
DATE: 02/13/91
MEDIUM, UNITS: WATER,MG/L
SITE AREA: OHIO RIVER

INORGANICS	ALUMINUM		ANTIMONY		ARSENIC		BARIUM		BERYLLIUM		CADMIUM		CHROMIUM		COBALT		COPPER		IRON		LEAD		MANGANESE		MERCURY		NICKEL	
SAMPLE # DEPTH	CONC.	Q		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q
SW-4	0.826		0.016	U	0.004	U	0.048	B	0.005	U	0.002	U	0.003	U	0.007	U	0.004	B	1.87		0.003		0.262		0.0002	U	0.007	U
SW-9	2.59		0.016	U	0.005	B	0.071	B	0.005	U	0.002	U	0.01		0.007	U	0.016	B	4.17		0.007		0.54		0.0002	U	0.01	B
SW-12	2.88		0.04	B	0.004	U	0.068	B	0.005	U	0.002	B	0.008	B	0.007	B	0.012	B	5.73		0.009		0.509		0.0002	U	0.012	B
N	3		3		3		3		3		3		3		3		3		3		3		3		3		3	
AVERAGE	2.1E+00		1.9E-02		3.0E-03		6.2E-02		2.5E-03		1.3E-03		6.5E-03		4.7E-03		1.1E-02		3.9E+00		6.3E-03		4.4E-01		1.0E-04		8.5E-03	
STD. DEV.	1.1E+00		1.8E-02		1.7E-03		1.3E-02		0.0E+00		5.8E-04		4.4E-03		2.0E-03		6.1E-03		1.9E+00		3.1E-03		1.5E-01		0.0E+00		4.4E-03	
95TH UPPER BOUND	4.0E+00		5.0E-02		5.9E-03		8.3E-02		2.5E-03		2.3E-03		1.4E-02		8.1E-03		2.1E-02		7.2E+00		1.1E-02		6.9E-01		1.0E-04		1.6E-02	
FISH BCF (L/KG)			1		44						81		16				200				49						47	
EPC			5.0E-02		2.6E-01						1.9E-01		2.2E-01				4.2E+00				5.6E-01						7.5E-01	

EXPOSURE POINT
FILE NAME: RIVWTR.W
DATE: 02/13/91
MEDIUM, UNITS: WA
SITE AREA: OHIO RIV

INORGANICS	SILVER		SODIUM		THALLIUM		VANADIUM	
SAMPLE # DEPTH		Q		Q		Q		Q
SW-4	0.003	U	10.3		0.003	UW	0.006	U
SW-9	0.003	U	52.1		0.003	UW	0.006	U
SW-12	0.003	U	12.6		0.003	UW	0.006	U
N	3		3		3		3	
AVERAGE	1.5E-03		2.5E+01		1.5E-03		3.0E-03	
STD. DEV.	0.0E+00		2.3E+01		0.0E+00		0.0E+00	
95TH UPPER BOUND	1.5E-03		6.5E+01		1.5E-03		3.0E-03	

FISH BCF (L/KG)
EPC

RIVER WATER NON CLP INORGANICS	NITROGEN AMMONIA		FLUORIDE		SILICA SIO2		CYANIDE TOTAL		CYANIDE AMENABLE		CHLORIDE		SULFATE	
SAMPLE # DEPTH		Q		Q		Q		Q		Q		Q		Q
SW-4	1	U	0.1		3		0.005	U	0.005	U	13		70	
SW-9	1	U	3.3		5		0.428		0.078		21		97	
Sw-12	1	U	0.3		6		0.0076		0.005	U	14		65	
N	3		3		3		3		3		3		3	
AVERAGE	5.0E-01		1.2E+00		4.7E+00		1.5E-01		2.8E-02		1.6E+01		7.7E+01	
STD. DEV.	0.0E+00		1.8E+00		1.5E+00		2.4E-01		4.4E-02		4.4E+00		1.7E+01	
95TH UPPER BOUND	5.0E-01		4.3E+00		7.2E+00		5.6E-01		1.0E-01		2.3E+01		1.1E+02	

FISH BCF (L/KG)
EPC

RIVER WATER VOLATILES	METHYLENE CHLORIDE		ACETONE		CARBON DISULFIDE		CHLORO-FORM		2BUTANONE		1,1,1TCA		TCE		BENZENE		PCE		1,1,2,2 PCA		TOLUENE		CHLORO BENZENE		ETHYL BENZENE		STYRENE	
SAMPLE # NOTES		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q
SW-4	0.001	BJ	0.015	B	0.005	U	0.005	U	0.01	U	0.005	U	0.005	U	0.005	U	0.005	U	0.01	U	0.005	U	0.005	U	0.005	U	0.005	U
SW-9	0.002	J	0.02	B	0.005	U	0.005	U	0.01	U	0.005	U	0.005	U	0.005	U	0.005	U	0.01	U	0.005	U	0.005	U	0.005	U	0.005	U
SW-12	0.002	BJ	0.012	B	0.005	U	0.005	U	0.01	U	0.005	U	0.005	U	0.005	U	0.005	U	0.01	U	0.005	U	0.005	U	0.005	U	0.005	U
N	3		3		3		3		3		3		3		3		3		3		3		3		3		3	
AVERAGE	1.7E-03		1.6E-02		2.5E-03		2.5E-03		5.0E-03		2.5E-03		2.5E-03		2.5E-03		2.5E-03		5.0E-03		2.5E-03		2.5E-03		2.5E-03		2.5E-03	
STD. DEV.	5.8E-04		4.0E-03		0.0E+00		0.0E+00		0.0E+00		0.0E+00		0.0E+00		0.0E+00		0.0E+00		0.0E+00		0.0E+00		0.0E+00		0.0E+00		0.0E+00	
95TH UPPER BOUND	2.6E-03		2.2E-02		2.5E-03		2.5E-03		5.0E-03		2.5E-03		2.5E-03		2.5E-03		2.5E-03		5.0E-03		2.5E-03		2.5E-03		2.5E-03		2.5E-03	
FISH BCF (L/KG)	5																											
EPC	1.3E-02																											

RIVER WATER SEMIVOLATILES SAMPLE # DEPTH	4-METHYL PHENOL Q	2,4DIMETH PHENOL Q	NAPTHALENE Q	2-METHYL NAPTHALENE Q	ACENAPH THYLENE Q	ACENAPH THENE Q	DIBENZO FURAN Q	FLUORENE Q	PHENAN THRENE Q	ANTHRA CENE Q	DI-N-BUTYL PHTHALATE Q	FLUORAN THENE Q	PYRENE Q	BENZO (A) ANTHRACENE Q
SW-4	0.01 U	0.1 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
SW-9	0.01 U	0.1 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
SW-12	0.01 U	0.1 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
N	3	3	3	3	3	3	3	3	3	3	3	3	3	3
AVERAGE	5.0E-03	5.0E-02	5.0E-03	5.0E-03	5.0E-03	5.0E-03	5.0E-03	5.0E-03	5.0E-03	5.0E-03	5.0E-03	5.0E-03	5.0E-03	5.0E-03
STD. DEV.	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
95TH UPPER BOUND	5.0E-03	5.0E-02	5.0E-03	5.0E-03	5.0E-03	5.0E-03	5.0E-03	5.0E-03	5.0E-03	5.0E-03	5.0E-03	5.0E-03	5.0E-03	5.0E-03
FISH BCF (L/KG) EPC														

RIVER WATER SEMIVOLATILES SAMPLE # DEPTH	CHRYSENE Q	b2EHTHXL PHTHALATE Q	DI-N-OCTL PHTHALATE Q	BENZO (B) FLUORANTHENE Q	BENZO (K) FLUORANTHENE Q	BENZO (A) PYRENE Q	INDENO 1,2,3 PYRENE Q	DIBENZ A,H ANTHRACNE Q	BENZO G,H,I PERYLENE Q
SW-4	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
SW-9	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
SW-12	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
N	3	3	3	3	3	3	3	3	3
AVERAGE	5.0E-03	5.0E-03	5.0E-03	5.0E-03	5.0E-03	5.0E-03	5.0E-03	5.0E-03	5.0E-03
STD. DEV.	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
95TH UPPER BOUND	5.0E-03	5.0E-03	5.0E-03	5.0E-03	5.0E-03	5.0E-03	5.0E-03	5.0E-03	5.0E-03

FISH BCF (L/KG)
EPC

RIVER WATER PESTICIDES	AROCLOR 1242	AROCLOR 1248	AROCLOR 1254
SAMPLE # DEPTH	Q	Q	Q
SW-4	0.0005 U	0.0005 U	0.001 U
SW-9	0.001	0.0005 U	0.001 U
SW-12	0.0005 U	0.0005 U	0.001 U
N	3	3	3
AVERAGE	5.0E-04	2.5E-04	5.0E-04
STD. DEV.	4.3E-04	0.0E+00	0.0E+00
95TH UPPER BOUND	1.2E-03	2.5E-04	5.0E-04
FISH BCF (L/KG)	100000		
EPC	1.2E+02		

EXPOSURE POINT
FILE NAME: RIVSED.WQ1
DATE: 02/13/91
MEDIUM, UNITS: SEDIMENT, MG/KG
SITE AREA: OHIO RIVER

INORGANICS		ALUMINUM		ANTIMONY		ARSENIC		BARIUM		BERYLLIUM		CADMIUM		CHROMIUM		COBALT		COPPER		IRON		LEAD		MANGANESE	
SAMPLE #	DEPTH	CONC.	Q		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q
RS-2		9950		8.1	U	9		135		1.7	J	2	J	49		20	J	67		40700		92		929	
RS-3		12400		11	U	9.7		165		1.7	BJ	1.8	UJ	52		32	J	57		43500		86		1490	
RS-4		12600		9.2	U	10		154		2	J	1.7	BJ	49		31	J	56		41800		81		1390	
RS-6		6580		7.1	U	5.3		72		0.94	BJ	1.2	UJ	21		14	BJ	30		23100		27		519	
N		4		4		4		4		4		4		4		4		4		4		4		4	
AVERAGE		1.0E+04		4.4E+00		8.5E+00		1.3E+02		1.6E+00		1.3E+00		4.3E+01		2.4E+01		5.3E+01		3.7E+04		7.2E+01		1.1E+03	
STANDARD DEVIATION		2.8E+03		8.4E-01		2.2E+00		4.2E+01		4.5E-01		6.6E-01		1.5E+01		8.7E+00		1.6E+01		9.5E+03		3.0E+01		4.5E+02	
95TH UPPER BOUND		1.4E+04		5.4E+00		1.1E+01		1.8E+02		2.1E+00		2.1E+00		6.0E+01		3.5E+01		7.1E+01		4.8E+04		1.1E+02		1.6E+03	

EXPOSURE POINT
FILE NAME: RIVSED.WQ1
DATE: 02/13/91
MEDIUM, UNITS: SEDIM
SITE AREA: OHIO RIVER

INORGANICS	MERCURY		NICKEL		SILVER		SODIUM		THALLIUM		VANADIUM		CYANIDE	
SAMPLE # DEPTH		Q		Q		Q		Q		Q		Q		Q
RS-2	0.39		48	J	1.4	U	419	U	0.58	U	13	BJ	1.1	J
RS-3	0.22		73	J	1.9	U	567	U	0.79	U	17	BJ	1.7	J
RS-4	0.32		66	J	1.6	U	501	B	0.66	U	16	BJ	0.95	UJ
RS-6	0.11	U	29	J	1.2	U	369	U	0.51	U	8.9	BJ	1.6	J
N	4		4		4		4		4		4		4	
AVERAGE	2.5E-01		5.4E+01		7.6E-01		2.9E+02		3.2E-01		1.4E+01		1.2E+00	
STANDARD DEVIATION	1.5E-01		2.0E+01		1.5E-01		1.4E+02		6.0E-02		3.6E+00		5.6E-01	
95TH UPPER BOUND	4.2E-01		7.7E+01		9.4E-01		4.6E+02		3.9E-01		1.8E+01		1.9E+00	

RIVER SEDIMENT NON CLP INORGANICS	NITROGEN AMMONIA		FLUORIDE		SILICA SIO2		CYANIDE TOTAL		CYANIDE AMENABLE		CHLORIDE		SULFATE	
SAMPLE # DEPTH		Q		Q		Q		Q		Q		Q		Q
RS-2	43		5.4		15		1		1	U	300		13	
RS-3	54		2.3		24		1	U	1	U	160		36	
RS-4	79		4.1		31		1	U	1	U	180		24	
RS-6	88		18		33		3		1	U	150		44	
N	4		4		4		4		4		4		4	
AVERAGE	6.6E+01		7.5E+00		2.6E+01		1.3E+00		5.0E-01		2.0E+02		2.9E+01	
STD. DEV.	2.1E+01		7.1E+00		8.1E+00		1.2E+00		0.0E+00		6.9E+01		1.4E+01	
95TH UPPER BOUND	9.1E+01		1.6E+01		3.5E+01		2.6E+00		5.0E-01		2.8E+02		4.5E+01	

RIVER SEDIMENT VOLATILES	METHYLENE CHLORIDE		ACETONE		CARBON DISULFIDE		CHLOROFORM		2BUTANONE		1,1,1TCA		TCE		BENZENE		PCE		1,1,2,2 PCA		TOLUENE		CHLORO BENZENE	
SAMPLE # NOTES		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q
RS-2	0.037	BJ	0.039	BUJ	0.008	UJ	0.008	U	0.016	UJ	0.008	U	0.008	U	0.024	B	0.008	U	0.008	UJ	0.008	U	0.008	U
RS-3	0.024	BUJ	0.032	BUJ	0.009	UJ	0.006	J	0.12	J	0.009	U	0.009	U	0.006	BUJ[]	0.009	U	0.009	UJ	0.009	U	0.009	U
RS-4	0.12	BUJ	0.19	BUJ	0.009	UJ	0.009	U	0.018	UJ	0.009	U	0.009	U	0.008	BUJ[]	0.009	U	0.009	U	0.009	U	0.009	U
RS-6	0.038	BJ	0.032	BUJ	0.008	U	0.007	J	0.016	UJ	0.008	U	0.008	U	0.005	BUJ[]	0.008	U	0.008	UJ	0.008	U	0.008	U
N	4		4		4		4		4		4		4		4		4		4		4		4	
AVERAGE	3.7E-02		3.7E-02		4.3E-03		5.4E-03		3.6E-02		4.3E-03		4.3E-03		8.4E-03		4.3E-03		4.3E-03		4.3E-03		4.3E-03	
STD. DEV.	2.0E-02		3.9E-02		2.9E-04		1.4E-03		5.6E-02		2.9E-04		2.9E-04		1.0E-02		2.9E-04		2.9E-04		2.9E-04		2.9E-04	
95TH UPPER BOUND	6.0E-02		8.2E-02		4.6E-03		7.0E-03		1.0E-01		4.6E-03		4.6E-03		2.1E-02		4.6E-03		4.6E-03		4.6E-03		4.6E-03	

RIVER SEDIMENT VOLATILES		ETHYL BENZENE		STYRENE	
SAMPLE #	NOTES		Q		Q
RS-2		0.008	U	0.008	U
RS-3		0.009	U	0.009	U
RS-4		0.009	U	0.009	U
RS-6		0.008	U	0.008	U
N		4		4	
AVERAGE		4.3E-03		4.3E-03	
STD. DEV.		2.9E-04		2.9E-04	
95TH UPPER BOUND		4.6E-03		4.6E-03	

RIVER SEDIMENT SEMIVOLATILES		4-METHYL PHENOL	2,4DIMETH PHENOL	NAPTHALENE	2-METHYL NAPTHALENE	ACENAPH THYLENE	ACENAPH THENE	DIBENZO FURAN	FLUORENE	PHENAN THRENE	ANTHRA CENE	DI-N-BUTYL PHTHALATE	FLUORAN THENE
SAMPLE #	DEPTH	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
RS-2		0.55 U	0.55 U	0.32 J	0.23 J	0.12 J	0.25 J	0.14 J	0.16 J	1.4	0.46 J	0.058 J	2.6
RS-3		0.63 U	0.63 U	0.35 J	0.24 J	0.094 J	4.6 J	0.2 J	0.28 J	2	0.68	0.63 UJ	2.9
RS-4		0.63 U	0.63 U	0.45 J	0.27 J	0.11 J	0.37 J	0.19 J	0.25 J	0.64	0.64	0.63 UJ	3.2
RS-6		0.52 U	0.52 U	0.33 J	0.21 J	0.084 J	0.78	0.24 J	0.42 J	3.1	1.2	0.52 U	7.2
RSII-2		0.61 U	0.61 U	0.16 J	0.17 J	0.14 J	0.068 J	0.14 J	0.13 J	0.86	0.31 J	0.61 U	1.8
RSII-3		0.63 U	0.63 U	0.14 J	0.12 J	0.078 J	0.1 J	0.081 J	0.11 J	0.76	0.23 J	0.63 U	1.5
RSII-4		0.6 U	0.6 U	0.29 J	0.19 J	0.11 J	0.49 J	0.19 J	0.33 J	2.1	0.69	0.6 U	3.8
RSII-6													
RSII-9	DUP AVG	0.645 U	0.645 U	0.0795 J	0.645 U	0.645 U	0.2 J	0.645 U	0.112 J	1	0.375 J	0.645 U	3.9
RSII-12	DUP AVG	0.685 U	0.685 U	0.14 J	0.109 J	0.097 J	0.235 J	0.12 J	0.185 J	1.6	0.595 J	0.685 U	3.5
N		9	9	9	9	9	9	9	9	9	9	9	9
AVERAGE		3.1E-01	3.1E-01	2.5E-01	2.1E-01	1.3E-01	7.9E-01	1.8E-01	2.2E-01	1.5E+00	5.8E-01	2.8E-01	3.4E+00
STD. DEV.		2.5E-02	2.5E-02	1.2E-01	6.9E-02	7.5E-02	1.4E+00	7.2E-02	1.1E-01	8.0E-01	2.9E-01	8.7E-02	1.7E+00
95TH UPPER BOUND		3.2E-01	3.2E-01	3.3E-01	2.5E-01	1.8E-01	1.7E+00	2.2E-01	2.9E-01	2.0E+00	7.5E-01	3.4E-01	4.4E+00

RIVER SEDIMENT SEMIVOLATILES SAMPLE #	DEPTH	PYRENE Q	BENZO (A) ANTHRACENE Q	CHRYSENE Q	b2EHTHXL PHTHALATE Q	DI-N-OCTL PHTHALATE Q	BENZO (B) FLUORAN THENE Q	BENZO (K) FLUORAN THENE Q	BENZO (A) PYRENE Q	INDENO 1,2,3 PYRENE Q	DIBENZ A,H ANTHRACNE Q	BENZO G,H,I PERYLENE Q
RS-2		2 J	1.4	1.5	0.95 BUJ	0.55 U	1.9	1.8	1.9	0.84	1.7 J	5.7 J
RS-3		3.6 J	1.9	2	1.1 BUJ	0.63 U	2.7	2.1	2.5	0.63	0.13 J	0.69 J
RS-4		3.5 J	1.9	2.1	1.1 BUJ	0.63 U	3.1	1.9	2.4	0.66	0.12 J	0.62 J
RS-6		7.6	6	8	0.85 BUJ	0.52 U	8.9	5.5	6.1	2.1	0.42 J	1.8
RSII-2		1.2	0.8	1.2	0.3 BJ	0.61 U	0.81	0.61 U	0.66	0.61 J	0.18 J	0.74
RSII-3		0.82	0.57 J	0.74	0.32 BJ	0.63 U	0.96	0.63 U	0.56 J	0.39 J	0.093 J	0.42 J
RSII-4		3.7	1.9	2.5	0.25 BJ	0.6 U	2.7	0.6 U	2.2	1.8	0.36 J	2.2
RSII-6												
RSII-9	DUP AVG	3.15	2.3	3.45	0.245 BJ	0.645 U	3.4	0.645 U	1.9	1.42	0.35 J	1.56
RSII-12	DUP AVG	2.5	2.15	1.95	0.33 BJ	6.85 U	2.8	0.685 U	1.6	0.96	0.475	1.03
N		9	9	9	9	9	9	9	9	9	9	9
AVERAGE		3.1E+00	2.1E+00	2.6E+00	3.8E-01	6.5E-01	3.0E+00	1.4E+00	2.2E+00	1.0E+00	4.3E-01	1.6E+00
STD. DEV.		2.0E+00	1.6E+00	2.2E+00	1.2E-01	1.0E+00	2.4E+00	1.7E+00	1.6E+00	5.9E-01	5.0E-01	1.6E+00
95TH UPPER BOUND		4.3E+00	3.1E+00	3.9E+00	4.6E-01	1.3E+00	4.5E+00	2.5E+00	3.2E+00	1.4E+00	7.3E-01	2.7E+00

RIVER SEDIMENT PESTICIDES		AROCLOR 1242	AROCLOR 1248	AROCLOR 1254
SAMPLE #	DEPTH	Q	Q	Q
RSII-2		1.5 U	1.5 U	3 U
RSII-3		0.77 U	0.77 U	1.5 U
RSII-4		0.73 U	0.73 U	1.5 U
RSII-6		1.7 U	2.2	3.3 U
RSII-9	DUP AVG	1.6 U	1.2	3.15 U
RSII-12	DUP AVG	1.7 U	2.5	3.4 U
N		6	6	6
AVERAGE		6.7E-01	1.2E+00	1.3E+00
STD. DEV.		2.3E-01	9.2E-01	4.5E-01
95TH UPPER BOUND		8.6E-01	2.0E+00	1.7E+00

EXPOSURE POINT
FILE NAME: BAKWAT.WQ1
DATE: 02/13/91
MEDIUM, UNITS: WATER, MG/L
SITE AREA: 004 BACKWATER AREA\SURFACE WATER

INORGANICS		ALUMINUM		ANTIMONY		ARSENIC		BARIUM		BERYLLIUM		CADMIUM		CHROMIUM		COBALT		COPPER		IRON		LEAD		MANGANESE		MERCURY	
SAMPLE #	DEPTH	CONC.	Q		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q
SW-5		1.27		0.016	U	0.011		0.078	B	0.005	U	0.002	U	0.012		0.007	U	0.026		2.16		0.003		0.772		0.0002	U

EXPOSURE POINT
FILE NAME: BAKWAT.WQ1
DATE: 02/13/91
MEDIUM, UNITS: WATER
SITE AREA: 004 BACKWAT

INORGANICS		NICKEL		SILVER		SODIUM		THALLIUM		VANADIUM	
SAMPLE #	DEPTH		Q		Q		Q		Q		Q
SW-5		0.007	U	0.003	U	153		0.003	U	0.006	U

EXPOSURE POINT
FILE NAME: BAKWAT.WQ1
DATE: 02/13/91
MEDIUM, UNITS: WATER,MG/L
SITE AREA: 004 BACKWATER AREA\SURFACE WATER

BACKWATER NON CLP INORGANICS		NITROGEN AMMONIA		FLUORIDE		SILICA SIO2		CYANIDE TOTAL		CYANIDE AMENABLE		CHLORIDE		SULFATE	
SAMPLE #	DEPTH		Q		Q		Q		Q		Q		Q		Q
SW-5		1	U	12		10	U	0.125		0.005	U	41		110	

EXPOSURE POINT
FILE NAME: BAKWAT.WQ1
DATE: 02/13/91
MEDIUM, UNITS: WATER,MG/L
SITE AREA: 004 BACKWATER AREA\SURFACE WATER

BACKWATER VOLATILES		METHYLENE CHLORIDE	Q	ACETONE	Q	CARBON DISULFIDE	Q	CHLOROFORM	Q	2BUTANONE	Q	1,1,1TCA	Q	TCE	Q	BENZENE	Q	PCE	Q	1,1,2,2 PCA	Q	TOLUENE	Q	CHLORO BENZENE	Q	ETHYL BENZENE	Q
SAMPLE #	NOTES																										
SW-5		0.002	BJ	0.011	B	0.005	U	0.005	U	0.01	U	0.005	U	0.005	U	0.005	U	0.005	U	0.01	U	0.005	U	0.005	U	0.005	U

EXPOSURE POINT
FILE NAME: BAKWAT.WQ1
DATE: 02/13/91
MEDIUM, UNITS: WATER
SITE AREA: 004 BACKWAT
BACKWATER
VOLATILES

		STYRENE	
SAMPLE #	NOTES		Q
SW-5		0.005	U

EXPOSURE POINT
FILE NAME: BAKWAT.WD1
DATE: 02/13/91
MEDIUM, UNITS: WATER,MG/L
SITE AREA: 004 BACKWATER AREA\SURFACE WATER

BACKWATER SEMIVOLATILES		4-METHYL PHENOL	2,4DIMETH PHENOL	NAPTHALENE	2-METHYL NAPTHALENE	ACENAPH THYLENE	ACENAPH THENE	DIBENZO FURAN	FLUORENE	PHENAN THRENE	ANTHRA CENE	DI-N-BUTYL PHTHALATE	FLUORAN THENE	PYRENE
SAMPLE #	DEPTH	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
SW-5		0.01 U	0.1 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.003 J	0.003 J

EXPOSURE POINT
FILE NAME: BAKWAT.WQ1
DATE: 02/13/91
MEDIUM, UNITS: WATER
SITE AREA: 004 BACKWAT

BACKWATER SEMIVOLATILES SAMPLE # DEPTH	BENZO (A) ANTHRACENE	Q	CHRYSENE	Q	b2EHTHXL PHTHALATE	Q	DI-N-OCTL PHTHALATE	Q	BENZO (B) FLUORAN THENE	Q	BENZO (K) FLUORAN THENE	Q	BENZO (A) PYRENE	Q	INDENO 1,2,3 PYRENE	Q	DIBENZ A,H ANTHRACNE	Q	BENZO G,H,I PERYLENE	Q
SW-5	0.01	U	0.003	J	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U

EXPOSURE POINT
FILE NAME: BAKWAT.WQ1
DATE: 02/13/91
MEDIUM, UNITS: WATER,MG/L
SITE AREA: 004 BACKWATER AREA\SURFACE WATER

BACKWATER PESTICIDES		AROCLOR 1242		AROCLOR 1248		AROCLOR 1254	
SAMPLE #	DEPTH		Q		Q		Q
SW-5		0.0015		0.0005	U	0.001	U

EXPOSURE POINT
FILE NAME: BAKSED.WQ1
DATE: 02/13/91
MEDIUM, UNITS: SOIL,MG/KG
SITE AREA: 004 BACKWATER AREA\SEDIMENTS

INORGANICS		ALUMINUM		ANTIMONY		ARSENIC		BARIUM		BERYLLIUM		CADMIUM		CHROMIUM		COBALT		COPPER		IRON		LEAD		MANGANESE		MERCURY	
SAMPLE #	DEPTH	CONC.	Q		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q
RS-5		10000		6.5	U	5.3		73		1.1	BJ	1.1	UJ	13		2.7	BJ	119		12500		20		648		0.1	U

EXPOSURE POINT
FILE NAME: BAKSED.WQ1
DATE: 02/13/91
MEDIUM, UNITS: SOIL
SITE AREA: 004 BACKWA†

INORGANICS		NICKEL		SILVER		SODIUM		THALLIUM		VANADIUM		CYANIDE	
SAMPLE #	DEPTH		Q		Q		Q		Q		Q		Q
RS-5		10	BJ	1.2	U	2060		0.47	U	10	BJ	42	J

BACK SEDIMENT NON CLP INORGANICS		NITROGEN AMMONIA		FLUORIDE		SILICA SIO2		CYANIDE TOTAL		CYANIDE AMENABLE		CHLORIDE		SULFATE	
SAMPLE #	DEPTH		Q		Q		Q		Q		Q		Q		Q
RS-5		12.5	U	83		11		39		1	U	96		60	

BACK SEDIMENT VOLATILES		METHYLENE CHLORIDE		ACETONE		CARBON DISULFIDE		CHLOROFORM		2BUTANONE		1,1,1TCA		TCE		BENZENE		PCE		1,1,2,2 PCA		TOLUENE		CHLORO BENZENE		ETHYL BENZENE	
SAMPLE #	NOTES		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q
RS-5		0.032	BJ	0.032	BUJ	0.007	UJ	0.007	U	0.014	UJ	0.007	U	0.007	U	0.004	BUJ	0.007	U	0.007	UJ	0.007	U	0.007	U	0.007	U

BACK SEDIMENT VOLATILES		STYRENE
SAMPLE #	NOTES	Q
RS-5		0.007 U

BACK SEDIMENT SEMIVOLATILES SAMPLE #	DEPTH	4-METHYL PHENOL	Q	2,4DIMETH PHENOL	Q	NAPTHALENE	Q	2-METHYL NAPTHALENE	Q	ACENAPH THYLENE	Q	ACENAPH THENE	Q	DIBENZO FURAN	Q	FLUORENE	Q	PHENAN THRENE	Q	ANTHRA CENE	Q	DI-N-BUTYL PHTHALATE	Q	FLUORAN THENE	Q	PYRENE	Q
RS-5		2.3	U	2.3	U	1.6		0.74	J	0.25	J	15		3.3		7.8		47		25		2.3	UJ	84		110	
RSII-5		4.4	U	4.4	U	0.5	J	4.4	U	4.4	U	9.3		2.1	J	6.5		3.3		1.5		4.4	U	120	E	120	E

BACK SEDIMENT SEMIVOLATILES SAMPLE # DEPTH	BENZO (A) ANTHRACENE	Q	CHRYSENE	Q	b2EHTHXL PHTHALATE	Q	DI-N-OCTL PHTHALATE	Q	BENZO (B) FLUORAN THENE	Q	BENZO (K) FLUORAN THENE	Q	BENZO (A) PYRENE	Q	INDENO 1,2,3 PYRENE	Q	DIBENZ A,H ANTHRACNE	Q	BENZO G,H,I PERYLENE	Q
RS-5	120		120		2.3	BUJ	2.3	U	390		170		100		89		22		71	J
RSII-5	91	E	120	E	0.57	BJ	4.4	U	140	E	4.4	U	94	E	81	E	20		88	E

BACK SEDIMENT PESTICIDES		AROCLOR 1242	AROCLOR 1248	AROCLOR 1254
SAMPLE #	DEPTH	Q	Q	Q
RSII-5		11 U	97.5	21 U

APPENDIX 4

EXPANDED TOXICITY SUMMARIES

This appendix contains expanded toxicity summaries for those chemicals that contribute risk that approaches or exceeds a level of concern at Ormet. The following chemicals are include:

	CHEMICAL	PAGE
1.0	Arsenic	A4-3
2.0	Antimony	A4-7
3.0	Barium	A4-8
4.0	Beryllium	A4-9
5.0	Chromium	A4-11
6.0	Cyanide	A4-13
7.0	Fluoride	A4-15
8.0	Manganese	A4-17
9.0	Nickel	A4-20
10.0	Polychlorinated Biphenyls (PCBs)	A4-22
11.0	Polycyclic Aromatic Hydrocarbons (PAHs)	A4-23
12.0	Tetrachloroethylene	A4-27
13.0	Vanadium	A4-29

1.0 ARSENIC

Arsenic toxicity depends upon its chemical form. In general, compounds containing As^{+3} (arsenites) have somewhat higher acute toxicity than compounds of As^{+5} (arsenates) (Agency for Toxic Substances and Disease Registry) (ATSDR 1987, USEPA 1984). Readily soluble arsenic compounds tend to be somewhat more toxic than poorly soluble forms. However, conversions in valence state and solubility may occur both in the environment and in the body (USEPA 1988), so oxidation state is usually not a critical consideration in evaluating the toxicity of arsenic compounds.

1.1 Noncarcinogenic Effects

Inhalation exposure to arsenic compounds in air can produce gastrointestinal irritation, but the effects are usually very mild. The chief effect is usually irritation to the skin and mucous membranes of the eyes, nose and throat (ATSDR 1987). Skin darkening and corns have been noted in workers who were exposed chronically to airborne levels of about 0.4 mg/m^3 (Perry et al. 1948), while levels of 0.1 to 0.2 mg/m^3 have been reported to cause mild skin irritation (Pinto and McGill 1953). Blom et al. (1985) concluded the risk of neurological effects is minimal at exposure levels of 0.05 mg/m^3, and the ATSDR (1987) has estimated that chronic inhalation of 0.02 mg/m^3 poses minimal risk of noncarcinogenic effects in humans.

Oral exposure to high doses of arsenic produces marked irritation of the gastrointestinal tract, leading to nausea and vomiting. Symptoms of chronic ingestion of lower levels of arsenic often begin with a vague weakness and nausea. As exposure continues, symptoms become more characteristic and include diarrhea, vomiting, decreased blood cell formation, injury to blood vessels, damage to kidney and liver and impaired nerve function that leads to "pins and needles" sensations in the hands and feet. The most diagnostic sign of chronic arsenic exposure is an unusual pattern of skin abnormalities, including dark and white spots and a pattern of small "corns," especially on the palms and soles (ATSDR 1987).

The average daily intake of arsenic that produces these effects varies from person to person. Some individuals may ingest 0.15 mg/kg-day (10 mg/day in an adult) without any obvious ill effects, while doses as low as 0.02 mg/kg-day (about 1 mg/day in an adult) can produce one or more of the signs of arsenic intoxication in more sensitive individuals (Tseng et al. 1968, Cebrian et al. 1983).

The USEPA has not yet derived an oral RfD for arsenic, but the Agency for Toxic Substances and Disease Registry (ATSDR) (1987) has estimated that a daily oral intake of about 1E-03 mg/kg-day (0.07 mg/day in an adult) poses minimal risk of noncarcinogenic effects in exposed humans.

1.2 Carcinogenic Effects

Lung Cancer

There have been a number of epidemiological studies in humans which indicate that chronic inhalation exposure to arsenic is associated with increased risk of lung cancer (USEPA 1984, ATSDR 1987). As with many epidemiological

studies, confounding factors such as smoking and exposure to other lung carcinogens may complicate data interpretation, but the consistent findings among studies constitute convincing evidence that arsenic does increase lung cancer incidence. Increased lung cancer risk has been reported most frequently in smelter workers exposed to predominantly As^{+3} (e.g., Lee and Fraumeni 1969). Increased incidence of, lung cancer also has been reported in worker populations exposed mainly to As^{+5} (Ott at al. 1974). Based on the combined results of several studies of exposed humans, the USEPA (1984a) has estimated that chronic inhalation exposure to air containing 0.001 mg/m^3 corresponds to a lung cancer risk of about 4.0E-3.

Skin Cancer

There is strong evidence from a number of human studies that oral exposure to arsenic increases the risk of skin cancer (USEPA 1984, ATSDR 1987). The most common type of cancer is squamous call carcinoma, which appears to develop from some skin corns. In addition, basal cell carcinoma may also occur, typically arising from cells not associated with the corns. Although these cancers may be easily removed, they can be painful and disfiguring and can be fatal if left untreated.

The amount of arsenic ingestion that leads to skin cancer is controversial. Based on a study of skin cancer incidence in Taiwanese residents exposed mostly to As^{+3} in drinking water (Tseng et al. 1968, USEPA 1984), the USEPA has calculated that ingestion of 0.001 mg/kg-day of arsenic for a lifetime corresponds to a skin cancer risk of about 1.5E-3 (USEPA 1988). This study has been criticized on several grounds, including uncertainty about exposure levels, possible effects of poor nutrition in the exposed population, potential exposure to other substances besides arsenic and lack of blinding in the examiners. Consequently, some quantitative uncertainty exists in the cancer potency factor derived from the Tseng data. Nevertheless, these criticisms do not challenge the fundamental conclusion that arsenic ingestion is associated with increased risk of skin cancer, and the Tseng study is considered to be the best study currently available for quantitative estimation of skin cancer risk (USEPA 1988).

Other Cancers

Although the evidence is limited, there are some reports which indicate that chronic oral arsenic exposure may increase risk of internal cancers, including cancer of the liver, bladder and lung (Chen et al. 1985, 1986, 1988a, 1988b). This is supported by limited evidence that inhalation exposure may also increase risk of gastrointestinal, renal or bladder cancers (Lee-Feldstein 1983, Enterline and Marsh 1982a).

Threshold Versus Nonthreshold Model of Arsenic Carcinogenicity

Most carcinogens are considered to act through a nonthreshold mechanism whereby no dose except zero is without risk of cancer. Some researchers have suggested that arsenic may cause cancer by a different mechanism, and that there may be a threshold dose below which cancer will not occur (Marcus and Rispin 1988). Although there are data which are consistent with this view, the USEPA has reviewed the available information (USEPA 1988) and has

concluded that the data are insufficient at present to establish that there is a threshold for arsenic-induced cancer.

1.3 Beneficial Effects

Several studies in animals suggest that low levels of arsenic in the diet may be beneficial for reproduction and normal postnatal development (Schwartz 1977, Anke et al. 1978, 1987, Uthus et al. 1983). However, these studies were not well controlled, and some researchers believe the data are not adequate to show that arsenic is beneficial (Solomons 1984, Hindmarsh and McCurdy 1986). The USEPA (1988) has reviewed the evidence and concluded that the essentiality of low levels of arsenic in animals has not been established but is plausible.

If arsenic is beneficial or essential in animals, it is also likely to be so for humans. Based on the animal data, the estimated beneficial dose for humans is approximately 10 to 50 µg/day (USEPA 1988). This level of arsenic intake is usually provided in a normal diet, and no cases of arsenic deficiency in humans have been reported (ATSDR 1987).

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2.0 ANTIMONY

2.1 Noncarcinogenic Effects

Both human occupational and animal studies provide evidence for respiratory effects by antimony compounds following inhalation exposure. Pneumoconiosis has been observed in humans exposed by acute and chronic inhalation to antimony at atmospheric concentrations ranging from 0.08 to 75 mg/m^3 (USEPA 1980). In animals, increased macrophage proliferation and activity, myocardial pulmonary fibrosis and certain types of pneumonia have been observed after inhalation exposure to antimony (USEPA 1980). To date, the USEPA has not determined an RfC for inhalation of antimony (USEPA 1990).

Oral administration of therapeutic doses of antimony to humans has been associated with nausea, vomiting, skin rashes, myocardial symptoms and hepatic necrosis (USEPA 1980). Consistent with observations in humans, animal studies have yielded data showing myocardial damage from oral ingestion of antimony. Schroeder et al. (1970) reported that rats exposed to 5 ppm of potassium antimony tartrate via drinking water had significantly shortened lifespans, significantly lower glucose levels and significant variations in serum cholesterol levels. This study was the basis on which EPA derived a chronic oral RfD of 4E-04 mg/kg-day. A LOAEL of 0.35 mg/kg-day and an uncertainty factor of 1,000 were used to derive the oral RfD. Confidence in the chosen study is rated as low because only one species and one dose level were used, no no-observed-effect level (NOEL) was determined and gross pathology and histopathology were not well described (USEPA 1990).

2.2 Carcinogenic Effects

There is insufficient evidence to determine the carcinogenicity of antimony. An inhalation study with antimony trioxide in rats provided only qualitative evidence of lung cancer (USEPA 1980). Schroeder et al. 1970 administered 5 ppm of potassium antimony tartrate in drinking water to rats from weaning until natural death and concluded antimony was not tumorigenic. Antimony has not been evaluated by the USEPA for evidence of carcinogenic potential (USEPA 1990).

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3.0 BARIUM

3.1 Noncarcinogenic Effects

Inhalation exposure to barium has not been extensively studied. No studies involving human populations were located. Exposure of rats to airborne concentrations of 1 to 25 mg/m^3 barium for 4 hr/day for four to six months resulted in a number of adverse effects on body weight, liver function and reproductive parameters (Tarasenko et al. 1977). Based on this study, a chronic inhalation RfD of 1E-4 mg/kg-day and a subchronic RfD of 1E-3 mg/kg-day have been calculated by USEPA (USEPA 1990a).

Barium ion (Ba^{+2}) interferes with normal potassium ion fluxes in most cells, especially electrically active cells such as nerve and muscle. Ingestion of barium salts may cause acute stimulation of the gastrointestinal muscles, resulting in salivation, nausea, vomiting and diarrhea. Skeletal and cardiac muscles are also stimulated, producing tingling, weakness, hypertension, arrhythmias and electrocardiogram abnormalities (USEPA 1984c, 1987a). Severe cases may be fatal.

The most sensitive index of chronic oral exposure to barium appears to be hypertension (USEPA 1985b). Brenniman et al. (1981) did not detect any significant effects on blood pressure in humans ingesting less than 0.2 mg/kg-day in water. Increased blood pressure has been reported in rats ingesting doses of 0.5 mg/kg/day or higher (Perry et al. 1983). Tardiff et al. (1980) exposed rats to barium at up to 31.5 mg/kg-day for up to 13 weeks with no conclusive signs of barium toxicity observed; however, blood pressure was not measured. The lowest- observed-adverse-effect level (LOAEL) identified in this study (5.1 mg/kg-day) has been used in the derivation of a chronic oral RfD of 5E-2 mg/kg-day (USEPA 1990b). A major limitation of this study is the minimized exposure to trace metals (i.e., calcium) that may have contributed to observed effects. In view of this, USEPA has selected an uncertainty factor of 100 without the additional 10-fold uncertainty factor for the lack of a NOAEL (USEPA 1990b).

3.2 Carcinogenic Effects

No studies were located describing carcinogenic effects of barium. Barium has not been evaluated by USEPA for human carcinogenic potential (USEPA 1990b).

3.3 References

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4.0 BERYLLIUM

4.1 Noncarcinogenic Effects

The lung is the main target organ for toxicity following inhalation exposure to beryllium. Exposure to particulate beryllium oxide or to soluble beryllium compounds can result in acute chemical pneumonitis (ATSDR 1988a). Chronic exposure to insoluble forms can lead to chronic beryllium disease (berylliosis) in which granulomas develop in the lung (ATSDR 1988a).

In animals, the toxic response in the lung following inhalation exposure to beryllium and its compounds is much the same as it is in humans. Because adverse effects occur in animals at the lowest exposures and because berylliosis may occur in humans at exposure levels lower than the chronic animal LOAEL of 34 $\mu g/m^3$ (Reeves et al. 1967), ATSDR has not derived minimal risk levels (ATSDR 1988a). The Occupational Safety and Health Administration (OSHA) has set a standard of 2 $\mu g/m^3$ beryllium in the workplace (USEPA 1987c).

Very little data regarding toxic effects following oral exposure to beryllium was found in the available literature. A chronic oral rat study by Schroeder and Mitchener (1975) was the basis for USEPA's derivation of an oral RfD of 5E-3 mg/kg-day beryllium (as a soluble salt). No adverse noncarcinogenic effects were observed at 0.5 mg/kg-day (NOAEL). Confidence in the study is rated as low because only one dose level was administered (USEPA 1990).

4.2 Carcinogenic Effects

There are human epidemiologic studies which point to beryllium as a cancer-causing compound. Wagoner et al. (1980) conducted an epidemiological study following over 2,000 workers employed in beryllium processing activities. Increased mortality from lung cancer was observed. Expected lung cancer deaths (adjusted for smoking) were estimated to range from 13 to 14, in comparison to the 20 observed. Considerable uncertainty existed in the workplace beryllium concentration and the actual duration of exposure. The USEPA, recognizing the inadequate and limited data base, has calculated a slope factor of 8.4 $(mg/kg\text{-}day)^{-1}$ for beryllium by the inhalation route (USEPA 1990).

There is evidence in animals for the induction of tumors by a variety of beryllium compounds in a number of animal species both by inhalation and oral routes. The study by Schroeder and Mitchener (1975) is the basis for USEPA's derivation of an oral slope factor of 4.3 $(mg/kg\text{-}day)^{-1}$. Slight increases in incidence of gross tumors (specific types undefined) were reported in rats administered 5 ppm beryllium sulfate in the drinking water for a lifetime (USEPA 1990).

Beryllium is classified as a B2 carcinogen (probable human carcinogen) by both inhalation and oral routes.

4.3 References

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5.0 CHROMIUM

Chromium exists in the environment mainly as salts of Cr (III) and as oxy-compounds of Cr (VI). The toxicity of Cr(III) is less than for Cr(VI), so these two forms are discussed separately.

5.1 Noncarcinogenic Effects

Chromium (III)

Little data are available describing adverse effects following inhalation exposures to Cr (III). Johansson et al. (1986) reported a decrease in phagocytic activity in macrophages in rabbits exposed via inhalation at 0.6 mg/m^3 Cr(III) [$Cr(NO_3)_3$] for four to six weeks. ATSDR (1989) considers this value to be a LOAEL for intermediate Cr(III) exposure. There is no inhalation RfD for Cr(III) at this time (USEPA 1990).

Oral exposures to Cr(III) compounds are not associated with significant toxicity except at vary high doses. In rats, acute oral LD_{50} values range from 600 to 2,600 mg Cr(III)/kg. Chronic exposure of rats to water containing 25 mg Cr(III)/L for one year resulted in no detectable adverse effects (USEPA 1985, 1987). No treatment related effects were reported for rats exposed to doses up to 1,468 mg Cr(III)/day in the diet for two years (Ivankovic and Preussmann 1975). This study was used by USEPA to calculate an oral RfD of 1.0E+00 for Cr(III) (USEPA 1990).

Chromium (VI)

The respiratory tract is a target of intermediate and chronic inhalation exposure to chromium. Many cases of nasal mucosal ulceration and nasal septal perforation have been reported in persons occupationally exposed to Cr (VI). Lindberg and Hedenstierna (1983) reported that evidence,of adverse nasal effects were found at mean exposure levels of 2 to 200 µg/m Cr (VI) but not at <1 µg/m^3 Cr (VI). That a concentration of about 2 µg/m^3 is an effect level is supported by the Kuperman (1964) study which reported nasal irritation in sensitive individuals at a concentration of 2.5 to 4 µg/m^3. Because the nasal effects observed in the Lindberg and Hedenstierna (1983) study at concentrations <0.2 µg/m^3 were mild and no effects were observed at <1 µg/m^3, a concentration of 1 µg/m^3 is considered a NOAEL for nasal effects (ATSDR 1989). In animals, respiratory distress and irritation have been reported but without any indication of exposure-effect relationships (ATSDR 1989). An inhalation RfC for Cr (VI) is currently under review by a USEPA workgroup (USEPA 1990). Preliminary values of 5.7E-06 (subchronic) and 5.7 E-07 (chronic) based on the studies above are used pending verification.

By the oral route, Cr (VI) is somewhat more toxic than Cr(III), with an oral LD_{50} (as $Na_2Cr_2O_7$) in rats of 20 mg/kg. However, detrimental effects from long-term ingestion of low levels of Cr(VI) have not been observed (USEPA 1987, 1985). Chronic ingestion of water containing 1 mg/L of Cr(VI) over a three-year period did not produce any adverse health effects in a Long Island family drinking from a private well (USEPA 1985). No adverse health effects were observed in rats following the ingestion of Cr(VI) in drinking water at 14.4 mg/kg-day for 60 days (USEPA 1985). Female dogs administered potassium

chromate (K_2CrO_4) in their drinking water at 11.2 mg Cr(VI)/L for four years showed no abnormalities in physical condition, food consumption or growth rate. Sprague-Dawley rats administered water containing K_2CrO_4 at concentrations up to 25 mg Cr(VI)/L for one year exhibited no pathologic effects (MacKenzie et al. 1958). This study in rats was used to calculate a chronic oral RfD of 5.0E-03 for Cr(VI) (USEPA 1990). A subchronic RfD of 2.0E-02 was similarly calculated using a higher uncertainty factor.

5.2 Carcinogenic Effects

Chromium (III)

No evidence has been reported that Cr(III) is carcinogenic following either inhalation or ingestion (ATSDR 1989). Chromium (III) has not been evaluated by EPA for human carcinogenic potential (USEPA 1990).

Chromium (VI)

Results of several epidemiologic studies consistently link inhalation of Cr (VI) to increased incidences of lung tumors (USEPA 1990). Some of these studies, however, did not attempt to determine between exposures to Cr III or Cr VI but there is sufficient evidence in other occupational studies to attribute the carcinogenic potential to Cr (VI).

Sufficient animal data also exist to conclude that Cr (VI) is carcinogenic by a number of routes (intramuscular injection site tumors, intrapleural implant site tumors, intrabronchial implantation site tumors and subcutaneous injection site sarcomas (USEPA 1990)).

Chromium (VI) has been assigned a weight-of-evidence classification of A (a human carcinogen) by the inhalation route (USEPA 1990). An inhalation slope factor of 4.1E+01 (mg/kg-day) was calculated by USEPA from available epidemiological studies that indicate a dose-response relationship between Cr(VI) and lung cancer. There is no convincing evidence that oral exposure to Cr(VI) is carcinogenic (USEPA 1987).

5.3 Beneficial Effects

Chromium (III) produces beneficial effects when administered to animals fed a chromium deficient diet. Beneficial effects include enhanced glucose uptake, decreased blood cholesterol levels and increased life span. An estimated safe and adequate human intake for Cr(III) of 50 to 200 µg/day has been calculated by the National Academy of Sciences (NAS 1989). The average daily intake of chromium in the U.S. is about 60 to 100 µg/day, mostly in food.

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6.0 CYANIDE

6.1 Noncarcinogenic Effects

Cyanide is a poison which functions at the cellular level by binding to mitochondrial cytochrome oxidase thereby blocking cell's ability to oxidize metabolites and generate energy. Many tissues are affected by exposure to cyanide but the nervous system is the most sensitive. Symptoms of acute cyanide toxicity include rapid breathing, gasping, tremors and convulsions. The fatal oral dose in humans ranges from 0.7 to 2.9 mg CN/kg (USEPA 1987). Concentrations of 100 to 500 ppm in air are fatal to humans within 10 to 60 minutes (Hartung 1981).

Information on the effects of long-term human inhalation exposure to low levels of cyanide is limited. Chronic exposure of humans to cyanide in the workspace has been associated with the thyroid abnormalities (El Ghawabi et al. 1975) and increased incidence of nonspecific symptoms such as headache and nausea (Blanc et al. 1985). The USEPA has not determined an RfD for inhalation exposure to cyanide (USEPA 1990a).

Oral exposure to cyanide has been investigated in animals. A two-year dietary study in rats (Howard and Hazal 1955) did not detect any significant adverse health effects in rats consuming up to 10.8 mg CN/kg-day. In another study (Philbrick et al. 1979), rats consuming 30 mg CN/kg-day for one year had myelin and thyroid degeneration as well as weight loss. Based upon the NOAEL of 10.8 mg CN/kg-day from the Howard and Hazal study, the USEPA has calculated a chronic oral RfD for cyanide of 2E-2 mg/kg-day. USEPA rates confidence in this oral RfD as medium based upon the two-year duration of the chosen study, details of the study which are available for evaluation (food and weight records) and the availability of sufficient number of studies which support the chosen study (USEPA 1990b). This RfD is also suitable for evaluating subchronic exposure to cyanide (USEPA 1990a).

6.2 Carcinogenic Effects

No human or animal data were located the carcinogenic potential of cyanide (ATSDR 1988b). The USEPA (1990b) gives cyanide a weight-of-evidence classification of D (not classifiable) based on the fact that pertinent information regarding potential carcinogenic effects of cyanide were not located in the available literature.

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7.0 FLUORIDE

7.1 Noncarcinogenic Effects

Human exposure to low levels of fluoride prevents dental caries (decay). Adverse effects in both teeth and bone from higher than optimal doses have been well documented.

Human deaths from acute oral exposure to fluoride have been reported for adults at approximately 50 mg fluoride/kg body weight, with lethal effects probably due to the depletion of calcium and magnesium from serum (ATSDR 1990 NTP 1990). A three-year-old boy died seven hours following ingestion of 2,001-mg fluoride tablets (a dose equivalent to 16 mg fluoride/kg/day) (ATSDR 1990). On autopsy the child was shown to have suffered massive hemorrhagic pulmonary and cerebral edema. Acute lethal doses of fluoride in animals range from 20-100 mg fluoride/kg/day (ATSDR 1990).

Acute oral fluoride exposure in humans causes gastrointestinal upset when hydrofluoric acid is formed in the stomach in the reaction of fluoride with gastric hydrochloric acid (ATSDR 1990). Transient gastric distress, nausea, vomiting and diarrhea have been reported following the accidental or intentional oral intake of fluoride at doses above 1 mg/kg (ATSDR 1990).

In 1986, the USEPA promulgated a Maximum Contaminant Level (MCL) (a federally enforceable standard) for fluoride at 4 mg/L with a Secondary (not enforceable) MCL of 2 mg/L for protection against cosmetically objectionable dental fluorosis (USEPA 1990). Oral exposure to fluoride at 2 mg/L (0.06 mg/kg/day) results in mild dental fluorosis in children (USEPA 1985). This condition is characterized by changes in dental enamel which may be cosmetically objectionable, but which are not considered detrimental to health. Exposure to levels above 2 mg/L may result in severe mottling and discoloration, enamel damage and coronal and root caries. These effects can interfere with nutrition and general health (USEPA 1985).

Chronic oral exposure to high levels of fluoride has been shown to cause deleterious skeletal effects in both humans and animals. Considerable evidence of skeletal fluorosis is available from populations living in areas with naturally high fluoride concentrations in their drinking water (7.0 to 29 mg/L or 0.2 to 0.84 mg fluoride/kg/day) (USEPA 1985). Skeletal fluorosis is characterized by increased bone density and osteosclerotic changes, especially in cancellous bone. These skeletal signs may be accompanied by disfigurement, immobility and pain. Radiographic evidence of osteosclerotic changes has been seen in 10% of long-term residents exposed to 8 mg/L in their drinking water (USEPA 1985). In 1985, the EPA promulgated an MCL for fluoride at 4 mg/L for protection against crippling skeletal fluorosis (USEPA 1990).

Factors influencing the incidence and severity of skeletal fluorosis include nutritional status and general health, as well as the dose and duration of exposure (USEPA 1985). Individuals with impaired renal function are also more

sensitive to the effects of fluoride because of a reduced ability to eliminate fluoride from the body (ATSDR 1990, USEPA 1985).

Early epidemiological reports suggesting an association between the incidence of Down's Syndrome within a population and exposure to fluoride in drinking water have been refuted (ATSDR 1990).

The study by Hodge (1950) of children consuming fluoridated water forms the basis of USEPA's RfD for fluoride of 6E-02 mg/kg-day. Fluoride levels of 2 to 10 mg/L produced a linear dose-response curve: as the dose of fluoride increased so also did the evidence of dental mottling. This RfD is also considered protective for subchronic exposures.

Inhalation exposure to fluoride has been associated with adverse pulmonary and cardiac effects in humans. Epidemiological studies of workers (aluminum smelters) chronically exposed to fluoride by inhalation have correlated fluoride exposure with skeletal fluorosis although these exposures have not been well quantified (Czerwinski et al. 1988). Workers exposed by inhalation to hydrogen fluoride (which is highly caustic) have had nasal irritation, respiratory distress and pulmonary edema. Workers occupationally exposed to hydrogen fluoride for long periods have exhibited reduced pulmonary function (ATSDR 1990). Cardiac arrythmias have also been observed in workers exposed to hydrogen fluoride by either the inhalation or dermal route due presumably to the hypocalcemia resulting from the binding of fluoride to calcium. These effects have not been demonstrated from exposure to sodium and calcium fluoride (ATSDR 1990). The USEPA has not calculated an inhalation RfD for fluoride.

7.2 Carcinogenic Effects

Numerous studies have compared the cancer mortality rates of populations exposed to high or low fluoride levels in their drinking water. After adjustment for factors such as confounding exposures and demographic differences, these studies have not been able to demonstrate an association between fluoride concentration in water and increased cancer mortality rates. The NTP conducted a two-year study in rats and mice and tentatively concluded that there was equivocal evidence of carcinogenic activity. A small number of osteosarcomas were detected in male rats given 45 or 79 mg/L (as sodium fluoride) and no evidence of carcinogenic activity in female rats and in male and female mice (NTP 1990). Another two-year carcinogenicity study of sodium fluoride in rats indicated that sodium fluoride was not carcinogenic at the doses administered (4 to 25 mg/kg/day) (Maurer et al. in press). No evidence was revealed to indicate that fluoride altered the incidence of preneoplastic or neoplastic lesions in the rat.

Fluoride has not been evaluated by the USEPA for evidence of human carcinogenic potential.

7.3 Beneficial Effects

Fluoride has several beneficial effects in humans. Longer-term oral exposure to fluoride at 0.7 to 1.4 mg/L is optimal for both the prevention of dental caries and objectionable fluorosis. The anti-carcinogenic effects resulting

from low level exposure (1 mg fluoride/L which is equivalent to 0.03 mg fluoride/kg/day) has been well documented (USEPA 1985). Fluoride also has been shown to enhance bone development and has been provided as a supplement to patients with osteoporosis (USEPA 1985). There is also some indication that fluoride has a protective effect on the cardiovascular system by reducing the amount of calcification on vessels such as the aorta (at 4.0 to 5.8 mg/L) (USEPA 1985). Fluoride has also been suggested as playing a stabilizing role in patients with hearing loss from otospongiosis when given as a supplement at 40 to 60 mg/day (USEPA 1985).

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8.0 MANGANESE

8.1 Noncarcinogenic Effects

Occupational exposure to manganese dusts has been known to cause manganism, a neurological condition characterized by mental disorder and slow and clumsy bodily movements, often accompanied by impotence. These effects usually occur after exposure to high levels of managanese dusts for several years; however, some individuals exhibit symptoms after one to three months. The lowest exposure levels leading to neurological disorders range from 1 to 30 mg/m^3 (Cook et al. 1974, Huang et al. 1989, Roels et al. 1987, Saric et al. 1977, Schuler et al. 1957, Tanaka and Lieben 1969, Whitlock et al. 1966). Exposure

of 1 mg/m^3 can produce preclinical signs of neurological change, suggesting the threshold is probably at or below 1 mg/m^3.

Based on an increase in psychomotor disturbances at a LOAEL of 0.97 mg/m^3 in an epidemological survey (Roels et al. 1987), chronic and subchronic inhalation RfDs for manganese of 1.1E-4 mg/kg-day (USEPA 1990a) the USEPA calculated. In animals, neurological effects have only been observed at high exposure levels (60 to 70 mg/m^3) (Lown et al. 1984, Morganti et al. 1985).

Although humans are exposed to manganese both in food and water, reports of adverse health effects are rare. There is limited evidence that oral exposure leads to neurological effects similar to those observed after inhalation exposure. Manganism-like symptoms were reported in a group of Japanese families exposed to high levels of manganese in their drinking water (Kawamura et al. 1941), although there is some evidence that factors other than manganese contributed to the effects. Kondakis et al. (1989) reported an increase in neurological signs in an elderly population in Greece. These residents were exposed to levels of manganese in their drinking water up to 2.3 mg/L. Despite some inadequacies in the study, the results provide some supporting evidence that chronic intake of manganese by humans can lead to neurological changes.

There is an apparent difference in sensitivity to manganese between animals and humans. Ingestion of manganese in animals has resulted in neurological effects, especially alterations in motor activity, but they are not as drastic as those seen in humans. Manganese ingestion in rats and mice caused delayed maturation of reproductive function due to decreased testosterone production; however, this does not appear to alter reproductive function. An oral exposure level of 160 mg/kg in male rabbits resulted in severe degeneration of seminiferous tubules and sterility (Chandra et al. 1973, Seth et al. 1973). Information on reproduction effects in females is very limited; thus, no conclusions can be drawn.

Based a NOAEL of 0.14 mg/kg-day from composite data from human ingeston studies (NAS 1989, Schroeder et al. 1966, WHO 1973), chronic and subchronic oral RfDs of 1E-1 mg/kg-day have been calculated (USEPA 1990a,b). The critical effect is on the central nervous system.

8.2 Carcinogenic Effects

No studies were located that describe carcinogenic effects from exposure to manganese in humans. A two-year National Toxicology Program (NTP) study using rats and mice indicates a possible carcinogenic potential due to the increased incidence of pancreatic cell adenomas and carcinomas. This study is currently undergoing review by NTP. Manganese has been classified as a Group D carcinogen (i.e., not classified) (USEPA 1990b).

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9.0 NICKEL

9.1 Noncarcinogenic Effects

Long-term inhalation of nickel compounds can lead to lung injury. In workers exposed on the job (welders, nickel platers), reported symptoms include asthma, loss of the sense of smell and nasal irritation and injury (ATSDR 1988). The exposure levels causing these effects are not known, but are presumably much higher than commonly encountered in the environment. Similar injuries to the respiratory tract have been observed in animals exposed to aerosols of nickel compounds at concentrations of about 0.1 to 1 mg/m^3 (ATSDR 1988). ATSDR (1988) has estimated a minimal risk level of 0.05 $\mu g/m^3$. An inhalation RfD for nickel is under review by an USEPA workgroup (USEPA 1990).

High oral doses (greater than around 5 mg/kg-day) have been observed to cause decreased growth in several animal studies (Ambrose et al. 1976, American Biogenics Corporation 1986). Based on a NOAEL of 5 mg/kg-day identified in a two-year feeding study in rats using nickel sulfate (Ambrose et al. 1976), the USEPA has calculated a chronic oral RfD of 0.02 mg/kg-day (USEPA 1990). There is limited evidence that high oral doses during pregnancy can have fetotoxic effects (Ambrose et al. 1976, RTI 1987), but the NOAEL of 5 mg/kg-day identified by Ambrose et al. (1976) is believed to be protective for this effect (USEPA 1990).

9.2 Carcinogenic Effects

There is good evidence that chronic inhalation exposure to nickel can cause tumors of the respiratory tract. In humans, several epidemiological studies indicate that occupational exposure to nickel refinery dust leads to increased risk of lung cancer and nasal cancer (Chovil et al. 1981, Enterline and Marsh 1982b, Magnus et al. 1980). This is supported by a long-term inhalation study in rats, where exposure to 1 mg/m^3 led to an increased incidence of lung tumors (Ottolenghi et al. 1974). Based on these studies, the USEPA has ranked nickel as a Group A carcinogen by the inhalation route and has calculated an inhalation slope factor of 8.4E-1 $(mg/kg\text{-}day)^{-1}$ for refinery dust and 1.7E+0 $(mg/kg\text{-}day)^{-1}$ for nickel subsulfide (USEPA 1990).

There is no evidence that nickel is carcinogenic by the oral route; however, data are inadequate to conclude that nickel and inorganic nickel compounds are not carcinogenic. There are no human data. Animal studies in rats, mice and dogs observed no treatment-related tumor increases (ATSDR 1988). The USEPA

has not assigned a weight-of-evidence classification for nickel exposure by the oral route.

9.3 Beneficial Effects

Small amounts of nickel appear to be essential for normal growth and reproduction in some animal species. Based on this, it is possible that small doses may also be beneficial in humans. On the basis of available information a human requirement has not been established (NAS 1989).

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10.0 POLYCHLORINATED BIPHENYLS

Polychlorinated biphenyls (PCBs) are complex mixtures of isomers and congeners which vary with differing degrees and locations of chlorine substitutions. Toxicity to PCBs is difficult to assess because the commercial mixtures may vary in its type and quantity of PCBs and may also contain other contaminants.

10.1 Noncarcinogenic Effects

In humans similar toxic effects can occur following either oral, inhalation or dermal exposures. However, it is not clear these effects are caused solely by PCB exposures or to polychlorinated dibenzofurans which commonly contaminate PCB mixtures. Chloracne is the most commonly reported dermatalogical symptom. The liver is the major target organ following oral exposures; decreases in pulmonary function and respiratory and eye irritation have been reported in capacitor manufacturing workers following inhalation exposures (USEPA 1988).

The liver and skin are target organs for PCBs in animals. In rats fed a variety of Aroclors for four weeks to eight months, degenerative liver effects were reported (Bruckner et al. 1974, Kimbrough et al. 1972). The no-observed-adverse-effect level from these studies is estimated at 0.025 mg/kg-day (ATSDR 1989). Several studies in monkeys observed similar hepatic effects, chloracne and gastric lesions. The lowest effect level in that study was estimated at 0.105 mg/kg-day (ATSDR 1989).

Application of Aroclor 1260 to the skin of rabbits produced degenerative lesions in both the kidneys and liver and hyperplasis and hyperkeratosis of the epidermal epithelium (Vos and Beems 1971). The dose that produced these effects was approximately 44 mg/kg-day (ATSDR 1989). As with the other routes, inhalation exposures to cats, rats, mice, rabbits and guinea pigs at a level of 1.5 mg/m^3 Aroclor 1254 produced degenerative liver lesions (Treon et al. 1956). A similar experiment with Aroclor 1242 at a higher level did not produce these effects, therefore, a minimal risk level was not derived (ATSDR 1989). The USEPA has not developed any RfD values for PCBs (USEPA 1990).

10.2 Carcinogenic Effects

Data are inadequate regarding the carcinogenicity of PCBs to humans. Evidence suggests that exposure to PCBs results in liver cancer by all routes of exposure. Interpretation of studies involving human exposures are confounded by simultaneous exposures to other chemicals or lack of information as to the actual exposure levels. Several studies have involved occupational populations or incidents involving PCB-contaminated foods. None of the studies provide clear evidence that PCBs are carcinogenic to humans (USEPA 1990).

Animal feeding studies demonstrate the carcinogenicity of commercial PCB mixtures (USEPA 1990). It is uncertain whether this conclusion can be extrapolated to the PCB mixtures detected in environmental media. The dietary study of Norback and Weltman (1985) forms the basis for the oral slope factor. Rats were fed Aroclor 1260 for two years and resulted in statistically significant increases in hepatocellular carcinomas. A concurrent liver morpholoy study demonstrated a progression from liver lesions to

hepatocellular carcinomas as the study progressed. The oral slope factor of 7.7 $(mg/kg\text{-}day)^{-1}$ was calculated based on both malignant tumors and neoplastic nodules.

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11.0 POLYCYCLIC AROMATIC HYDROCARBONS

Polycyclic or polynuclear aromatic hydrocarbons (PAHs) are a broad class of related compounds characterized by the presence of two or more fused aromatic rings. Individual PAHs vary considerably in their chemical structure, and differences in toxicity or potency exist among different compounds. Most of the available information concerning noncarcinogenic effects is on naphthalene; most of the available information regarding the carcinogenic potential of PAHs is derived from studies on benzo(a)pyrene.

11.1 Noncarcinogenic Effects

Aside from a limited potential for dermal effects following direct contact (Cottini and Mazzone 1939, Rhoads at al. 1954), there are few reports of PAH-related noncancer health effects in humans (ATSDR 1989).

In animals, ingestion of relatively high doses of PAHs (specifically, benzo(a)pyrene) has been found to have adverse effects on body tissues that

normally have a high rate of cell division (the hematopoietic system, the gonads, the epithelium, the immune system and the developing fetus). Such effects have been noted only at doses of 30 mg/kg-day or higher (ATSDR 1989). Based on case reports of infants, children and adults, hemolytic anemia is the primary health concern for humans exposed to naphthalene (ATSDR 1989). This effect has been reported following exposure by inhalation, ingestion and dermal absorption, but dose response data were not available. Hemolytic effects were not observed in rats or mice exposed to naphthalene (Shopp et al. 1984) but were observed in dogs (Zuelzer and Apt 1949).

Oral exposure to naphthalene also appears to affect the hepatic, reproductive and ocular functions of animals. Hepatic effects, including increased liver weight and enzyme activity, were reported in rats administered naphthalene at 1,000 mg/kg-day (Rao and Pandya 1981). Plasterer et al. (1985) reported a decrease in the number of live pups per litter in mice dosed with 300 mg/kg-day naphthalene in corn oil during pregnancy. Cataracts were observed in rabbits and rats after oral administration of naphthalene at 1,000 mg/kg-day (Yamauchi et al. 1986, Rossa and Pau 1988).

In a chronic oral study Schmahl (1955) administered naphthalene in the diet at an average dose of 41 mg/kg/day to rats for 700 days. The author reported no ocular or internal lesions. Based on the NOAEL of 41 mg/kg-day established by this study, the USEPA calculated a chronic oral RfD of 4E-01 for naphthalene (USEPA 1988). This RfD is currently under review, since it is recognized that the rat may not be a good model for assessing the hemolytic effects of naphthalene in humans (USEPA 1990, 1989).

Several other PAHs, considered as noncarcinogens, have oral RfD values. These include acenaphthene, fluoranthene and pyrene (see Table 4-1).

Present USEPA guidance suggests using the chronic oral RfD for naphthalene to evaluate four other noncarcinogenic PAHs (acenaphthylene, 2-methylnaphthalene and phenanthrene (and benzo(g,h,i)perylene) and the noncarcinogenic effects of the carcinogenic PAHS.[(a)]

11.2 Carcinogenic Effects

There is substantial evidence from animal and human studies that many PAHs are carcinogenic. Human data are derived mainly from studies of workers exposed to coke-oven emissions, which contain a mixture of PAHs. The main exposure route in these workers is inhalation, and the main effect is increased incidence of lung cancer (Mazumdar et al. 1975, Redmond et al. 1976). This is supported by several studies in animals, where increased incidence of respiratory tract tumors occurred following chronic inhalation exposure to benzo(a)pyrene or mixtures of PAHs (Thyssen et al. 1981, Dahl et al. 1985).

(a) Personal communication between Life Systems and USEPA Region V Technical Support Branch, 01/ /91.

Cancer has not been reported in humans following oral exposure to PAHs, but a number of studies in animals indicate that ingestion of benzo(a)pyrene or other PAHs can lead to tumors of the stomach (Neal and Rigdon 1967, Snell and Stewart 1962). There are also a number of animal studies which demonstrate repeated dermal contact with benzo(a)pyrene or other PAHs leads to increased incidence of skin tumors (ATSDR 1987, 1989).

Based on these studies, it appears that the greatest risk of carcinogenic effect from PAHs is at the point of contact, i.e., lung cancer following inhalation exposure, stomach cancer following oral exposure and skin cancer following dermal exposure. This is probably because the PAHs are readily metabolized at the point of contact and that metabolic intermediates are responsible for the carcinogenic response (ATSDR 1989).

It is important to stress that not all PAHs have been found to be carcinogenic. The PAHs detected at Ormet which have been ranked as carcinogens (all are Group Bs) by the USEPA include:

Benzo(a)anthracene
Benzo(b)fluoranthene
Benzo(k)fluoranthene
Benzo(a)pyrene
Dibenz(a,h)anthracene
Indeno(1,2,3-cd)pyrene
Chrysene

Data are too limited to permit quantitative evaluation of cancer risk for most PAHs. Based on a chronic benzo(a)pyrene feeding study in rats (Neal and Rigdon 1967) and a chronic benzo(a)pyrene inhalation study in hamsters (Thyssen et al. 1981), the USEPA proposed cancer slope factors of 1.15E+01 (mg/kg-day) and 6.1E+00 (mg/kg-day) for the oral and inhalation routes, respectively (USEPA 1984). These values are currently undergoing review (USEPA 1990). Current USEPA guidance suggests utilizing the slope factors for benzo(a)pyrene in evaluating risks to other carcinogenic PAHs.[a]

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12.0 TETRACHLOROETHYLENE

12.1 Noncarcinogenic Effects

Tetrachloroethene (also known as perchloroethylene, PCE, or "perc") is a volatile liquid widely used as a dry cleaning fluid and as an industrial solvent. Humans exposed to relatively high levels of PCE vapors (e.g., 100 ppm or above), may experience headaches, dizziness and other signs of central nervous system depression, but CNS effects are not usually apparent at levels below about 50 ppm (ATSDR 1990). Inhalation of PCE may also lead to liver injury. Severe cases may lead to cirrhosis or toxic hepatitis, while milder cases are characterized by hepatomegaly. fatty degeneration. and elevated levels of liver enzymes in blood (ATSDR 1990). Although the exposure levels leading to these effects in humans are not known. studies in animals indicate the threshold is probably about 100-200 ppm (ATSDR 1990). Renal effects (cloudy swelling of the tubules) have been reported in animals, exposed to PCE in air, and a few case studies suggest that acute exposures can also produce renal injury in humans. However, it appears that these effects only occur at levels higher than those which cause nervous system and hepatic effects (ATSDR 1990). The EPA has not yet derived any inhalation RfDs for PCE, but ATSDR has identified an inhalation Minimal Risk Level (MRL) of about 0.04 ppm (7.8E.2 mg/kg-day).

Humans are rarely exposed to high levels of PCE by the oral route, although a few case reports indicate that large oral doses can produce neurological and hepatic effects similar to those produced by inhalation exposure. This is supported by studies in animals, where oral exposure to PCE causes increased liver weight, fatty degeneration and necrosis at dose levels of 70 mg/kg-day or higher (ATSDR 1990). Based on a no-effect-level of 14 mg/kg-day reported in mice (Buben and O'Flaharty 1985), the EPA has calculated a subchronic oral RfD of 1E-1 mg/kg-day and a chronic oral RfD of 1E.2 mg/kg-day (USEPA 1990b). Confidence in these RfD values is only medium, because complete histological examinations were not performed in the study which identified the no-effect-level, and because there is limited information on reproductive and developmental effects of PCE (USEPA 1990b).

12.2 Carcinogenic Effects

Studies of cancer in humans (mainly dry cleaners) exposed to above-average levels of PCE have either been ambiguous or negative (ATSDR 199G). However, studies in animals reveal that PCE can cause cancer either by inhalation (NTP 1986) or oral exposure (NCI 1977). The principal tumorigenic responses are hepatocellular carcinomas in mice and renal tumors in male rats. On the basis of these studies, the USEPA has categorized PCE in Group B2 (probable human carcinogen), and has calculated inhalation and oral slope factors of 1.8E-3 and 5.1E-2 $(mg/kg\text{-}day)^{-1}$, respectively (USEPA 1990a).

The conclusion that PCE is a probable human carcinogen has been questioned, since there is evidence that both the liver tumors in mice and the renal tumors in male rats may be mediated by mechanisms that do not apply in humans. Specifically, the hepatic tumors in mice may be mediated by a proliferation of peroxysomes that is stimulated by the production of trichloroacetic acid during PCE metabolism (Odum et al. 1988). However, humans metabolize PCE to trichloroacetic acid more slowly than mice, and the human liver does not undergo peroxisome proliferation as readily as mouse. Thus, humans may be much less susceptible to the hepatecarcinogenic effects of PCE than mice (Odum et al. 1988). Similarly, the production of renal tumors in male rats may be mediated by accumulation of a specific protein (α-2μ-globulin) that does not exist in humans (Goldsworthy et al. 1988).

While these observations suggest that PCE might pose less carcinogenic risk to humans than animals, the EPA believes there is insufficient evidence to conclude this with certainty, and believes that it is both reasonable and prudent to consider PCE a probable human carcinogen (USEPA 1991).

12.3 References

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13.0 VANADIUM

13.1 Noncarcinogenic Effects

Most reported cases of acute vanadium toxicity resulted from inhalation of vanadium fumes, with effects that are apparently limited to the irritative actions on the respiratory epithelium. In most of these cases, exposure is not solely due to vanadium, and hence, the effects cannot be clearly attributed to vanadium. In the case of Zenz et al. (1962), however, workers developed adverse effects within 24 hours of initial exposure as a result of processing (pelletizing) purified vanadium pentoxide. The clinical picture consisted of burning eyes, sore throat, dry cough and wheezing rales. Rales lasted three to seven days, and cough persisted for up to two weeks. No effects were recorded which were not clearly associated with irritation of the respiratory or conjunctival epithelium. Williams (1952) described similar respiratory complaints in eight men exposed to vanadium dusts while cleaning oil-fixed boilers. Additional symptoms included listlessness, pallor and "low spirits."

"Green-tongue" is an apparent effect due to vanadium exposure (Williams 1952, Vintinner et al. 1955). Musk and Tees (1982) reported the occurrence of asthma, respiratory symptoms and green discoloration of the tongue in four men working in a vanadium pentoxide refinery. The two men with most recent exposures also displayed bronchial hyperactivity to histamine. The authors concluded from their findings that vanadium may be an asthmogen.

Data on actual exposure levels leading to these effects are lacking and no inhalation RfDs have been determined by USEPA (USEPA 1990b).

Studies employing clinical administration of vanadium to produce lower cholesterol levels also provide data on adverse effects. Oral administration of vanadium (diammonium vanado-tartrate) has been shown to cause gastrointestinal effects at doses of 75 to 125 mg/day in humans (Somerville and Davies 1962, Dimond et al. 1963). At a dose of 50 mg/day or more, a purple-green tint on the tongue was observed by Dimond et al. (1963). Curran et al. (1959) observed no signs of vanadium toxicity when it was administered to healthy males at 100 to 125 mg/day. Comparison of the results of Curran (1959) with those of Somerville and Davies (1962), whose patients had ischemic heart disease, xanthomatosis tendinosum or hypercholesterolemia at the start of the treatment, suggests that humans who are ill may be more sensitive to vanadium than healthy people.

Several animal studies indicate vanadium is acutely toxic (Ballotta 1931). In rabbits, a dose of 1.1 mg/kg-day administered by gavage for one month was harmless, but higher doses (up to 5.5 mg/kg-day) exerted adverse effects on the vasomotor and respiratory centers of the nervous system, accompanied by hyperemia in the encephalon, lungs, kidney and intestine. In rats, Franke and

Moxon (1937) reported reduced weight gains and diarrhea when 2.0 mg/kg/day $NaVO_3$ was administered in the diet for 100 days. Schroeder and Balassa (1967) found that a daily dose of 0.50 mg/kg-day $VOSO_4$ for a lifetime produced no toxicity in mice. Schroeder et al. (1970) showed that a daily dose of 0.43 mg/kg/day $VOSO_4$ produced no toxic effects in rats after lifetime exposure. This study was the basis for USEPA's chronic oral RfD of 7E-3 mg/kg-day. This value is currently under review by an RfD workgroup (USEPA 1990a).

13.2 Carcinogenic Effects

No information on the carcinogenicity of vanadium was located. Three animal studies, however, concluded that vanadium was not carcinogenic. Schroeder and Balassa (1967) administered vanadium to mice in drinking water (5 ppm) from weaning to natural death. Significantly fewer spontaneous tumors were observed. Schroeder et al. (1970) repeated the experiment with rats obtaining similar results. Stoner et al. (1976) investigated the induction of lung adenomas in mice with repeated injections of vanadium over a three-week period (dose level up to 120 mg/kg/mouse). The results were negative.

The USEPA has not assigned a weight-of-evidence classification to vanadium.

13.3 Beneficial Effects

Vanadium deficiencies have been produced in two or more animal species (NAS 1989). This suggests that there may be essential functions for vanadium in animals, and perhaps in humans. On the basis of available information, however, a human requirement cannot be defined (NAS 1989).

13.4 References

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APPENDIX 5

EXPOSURE AND RISK CALCULATIONS

USER'S GUIDE

The following pages provide detailed documentation of the exposure and risk calculations performed at this site. The following information may be helpful for those who wish to review these calculations in detail.

Data Input

Data is provided to the computer in three parts. The first part is a worksheet called "POPSUM." This lists all the exposure scenarios that will be evaluated, grouped by populations. These are already described in Section 3.0 and therefore this worksheet is not repeated here in Appendix 5. This is also where all HIF terms developed in Section 3.0 of this report are entered. The second part is a worksheet named "CTV." This worksheet contains the names of all chemicals of concern, and all available toxicity values. It also contains toxicokinetic parameters (AF_o, ABS and P) needed to evaluate dermal exposures. The third part is a series of exposure point concentration ("EPC") tables that record the concentrations of the chemicals of concern at each location. Since concentrations may change over time, three columns exist for each medium: subchronic (C_s), chronic (C_c) and lifetime (C_e) average values. If a chemical is assumed to remain constant over time, all of these values will be equal. These tables repeat the value already documented in Appendix 2. Output from the EPC worksheets are therefore not repeated here in Appendix 5.

Exposure and Risk Calculations

Exposure and risk calculations are performed in a series of worksheets (called "WS1," "WS2," etc.), grouped by population (POP1, POP2, etc). Each worksheet is specific for a given population, exposure point, exposure medium and exposure route. All these terms are listed at the top of the page, along with the appropriate HIF values (copied from the POPSUM worksheet). Exposure and risk calculations are then presented below, grouped into three separate sections: subchronic, chronic and lifetime. Within each section, the first data column is for the exposure point concentration, copied from the appropriate EPC table. The next column is for the HIF values. Since this does not depend on chemical, the same value appears in all rows of the column. The next column is used for the chemical-specific ABS or P terms needed in dermal-exposure scenarios. Since these terms are not needed except in dermal scenarios, a value of 1 appears in this column for all oral or inhalation scenarios. The next column is the dose, calculated by multiplying the exposure point concentration by the HIF and (for dermal scenarios) either ABS or P. The next column is the appropriate chemical, route and duration-specific CTV term (RfD_s, RfD_c and SF for subchronic, chronic and lifetime exposures, respectively). These are copied from the CTV worksheet mentioned above. The last column in each block is the risk estimate. For subchronic and chronic exposures, this is given by the dose (DI) divided by the RfD, and is termed the Hazard Quotient (HQ). For lifetime exposures, the value is the excess cancer risk, calculated from the equation

$$RISK = 1 - e^{-(DI_1 \cdot SF)}$$

In most cases, this value can be accurately estimated simply as the product of $DI_1 \times SF$.

Summary Sheets

After all exposure scenarios that apply to a given population are evaluated, summary tables are prepared that tabulate the dose and risk estimates. These are copied from the preceding worksheets. The doses are shown in the block on the left, and the risks are shown in the block on the right. In each block, each column represents one exposure scenario. This is identified by the labels heading the column. Finally, risks are summed across chemicals and across pathways. These sums are shown just below the individual columns of risk estimates.

Arrangement of This Appendix

Provided below is an outline of how the exposure and risk summary tables are organized for the populations at this site, along with the page numbers where each section is located. Due to the large number of pathways evaluated at Ormet, these populations were divided into three groups.

- Group 1 contains pathways for current scenarios and the future use of groundwater as a drinking water supply for workers.
- Group 2 contains all the scenarios for future adult residents.
- Group 3 contains all the scenarios for future child residents.

The following provides a location for each worksheet.

LOCATION OF WORKSHEETS

Population Group	Worksheet Description	Range Name	Page
All	CTV and Chemical-Specific Data	CTV	A5-8
Group 1	(POP1) Current Worker Exposure and Risk Calculations		
	• Route 1 (Air)	WS1	A5-10
	- Chronic Summary	CSUM	A5-12
	- Carcinogenic Risk	LSUM	A5-14
	(POP2) Current Resident Adult Exposure and Risk Calculations		
	• Route 1 (Air)	WS1	A5-16
	• Route 2 (Fish)	WS2	A5-18
	- Chronic Summary	CSUM	A5-20
	- Carcinogenic Risk Summary	LSUM	A5-22
	(POP3) Current Resident - Child Exposure and Risk Calculations		
	• Route 1 (Air)	WS1	A5-24
	• Route 2 (Fish)	WS2	A5-26
	- Subchronic Summary	SSUM	A5-28
	(POP4) Current Trespasser - Along Ohio River Exposure and Risk Calculations		
	• Route 1 (Sediment ingestion)	WS1	A5-30
	• Route 2 (Sediment dermal)	WS2	A5-32
	• Route 3 (Surface water ingestion)	WS3	A5-34
	• Route 4 (Surface water dermal)	WS4	A5-36
	- Chronic Summary	CSUM	A5-38
	- Carcinogenic Risk Summary	LSUM	A5-40
	(POP5) Current Trespasser - 004 Backwater Exposure and Risk Calculations		
	• Route 1 (Sediment ingestion)	WS1	A5-42
	• Route 2 (Sediment dermal)	WS2	A5-44
	• Route 3 (Surface water ingestion)	WS3	A5-46
	• Route 4 (Surface water dermal)	WS4	A5-48
	- Chronic Summary	CSUM	A5-50
	- Carcinogenic Risk Summary	LSUM	A5-52
	(POP6) Future Worker - CAC Well Exposure and Risk Calculations		
	• Route 1 (Groundwater)	WS1	A5-54
	- Chronic Summary	CSUM	A5-56
	- Carcinogenic Summary	LSUM	A5-58

continued-

Table - continued

Population Group	Worksheet Description	Range Name	Page
Group 2	(POP1) Resident Adult - Potliner Exposure and Risk Calculations		
	• Route 1 (Oral)	WS1	A5-60
	• Route 2 (Dermal)	WS2	A5-62
	- Chronic Summary	CSUM	A5-64
	- Carcinogenic Summary	LSUM	A5-66
	(POP2) Resident Adult - Carbon Runoff Area Exposure and Risk Calculations		
	• Route 1 (Oral)	WS1	A5-68
	• Route 2 (Dermal)	WS2	A5-70
	- Chronic Summary	CSUM	A5-72
	- Carcinogenic Summary	LSUM	A5-74
	(POP3) Resident Adult - Construction Material Scrap Dump Exposure and Risk Calculations		
	• Route 1 (Oral)	WS1	A5-76
	• Route 2 (Dermal)	WS2	A5-78
	- Chronic Summary	CSUM	A5-80
	- Carcinogenic Summary	LSUM	A5-82
	(POP4) Resident Adult - Ponds 1-4 Exposure and Risk Calculations		
	• Route 1 (Oral)	WS1	A5-84
	• Route 2 (Dermal)	WS2	A5-86
	- Chronic Summary	CSUM	A5-88
	- Carcinogenic Summary	LSUM	A5-90
	(POP5) Resident Adult - Pond 5 Exposure and Risk Calculations		
	• Route 1 (Oral)	WS1	A5-92
	• Route 2 (Dermal)	WS2	A5-94
	- Chronic Summary	CSUM	A5-96
	- Carcinogenic Summary	LSUM	A5-98
	(POP6) Resident Adult - Residence Downwind of Pond 5 (Rec. Area) Exposure and Risk Calculations		
	• Route 1 (Air)	WS1	A5-100
	- Chronic Summary	CSUM	A5-102
	- Carcinogenic Summary	LSUM	A5-104

continued-

Table - continued

Population Group	Worksheet Description	Range Name	Page
Group 2 (contd.)	(POP7) Resident Adult - Ohio River Scenarios		
	Exposure and Risk Calculations		
	• Route 1 (Surface water oral)	WS1	A5-106
	• Route 2 (Surface water dermal)	WS2	A5-108
	• Route 3 (Sediments oral)	WS3	A5-110
	• Route 4 (Sediments dermal)	WS4	A5-112
	• Route 5 (Fish)	WS5	A5-114
	- Chronic Summary	CSUM	A5-116
	- Carcinogenic Summary	LSUM	A5-118
	(POP8) Resident Adult - Groundwater		
	Exposure and Risk Calculations		
	• Route 1 (Oral)	WS1	A5-120
	- Chronic Summary	CSUM	A5-122
	- Carcinogenic Summary	LSUM	A5-124
	(POP9) Resident Adult - 004 Backwater Scenarios		
	Exposure and Risk Calculations		
	• Route 1 (Surface water oral)	WS1	A5-126
	• Route 2 (Surface water dermal)	WS2	A5-128
	• Route 3 (Sediments oral)	WS3	A5-130
	• Route 4 (Sediments dermal)	WS4	A5-132
	- Chronic Summary	CSUM	A5-134
	- Carcinogenic Summary	LSUM	A5-136
Group 3	(POP1) Resident Child - Potliner		
	Exposure and Risk Calculations		
	• Route 1 (Oral)	WS1	A5-138
	• Route 2 (Dermal)	WS2	A5-140
	- Subchronic Summary	SSUM	A5-142
	(POP2) Resident Child - Carbon Runoff Area		
	Exposure and Risk Calculations		
	• Route 1 (Oral)	WS1	A5-144
	• Route 2 (Dermal)	WS2	A5-146
	- Subchronic Summary	SSUM	A5-148
	(POP3) Resident Child Construction Material Scrap Dump		
	Exposure and Risk Calculations		
	• Route 1 (Oral)	WS1	A5-150
	• Route 2 (Dermal)	WS2	A5-152
	- Subchronic Summary	SSUM	A5-154

continued-

Table - continued

Population Group	Worksheet Description	Range Name	Page
Group 3 (contd.)	(POP4) Resident Child - Ponds 1-4 Exposure and Risk Calculations		
	• Route 1 (Oral)	WS1	A5-156
	• Route 2 (Dermal)	WS2	A5-158
	- Subchronic Summary	SSUM	A5-160
	(POP5) Resident Child - Pond 5 Exposure and Risk Calculations		
	• Route 1 (Oral)	WS1	A5-162
	• Route 2 (Dermal)	WS2	A5-164
	- Subchronic Summary	SSUM	A5-166
	(POP6) Resident Child - Residence Downwind of Pond 5 (Rec. Area) Exposure and Risk Calculations		
	• Route 1 (Air)	WS1	A5-168
	- Subchronic Summary	SSUM	A5-170
	(POP7) Resident Child - Ohio River Scenarios Exposure and Risk Calculations		
	• Route 1 (Surface water oral)	WS1	A5-172
	• Route 2 (Surface water dermal)	WS2	A5-174
	• Route 3 (Sediments oral)	WS3	A5-176
	• Route 4 (Sediments dermal)	WS4	A5-178
	• Route 5 (Fish)	WS5	A5-180
	- Subchronic Summary	SSUM	A5-182
	(POP8) Resident Child - Groundwater Exposure and Risk Calculations (Oral)	WS1	A5-184
	- Subchronic Summary	SSUM	A5-186
	(POP9) Resident Child - 004 Backwater Scenarios Exposure and Risk Calculations		
	• Route 1 (Surface water oral)	WS1	A5-188
	• Route 2 (Surface water dermal)	WS2	A5-190
	• Route 3 (Sediments oral)	WS3	A5-192
	• Route 4 (Sediments dermal)	WS4	A5-194
	- Subchronic Summary	SSUM	A5-196

RANGE NAME: CTV

LIST OF CHEMICALS OF CONCERN
WITH CTVs AND OTHER CHEMICAL-SPECIFIC DATA

SITE NAME: ORMET
OPERABLE UNIT: CURRENT/FUTURE
FILE NAME: DATA
LAST UPDATED: 03/13/91

		ORAL				INHALATION			DERMAL(a)				
NO.	CHEMICAL NAME	RfDs	RfDc	SF	AFo	RfDs	RfDc	SF	RfDs	RfDc	SF	ABS	P
1	Acenaphthene	6.0E-01	6.0E-02	NA	NA	NA	NA	NA	NA	NA	NA	1.0E-01	NA
2	Acenaphthylene	4.0E-01	4.0E-01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3	Acetone	1.0E+00	1.0E-01	NA	1.0E+00	NA	NA	NA	1.0E+00	1.0E-01	NA	2.5E-01	NA
4	Aluminum	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
5	Anthracene	3.0E+00	3.0E-01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
6	Antimony	4.0E-04	4.0E-04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7	Aroclor 1242	NA	NA	7.7E+00	1.0E+00	NA	NA	NA	NA	NA	7.7E+00	1.0E-01	NA
8	Aroclor 1248	NA	NA	7.7E+00	1.0E+00	NA	NA	NA	NA	NA	7.7E+00	1.0E-01	NA
9	Aroclor 1254	NA	NA	7.7E+00	1.0E+00	NA	NA	NA	NA	NA	7.7E+00	1.0E-01	NA
10	Arsenic	1.0E-03	1.0E-03	1.8E+00	NA	NA	NA	1.5E+01	NA	NA	NA	NA	NA
11	Barium	5.0E-02	7.0E-02	NA	NA	1.0E-03	1.0E-04	NA	NA	NA	NA	NA	NA
12	Benzene	NA	NA	2.9E-02	1.0E+00	NA	NA	2.9E-02	NA	NA	2.9E-02	2.5E-01	NA
13	Benzo(a)anthra	4.0E-01	4.0E-01	1.2E+01	NA	NA	NA	6.1E+00	NA	NA	NA	NA	NA
14	Benzo(a)pyrene	4.0E-01	4.0E-01	1.2E+01	NA	NA	NA	6.1E+00	NA	NA	NA	NA	NA
15	Benzo(b)fluora	4.0E-01	4.0E-01	1.2E+01	NA	NA	NA	6.1E+00	NA	NA	NA	NA	NA
16	Benzo(g,h,i)pe	4.0E-01	4.0E-01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17	Benzo(k)fluora	4.0E-01	4.0E-01	1.2E+01	NA	NA	NA	6.1E+00	NA	NA	NA	NA	NA
18	Beryllium	5.0E-03	5.0E-03	4.3E+00	NA	NA	NA	8.4E+00	NA	NA	NA	NA	NA
19	BEHP	2.0E-02	2.0E-02	1.4E-02	1.0E+00	NA	NA	NA	2.0E-02	2.0E-02	1.4E-02	1.0E-01	NA
20	2-Butanone	5.0E-01	5.0E-02	NA	1.0E+00	9.0E-01	9.0E-02	NA	5.0E-01	5.0E-02	NA	2.5E-01	NA
21	Cadmium (food)	NA	1.0E-03	NA	NA	NA	NA	6.1E+00	NA	NA	NA	NA	NA
22	Cadmium (water	NA	5.0E-04	NA	NA	NA	NA	6.1E+00	NA	NA	NA	NA	NA
23	Carbon disulfi	1.0E-01	1.0E-01	NA	1.0E+00	NA	1.0E-02	NA	1.0E-01	1.0E-01	NA	2.5E-01	NA
24	Chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
25	Chlorobenzene	2.0E-01	2.0E-02	NA	1.0E+00	5.0E-02	5.0E-03	NA	2.0E-01	2.0E-02	NA	2.5E-01	NA
26	Chloroform	1.0E-02	1.0E-02	6.1E-03	1.0E+00	NA	NA	8.1E-02	1.0E-02	1.0E-02	6.1E-03	2.5E-01	NA
27	Chromium (VI)	2.0E-02	5.0E-03	NA	NA	5.7E-06	5.7E-07	4.1E+01	NA	NA	NA	NA	NA
28	Chrysene	4.0E-01	4.0E-01	1.2E+01	1.0E+00	NA	NA	6.1E+00	4.0E-01	4.0E-01	1.2E+01	NA	NA
29	Cobalt	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30	Copper	3.7E-02	3.7E-02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
31	Cyanide (free)	2.0E-02	2.0E-02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
32	Di-n-butylphth	1.0E+00	1.0E-01	NA	1.0E+00	NA	NA	NA	1.0E+00	1.0E-01	NA	1.0E-01	NA
33	Di-n-octylphth	2.0E-02	2.0E-02	NA	1.0E+00	NA	NA	NA	2.0E-02	2.0E-02	NA	1.0E-01	NA
34	Dibenz(a,h)ant	4.0E-01	4.0E-01	1.2E+01	NA	NA	NA	6.1E+00	NA	NA	NA	NA	NA
35	Dibenzofuran	NA	NA	NA	1.0E+00	NA	NA	NA	NA	NA	NA	1.0E-01	NA
36	2,4-Dimethylph	2.0E-01	2.0E-02	NA	1.0E+00	NA	NA	NA	2.0E-01	2.0E-02	NA	1.0E-01	NA
37	Ethyl benzene	1.0E+00	1.0E-01	NA	1.0E+00	NA	NA	NA	1.0E+00	1.0E-01	NA	2.5E-01	NA
38	Fluoranthene	4.0E-01	4.0E-02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
39	Fluorene	4.0E-01	4.0E-02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
40	Fluoride	6.0E-02	6.0E-02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
41	Indeno(1,2,3-c	4.0E-01	4.0E-01	1.2E+01	NA	NA	NA	6.1E+00	NA	NA	NA	NA	NA
42	Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
43	Lead	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
44	Manganese	1.0E-01	1.0E-01	NA	NA	1.1E-04	1.1E-04	NA	NA	NA	NA	NA	NA
45	Mercury	3.0E-04	3.0E-04	NA	NA	8.6E-05	8.6E-05	NA	NA	NA	NA	NA	NA

46	Methylene chlo	6.0E-02	6.0E-02	7.5E-03	1.0E+00	8.6E-01	8.6E-01	1.6E-03	6.0E-02	6.0E-02	7.5E-03	2.5E-01	NA
47	2-Methylnaphth	4.0E-01	4.0E-01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
48	4-Methylphenol	5.0E-01	5.0E-02	NA	1.0E+00	NA	NA	NA	5.0E-01	5.0E-02	NA	1.0E-01	NA
49	Naphthalene	4.0E-01	4.0E-01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
50	Nickel(dust)	NA	NA	NA	NA	NA	NA	8.4E-01	NA	NA	NA	NA	NA
51	Nickel (salts)	2.0E-02	2.0E-02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
52	Nitrogen, ammo	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
53	Phenanthrene	4.0E-01	4.0E-01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
54	Pyrene	3.0E-01	3.0E-02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
55	Silica	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
56	Silver	3.0E-03	3.0E-03	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
57	Sodium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
58	Sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
59	Styrene	2.0E+00	2.0E-01	3.0E-02	1.0E+00	NA	NA	2.0E-03	2.0E+00	2.0E-01	3.0E-02	2.5E-01	NA
60	1,1,2,2-PCA	NA	NA	2.0E-01	1.0E+00	NA	NA	2.0E-01	NA	NA	2.0E-01	2.5E-01	NA
61	PCE	1.0E-01	1.0E-02	5.1E-02	1.0E+00	NA	NA	1.8E-03	1.0E-01	1.0E-02	5.1E-02	2.5E-01	NA
62	Thallium	7.0E-04	7.0E-05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
63	Toluene	2.0E+00	2.0E-01	NA	1.0E+00	5.7E-01	5.7E-01	NA	2.0E+00	2.0E-01	NA	2.5E-01	NA
64	1,1,1-TCA	9.0E-01	9.0E-02	NA	1.0E+00	3.0E+00	3.0E-01	NA	9.0E-01	9.0E-02	NA	2.5E-01	NA
65	TCE	NA	NA	1.1E-02	1.0E+00	NA	6.0E-03	NA	NA	NA	1.1E-02	2.5E-01	NA
66	Vanadium	7.0E-03	7.0E-03	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

RANGE NAME: WS1

EXPOSURE AND RISK CALCULATION WORKSHEET

LAND USE: CURRENT
POPULATION: WORKER

EXPOSURE POINT: REC. AREA
MEDIUM: AIR (PART)
ROUTE: INH.-PART.

SITE NAME: ORMET
OPERABLE UNIT: CURRENT/FUTURE
FILE NAME: POP1
LAST UPDATED: 03/13/91

HIFs = 0.0E+00
HIFc = 1.2E-01
HIFl = 4.4E-02

		SUBCHRONIC					CHRONIC						LIFETIME					
	CHEMICAL NAME	Cs	HIFs	1	DIs	RfDS	HQs	Cc	HIFc	1	DIc	RfDC	HQc	Cl	HIFl	1	DIl	SF	RISK
1	Acenaphthene		0.0E+00		0.0E+00		ERR	2.0E-08	1.2E-01	1	2.4E-09	NA	NA	2.0E-08	4.4E-02	1	8.8E-10	NA	NA
2	Acenaphthylene							2.1E-08	1.2E-01	1	2.5E-09	NA	NA	2.1E-08	4.4E-02	1	9.2E-10	NA	NA
3	Acetone							0.0E+00	1.2E-01	1	0.0E+00	NA	NA	0.0E+00	4.4E-02	1	0.0E+00	NA	NA
4	Aluminum							1.2E-03	1.2E-01	1	1.4E-04	NA	NA	1.2E-03	4.4E-02	1	5.3E-05	NA	NA
5	Anthracene							7.5E-08	1.2E-01	1	9.0E-09	NA	NA	7.5E-08	4.4E-02	1	3.3E-09	NA	NA
6	Antimony							1.8E-07	1.2E-01	1	2.2E-08	NA	NA	1.8E-07	4.4E-02	1	7.9E-09	NA	NA
7	Aroclor 1242							0.0E+00	1.2E-01	1	0.0E+00	NA	NA	0.0E+00	4.4E-02	1	0.0E+00	NA	NA
8	Aroclor 1248							0.0E+00	1.2E-01	1	0.0E+00	NA	NA	0.0E+00	4.4E-02	1	0.0E+00	NA	NA
9	Aroclor 1254							0.0E+00	1.2E-01	1	0.0E+00	NA	NA	0.0E+00	4.4E-02	1	0.0E+00	NA	NA
10	Arsenic							3.9E-07	1.2E-01	1	4.7E-08	NA	NA	3.9E-07	4.4E-02	1	1.7E-08	1.5E+01	3E-07
11	Barium							2.4E-06	1.2E-01	1	2.9E-07	1.0E-04	3E-03	2.4E-06	4.4E-02	1	1.1E-07	NA	NA
12	Benzene							0.0E+00	1.2E-01	1	0.0E+00	NA	NA	0.0E+00	4.4E-02	1	0.0E+00	2.9E-02	0E+00
13	Benzo(a)anthracene							1.9E-07	1.2E-01	1	2.3E-08	NA	NA	1.9E-07	4.4E-02	1	8.4E-09	6.1E+00	5E-08
14	Benzo(a)pyrene							1.6E-07	1.2E-01	1	1.9E-08	NA	NA	1.6E-07	4.4E-02	1	7.0E-09	6.1E+00	4E-08
15	Benzo(b)fluoranthene							2.1E-07	1.2E-01	1	2.5E-08	NA	NA	2.1E-07	4.4E-02	1	9.2E-09	6.1E+00	6E-08
16	Benzo(g,h,i)perylene							6.2E-08	1.2E-01	1	7.4E-09	NA	NA	6.2E-08	4.4E-02	1	2.7E-09	NA	NA
17	Benzo(k)fluoranthene							1.4E-07	1.2E-01	1	1.7E-08	NA	NA	1.4E-07	4.4E-02	1	6.2E-09	6.1E+00	4E-08
18	Beryllium							1.8E-07	1.2E-01	1	2.2E-08	NA	NA	1.8E-07	4.4E-02	1	7.9E-09	8.4E+00	7E-08
19	BEHP							0.0E+00	1.2E-01	1	0.0E+00	NA	NA	0.0E+00	4.4E-02	1	0.0E+00	NA	NA
20	2-Butanone							0.0E+00	1.2E-01	1	0.0E+00	9.0E-02	0E+00	0.0E+00	4.4E-02	1	0.0E+00	NA	NA
21	Cadmium (food)							0.0E+00	1.2E-01	1	0.0E+00	NA	NA	0.0E+00	4.4E-02	1	0.0E+00	6.1E+00	0E+00
22	Cadmium (water)							0.0E+00	1.2E-01	1	0.0E+00	NA	NA	0.0E+00	4.4E-02	1	0.0E+00	6.1E+00	0E+00
23	Carbon disulfide							0.0E+00	1.2E-01	1	0.0E+00	1.0E-02	0E+00	0.0E+00	4.4E-02	1	0.0E+00	NA	NA
24	Chloride							3.5E-07	1.2E-01	1	4.2E-08	NA	NA	3.5E-07	4.4E-02	1	1.5E-08	NA	NA
25	Chlorobenzene							0.0E+00	1.2E-01	1	0.0E+00	5.0E-03	0E+00	0.0E+00	4.4E-02	1	0.0E+00	NA	NA
26	Chloroform							0.0E+00	1.2E-01	1	0.0E+00	NA	NA	0.0E+00	4.4E-02	1	0.0E+00	8.1E-02	0E+00
27	Chromium (VI)							2.8E-07	1.2E-01	1	3.4E-08	5.7E-07	6E-02	2.8E-07	4.4E-02	1	1.2E-08	4.1E+01	5E-07
28	Chrysene							1.9E-07	1.2E-01	1	2.3E-08	NA	NA	1.9E-07	4.4E-02	1	8.4E-09	6.1E+00	5E-08
29	Cobalt							7.1E-08	1.2E-01	1	8.5E-09	NA	NA	7.1E-08	4.4E-02	1	3.1E-09	NA	NA
30	Copper							2.5E-07	1.2E-01	1	3.0E-08	NA	NA	2.5E-07	4.4E-02	1	1.1E-08	NA	NA
31	Cyanide (free)							2.6E-06	1.2E-01	1	3.1E-07	NA	NA	2.6E-06	4.4E-02	1	1.1E-07	NA	NA
32	Di-n-butylphthalate							4.6E-08	1.2E-01	1	5.5E-09	NA	NA	4.6E-08	4.4E-02	1	2.0E-09	NA	NA
33	Di-n-octylphthalate							0.0E+00	1.2E-01	1	0.0E+00	NA	NA	0.0E+00	4.4E-02	1	0.0E+00	NA	NA
34	Dibenz(a,h)anthracene							1.4E-08	1.2E-01	1	1.7E-09	NA	NA	1.4E-08	4.4E-02	1	6.2E-10	6.1E+00	4E-09
35	Dibenzofuran							2.0E-08	1.2E-01	1	2.4E-09	NA	NA	2.0E-08	4.4E-02	1	8.8E-10	NA	NA
36	2,4-Dimethylphenol							0.0E+00	1.2E-01	1	0.0E+00	NA	NA	0.0E+00	4.4E-02	1	0.0E+00	NA	NA
37	Ethyl benzene							0.0E+00	1.2E-01	1	0.0E+00	NA	NA	0.0E+00	4.4E-02	1	0.0E+00	NA	NA
38	Fluoranthene							2.6E-07	1.2E-01	1	3.1E-08	NA	NA	2.6E-07	4.4E-02	1	1.1E-08	NA	NA
39	Fluorene							2.2E-08	1.2E-01	1	2.6E-09	NA	NA	2.2E-08	4.4E-02	1	9.7E-10	NA	NA

40	Fluoride	3.2E-06	1.2E-01	1	3.8E-07	NA	NA	3.2E-06	4.4E-02	1	1.4E-07	NA	NA
41	Indeno(1,2,3-cd)pyrene	6.4E-08	1.2E-01	1	7.7E-09	NA	NA	6.4E-08	4.4E-02	1	2.8E-09	6.1E+00	2E-08
42	Iron	8.6E-05	1.2E-01	1	1.0E-05	NA	NA	8.6E-05	4.4E-02	1	3.8E-06	NA	NA
43	Lead	3.6E-07	1.2E-01	1	4.3E-08	NA	NA	3.6E-07	4.4E-02	1	1.6E-08	NA	NA
44	Manganese	2.9E-06	1.2E-01	1	3.5E-07	1.1E-04	3E-03	2.9E-06	4.4E-02	1	1.3E-07	NA	NA
45	Mercury	0.0E+00	1.2E-01	1	0.0E+00	8.6E-05	0E+00	0.0E+00	4.4E-02	1	0.0E+00	NA	NA
46	Methylene chloride	0.0E+00	1.2E-01	1	0.0E+00	8.6E-01	0E+00	0.0E+00	4.4E-02	1	0.0E+00	1.6E-03	0E+00
47	2-Methylnaphthalene	4.1E-09	1.2E-01	1	4.9E-10	NA	NA	4.1E-09	4.4E-02	1	1.8E-10	NA	NA
48	4-Methylphenol	0.0E+00	1.2E-01	1	0.0E+00	NA	NA	0.0E+00	4.4E-02	1	0.0E+00	NA	NA
49	Naphthalene	5.5E-09	1.2E-01	1	6.6E-10	NA	NA	5.5E-09	4.4E-02	1	2.4E-10	NA	NA
50	Nickel(dust)	3.9E-07	1.2E-01	1	4.7E-08	NA	NA	3.9E-07	4.4E-02	1	1.7E-08	8.4E-01	1E-08
51	Nickel (salts)	0.0E+00	1.2E-01	1	0.0E+00	NA	NA	0.0E+00	4.4E-02	1	0.0E+00	NA	NA
52	Nitrogen, ammonia	3.4E-07	1.2E-01	1	4.1E-08	NA	NA	3.4E-07	4.4E-02	1	1.5E-08	NA	NA
53	Phenanthrene	2.0E-07	1.2E-01	1	2.4E-08	NA	NA	2.0E-07	4.4E-02	1	8.8E-09	NA	NA
54	Pyrene	2.0E-07	1.2E-01	1	2.4E-08	NA	NA	2.0E-07	4.4E-02	1	8.8E-09	NA	NA
55	Silica	1.4E-07	1.2E-01	1	1.7E-08	NA	NA	1.4E-07	4.4E-02	1	6.2E-09	NA	NA
56	Silver	0.0E+00	1.2E-01	1	0.0E+00	NA	NA	0.0E+00	4.4E-02	1	0.0E+00	NA	NA
57	Sodium	2.6E-04	1.2E-01	1	3.1E-05	NA	NA	2.6E-04	4.4E-02	1	1.1E-05	NA	NA
58	Sulfate	1.8E-06	1.2E-01	1	2.2E-07	NA	NA	1.8E-06	4.4E-02	1	7.9E-08	NA	NA
59	Styrene	0.0E+00	1.2E-01	1	0.0E+00	NA	NA	0.0E+00	4.4E-02	1	0.0E+00	2.0E-03	0E+00
60	1,1,2,2-PCA	0.0E+00	1.2E-01	1	0.0E+00	NA	NA	0.0E+00	4.4E-02	1	0.0E+00	2.0E-01	0E+00
61	PCE	0.0E+00	1.2E-01	1	0.0E+00	NA	NA	0.0E+00	4.4E-02	1	0.0E+00	1.8E-03	0E+00
62	Thallium	7.0E-09	1.2E-01	1	8.4E-10	NA	NA	7.0E-09	4.4E-02	1	3.1E-10	NA	NA
63	Toluene	0.0E+00	1.2E-01	1	0.0E+00	5.7E-01	0E+00	0.0E+00	4.4E-02	1	0.0E+00	NA	NA
64	1,1,1-TCA	0.0E+00	1.2E-01	1	0.0E+00	3.0E-01	0E+00	0.0E+00	4.4E-02	1	0.0E+00	NA	NA
65	TCE	0.0E+00	1.2E-01	1	0.0E+00	6.0E-03	0E+00	0.0E+00	4.4E-02	1	0.0E+00	NA	NA
66	Vanadium	2.8E-07	1.2E-01	1	3.4E-08	NA	NA	2.8E-07	4.4E-02	1	1.2E-08	NA	NA

RANGE NAME: CSUM

SITE NAME: ORMET
OPERABLE UNIT: CURRENT/FUTURE
FILE NAME: POP1
LAST UPDATED: 03/13/91

CHRONIC EXPOSURE SUMMARY

CURRENT
WORKER

CHRONIC DAILY INTAKE (mg/kg/day)

	CHEMICAL NAME	SCENARIO 1 (FROM WS1)	SCENARIO 2 (FROM WS2)	SCENARIO 3 (FROM WS3)	SCENARIO 4 (FROM WS4)	SCENARIO 5 (FROM WS5)	SCENARIO 6 (FROM WS6)
	REC. AREA	0	0	0	0	0	0
	AIR (PART)	0	0	0	0	0	0
	INH.-PART.	0	0	0	0	0	0
1	Acenaphthene	2.4E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
2	Acenaphthylene	2.5E-09					
3	Acetone	0.0E+00					
4	Aluminum	1.4E-04					
5	Anthracene	9.0E-09					
6	Antimony	2.2E-08					
7	Aroclor 1242	0.0E+00					
8	Aroclor 1248	0.0E+00					
9	Aroclor 1254	0.0E+00					
10	Arsenic	4.7E-08					
11	Barium	2.9E-07					
12	Benzene	0.0E+00					
13	Benzo(a)anthra	2.3E-08					
14	Benzo(a)pyrene	1.9E-08					
15	Benzo(b)fluora	2.5E-08					
16	Benzo(g,h,i)pe	7.4E-09					
17	Benzo(k)fluora	1.7E-08					
18	Beryllium	2.2E-08					
19	BEHP	0.0E+00					
20	2-Butanone	0.0E+00					
21	Cadmium (food)	0.0E+00					
22	Cadmium (water	0.0E+00					
23	Carbon disulfi	0.0E+00					
24	Chloride	4.2E-08					
25	Chlorobenzene	0.0E+00					
26	Chloroform	0.0E+00					
27	Chromium (VI)	3.4E-08					
28	Chrysene	2.3E-08					
29	Cobalt	8.5E-09					
30	Copper	3.0E-08					
31	Cyanide (free)	3.1E-07					
32	Di-n-butylphth	5.5E-09					
33	Di-n-octylphth	0.0E+00					
34	Dibenz(a,h)ant	1.7E-09					
35	Dibenzofuran	2.4E-09					
36	2,4-Dimethylph	0.0E+00					
37	Ethyl benzene	0.0E+00					
38	Fluoranthene	3.1E-08					
39	Fluorene	2.6E-09					
40	Fluoride	3.8E-07					
41	Indeno(1,2,3-c	7.7E-09					
42	Iron	1.0E-05					

CHRONIC RISK SUMMARY

CURRENT
WORKER

CHRONIC HAZARD QUOTIENT

SCENARIO 1 (FROM WS1)	SCENARIO 2 (FROM WS2)	SCENARIO 3 (FROM WS3)	SCENARIO 4 (FROM WS4)	SCENARIO 5 (FROM WS5)	SCENARIO 6 (FROM WS6)
REC. AREA 0	0	0	0	0	0
AIR (PART) 0	0	0	0	0	0
INH.-PART. 0	0	0	0	0	0
NA	0E+00	0E+00	0E+00	0E+00	0E+00
NA					
NA					
NA					
NA					
NA					
NA					
NA					
NA					
NA					
3E-03					
NA					
NA					
NA					
NA					
NA					
NA					
NA					
NA					
0E+00					
NA					
NA					
0E+00					
NA					
0E+00					
NA					
6E-02					
NA					
NA					
NA					
NA					
NA					
NA					
NA					
NA					
NA					
NA					
NA					
NA					
NA					
NA					
NA					
NA					
NA					

43	Lead	4.3E-08			NA				
44	Manganese	3.5E-07			3E-03				
45	Mercury	0.0E+00			0E+00				
46	Methylene chlo	0.0E+00			0E+00				
47	2-Methylnaphth	4.9E-10			NA				
48	4-Methylphenol	0.0E+00			NA				
49	Naphthalene	6.6E-10			NA				
50	Nickel(dust)	4.7E-08			NA				
51	Nickel (salts)	0.0E+00			NA				
52	Nitrogen, ammo	4.1E-08			NA				
53	Phenanthrene	2.4E-08			NA				
54	Pyrene	2.4E-08			NA				
55	Silica	1.7E-08			NA				
56	Silver	0.0E+00			NA				
57	Sodium	3.1E-05			NA				
58	Sulfate	2.2E-07			NA				
59	Styrene	0.0E+00			NA				
60	1,1,2,2-PCA	0.0E+00			NA				
61	PCE	0.0E+00			NA				
62	Thallium	8.4E-10			NA				
63	Toluene	0.0E+00			0E+00				
64	1,1,1-TCA	0.0E+00			0E+00				
65	TCE	0.0E+00			0E+00				
66	Vanadium	3.4E-08			NA				
	PATHWAY SUM (HI)		7E-02	0E+00	0E+00	0E+00	0E+00	0E+00	
	POPULATION TOTAL		7E-02						

RANGE NAME: LSUM

SITE NAME: ORMET
OPERABLE UNIT: CURRENT/FUTURE
FILE NAME: POP1
LAST UPDATED: 03/13/91

LIFETIME EXPOSURE SUMMARY

CURRENT
WORKER

LIFETIME AVERAGE DAILY INTAKE (mg/kg/day)

		SCENARIO 1	SCENARIO 2	SCENARIO 3	SCENARIO 4	SCENARIO 5	SCENARIO 6
		REC. AREA	0	0	0	0	0
		AIR (PART)	0	0	0	0	0
		INH.-PART.	0	0	0	0	0
	CHEMICAL NAME	(FROM WS1)	(FROM WS2)	(FROM WS3)	(FROM WS4)	(FROM WS5)	(FROM WS6)
1	Acenaphthene	8.8E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
2	Acenaphthylene	9.2E-10					
3	Acetone	0.0E+00					
4	Aluminum	5.3E-05					
5	Anthracene	3.3E-09					
6	Antimony	7.9E-09					
7	Aroclor 1242	0.0E+00					
8	Aroclor 1248	0.0E+00					
9	Aroclor 1254	0.0E+00					
10	Arsenic	1.7E-08					
11	Barium	1.1E-07					
12	Benzene	0.0E+00					
13	Benzo(a)anthra	8.4E-09					
14	Benzo(a)pyrene	7.0E-09					
15	Benzo(b)fluora	9.2E-09					
16	Benzo(g,h,i)pe	2.7E-09					
17	Benzo(k)fluora	6.2E-09					
18	Beryllium	7.9E-09					
19	BEHP	0.0E+00					
20	2-Butanone	0.0E+00					
21	Cadmium (food)	0.0E+00					
22	Cadmium (water	0.0E+00					
23	Carbon disulfi	0.0E+00					
24	Chloride	1.5E-08					
25	Chlorobenzene	0.0E+00					
26	Chloroform	0.0E+00					
27	Chromium (VI)	1.2E-08					
28	Chrysene	8.4E-09					
29	Cobalt	3.1E-09					
30	Copper	1.1E-08					
31	Cyanide (free)	1.1E-07					
32	Di-n-butylphth	2.0E-09					
33	Di-n-octylphth	0.0E+00					
34	Dibenz(a,h)ant	6.2E-10					
35	Dibenzofuran	8.8E-10					
36	2,4-Dimethylph	0.0E+00					
37	Ethyl benzene	0.0E+00					
38	Fluoranthene	1.1E-08					
39	Fluorene	9.7E-10					
40	Fluoride	1.4E-07					
41	Indeno(1,2,3-c	2.8E-09					
42	Iron	3.8E-06					

LIFETIME RISK SUMMARY

CURRENT
WORKER

LIFETIME EXCESS CANCER RISK

SCENARIO 1	SCENARIO 2	SCENARIO 3	SCENARIO 4	SCENARIO 5	SCENARIO 6
REC. AREA	0	0	0	0	0
AIR (PART)	0	0	0	0	0
INH.-PART.	0	0	0	0	0
(FROM WS1)	(FROM WS2)	(FROM WS3)	(FROM WS4)	(FROM WS5)	(FROM WS6)
NA	0E+00	0E+00	0E+00	0E+00	0E+00
NA					
NA					
NA					
NA					
NA					
NA					
NA					
NA					
3E-07					
NA					
0E+00					
5E-08					
4E-08					
6E-08					
NA					
4E-08					
7E-08					
NA					
NA					
0E+00					
0E+00					
NA					
NA					
NA					
0E+00					
5E-07					
5E-08					
NA					
NA					
NA					
NA					
NA					
4E-09					
NA					
NA					
NA					
NA					
NA					
NA					
2E-08					
NA					

43	Lead	1.6E-08			NA			
44	Manganese	1.3E-07			NA			
45	Mercury	0.0E+00			NA			
46	Methylene chlo	0.0E+00			0E+00			
47	2-Methylnaphth	1.8E-10			NA			
48	4-Methylphenol	0.0E+00			NA			
49	Naphthalene	2.4E-10			NA			
50	Nickel(dust)	1.7E-08			1E-08			
51	Nickel (salts)	0.0E+00			NA			
52	Nitrogen, ammo	1.5E-08			NA			
53	Phenanthrene	8.8E-09			NA			
54	Pyrene	8.8E-09			NA			
55	Silica	6.2E-09			NA			
56	Silver	0.0E+00			NA			
57	Sodium	1.1E-05			NA			
58	Sulfate	7.9E-08			NA			
59	Styrene	0.0E+00			0E+00			
60	1,1,2,2-PCA	0.0E+00			0E+00			
61	PCE	0.0E+00			0E+00			
62	Thallium	3.1E-10			NA			
63	Toluene	0.0E+00			NA			
64	1,1,1-TCA	0.0E+00			NA			
65	TCE	0.0E+00			NA			
66	Vanadium	1.2E-08			NA			
	TOTAL PATHWAY CANCER RISK		1E-06	0E+00	0E+00	0E+00	0E+00	0E+00
	POPULATION TOTAL EXCESS RISK		1E-06					

RANGE NAME: WS1

SITE NAME: ORMET
OPERABLE UNIT: CURRENT/FUTURE
FILE NAME: POP2
LAST UPDATED: 03/13/91

EXPOSURE AND RISK CALCULATION WORKSHEET

LAND USE: CURRENT
POPULATION: RES. ADULT

EXPOSURE POINT: PROCTOR
MEDIUM: AIR (PART)
ROUTE: INH.-PART.

HIFs = 0.0E+00
HIFc = 2.7E-01
HIFl = 2.7E-01

		SUBCHRONIC					CHRONIC						LIFETIME					
	CHEMICAL NAME	Cs	HIFs	1	DIs	RfDS	HQs	Cc	HIFc	1	DIc	RfDC	HQc	Cl	HIFl	1	DIl	SF	RISK
1	Acenaphthene		0.0E+00		0.0E+00		ERR	8.9E-09	2.7E-01	1	2.4E-09	NA	NA	8.9E-09	2.7E-01	1	2.4E-09	NA	NA
2	Acenaphthylene							9.3E-09	2.7E-01	1	2.5E-09	NA	NA	9.3E-09	2.7E-01	1	2.5E-09	NA	NA
3	Acetone							0.0E+00	2.7E-01	1	0.0E+00	NA	NA	0.0E+00	2.7E-01	1	0.0E+00	NA	NA
4	Aluminum							5.3E-04	2.7E-01	1	1.4E-04	NA	NA	5.3E-04	2.7E-01	1	1.4E-04	NA	NA
5	Anthracene							3.4E-08	2.7E-01	1	9.2E-09	NA	NA	3.4E-08	2.7E-01	1	9.2E-09	NA	NA
6	Antimony							8.1E-08	2.7E-01	1	2.2E-08	NA	NA	8.1E-08	2.7E-01	1	2.2E-08	NA	NA
7	Aroclor 1242							0.0E+00	2.7E-01	1	0.0E+00	NA	NA	0.0E+00	2.7E-01	1	0.0E+00	NA	NA
8	Aroclor 1248							0.0E+00	2.7E-01	1	0.0E+00	NA	NA	0.0E+00	2.7E-01	1	0.0E+00	NA	NA
9	Aroclor 1254							0.0E+00	2.7E-01	1	0.0E+00	NA	NA	0.0E+00	2.7E-01	1	0.0E+00	NA	NA
10	Arsenic							1.8E-07	2.7E-01	1	4.9E-08	NA	NA	1.8E-07	2.7E-01	1	4.9E-08	1.5E+01	7E-07
11	Barium							1.1E-06	2.7E-01	1	3.0E-07	1.0E-04	3E-03	1.1E-06	2.7E-01	1	3.0E-07	NA	NA
12	Benzene							0.0E+00	2.7E-01	1	0.0E+00	NA	NA	0.0E+00	2.7E-01	1	0.0E+00	2.9E-02	0E+00
13	Benzo(a)anthracene							8.3E-08	2.7E-01	1	2.2E-08	NA	NA	8.3E-08	2.7E-01	1	2.2E-08	6.1E+00	1E-07
14	Benzo(a)pyrene							7.0E-08	2.7E-01	1	1.9E-08	NA	NA	7.0E-08	2.7E-01	1	1.9E-08	6.1E+00	1E-07
15	Benzo(b)fluoranthene							9.2E-08	2.7E-01	1	2.5E-08	NA	NA	9.2E-08	2.7E-01	1	2.5E-08	6.1E+00	2E-07
16	Benzo(g,h,i)perylene							2.8E-08	2.7E-01	1	7.6E-09	NA	NA	2.8E-08	2.7E-01	1	7.6E-09	NA	NA
17	Benzo(k)fluoranthene							6.3E-08	2.7E-01	1	1.7E-08	NA	NA	6.3E-08	2.7E-01	1	1.7E-08	6.1E+00	1E-07
18	Beryllium							7.9E-08	2.7E-01	1	2.1E-08	NA	NA	7.9E-08	2.7E-01	1	2.1E-08	8.4E+00	2E-07
19	BEHP							0.0E+00	2.7E-01	1	0.0E+00	NA	NA	0.0E+00	2.7E-01	1	0.0E+00	NA	NA
20	2-Butanone							0.0E+00	2.7E-01	1	0.0E+00	9.0E-02	0E+00	0.0E+00	2.7E-01	1	0.0E+00	NA	NA
21	Cadmium (food)							0.0E+00	2.7E-01	1	0.0E+00	NA	NA	0.0E+00	2.7E-01	1	0.0E+00	6.1E+00	0E+00
22	Cadmium (water)							0.0E+00	2.7E-01	1	0.0E+00	NA	NA	0.0E+00	2.7E-01	1	0.0E+00	6.1E+00	0E+00
23	Carbon disulfide							0.0E+00	2.7E-01	1	0.0E+00	1.0E-02	0E+00	0.0E+00	2.7E-01	1	0.0E+00	NA	NA
24	Chloride							1.6E-07	2.7E-01	1	4.3E-08	NA	NA	1.6E-07	2.7E-01	1	4.3E-08	NA	NA
25	Chlorobenzene							0.0E+00	2.7E-01	1	0.0E+00	5.0E-03	0E+00	0.0E+00	2.7E-01	1	0.0E+00	NA	NA
26	Chloroform							0.0E+00	2.7E-01	1	0.0E+00	NA	NA	0.0E+00	2.7E-01	1	0.0E+00	8.1E-02	0E+00
27	Chromium (VI)							1.2E-07	2.7E-01	1	3.2E-08	5.7E-07	6E-02	1.2E-07	2.7E-01	1	3.2E-08	4.1E+01	1E-06
28	Chrysene							8.3E-08	2.7E-01	1	2.2E-08	NA	NA	8.3E-08	2.7E-01	1	2.2E-08	6.1E+00	1E-07
29	Cobalt							3.2E-08	2.7E-01	1	8.6E-09	NA	NA	3.2E-08	2.7E-01	1	8.6E-09	NA	NA
30	Copper							1.1E-07	2.7E-01	1	3.0E-08	NA	NA	1.1E-07	2.7E-01	1	3.0E-08	NA	NA
31	Cyanide (free)							1.1E-06	2.7E-01	1	3.0E-07	NA	NA	1.1E-06	2.7E-01	1	3.0E-07	NA	NA
32	Di-n-butylphthalate							2.1E-08	2.7E-01	1	5.7E-09	NA	NA	2.1E-08	2.7E-01	1	5.7E-09	NA	NA
33	Di-n-octylphthalate							0.0E+00	2.7E-01	1	0.0E+00	NA	NA	0.0E+00	2.7E-01	1	0.0E+00	NA	NA
34	Dibenz(a,h)anthracene							6.3E-09	2.7E-01	1	1.7E-09	NA	NA	6.3E-09	2.7E-01	1	1.7E-09	6.1E+00	1E-08
35	Dibenzofuran							9.0E-09	2.7E-01	1	2.4E-09	NA	NA	9.0E-09	2.7E-01	1	2.4E-09	NA	NA
36	2,4-Dimethylphenol							0.0E+00	2.7E-01	1	0.0E+00	NA	NA	0.0E+00	2.7E-01	1	0.0E+00	NA	NA
37	Ethyl benzene							0.0E+00	2.7E-01	1	0.0E+00	NA	NA	0.0E+00	2.7E-01	1	0.0E+00	NA	NA
38	Fluoranthene							1.2E-07	2.7E-01	1	3.2E-08	NA	NA	1.2E-07	2.7E-01	1	3.2E-08	NA	NA
39	Fluorene							9.9E-09	2.7E-01	1	2.7E-09	NA	NA	9.9E-09	2.7E-01	1	2.7E-09	NA	NA

40	Fluoride	1.4E-06	2.7E-01	1	3.8E-07	NA	NA	1.4E-06	2.7E-01	1	3.8E-07	NA	NA
41	Indeno(1,2,3-cd)pyrene	2.9E-08	2.7E-01	1	7.8E-09	NA	NA	2.9E-08	2.7E-01	1	7.8E-09	6.1E+00	5E-08
42	Iron	3.8E-05	2.7E-01	1	1.0E-05	NA	NA	3.8E-05	2.7E-01	1	1.0E-05	NA	NA
43	Lead	1.6E-07	2.7E-01	1	4.3E-08	NA	NA	1.6E-07	2.7E-01	1	4.3E-08	NA	NA
44	Manganese	1.3E-06	2.7E-01	1	3.5E-07	1.1E-04	3E-03	1.3E-06	2.7E-01	1	3.5E-07	NA	NA
45	Mercury	0.0E+00	2.7E-01	1	0.0E+00	8.6E-05	0E+00	0.0E+00	2.7E-01	1	0.0E+00	NA	NA
46	Methylene chloride	0.0E+00	2.7E-01	1	0.0E+00	8.6E-01	0E+00	0.0E+00	2.7E-01	1	0.0E+00	1.6E-03	0E+00
47	2-Methylnaphthalene	1.8E-09	2.7E-01	1	4.9E-10	NA	NA	1.8E-09	2.7E-01	1	4.9E-10	NA	NA
48	4-Methylphenol	0.0E+00	2.7E-01	1	0.0E+00	NA	NA	0.0E+00	2.7E-01	1	0.0E+00	NA	NA
49	Naphthalene	2.5E-09	2.7E-01	1	6.8E-10	NA	NA	2.5E-09	2.7E-01	1	6.8E-10	NA	NA
50	Nickel(dust)	1.7E-07	2.7E-01	1	4.6E-08	NA	NA	1.7E-07	2.7E-01	1	4.6E-08	8.4E-01	4E-08
51	Nickel (salts)	0.0E+00	2.7E-01	1	0.0E+00	NA	NA	0.0E+00	2.7E-01	1	0.0E+00	NA	NA
52	Nitrogen, ammonia	1.5E-07	2.7E-01	1	4.1E-08	NA	NA	1.5E-07	2.7E-01	1	4.1E-08	NA	NA
53	Phenanthrene	9.1E-08	2.7E-01	1	2.5E-08	NA	NA	9.1E-08	2.7E-01	1	2.5E-08	NA	NA
54	Pyrene	9.0E-08	2.7E-01	1	2.4E-08	NA	NA	9.0E-08	2.7E-01	1	2.4E-08	NA	NA
55	Silica	6.5E-08	2.7E-01	1	1.8E-08	NA	NA	6.5E-08	2.7E-01	1	1.8E-08	NA	NA
56	Silver	0.0E+00	2.7E-01	1	0.0E+00	NA	NA	0.0E+00	2.7E-01	1	0.0E+00	NA	NA
57	Sodium	1.2E-04	2.7E-01	1	3.2E-05	NA	NA	1.2E-04	2.7E-01	1	3.2E-05	NA	NA
58	Sulfate	8.0E-07	2.7E-01	1	2.2E-07	NA	NA	8.0E-07	2.7E-01	1	2.2E-07	NA	NA
59	Styrene	0.0E+00	2.7E-01	1	0.0E+00	NA	NA	0.0E+00	2.7E-01	1	0.0E+00	2.0E-03	0E+00
60	1,1,2,2-PCA	0.0E+00	2.7E-01	1	0.0E+00	NA	NA	0.0E+00	2.7E-01	1	0.0E+00	2.0E-01	0E+00
61	PCE	0.0E+00	2.7E-01	1	0.0E+00	NA	NA	0.0E+00	2.7E-01	1	0.0E+00	1.8E-03	0E+00
62	Thallium	3.2E-09	2.7E-01	1	8.6E-10	NA	NA	3.2E-09	2.7E-01	1	8.6E-10	NA	NA
63	Toluene	0.0E+00	2.7E-01	1	0.0E+00	5.7E-01	0E+00	0.0E+00	2.7E-01	1	0.0E+00	NA	NA
64	1,1,1-TCA	0.0E+00	2.7E-01	1	0.0E+00	3.0E-01	0E+00	0.0E+00	2.7E-01	1	0.0E+00	NA	NA
65	TCE	0.0E+00	2.7E-01	1	0.0E+00	6.0E-03	0E+00	0.0E+00	2.7E-01	1	0.0E+00	NA	NA
66	Vanadium	1.3E-07	2.7E-01	1	3.5E-08	NA	NA	1.3E-07	2.7E-01	1	3.5E-08	NA	NA

RANGE NAME: WS2

EXPOSURE AND RISK CALCULATION WORKSHEET

LAND USE: CURRENT
POPULATION: RES. ADULT

EXPOSURE POINT: OHIO RIV.
MEDIUM: FISH
ROUTE: ORAL

SITE NAME: ORMET
OPERABLE UNIT: CURRENT/FUTURE
FILE NAME: POP2
LAST UPDATED: 03/13/91

HIFs = 0.0E+00
HIFc = 3.7E-04
HIFl = 3.7E-04

		SUBCHRONIC					CHRONIC						LIFETIME					
	CHEMICAL NAME	Cs	HIFs	1	DIs	RfDS	HQs	Cc	HIFc	1	DIc	RfDC	HQc	Cl	HIFl	1	DIl	SF	RISK
1	Acenaphthene		0.0E+00		0.0E+00		ERR	0.0E+00	3.7E-04	1	0.0E+00	6.0E-02	0E+00	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
2	Acenaphthylene							0.0E+00	3.7E-04	1	0.0E+00	4.0E-01	0E+00	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
3	Acetone							0.0E+00	3.7E-04	1	0.0E+00	1.0E-01	0E+00	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
4	Aluminum							0.0E+00	3.7E-04	1	0.0E+00	NA	NA	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
5	Anthracene							0.0E+00	3.7E-04	1	0.0E+00	3.0E-01	0E+00	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
6	Antimony							5.0E-02	3.7E-04	1	1.9E-05	4.0E-04	5E-02	5.0E-02	3.7E-04	1	1.9E-05	NA	NA
7	Aroclor 1242							1.2E+02	3.7E-04	1	4.4E-02	NA	NA	1.2E+02	3.7E-04	1	4.4E-02	7.7E+00	3E-01
8	Aroclor 1248							0.0E+00	3.7E-04	1	0.0E+00	NA	NA	0.0E+00	3.7E-04	1	0.0E+00	7.7E+00	0E+00
9	Aroclor 1254							0.0E+00	3.7E-04	1	0.0E+00	NA	NA	0.0E+00	3.7E-04	1	0.0E+00	7.7E+00	0E+00
10	Arsenic							2.6E-01	3.7E-04	1	9.6E-05	1.0E-03	1.0E-0	2.6E-01	3.7E-04	1	9.6E-05	1.8E+00	2E-04
11	Barium							0.0E+00	3.7E-04	1	0.0E+00	7.0E-02	0E+00	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
12	Benzene							0.0E+00	3.7E-04	1	0.0E+00	NA	NA	0.0E+00	3.7E-04	1	0.0E+00	2.9E-02	0E+00
13	Benzo(a)anthracene							0.0E+00	3.7E-04	1	0.0E+00	4.0E-01	0E+00	0.0E+00	3.7E-04	1	0.0E+00	1.2E+01	0E+00
14	Benzo(a)pyrene							0.0E+00	3.7E-04	1	0.0E+00	4.0E-01	0E+00	0.0E+00	3.7E-04	1	0.0E+00	1.2E+01	0E+00
15	Benzo(b)fluoranthene							0.0E+00	3.7E-04	1	0.0E+00	4.0E-01	0E+00	0.0E+00	3.7E-04	1	0.0E+00	1.2E+01	0E+00
16	Benzo(g,h,i)perylene							0.0E+00	3.7E-04	1	0.0E+00	4.0E-01	0E+00	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
17	Benzo(k)fluoranthene							0.0E+00	3.7E-04	1	0.0E+00	4.0E-01	0E+00	0.0E+00	3.7E-04	1	0.0E+00	1.2E+01	0E+00
18	Beryllium							0.0E+00	3.7E-04	1	0.0E+00	5.0E-03	0E+00	0.0E+00	3.7E-04	1	0.0E+00	4.3E+00	0E+00
19	BEHP							0.0E+00	3.7E-04	1	0.0E+00	2.0E-02	0E+00	0.0E+00	3.7E-04	1	0.0E+00	1.4E-02	0E+00
20	2-Butanone							0.0E+00	3.7E-04	1	0.0E+00	5.0E-02	0E+00	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
21	Cadmium (food)							1.9E-01	3.7E-04	1	7.0E-05	1.0E-03	7E-02	1.9E-01	3.7E-04	1	7.0E-05	NA	NA
22	Cadmium (water)							0.0E+00	3.7E-04	1	0.0E+00	5.0E-04	0E+00	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
23	Carbon disulfide							0.0E+00	3.7E-04	1	0.0E+00	1.0E-01	0E+00	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
24	Chloride							0.0E+00	3.7E-04	1	0.0E+00	NA	NA	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
25	Chlorobenzene							0.0E+00	3.7E-04	1	0.0E+00	2.0E-02	0E+00	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
26	Chloroform							0.0E+00	3.7E-04	1	0.0E+00	1.0E-02	0E+00	0.0E+00	3.7E-04	1	0.0E+00	6.1E-03	0E+00
27	Chromium (VI)							2.2E-01	3.7E-04	1	8.1E-05	5.0E-03	2E-02	2.2E-01	3.7E-04	1	8.1E-05	NA	NA
28	Chrysene							0.0E+00	3.7E-04	1	0.0E+00	4.0E-01	0E+00	0.0E+00	3.7E-04	1	0.0E+00	1.2E+01	0E+00
29	Cobalt							0.0E+00	3.7E-04	1	0.0E+00	NA	NA	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
30	Copper							4.2E+00	3.7E-04	1	1.6E-03	3.7E-02	4E-02	4.2E+00	3.7E-04	1	1.6E-03	NA	NA
31	Cyanide (free)							0.0E+00	3.7E-04	1	0.0E+00	2.0E-02	0E+00	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
32	Di-n-butylphthalate							0.0E+00	3.7E-04	1	0.0E+00	1.0E-01	0E+00	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
33	Di-n-octylphthalate							0.0E+00	3.7E-04	1	0.0E+00	2.0E-02	0E+00	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
34	Dibenz(a,h)anthracene							0.0E+00	3.7E-04	1	0.0E+00	4.0E-01	0E+00	0.0E+00	3.7E-04	1	0.0E+00	1.2E+01	0E+00
35	Dibenzofuran							0.0E+00	3.7E-04	1	0.0E+00	NA	NA	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
36	2,4-Dimethylphenol							0.0E+00	3.7E-04	1	0.0E+00	2.0E-02	0E+00	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
37	Ethyl benzene							0.0E+00	3.7E-04	1	0.0E+00	1.0E-01	0E+00	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
38	Fluoranthene							0.0E+00	3.7E-04	1	0.0E+00	4.0E-02	0E+00	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
39	Fluorene							0.0E+00	3.7E-04	1	0.0E+00	4.0E-02	0E+00	0.0E+00	3.7E-04	1	0.0E+00	NA	NA

40	Fluoride	0.0E+00	3.7E-04	1	0.0E+00	6.0E-02	0E+00	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
41	Indeno(1,2,3-cd)pyrene	0.0E+00	3.7E-04	1	0.0E+00	4.0E-01	0E+00	0.0E+00	3.7E-04	1	0.0E+00	1.2E+01	0E+00
42	Iron	0.0E+00	3.7E-04	1	0.0E+00	NA	NA	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
43	Lead	5.6E-01	3.7E-04	1	2.1E-04	NA	NA	5.6E-01	3.7E-04	1	2.1E-04	NA	NA
44	Manganese	0.0E+00	3.7E-04	1	0.0E+00	1.0E-01	0E+00	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
45	Mercury	0.0E+00	3.7E-04	1	0.0E+00	3.0E-04	0E+00	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
46	Methylene chloride	1.3E-02	3.7E-04	1	4.8E-06	6.0E-02	8E-05	1.3E-02	3.7E-04	1	4.8E-06	7.5E-03	4E-08
47	2-Methylnaphthalene	0.0E+00	3.7E-04	1	0.0E+00	4.0E-01	0E+00	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
48	4-Methylphenol	0.0E+00	3.7E-04	1	0.0E+00	5.0E-02	0E+00	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
49	Naphthalene	0.0E+00	3.7E-04	1	0.0E+00	4.0E-01	0E+00	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
50	Nickel(dust)	0.0E+00	3.7E-04	1	0.0E+00	NA	NA	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
51	Nickel (salts)	7.5E-01	3.7E-04	1	2.8E-04	2.0E-02	1E-02	7.5E-01	3.7E-04	1	2.8E-04	NA	NA
52	Nitrogen, ammonia	0.0E+00	3.7E-04	1	0.0E+00	NA	NA	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
53	Phenanthrene	0.0E+00	3.7E-04	1	0.0E+00	4.0E-01	0E+00	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
54	Pyrene	0.0E+00	3.7E-04	1	0.0E+00	3.0E-02	0E+00	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
55	Silica	0.0E+00	3.7E-04	1	0.0E+00	NA	NA	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
56	Silver	0.0E+00	3.7E-04	1	0.0E+00	3.0E-03	0E+00	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
57	Sodium	0.0E+00	3.7E-04	1	0.0E+00	NA	NA	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
58	Sulfate	0.0E+00	3.7E-04	1	0.0E+00	NA	NA	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
59	Styrene	0.0E+00	3.7E-04	1	0.0E+00	2.0E-01	0E+00	0.0E+00	3.7E-04	1	0.0E+00	3.0E-02	0E+00
60	1,1,2,2-PCA	0.0E+00	3.7E-04	1	0.0E+00	NA	NA	0.0E+00	3.7E-04	1	0.0E+00	2.0E-01	0E+00
61	PCE	0.0E+00	3.7E-04	1	0.0E+00	1.0E-02	0E+00	0.0E+00	3.7E-04	1	0.0E+00	5.1E-02	0E+00
62	Thallium	0.0E+00	3.7E-04	1	0.0E+00	7.0E-05	0E+00	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
63	Toluene	0.0E+00	3.7E-04	1	0.0E+00	2.0E-01	0E+00	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
64	1,1,1-TCA	0.0E+00	3.7E-04	1	0.0E+00	9.0E-02	0E+00	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
65	TCE	0.0E+00	3.7E-04	1	0.0E+00	NA	NA	0.0E+00	3.7E-04	1	0.0E+00	1.1E-02	0E+00
66	Vanadium	0.0E+00	3.7E-04	1	0.0E+00	7.0E-03	0E+00	0.0E+00	3.7E-04	1	0.0E+00	NA	NA

RANGE NAME: CSUM

SITE NAME: ORMET
OPERABLE UNIT: CURRENT/FUTURE
FILE NAME: POP2
LAST UPDATED: 03/13/91

CHRONIC EXPOSURE SUMMARY

CURRENT
RES. ADULT

CHRONIC DAILY INTAKE (mg/kg/day)

	CHEMICAL NAME	SCENARIO 1 PROCTOR AIR (PART) INH.-PART. (FROM WS1)	SCENARIO 2 OHIO RIV. FISH ORAL (FROM WS2)	SCENARIO 3 0 0 0 (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
1	Acenaphthene	2.4E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
2	Acenaphthylene	2.5E-09	0.0E+00				
3	Acetone	0.0E+00	0.0E+00				
4	Aluminum	1.4E-04	0.0E+00				
5	Anthracene	9.2E-09	0.0E+00				
6	Antimony	2.2E-08	1.9E-05				
7	Aroclor 1242	0.0E+00	4.4E-02				
8	Aroclor 1248	0.0E+00	0.0E+00				
9	Aroclor 1254	0.0E+00	0.0E+00				
10	Arsenic	4.9E-08	9.6E-05				
11	Barium	3.0E-07	0.0E+00				
12	Benzene	0.0E+00	0.0E+00				
13	Benzo(a)anthra	2.2E-08	0.0E+00				
14	Benzo(a)pyrene	1.9E-08	0.0E+00				
15	Benzo(b)fluora	2.5E-08	0.0E+00				
16	Benzo(g,h,i)pe	7.6E-09	0.0E+00				
17	Benzo(k)fluora	1.7E-08	0.0E+00				
18	Beryllium	2.1E-08	0.0E+00				
19	BEHP	0.0E+00	0.0E+00				
20	2-Butanone	0.0E+00	0.0E+00				
21	Cadmium (food)	0.0E+00	7.0E-05				
22	Cadmium (water	0.0E+00	0.0E+00				
23	Carbon disulfi	0.0E+00	0.0E+00				
24	Chloride	4.3E-08	0.0E+00				
25	Chlorobenzene	0.0E+00	0.0E+00				
26	Chloroform	0.0E+00	0.0E+00				
27	Chromium (VI)	3.2E-08	8.1E-05				
28	Chrysene	2.2E-08	0.0E+00				
29	Cobalt	8.6E-09	0.0E+00				
30	Copper	3.0E-08	1.6E-03				
31	Cyanide (free)	3.0E-07	0.0E+00				
32	Di-n-butylphth	5.7E-09	0.0E+00				
33	Di-n-octylphth	0.0E+00	0.0E+00				
34	Dibenz(a,h)ant	1.7E-09	0.0E+00				
35	Dibenzofuran	2.4E-09	0.0E+00				
36	2,4-Dimethylph	0.0E+00	0.0E+00				
37	Ethyl benzene	0.0E+00	0.0E+00				
38	Fluoranthene	3.2E-08	0.0E+00				
39	Fluorene	2.7E-09	0.0E+00				
40	Fluoride	3.8E-07	0.0E+00				
41	Indeno(1,2,3-c	7.8E-09	0.0E+00				
42	Iron	1.0E-05	0.0E+00				

CHRONIC RISK SUMMARY

CURRENT
RES. ADULT

CHRONIC HAZARD QUOTIENT

SCENARIO 1 PROCTOR AIR (PART) INH.-PART. (FROM WS1)	SCENARIO 2 OHIO RIV. FISH ORAL (FROM WS2)	SCENARIO 3 0 0 0 (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
NA	0E+00	0E+00	0E+00	0E+00	0E+00
NA	0E+00				
NA	0E+00				
NA	NA				
NA	0E+00				
NA	5E-02				
NA	NA				
NA	NA				
NA	NA				
NA	1E-01				
3E-03	0E+00				
NA	NA				
NA	0E+00				
NA	0E+00				
NA	0E+00				
NA	0E+00				
NA	0E+00				
NA	0E+00				
NA	0E+00				
0E+00	0E+00				
NA	7E-02				
NA	0E+00				
0E+00	0E+00				
NA	NA				
0E+00	0E+00				
NA	0E+00				
6E-02	2E-02				
NA	0E+00				
NA	NA				
NA	4E-02				
NA	0E+00				
NA	0E+00				
NA	0E+00				
NA	0E+00				
NA	NA				
NA	0E+00				
NA	0E+00				
NA	0E+00				
NA	0E+00				
NA	0E+00				
NA	0E+00				
NA	NA				

43 Lead	4.3E-08	2.1E-04			NA	NA			
44 Manganese	3.5E-07	0.0E+00			3E-03	0E+00			
45 Mercury	0.0E+00	0.0E+00			0E+00	0E+00			
46 Methylene chlo	0.0E+00	4.8E-06			0E+00	8E-05			
47 2-Methylnaphth	4.9E-10	0.0E+00			NA	0E+00			
48 4-Methylphenol	0.0E+00	0.0E+00			NA	0E+00			
49 Naphthalene	6.8E-10	0.0E+00			NA	0E+00			
50 Nickel(dust)	4.6E-08	0.0E+00			NA	NA			
51 Nickel (salts)	0.0E+00	2.8E-04			NA	1E-02			
52 Nitrogen, ammo	4.1E-08	0.0E+00			NA	NA			
53 Phenanthrene	2.5E-08	0.0E+00			NA	0E+00			
54 Pyrene	2.4E-08	0.0E+00			NA	0E+00			
55 Silica	1.8E-08	0.0E+00			NA	NA			
56 Silver	0.0E+00	0.0E+00			NA	0E+00			
57 Sodium	3.2E-05	0.0E+00			NA	NA			
58 Sulfate	2.2E-07	0.0E+00			NA	NA			
59 Styrene	0.0E+00	0.0E+00			NA	0E+00			
60 1,1,2,2-PCA	0.0E+00	0.0E+00			NA	NA			
61 PCE	0.0E+00	0.0E+00			NA	0E+00			
62 Thallium	8.6E-10	0.0E+00			NA	0E+00			
63 Toluene	0.0E+00	0.0E+00			0E+00	0E+00			
64 1,1,1-TCA	0.0E+00	0.0E+00			0E+00	0E+00			
65 TCE	0.0E+00	0.0E+00			0E+00	NA			
66 Vanadium	3.5E-08	0.0E+00			NA	0E+00			
			PATHWAY SUM (HI)	7E-02	3E-01	0E+00	0E+00	0E+00	0E+00
			POPULATION TOTAL	4E-01					

RANGE NAME: LSUM

SITE NAME: ORMET
OPERABLE UNIT: CURRENT/FUTURE
FILE NAME: POP2
LAST UPDATED: 03/13/91

LIFETIME EXPOSURE SUMMARY

CURRENT
RES. ADULT

LIFETIME AVERAGE DAILY INTAKE (mg/kg/day)

	CHEMICAL NAME	SCENARIO 1 PROCTOR AIR (PART) INH.-PART. (FROM WS1)	SCENARIO 2 OHIO RIV. FISH ORAL (FROM WS2)	SCENARIO 3 0 0 0 (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
1	Acenaphthene	2.4E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
2	Acenaphthylene	2.5E-09	0.0E+00				
3	Acetone	0.0E+00	0.0E+00				
4	Aluminum	1.4E-04	0.0E+00				
5	Anthracene	9.2E-09	0.0E+00				
6	Antimony	2.2E-08	1.9E-05				
7	Aroclor 1242	0.0E+00	4.4E-02				
8	Aroclor 1248	0.0E+00	0.0E+00				
9	Aroclor 1254	0.0E+00	0.0E+00				
10	Arsenic	4.9E-08	9.6E-05				
11	Barium	3.0E-07	0.0E+00				
12	Benzene	0.0E+00	0.0E+00				
13	Benzo(a)anthra	2.2E-08	0.0E+00				
14	Benzo(a)pyrene	1.9E-08	0.0E+00				
15	Benzo(b)fluora	2.5E-08	0.0E+00				
16	Benzo(g,h,i)pe	7.6E-09	0.0E+00				
17	Benzo(k)fluora	1.7E-08	0.0E+00				
18	Beryllium	2.1E-08	0.0E+00				
19	BEHP	0.0E+00	0.0E+00				
20	2-Butanone	0.0E+00	0.0E+00				
21	Cadmium (food)	0.0E+00	7.0E-05				
22	Cadmium (water	0.0E+00	0.0E+00				
23	Carbon disulfi	0.0E+00	0.0E+00				
24	Chloride	4.3E-08	0.0E+00				
25	Chlorobenzene	0.0E+00	0.0E+00				
26	Chloroform	0.0E+00	0.0E+00				
27	Chromium (VI)	3.2E-08	8.1E-05				
28	Chrysene	2.2E-08	0.0E+00				
29	Cobalt	8.6E-09	0.0E+00				
30	Copper	3.0E-08	1.6E-03				
31	Cyanide (free)	3.0E-07	0.0E+00				
32	Di-n-butylphth	5.7E-09	0.0E+00				
33	Di-n-octylphth	0.0E+00	0.0E+00				
34	Dibenz(a,h)ant	1.7E-09	0.0E+00				
35	Dibenzofuran	2.4E-09	0.0E+00				
36	2,4-Dimethylph	0.0E+00	0.0E+00				
37	Ethyl benzene	0.0E+00	0.0E+00				
38	Fluoranthene	3.2E-08	0.0E+00				
39	Fluorene	2.7E-09	0.0E+00				
40	Fluoride	3.8E-07	0.0E+00				
41	Indeno(1,2,3-c	7.8E-09	0.0E+00				
42	Iron	1.0E-05	0.0E+00				

LIFETIME RISK SUMMARY

CURRENT
RES. ADULT

LIFETIME EXCESS CANCER RISK

SCENARIO 1 PROCTOR AIR (PART) INH.-PART. (FROM WS1)	SCENARIO 2 OHIO RIV. FISH ORAL (FROM WS2)	SCENARIO 3 0 0 0 (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
NA	NA	0E+00	0E+00	0E+00	0E+00
NA	NA				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
NA	3E-01				
NA	0E+00				
NA	0E+00				
7E-07	2E-04				
NA	NA				
0E+00	0E+00				
1E-07	0E+00				
1E-07	0E+00				
2E-07	0E+00				
NA	NA				
1E-07	0E+00				
2E-07	0E+00				
NA	0E+00				
NA	NA				
0E+00	NA				
0E+00	NA				
NA	NA				
NA	NA				
NA	NA				
0E+00	0E+00				
1E-06	NA				
1E-07	0E+00				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
1E-08	0E+00				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
5E-08	0E+00				
NA	NA				

43	Lead	4.3E-08	2.1E-04		NA	NA				
44	Manganese	3.5E-07	0.0E+00		NA	NA				
45	Mercury	0.0E+00	0.0E+00		NA	NA				
46	Methylene chlo	0.0E+00	4.8E-06		0E+00	4E-08				
47	2-Methylnaphth	4.9E-10	0.0E+00		NA	NA				
48	4-Methylphenol	0.0E+00	0.0E+00		NA	NA				
49	Naphthalene	6.8E-10	0.0E+00		NA	NA				
50	Nickel(dust)	4.6E-08	0.0E+00		4E-08	NA				
51	Nickel (salts)	0.0E+00	2.8E-04		NA	NA				
52	Nitrogen, ammo	4.1E-08	0.0E+00		NA	NA				
53	Phenanthrene	2.5E-08	0.0E+00		NA	NA				
54	Pyrene	2.4E-08	0.0E+00		NA	NA				
55	Silica	1.8E-08	0.0E+00		NA	NA				
56	Silver	0.0E+00	0.0E+00		NA	NA				
57	Sodium	3.2E-05	0.0E+00		NA	NA				
58	Sulfate	2.2E-07	0.0E+00		NA	NA				
59	Styrene	0.0E+00	0.0E+00		0E+00	0E+00				
60	1,1,2,2-PCA	0.0E+00	0.0E+00		0E+00	0E+00				
61	PCE	0.0E+00	0.0E+00		0E+00	0E+00				
62	Thallium	8.6E-10	0.0E+00		NA	NA				
63	Toluene	0.0E+00	0.0E+00		NA	NA				
64	1,1,1-TCA	0.0E+00	0.0E+00		NA	NA				
65	TCE	0.0E+00	0.0E+00		NA	0E+00				
66	Vanadium	3.5E-08	0.0E+00		NA	NA				
				TOTAL PATHWAY CANCER RISK	3E-06	3E-01	0E+00	0E+00	0E+00	0E+00
				POPULATION TOTAL EXCESS RISK	3E-01					

RANGE NAME: WS1

SITE NAME: ORMET
OPERABLE UNIT: CURRENT/FUTURE
FILE NAME: POP3
LAST UPDATED: 03/13/91

EXPOSURE AND RISK CALCULATION WORKSHEET

LAND USE: CURRENT
POPULATION: RES. CHILD

EXPOSURE POINT: PROCTOR
MEDIUM: AIR (PART)
ROUTE: INH.-PART.

HIFs = 2.2E+00
HIFc = 0.0E+00
HIFl = 0.0E+00

		SUBCHRONIC						CHRONIC						LIFETIME					
	CHEMICAL NAME	Cs	HIFs	1	DIs	RfDS	HQs	Cc	HIFc	1	DIc	RfDC	HQc	Cl	HIFl	1	DIl	SF	RISK
1	Acenaphthene	8.9E-09	2.2E+00	1	2.0E-08	NA	NA		0.0E+00		0.0E+00		ERR		0.0E+00		0.0E+00		0E+00
2	Acenaphthylene	9.3E-09	2.2E+00	1	2.0E-08	NA	NA												
3	Acetone	0.0E+00	2.2E+00	1	0.0E+00	NA	NA												
4	Aluminum	5.3E-04	2.2E+00	1	1.2E-03	NA	NA												
5	Anthracene	3.4E-08	2.2E+00	1	7.5E-08	NA	NA												
6	Antimony	8.1E-08	2.2E+00	1	1.8E-07	NA	NA												
7	Aroclor 1242	0.0E+00	2.2E+00	1	0.0E+00	NA	NA												
8	Aroclor 1248	0.0E+00	2.2E+00	1	0.0E+00	NA	NA												
9	Aroclor 1254	0.0E+00	2.2E+00	1	0.0E+00	NA	NA												
10	Arsenic	1.8E-07	2.2E+00	1	4.0E-07	NA	NA												
11	Barium	1.1E-06	2.2E+00	1	2.4E-06	1.0E-03	2E-03												
12	Benzene	0.0E+00	2.2E+00	1	0.0E+00	NA	NA												
13	Benzo(a)anthra	8.3E-08	2.2E+00	1	1.8E-07	NA	NA												
14	Benzo(a)pyrene	7.0E-08	2.2E+00	1	1.5E-07	NA	NA												
15	Benzo(b)fluora	9.2E-08	2.2E+00	1	2.0E-07	NA	NA												
16	Benzo(g,h,i)pe	2.8E-08	2.2E+00	1	6.2E-08	NA	NA												
17	Benzo(k)fluora	6.3E-08	2.2E+00	1	1.4E-07	NA	NA												
18	Beryllium	7.9E-08	2.2E+00	1	1.7E-07	NA	NA												
19	BEHP	0.0E+00	2.2E+00	1	0.0E+00	NA	NA												
20	2-Butanone	0.0E+00	2.2E+00	1	0.0E+00	9.0E-01	0E+00												
21	Cadmium (food)	0.0E+00	2.2E+00	1	0.0E+00	NA	NA												
22	Cadmium (water	0.0E+00	2.2E+00	1	0.0E+00	NA	NA												
23	Carbon disulfi	0.0E+00	2.2E+00	1	0.0E+00	NA	NA												
24	Chloride	1.6E-07	2.2E+00	1	3.5E-07	NA	NA												
25	Chlorobenzene	0.0E+00	2.2E+00	1	0.0E+00	5.0E-02	0E+00												
26	Chloroform	0.0E+00	2.2E+00	1	0.0E+00	NA	NA												
27	Chromium (VI)	1.2E-07	2.2E+00	1	2.6E-07	5.7E-06	5E-02												
28	Chrysene	8.3E-08	2.2E+00	1	1.8E-07	NA	NA												
29	Cobalt	3.2E-08	2.2E+00	1	7.0E-08	NA	NA												
30	Copper	1.1E-07	2.2E+00	1	2.4E-07	NA	NA												
31	Cyanide (free)	1.1E-06	2.2E+00	1	2.4E-06	NA	NA												
32	Di-n-butylphth	2.1E-08	2.2E+00	1	4.6E-08	NA	NA												
33	Di-n-octylphth	0.0E+00	2.2E+00	1	0.0E+00	NA	NA												
34	Dibenz(a,h)ant	6.3E-09	2.2E+00	1	1.4E-08	NA	NA												
35	Dibenzofuran	9.0E-09	2.2E+00	1	2.0E-08	NA	NA												
36	2,4-Dimethylph	0.0E+00	2.2E+00	1	0.0E+00	NA	NA												
37	Ethyl benzene	0.0E+00	2.2E+00	1	0.0E+00	NA	NA												
38	Fluoranthene	1.2E-07	2.2E+00	1	2.6E-07	NA	NA												
39	Fluorene	9.9E-09	2.2E+00	1	2.2E-08	NA	NA												

40	Fluoride	1.4E-06	2.2E+00	1	3.1E-06	NA	NA
41	Indeno(1,2,3-c	2.9E-08	2.2E+00	1	6.4E-08	NA	NA
42	Iron	3.8E-05	2.2E+00	1	8.4E-05	NA	NA
43	Lead	1.6E-07	2.2E+00	1	3.5E-07	NA	NA
44	Manganese	1.3E-06	2.2E+00	1	2.9E-06	1.1E-04	3E-02
45	Mercury	0.0E+00	2.2E+00	1	0.0E+00	8.6E-05	0E+00
46	Methylene chlo	0.0E+00	2.2E+00	1	0.0E+00	8.6E-01	0E+00
47	2-Methylnaphth	1.8E-09	2.2E+00	1	4.0E-09	NA	NA
48	4-Methylphenol	0.0E+00	2.2E+00	1	0.0E+00	NA	NA
49	Naphthalene	2.5E-09	2.2E+00	1	5.5E-09	NA	NA
50	Nickel(dust)	1.7E-07	2.2E+00	1	3.7E-07	NA	NA
51	Nickel (salts)	0.0E+00	2.2E+00	1	0.0E+00	NA	NA
52	Nitrogen, ammo	1.5E-07	2.2E+00	1	3.3E-07	NA	NA
53	Phenanthrene	9.1E-08	2.2E+00	1	2.0E-07	NA	NA
54	Pyrene	9.0E-08	2.2E+00	1	2.0E-07	NA	NA
55	Silica	6.5E-08	2.2E+00	1	1.4E-07	NA	NA
56	Silver	0.0E+00	2.2E+00	1	0.0E+00	NA	NA
57	Sodium	1.2E-04	2.2E+00	1	2.6E-04	NA	NA
58	Sulfate	8.0E-07	2.2E+00	1	1.8E-06	NA	NA
59	Styrene	0.0E+00	2.2E+00	1	0.0E+00	NA	NA
60	1,1,2,2-PCA	0.0E+00	2.2E+00	1	0.0E+00	NA	NA
61	PCE	0.0E+00	2.2E+00	1	0.0E+00	NA	NA
62	Thallium	3.2E-09	2.2E+00	1	7.0E-09	NA	NA
63	Toluene	0.0E+00	2.2E+00	1	0.0E+00	5.7E-01	0E+00
64	1,1,1-TCA	0.0E+00	2.2E+00	1	0.0E+00	3.0E+00	0E+00
65	TCE	0.0E+00	2.2E+00	1	0.0E+00	NA	NA
66	Vanadium	1.3E-07	2.2E+00	1	2.9E-07	NA	NA

RANGE NAME: WS2

EXPOSURE AND RISK CALCULATION WORKSHEET

SITE NAME: ORMET
OPERABLE UNIT: CURRENT/FUTURE
FILE NAME: POP3
LAST UPDATED: 03/13/91

LAND USE: CURRENT
POPULATION: RES. CHILD

EXPOSURE POINT: OHIO RIV.
MEDIUM: FISH
ROUTE: ORAL

HIFs = 1.7E-03
HIFc = 0.0E+00
HIFl = 0.0E+00

		SUBCHRONIC						CHRONIC						LIFETIME					
	CHEMICAL NAME	Cs	HIFs	1	DIs	RfDS	HQs	Cc	HIFc	1	DIc	RfDC	HQc	Cl	HIFl	1	DIl	SF	RISK
1	Acenaphthene	0.0E+00	1.7E-03	1	0.0E+00	6.0E-01	0E+00		0.0E+00		0.0E+00		ERR		0.0E+00		0.0E+00		0E+00
2	Acenaphthylene	0.0E+00	1.7E-03	1	0.0E+00	4.0E-01	0E+00												
3	Acetone	0.0E+00	1.7E-03	1	0.0E+00	1.0E+00	0E+00												
4	Aluminum	0.0E+00	1.7E-03	1	0.0E+00	NA	NA												
5	Anthracene	0.0E+00	1.7E-03	1	0.0E+00	3.0E+00	0E+00												
6	Antimony	5.0E-02	1.7E-03	1	8.5E-05	4.0E-04	2E-01												
7	Aroclor 1242	1.2E+02	1.7E-03	1	2.0E-01	NA	NA												
8	Aroclor 1248	0.0E+00	1.7E-03	1	0.0E+00	NA	NA												
9	Aroclor 1254	0.0E+00	1.7E-03	1	0.0E+00	NA	NA												
10	Arsenic	2.6E-01	1.7E-03	1	4.4E-04	1.0E-03	4E-01												
11	Barium	0.0E+00	1.7E-03	1	0.0E+00	5.0E-02	0E+00												
12	Benzene	0.0E+00	1.7E-03	1	0.0E+00	NA	NA												
13	Benzo(a)anthra	0.0E+00	1.7E-03	1	0.0E+00	4.0E-01	0E+00												
14	Benzo(a)pyrene	0.0E+00	1.7E-03	1	0.0E+00	4.0E-01	0E+00												
15	Benzo(b)fluora	0.0E+00	1.7E-03	1	0.0E+00	4.0E-01	0E+00												
16	Benzo(g,h,i)pe	0.0E+00	1.7E-03	1	0.0E+00	4.0E-01	0E+00												
17	Benzo(k)fluora	0.0E+00	1.7E-03	1	0.0E+00	4.0E-01	0E+00												
18	Beryllium	0.0E+00	1.7E-03	1	0.0E+00	5.0E-03	0E+00												
19	BEHP	0.0E+00	1.7E-03	1	0.0E+00	2.0E-02	0E+00												
20	2-Butanone	0.0E+00	1.7E-03	1	0.0E+00	5.0E-01	0E+00												
21	Cadmium (food)	1.9E-01	1.7E-03	1	3.2E-04	NA	NA												
22	Cadmium (water	0.0E+00	1.7E-03	1	0.0E+00	NA	NA												
23	Carbon disulfi	0.0E+00	1.7E-03	1	0.0E+00	1.0E-01	0E+00												
24	Chloride	0.0E+00	1.7E-03	1	0.0E+00	NA	NA												
25	Chlorobenzene	0.0E+00	1.7E-03	1	0.0E+00	2.0E-01	0E+00												
26	Chloroform	0.0E+00	1.7E-03	1	0.0E+00	1.0E-02	0E+00												
27	Chromium (VI)	2.2E-01	1.7E-03	1	3.7E-04	2.0E-02	2E-02												
28	Chrysene	0.0E+00	1.7E-03	1	0.0E+00	4.0E-01	0E+00												
29	Cobalt	0.0E+00	1.7E-03	1	0.0E+00	NA	NA												
30	Copper	4.2E+00	1.7E-03	1	7.1E-03	3.7E-02	2E-01												
31	Cyanide (free)	0.0E+00	1.7E-03	1	0.0E+00	2.0E-02	0E+00												
32	Di-n-butylphth	0.0E+00	1.7E-03	1	0.0E+00	1.0E+00	0E+00												
33	Di-n-octylphth	0.0E+00	1.7E-03	1	0.0E+00	2.0E-02	0E+00												
34	Dibenz(a,h)ant	0.0E+00	1.7E-03	1	0.0E+00	4.0E-01	0E+00												
35	Dibenzofuran	0.0E+00	1.7E-03	1	0.0E+00	NA	NA												
36	2,4-Dimethylph	0.0E+00	1.7E-03	1	0.0E+00	2.0E-01	0E+00												
37	Ethyl benzene	0.0E+00	1.7E-03	1	0.0E+00	1.0E+00	0E+00												
38	Fluoranthene	0.0E+00	1.7E-03	1	0.0E+00	4.0E-01	0E+00												
39	Fluorene	0.0E+00	1.7E-03	1	0.0E+00	4.0E-01	0E+00												

40	Fluoride	0.0E+00	1.7E-03	1	0.0E+00	6.0E-02	0E+00
41	Indeno(1,2,3-c	0.0E+00	1.7E-03	1	0.0E+00	4.0E-01	0E+00
42	Iron	0.0E+00	1.7E-03	1	0.0E+00	NA	NA
43	Lead	5.6E-01	1.7E-03	1	9.5E-04	NA	NA
44	Manganese	0.0E+00	1.7E-03	1	0.0E+00	1.0E-01	0E+00
45	Mercury	0.0E+00	1.7E-03	1	0.0E+00	3.0E-04	0E+00
46	Methylene chlo	1.3E-02	1.7E-03	1	2.2E-05	6.0E-02	4E-04
47	2-Methylnaphth	0.0E+00	1.7E-03	1	0.0E+00	4.0E-01	0E+00
48	4-Methylphenol	0.0E+00	1.7E-03	1	0.0E+00	5.0E-01	0E+00
49	Naphthalene	0.0E+00	1.7E-03	1	0.0E+00	4.0E-01	0E+00
50	Nickel(dust)	0.0E+00	1.7E-03	1	0.0E+00	NA	NA
51	Nickel (salts)	7.5E-01	1.7E-03	1	1.3E-03	2.0E-02	6E-02
52	Nitrogen, ammo	0.0E+00	1.7E-03	1	0.0E+00	NA	NA
53	Phenanthrene	0.0E+00	1.7E-03	1	0.0E+00	4.0E-01	0E+00
54	Pyrene	0.0E+00	1.7E-03	1	0.0E+00	3.0E-01	0E+00
55	Silica	0.0E+00	1.7E-03	1	0.0E+00	NA	NA
56	Silver	0.0E+00	1.7E-03	1	0.0E+00	3.0E-03	0E+00
57	Sodium	0.0E+00	1.7E-03	1	0.0E+00	NA	NA
58	Sulfate	0.0E+00	1.7E-03	1	0.0E+00	NA	NA
59	Styrene	0.0E+00	1.7E-03	1	0.0E+00	2.0E+00	0E+00
60	1,1,2,2-PCA	0.0E+00	1.7E-03	1	0.0E+00	NA	NA
61	PCE	0.0E+00	1.7E-03	1	0.0E+00	1.0E-01	0E+00
62	Thallium	0.0E+00	1.7E-03	1	0.0E+00	7.0E-04	0E+00
63	Toluene	0.0E+00	1.7E-03	1	0.0E+00	2.0E+00	0E+00
64	1,1,1-TCA	0.0E+00	1.7E-03	1	0.0E+00	9.0E-01	0E+00
65	TCE	0.0E+00	1.7E-03	1	0.0E+00	NA	NA
66	Vanadium	0.0E+00	1.7E-03	1	0.0E+00	7.0E-03	0E+00

RANGE NAME: SSUM

SITE NAME: ORMET
OPERABLE UNIT: CURRENT/FUTURE
FILE NAME: POP3
LAST UPDATED: 03/13/91

SUBCHRONIC EXPOSURE SUMMARY

CURRENT
RES. CHILD

SUBCHRONIC DAILY INTAKE (mg/kg/day)

		SCENARIO 1	SCENARIO 2	SCENARIO 3	SCENARIO 4	SCENARIO 5	SCENARIO 6
		PROCTOR	OHIO RIV.	0	0	0	0
		AIR (PART)	FISH	0	0	0	0
		INH.-PART.	ORAL	0	0	0	0
	CHEMICAL NAME	(FROM WS1)	(FROM WS2)	(FROM WS3)	(FROM WS4)	(FROM WS5)	(FROM WS6)
1	Acenaphthene	2.0E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
2	Acenaphthylene	2.0E-08	0.0E+00				
3	Acetone	0.0E+00	0.0E+00				
4	Aluminum	1.2E-03	0.0E+00				
5	Anthracene	7.5E-08	0.0E+00				
6	Antimony	1.8E-07	8.5E-05				
7	Aroclor 1242	0.0E+00	2.0E-01				
8	Aroclor 1248	0.0E+00	0.0E+00				
9	Aroclor 1254	0.0E+00	0.0E+00				
10	Arsenic	4.0E-07	4.4E-04				
11	Barium	2.4E-06	0.0E+00				
12	Benzene	0.0E+00	0.0E+00				
13	Benzo(a)anthra	1.8E-07	0.0E+00				
14	Benzo(a)pyrene	1.5E-07	0.0E+00				
15	Benzo(b)fluora	2.0E-07	0.0E+00				
16	Benzo(g,h,i)pe	6.2E-08	0.0E+00				
17	Benzo(k)fluora	1.4E-07	0.0E+00				
18	Beryllium	1.7E-07	0.0E+00				
19	BEHP	0.0E+00	0.0E+00				
20	2-Butanone	0.0E+00	0.0E+00				
21	Cadmium (food)	0.0E+00	3.2E-04				
22	Cadmium (water	0.0E+00	0.0E+00				
23	Carbon disulfi	0.0E+00	0.0E+00				
24	Chloride	3.5E-07	0.0E+00				
25	Chlorobenzene	0.0E+00	0.0E+00				
26	Chloroform	0.0E+00	0.0E+00				
27	Chromium (VI)	2.6E-07	3.7E-04				
28	Chrysene	1.8E-07	0.0E+00				
29	Cobalt	7.0E-08	0.0E+00				
30	Copper	2.4E-07	7.1E-03				
31	Cyanide (free)	2.4E-06	0.0E+00				
32	Di-n-butylphth	4.6E-08	0.0E+00				
33	Di-n-octylphth	0.0E+00	0.0E+00				
34	Dibenz(a,h)ant	1.4E-08	0.0E+00				
35	Dibenzofuran	2.0E-08	0.0E+00				
36	2,4-Dimethylph	0.0E+00	0.0E+00				
37	Ethyl benzene	0.0E+00	0.0E+00				
38	Fluoranthene	2.6E-07	0.0E+00				
39	Fluorene	2.2E-08	0.0E+00				
40	Fluoride	3.1E-06	0.0E+00				
41	Indeno(1,2,3-c	6.4E-08	0.0E+00				
42	Iron	8.4E-05	0.0E+00				

SUBCHRONIC RISK SUMMARY

CURRENT
RES. CHILD

SUBCHRONIC HAZARD QUOTIENT

SCENARIO 1	SCENARIO 2	SCENARIO 3	SCENARIO 4	SCENARIO 5	SCENARIO 6
PROCTOR	OHIO RIV.	0	0	0	0
AIR (PART)	FISH	0	0	0	0
INH.-PART.	ORAL	0	0	0	0
(FROM WS1)	(FROM WS2)	(FROM WS3)	(FROM WS4)	(FROM WS5)	(FROM WS6)
NA	0E+00	0E+00	0E+00	0E+00	0E+00
NA	0E+00				
NA	0E+00				
NA	NA				
NA	0E+00				
NA	2E-01				
NA	NA				
NA	NA				
NA	NA				
NA	4E-01				
2E-03	0E+00				
NA	NA				
NA	0E+00				
NA	0E+00				
NA	0E+00				
NA	0E+00				
NA	0E+00				
NA	0E+00				
NA	0E+00				
0E+00	0E+00				
NA	NA				
NA	NA				
NA	0E+00				
NA	NA				
0E+00	0E+00				
NA	0E+00				
5E-02	2E-02				
NA	0E+00				
NA	NA				
NA	2E-01				
NA	0E+00				
NA	0E+00				
NA	0E+00				
NA	0E+00				
NA	NA				
NA	0E+00				
NA	0E+00				
NA	0E+00				
NA	0E+00				
NA	0E+00				
NA	0E+00				
NA	NA				

43	Lead	3.5E-07	9.5E-04			NA	NA			
44	Manganese	2.9E-06	0.0E+00			3E-02	0E+00			
45	Mercury	0.0E+00	0.0E+00			0E+00	0E+00			
46	Methylene chlo	0.0E+00	2.2E-05			0E+00	4E-04			
47	2-Methylnaphth	4.0E-09	0.0E+00			NA	0E+00			
48	4-Methylphenol	0.0E+00	0.0E+00			NA	0E+00			
49	Naphthalene	5.5E-09	0.0E+00			NA	0E+00			
50	Nickel(dust)	3.7E-07	0.0E+00			NA	NA			
51	Nickel (salts)	0.0E+00	1.3E-03			NA	6E-02			
52	Nitrogen, ammo	3.3E-07	0.0E+00			NA	NA			
53	Phenanthrene	2.0E-07	0.0E+00			NA	0E+00			
54	Pyrene	2.0E-07	0.0E+00			NA	0E+00			
55	Silica	1.4E-07	0.0E+00			NA	NA			
56	Silver	0.0E+00	0.0E+00			NA	0E+00			
57	Sodium	2.6E-04	0.0E+00			NA	NA			
58	Sulfate	1.8E-06	0.0E+00			NA	NA			
59	Styrene	0.0E+00	0.0E+00			NA	0E+00			
60	1,1,2,2-PCA	0.0E+00	0.0E+00			NA	NA			
61	PCE	0.0E+00	0.0E+00			NA	0E+00			
62	Thallium	7.0E-09	0.0E+00			NA	0E+00			
63	Toluene	0.0E+00	0.0E+00			0E+00	0E+00			
64	1,1,1-TCA	0.0E+00	0.0E+00			0E+00	0E+00			
65	TCE	0.0E+00	0.0E+00			NA	NA			
66	Vanadium	2.9E-07	0.0E+00			NA	0E+00			
				PATHWAY SUM (HI)		8E-02	9E-01	0E+00	0E+00	0E+00	0E+00
				POPULATION TOTAL		1.0E+00					

RANGE NAME: WS1

EXPOSURE AND RISK CALCULATION WORKSHEET

LAND USE: CURRENT
POPULATION: TRESPASSER (OR)

EXPOSURE POINT: OHIO RIV.
MEDIUM: SEDIMENT
ROUTE: ORAL

HIFs = 0.0E+00
HIFc = 8.1E-09
HIFl = 1.1E-09

SITE NAME: ORMET
OPERABLE UNIT: CURRENT/FUTURE
FILE NAME: POP4
LAST UPDATED: 03/13/91

		SUBCHRONIC					CHRONIC						LIFETIME					
	CHEMICAL NAME	Cs	HIFs	1	DIs	RfDS	HQs	Cc	HIFc	1	DIc	RfDC	HQc	Cl	HIFl	1	DIl	SF	RISK
1	Acenaphthene		0.0E+00		0.0E+00		ERR	1.7E+00	8.1E-09	1	1.4E-08	6.0E-02	2E-07	1.7E+00	1.1E-09	1	1.9E-09	NA	NA
2	Acenaphthylene							1.8E-01	8.1E-09	1	1.5E-09	4.0E-01	4E-09	1.8E-01	1.1E-09	1	2.0E-10	NA	NA
3	Acetone							0.0E+00	8.1E-09	1	0.0E+00	1.0E-01	0E+00	0.0E+00	1.1E-09	1	0.0E+00	NA	NA
4	Aluminum							1.4E+04	8.1E-09	1	1.1E-04	NA	NA	1.4E+04	1.1E-09	1	1.5E-05	NA	NA
5	Anthracene							7.5E-01	8.1E-09	1	6.1E-09	3.0E-01	2E-08	7.5E-01	1.1E-09	1	8.3E-10	NA	NA
6	Antimony							0.0E+00	8.1E-09	1	0.0E+00	4.0E-04	0E+00	0.0E+00	1.1E-09	1	0.0E+00	NA	NA
7	Aroclor 1242							0.0E+00	8.1E-09	1	0.0E+00	NA	NA	0.0E+00	1.1E-09	1	0.0E+00	7.7E+00	0E+00
8	Aroclor 1248							2.0E+00	8.1E-09	1	1.6E-08	NA	NA	2.0E+00	1.1E-09	1	2.2E-09	7.7E+00	2E-08
9	Aroclor 1254							0.0E+00	8.1E-09	1	0.0E+00	NA	NA	0.0E+00	1.1E-09	1	0.0E+00	7.7E+00	0E+00
10	Arsenic							1.1E+01	8.1E-09	1	8.9E-08	1.0E-03	9E-05	1.1E+01	1.1E-09	1	1.2E-08	1.8E+00	2E-08
11	Barium							1.8E+02	8.1E-09	1	1.5E-06	7.0E-02	2E-05	1.8E+02	1.1E-09	1	2.0E-07	NA	NA
12	Benzene							2.1E-02	8.1E-09	1	1.7E-10	NA	NA	2.1E-02	1.1E-09	1	2.3E-11	2.9E-02	7E-13
13	Benzo(a)anthracene							3.1E+00	8.1E-09	1	2.5E-08	4.0E-01	6E-08	3.1E+00	1.1E-09	1	3.4E-09	1.2E+01	4E-08
14	Benzo(a)pyrene							3.2E+00	8.1E-09	1	2.6E-08	4.0E-01	6E-08	3.2E+00	1.1E-09	1	3.5E-09	1.2E+01	4E-08
15	Benzo(b)fluoranthene							4.5E+00	8.1E-09	1	3.6E-08	4.0E-01	9E-08	4.5E+00	1.1E-09	1	5.0E-09	1.2E+01	6E-08
16	Benzo(g,h,i)perylene							2.7E+00	8.1E-09	1	2.2E-08	4.0E-01	5E-08	2.7E+00	1.1E-09	1	3.0E-09	NA	NA
17	Benzo(k)fluoranthene							2.5E+00	8.1E-09	1	2.0E-08	4.0E-01	5E-08	2.5E+00	1.1E-09	1	2.8E-09	1.2E+01	3E-08
18	Beryllium							2.1E+00	8.1E-09	1	1.7E-08	5.0E-03	3E-06	2.1E+00	1.1E-09	1	2.3E-09	4.3E+00	1.0E-0
19	BEHP							3.3E+00	8.1E-09	1	2.7E-08	2.0E-02	1E-06	3.3E+00	1.1E-09	1	3.6E-09	1.4E-02	5E-11
20	2-Butanone							1.0E-01	8.1E-09	1	8.1E-10	5.0E-02	2E-08	1.0E-01	1.1E-09	1	1.1E-10	NA	NA
21	Cadmium (food)							2.1E+00	8.1E-09	1	1.7E-08	1.0E-03	2E-05	2.1E+00	1.1E-09	1	2.3E-09	NA	NA
22	Cadmium (water)							0.0E+00	8.1E-09	1	0.0E+00	5.0E-04	0E+00	0.0E+00	1.1E-09	1	0.0E+00	NA	NA
23	Carbon disulfide							0.0E+00	8.1E-09	1	0.0E+00	1.0E-01	0E+00	0.0E+00	1.1E-09	1	0.0E+00	NA	NA
24	Chloride							2.8E+02	8.1E-09	1	2.3E-06	NA	NA	2.8E+02	1.1E-09	1	3.1E-07	NA	NA
25	Chlorobenzene							0.0E+00	8.1E-09	1	0.0E+00	2.0E-02	0E+00	0.0E+00	1.1E-09	1	0.0E+00	NA	NA
26	Chloroform							7.0E-03	8.1E-09	1	5.7E-11	1.0E-02	6E-09	7.0E-03	1.1E-09	1	7.7E-12	6.1E-03	5E-14
27	Chromium (VI)							6.0E+01	8.1E-09	1	4.9E-07	5.0E-03	1.0E-0	6.0E+01	1.1E-09	1	6.6E-08	NA	NA
28	Chrysene							3.9E+00	8.1E-09	1	3.2E-08	4.0E-01	8E-08	3.9E+00	1.1E-09	1	4.3E-09	1.2E+01	5E-08
29	Cobalt							3.5E+01	8.1E-09	1	2.8E-07	NA	NA	3.5E+01	1.1E-09	1	3.9E-08	NA	NA
30	Copper							7.1E+01	8.1E-09	1	5.8E-07	3.7E-02	2E-05	7.1E+01	1.1E-09	1	7.8E-08	NA	NA
31	Cyanide (free)							1.9E+00	8.1E-09	1	1.5E-08	2.0E-02	8E-07	1.9E+00	1.1E-09	1	2.1E-09	NA	NA
32	Di-n-butylphthalate							5.8E-02	8.1E-09	1	4.7E-10	1.0E-01	5E-09	5.8E-02	1.1E-09	1	6.4E-11	NA	NA
33	Di-n-octylphthalate							0.0E+00	8.1E-09	1	0.0E+00	2.0E-02	0E+00	0.0E+00	1.1E-09	1	0.0E+00	NA	NA
34	Dibenz(a,h)anthracene							7.3E-01	8.1E-09	1	5.9E-09	4.0E-01	1E-08	7.3E-01	1.1E-09	1	8.0E-10	1.2E+01	1.0E-0
35	Dibenzofuran							2.2E-01	8.1E-09	1	1.8E-09	NA	NA	2.2E-01	1.1E-09	1	2.4E-10	NA	NA
36	2,4-Dimethylphenol							0.0E+00	8.1E-09	1	0.0E+00	2.0E-02	0E+00	0.0E+00	1.1E-09	1	0.0E+00	NA	NA
37	Ethyl benzene							0.0E+00	8.1E-09	1	0.0E+00	1.0E-01	0E+00	0.0E+00	1.1E-09	1	0.0E+00	NA	NA
38	Fluoranthene							0.0E+00	8.1E-09	1	0.0E+00	4.0E-02	0E+00	0.0E+00	1.1E-09	1	0.0E+00	NA	NA
39	Fluorene							2.9E-01	8.1E-09	1	2.3E-09	4.0E-02	6E-08	2.9E-01	1.1E-09	1	3.2E-10	NA	NA

40	Fluoride	1.6E+01	8.1E-09	1	1.3E-07	6.0E-02	2E-06	1.6E+01	1.1E-09	1	1.8E-08	NA	NA
41	Indeno(1,2,3-cd)pyrene	1.4E+00	8.1E-09	1	1.1E-08	4.0E-01	3E-08	1.4E+00	1.1E-09	1	1.5E-09	1.2E+01	2E-08
42	Iron	4.8E+04	8.1E-09	1	3.9E-04	NA	NA	4.8E+04	1.1E-09	1	5.3E-05	NA	NA
43	Lead	1.1E+02	8.1E-09	1	8.9E-07	NA	NA	1.1E+02	1.1E-09	1	1.2E-07	NA	NA
44	Manganese	1.6E+03	8.1E-09	1	1.3E-05	1.0E-01	1E-04	1.6E+03	1.1E-09	1	1.8E-06	NA	NA
45	Mercury	4.2E-01	8.1E-09	1	3.4E-09	3.0E-04	1E-05	4.2E-01	1.1E-09	1	4.6E-10	NA	NA
46	Methylene chloride	3.8E+00	8.1E-09	1	3.1E-08	6.0E-02	5E-07	3.8E+00	1.1E-09	1	4.2E-09	7.5E-03	3E-11
47	2-Methylnaphthalene	2.5E-01	8.1E-09	1	2.0E-09	4.0E-01	5E-09	2.5E-01	1.1E-09	1	2.8E-10	NA	NA
48	4-Methylphenol	0.0E+00	8.1E-09	1	0.0E+00	5.0E-02	0E+00	0.0E+00	1.1E-09	1	0.0E+00	NA	NA
49	Naphthalene	3.3E-01	8.1E-09	1	2.7E-09	4.0E-01	7E-09	3.3E-01	1.1E-09	1	3.6E-10	NA	NA
50	Nickel(dust)	0.0E+00	8.1E-09	1	0.0E+00	NA	NA	0.0E+00	1.1E-09	1	0.0E+00	NA	NA
51	Nickel (salts)	7.7E+01	8.1E-09	1	6.2E-07	2.0E-02	3E-05	7.7E+01	1.1E-09	1	8.5E-08	NA	NA
52	Nitrogen, ammonia	9.1E+01	8.1E-09	1	7.4E-07	NA	NA	9.1E+01	1.1E-09	1	1.0E-07	NA	NA
53	Phenanthrene	2.0E+00	8.1E-09	1	1.6E-08	4.0E-01	4E-08	2.0E+00	1.1E-09	1	2.2E-09	NA	NA
54	Pyrene	4.3E+00	8.1E-09	1	3.5E-08	3.0E-02	1E-06	4.3E+00	1.1E-09	1	4.7E-09	NA	NA
55	Silica	3.5E+01	8.1E-09	1	2.8E-07	NA	NA	3.5E+01	1.1E-09	1	3.9E-08	NA	NA
56	Silver	0.0E+00	8.1E-09	1	0.0E+00	3.0E-03	0E+00	0.0E+00	1.1E-09	1	0.0E+00	NA	NA
57	Sodium	4.6E+02	8.1E-09	1	3.7E-06	NA	NA	4.6E+02	1.1E-09	1	5.1E-07	NA	NA
58	Sulfate	4.5E+01	8.1E-09	1	3.6E-07	NA	NA	4.5E+01	1.1E-09	1	5.0E-08	NA	NA
59	Styrene	0.0E+00	8.1E-09	1	0.0E+00	2.0E-01	0E+00	0.0E+00	1.1E-09	1	0.0E+00	3.0E-02	0E+00
60	1,1,2,2-PCA	0.0E+00	8.1E-09	1	0.0E+00	NA	NA	0.0E+00	1.1E-09	1	0.0E+00	2.0E-01	0E+00
61	PCE	0.0E+00	8.1E-09	1	0.0E+00	1.0E-02	0E+00	0.0E+00	1.1E-09	1	0.0E+00	5.1E-02	0E+00
62	Thallium	0.0E+00	8.1E-09	1	0.0E+00	7.0E-05	0E+00	0.0E+00	1.1E-09	1	0.0E+00	NA	NA
63	Toluene	0.0E+00	8.1E-09	1	0.0E+00	2.0E-01	0E+00	0.0E+00	1.1E-09	1	0.0E+00	NA	NA
64	1,1,1-TCA	0.0E+00	8.1E-09	1	0.0E+00	9.0E-02	0E+00	0.0E+00	1.1E-09	1	0.0E+00	NA	NA
65	TCE	0.0E+00	8.1E-09	1	0.0E+00	NA	NA	0.0E+00	1.1E-09	1	0.0E+00	1.1E-02	0E+00
66	Vanadium	1.8E+01	8.1E-09	1	1.5E-07	7.0E-03	2E-05	1.8E+01	1.1E-09	1	2.0E-08	NA	NA

RANGE NAME: WS2

EXPOSURE AND RISK CALCULATION WORKSHEET

LAND USE: CURRENT
POPULATION: TRESPASSER (OR)

EXPOSURE POINT: OHIO RIV.
MEDIUM: SEDIMENT
ROUTE: DERMAL

SITE NAME: ORMET
OPERABLE UNIT: CURRENT/FUTURE
FILE NAME: POP4
LAST UPDATED: 03/13/91

HIFs = 0.0E+00
HIFc = 2.0E-05
HIFl = 2.8E-06

		SUBCHRONIC					CHRONIC						LIFETIME					
	CHEMICAL NAME	Cs	HIFs	ABS	DIs	RfDS	HQs	Cc	HIFc	ABS	DIc	RfDC	HQc	Cl	HIFl	ABS	DIl	SF	RISK
1	Acenaphthene		0.0E+00		0.0E+00		ERR	1.7E+00	2.0E-05	1.0E-01	3.4E-06	NA	NA	1.7E+00	2.8E-06	1.0E-01	4.8E-07	NA	NA
2	Acenaphthylene							1.8E-01	2.0E-05	NA	NA	NA	NA	1.8E-01	2.8E-06	NA	NA	NA	NA
3	Acetone							0.0E+00	2.0E-05	2.5E-01	0.0E+00	1.0E-01	0E+00	0.0E+00	2.8E-06	2.5E-01	0.0E+00	NA	NA
4	Aluminum							1.4E+04	2.0E-05	NA	NA	NA	NA	1.4E+04	2.8E-06	NA	NA	NA	NA
5	Anthracene							7.5E-01	2.0E-05	NA	NA	NA	NA	7.5E-01	2.8E-06	NA	NA	NA	NA
6	Antimony							0.0E+00	2.0E-05	NA	NA	NA	NA	0.0E+00	2.8E-06	NA	NA	NA	NA
7	Aroclor 1242							0.0E+00	2.0E-05	1.0E-01	0.0E+00	NA	NA	0.0E+00	2.8E-06	1.0E-01	0.0E+00	7.7E+00	0E+00
8	Aroclor 1248							2.0E+00	2.0E-05	1.0E-01	4.0E-06	NA	NA	2.0E+00	2.8E-06	1.0E-01	5.6E-07	7.7E+00	4E-06
9	Aroclor 1254							0.0E+00	2.0E-05	1.0E-01	0.0E+00	NA	NA	0.0E+00	2.8E-06	1.0E-01	0.0E+00	7.7E+00	0E+00
10	Arsenic							1.1E+01	2.0E-05	NA	NA	NA	NA	1.1E+01	2.8E-06	NA	NA	NA	NA
11	Barium							1.8E+02	2.0E-05	NA	NA	NA	NA	1.8E+02	2.8E-06	NA	NA	NA	NA
12	Benzene							2.1E-02	2.0E-05	2.5E-01	1.1E-07	NA	NA	2.1E-02	2.8E-06	2.5E-01	1.5E-08	2.9E-02	4E-10
13	Benzo(a)anthracene							3.1E+00	2.0E-05	NA	NA	NA	NA	3.1E+00	2.8E-06	NA	NA	NA	NA
14	Benzo(a)pyrene							3.2E+00	2.0E-05	NA	NA	NA	NA	3.2E+00	2.8E-06	NA	NA	NA	NA
15	Benzo(b)fluoranthene							4.5E+00	2.0E-05	NA	NA	NA	NA	4.5E+00	2.8E-06	NA	NA	NA	NA
16	Benzo(g,h,i)perylene							2.7E+00	2.0E-05	NA	NA	NA	NA	2.7E+00	2.8E-06	NA	NA	NA	NA
17	Benzo(k)fluoranthene							2.5E+00	2.0E-05	NA	NA	NA	NA	2.5E+00	2.8E-06	NA	NA	NA	NA
18	Beryllium							2.1E+00	2.0E-05	NA	NA	NA	NA	2.1E+00	2.8E-06	NA	NA	NA	NA
19	BEHP							3.3E+00	2.0E-05	1.0E-01	6.6E-06	2.0E-02	3E-04	3.3E+00	2.8E-06	1.0E-01	9.2E-07	1.4E-02	1E-08
20	2-Butanone							1.0E-01	2.0E-05	2.5E-01	5.0E-07	5.0E-02	1E-05	1.0E-01	2.8E-06	2.5E-01	7.0E-08	NA	NA
21	Cadmium (food)							2.1E+00	2.0E-05	NA	NA	NA	NA	2.1E+00	2.8E-06	NA	NA	NA	NA
22	Cadmium (water)							0.0E+00	2.0E-05	NA	NA	NA	NA	0.0E+00	2.8E-06	NA	NA	NA	NA
23	Carbon disulfide							0.0E+00	2.0E-05	2.5E-01	0.0E+00	1.0E-01	0E+00	0.0E+00	2.8E-06	2.5E-01	0.0E+00	NA	NA
24	Chloride							2.8E+02	2.0E-05	NA	NA	NA	NA	2.8E+02	2.8E-06	NA	NA	NA	NA
25	Chlorobenzene							0.0E+00	2.0E-05	2.5E-01	0.0E+00	2.0E-02	0E+00	0.0E+00	2.8E-06	2.5E-01	0.0E+00	NA	NA
26	Chloroform							7.0E-03	2.0E-05	2.5E-01	3.5E-08	1.0E-02	4E-06	7.0E-03	2.8E-06	2.5E-01	4.9E-09	6.1E-03	3E-11
27	Chromium (VI)							6.0E+01	2.0E-05	NA	NA	NA	NA	6.0E+01	2.8E-06	NA	NA	NA	NA
28	Chrysene							3.9E+00	2.0E-05	NA	NA	4.0E-01	NA	3.9E+00	2.8E-06	NA	NA	1.2E+01	NA
29	Cobalt							3.5E+01	2.0E-05	NA	NA	NA	NA	3.5E+01	2.8E-06	NA	NA	NA	NA
30	Copper							7.1E+01	2.0E-05	NA	NA	NA	NA	7.1E+01	2.8E-06	NA	NA	NA	NA
31	Cyanide (free)							1.9E+00	2.0E-05	NA	NA	NA	NA	1.9E+00	2.8E-06	NA	NA	NA	NA
32	Di-n-butylphthalate							5.8E-02	2.0E-05	1.0E-01	1.2E-07	1.0E-01	1E-06	5.8E-02	2.8E-06	1.0E-01	1.6E-08	NA	NA
33	Di-n-octylphthalate							0.0E+00	2.0E-05	1.0E-01	0.0E+00	2.0E-02	0E+00	0.0E+00	2.8E-06	1.0E-01	0.0E+00	NA	NA
34	Dibenz(a,h)anthracene							7.3E-01	2.0E-05	NA	NA	NA	NA	7.3E-01	2.8E-06	NA	NA	NA	NA
35	Dibenzofuran							2.2E-01	2.0E-05	1.0E-01	4.4E-07	NA	NA	2.2E-01	2.8E-06	1.0E-01	6.2E-08	NA	NA
36	2,4-Dimethylphenol							0.0E+00	2.0E-05	1.0E-01	0.0E+00	2.0E-02	0E+00	0.0E+00	2.8E-06	1.0E-01	0.0E+00	NA	NA
37	Ethyl benzene							0.0E+00	2.0E-05	2.5E-01	0.0E+00	1.0E-01	0E+00	0.0E+00	2.8E-06	2.5E-01	0.0E+00	NA	NA
38	Fluoranthene							0.0E+00	2.0E-05	NA	NA	NA	NA	0.0E+00	2.8E-06	NA	NA	NA	NA
39	Fluorene							2.9E-01	2.0E-05	NA	NA	NA	NA	2.9E-01	2.8E-06	NA	NA	NA	NA

40 Fluoride	1.6E+01	2.0E-05	NA	NA	NA	NA	1.6E+01	2.8E-06	NA	NA	NA	NA
41 Indeno(1,2,3-cd)pyrene	1.4E+00	2.0E-05	NA	NA	NA	NA	1.4E+00	2.8E-06	NA	NA	NA	NA
42 Iron	4.8E+04	2.0E-05	NA	NA	NA	NA	4.8E+04	2.8E-06	NA	NA	NA	NA
43 Lead	1.1E+02	2.0E-05	NA	NA	NA	NA	1.1E+02	2.8E-06	NA	NA	NA	NA
44 Manganese	1.6E+03	2.0E-05	NA	NA	NA	NA	1.6E+03	2.8E-06	NA	NA	NA	NA
45 Mercury	4.2E-01	2.0E-05	NA	NA	NA	NA	4.2E-01	2.8E-06	NA	NA	NA	NA
46 Methylene chloride	3.8E+00	2.0E-05	2.5E-01	1.9E-05	6.0E-02	3E-04	3.8E+00	2.8E-06	2.5E-01	2.7E-06	7.5E-03	2E-08
47 2-Methylnaphthalene	2.5E-01	2.0E-05	NA	NA	NA	NA	2.5E-01	2.8E-06	NA	NA	NA	NA
48 4-Methylphenol	0.0E+00	2.0E-05	1.0E-01	0.0E+00	5.0E-02	0E+00	0.0E+00	2.8E-06	1.0E-01	0.0E+00	NA	NA
49 Naphthalene	3.3E-01	2.0E-05	NA	NA	NA	NA	3.3E-01	2.8E-06	NA	NA	NA	NA
50 Nickel(dust)	0.0E+00	2.0E-05	NA	NA	NA	NA	0.0E+00	2.8E-06	NA	NA	NA	NA
51 Nickel (salts)	7.7E+01	2.0E-05	NA	NA	NA	NA	7.7E+01	2.8E-06	NA	NA	NA	NA
52 Nitrogen, ammonia	9.1E+01	2.0E-05	NA	NA	NA	NA	9.1E+01	2.8E-06	NA	NA	NA	NA
53 Phenanthrene	2.0E+00	2.0E-05	NA	NA	NA	NA	2.0E+00	2.8E-06	NA	NA	NA	NA
54 Pyrene	4.3E+00	2.0E-05	NA	NA	NA	NA	4.3E+00	2.8E-06	NA	NA	NA	NA
55 Silica	3.5E+01	2.0E-05	NA	NA	NA	NA	3.5E+01	2.8E-06	NA	NA	NA	NA
56 Silver	0.0E+00	2.0E-05	NA	NA	NA	NA	0.0E+00	2.8E-06	NA	NA	NA	NA
57 Sodium	4.6E+02	2.0E-05	NA	NA	NA	NA	4.6E+02	2.8E-06	NA	NA	NA	NA
58 Sulfate	4.5E+01	2.0E-05	NA	NA	NA	NA	4.5E+01	2.8E-06	NA	NA	NA	NA
59 Styrene	0.0E+00	2.0E-05	2.5E-01	0.0E+00	2.0E-01	0E+00	0.0E+00	2.8E-06	2.5E-01	0.0E+00	3.0E-02	0E+00
60 1,1,2,2-PCA	0.0E+00	2.0E-05	2.5E-01	0.0E+00	NA	NA	0.0E+00	2.8E-06	2.5E-01	0.0E+00	2.0E-01	0E+00
61 PCE	0.0E+00	2.0E-05	2.5E-01	0.0E+00	1.0E-02	0E+00	0.0E+00	2.8E-06	2.5E-01	0.0E+00	5.1E-02	0E+00
62 Thallium	0.0E+00	2.0E-05	NA	NA	NA	NA	0.0E+00	2.8E-06	NA	NA	NA	NA
63 Toluene	0.0E+00	2.0E-05	2.5E-01	0.0E+00	2.0E-01	0E+00	0.0E+00	2.8E-06	2.5E-01	0.0E+00	NA	NA
64 1,1,1-TCA	0.0E+00	2.0E-05	2.5E-01	0.0E+00	9.0E-02	0E+00	0.0E+00	2.8E-06	2.5E-01	0.0E+00	NA	NA
65 TCE	0.0E+00	2.0E-05	2.5E-01	0.0E+00	NA	NA	0.0E+00	2.8E-06	2.5E-01	0.0E+00	1.1E-02	0E+00
66 Vanadium	1.8E+01	2.0E-05	NA	NA	NA	NA	1.8E+01	2.8E-06	NA	NA	NA	NA

RANGE NAME: WS3

SITE NAME: ORMET
OPERABLE UNIT: CURRENT/FUTURE
FILE NAME: POP4
LAST UPDATED: 03/13/91

EXPOSURE AND RISK CALCULATION WORKSHEET

LAND USE: CURRENT
POPULATION: TRESPASSER (OR)

EXPOSURE POINT: OHIO RIV.
MEDIUM: SW
ROUTE: ORAL

HIFs = 0.0E+00
HIFc = 8.1E-06
HIFl = 1.1E-06

		SUBCHRONIC					CHRONIC						LIFETIME					
	CHEMICAL NAME	Cs	HIFs	1	DIs	RfDS	HQs	Cc	HIFc	1	DIc	RfDC	HQc	Cl	HIFl	1	DIl	SF	RISK
1	Acenaphthene		0.0E+00		0.0E+00		ERR	0.0E+00	8.1E-06	1	0.0E+00	6.0E-02	0E+00	0.0E+00	1.1E-06	1	0.0E+00	NA	NA
2	Acenaphthylene							0.0E+00	8.1E-06	1	0.0E+00	4.0E-01	0E+00	0.0E+00	1.1E-06	1	0.0E+00	NA	NA
3	Acetone							2.2E-02	8.1E-06	1	1.8E-07	1.0E-01	2E-06	2.2E-02	1.1E-06	1	2.4E-08	NA	NA
4	Aluminum							4.0E+00	8.1E-06	1	3.2E-05	NA	NA	4.0E+00	1.1E-06	1	4.4E-06	NA	NA
5	Anthracene							0.0E+00	8.1E-06	1	0.0E+00	3.0E-01	0E+00	0.0E+00	1.1E-06	1	0.0E+00	NA	NA
6	Antimony							5.0E-02	8.1E-06	1	4.1E-07	4.0E-04	1E-03	5.0E-02	1.1E-06	1	5.5E-08	NA	NA
7	Aroclor 1242							1.2E-03	8.1E-06	1	9.7E-09	NA	NA	1.2E-03	1.1E-06	1	1.3E-09	7.7E+00	1E-08
8	Aroclor 1248							0.0E+00	8.1E-06	1	0.0E+00	NA	NA	0.0E+00	1.1E-06	1	0.0E+00	7.7E+00	0E+00
9	Aroclor 1254							0.0E+00	8.1E-06	1	0.0E+00	NA	NA	0.0E+00	1.1E-06	1	0.0E+00	7.7E+00	0E+00
10	Arsenic							5.9E-03	8.1E-06	1	4.8E-08	1.0E-03	5E-05	5.9E-03	1.1E-06	1	6.5E-09	1.8E+00	1E-08
11	Barium							8.3E-02	8.1E-06	1	6.7E-07	7.0E-02	1.0E-0	8.3E-02	1.1E-06	1	9.1E-08	NA	NA
12	Benzene							0.0E+00	8.1E-06	1	0.0E+00	NA	NA	0.0E+00	1.1E-06	1	0.0E+00	2.9E-02	0E+00
13	Benzo(a)anthracene							0.0E+00	8.1E-06	1	0.0E+00	4.0E-01	0E+00	0.0E+00	1.1E-06	1	0.0E+00	1.2E+01	0E+00
14	Benzo(a)pyrene							0.0E+00	8.1E-06	1	0.0E+00	4.0E-01	0E+00	0.0E+00	1.1E-06	1	0.0E+00	1.2E+01	0E+00
15	Benzo(b)fluoranthene							0.0E+00	8.1E-06	1	0.0E+00	4.0E-01	0E+00	0.0E+00	1.1E-06	1	0.0E+00	1.2E+01	0E+00
16	Benzo(g,h,i)perylene							0.0E+00	8.1E-06	1	0.0E+00	4.0E-01	0E+00	0.0E+00	1.1E-06	1	0.0E+00	NA	NA
17	Benzo(k)fluoranthene							0.0E+00	8.1E-06	1	0.0E+00	4.0E-01	0E+00	0.0E+00	1.1E-06	1	0.0E+00	1.2E+01	0E+00
18	Beryllium							0.0E+00	8.1E-06	1	0.0E+00	5.0E-03	0E+00	0.0E+00	1.1E-06	1	0.0E+00	4.3E+00	0E+00
19	BEHP							0.0E+00	8.1E-06	1	0.0E+00	2.0E-02	0E+00	0.0E+00	1.1E-06	1	0.0E+00	1.4E-02	0E+00
20	2-Butanone							0.0E+00	8.1E-06	1	0.0E+00	5.0E-02	0E+00	0.0E+00	1.1E-06	1	0.0E+00	NA	NA
21	Cadmium (food)							0.0E+00	8.1E-06	1	0.0E+00	1.0E-03	0E+00	0.0E+00	1.1E-06	1	0.0E+00	NA	NA
22	Cadmium (water)							2.3E-03	8.1E-06	1	1.9E-08	5.0E-04	4E-05	2.3E-03	1.1E-06	1	2.5E-09	NA	NA
23	Carbon disulfide							0.0E+00	8.1E-06	1	0.0E+00	1.0E-01	0E+00	0.0E+00	1.1E-06	1	0.0E+00	NA	NA
24	Chloride							2.3E+01	8.1E-06	1	1.9E-04	NA	NA	2.3E+01	1.1E-06	1	2.5E-05	NA	NA
25	Chlorobenzene							0.0E+00	8.1E-06	1	0.0E+00	2.0E-02	0E+00	0.0E+00	1.1E-06	1	0.0E+00	NA	NA
26	Chloroform							0.0E+00	8.1E-06	1	0.0E+00	1.0E-02	0E+00	0.0E+00	1.1E-06	1	0.0E+00	6.1E-03	0E+00
27	Chromium (VI)							1.4E-02	8.1E-06	1	1.1E-07	5.0E-03	2E-05	1.4E-02	1.1E-06	1	1.5E-08	NA	NA
28	Chrysene							0.0E+00	8.1E-06	1	0.0E+00	4.0E-01	0E+00	0.0E+00	1.1E-06	1	0.0E+00	1.2E+01	0E+00
29	Cobalt							8.1E-03	8.1E-06	1	6.6E-08	NA	NA	8.1E-03	1.1E-06	1	8.9E-09	NA	NA
30	Copper							2.1E-02	8.1E-06	1	1.7E-07	3.7E-02	5E-06	2.1E-02	1.1E-06	1	2.3E-08	NA	NA
31	Cyanide (free)							5.6E-01	8.1E-06	1	4.5E-06	2.0E-02	2E-04	5.6E-01	1.1E-06	1	6.2E-07	NA	NA
32	Di-n-butylphthalate							0.0E+00	8.1E-06	1	0.0E+00	1.0E-01	0E+00	0.0E+00	1.1E-06	1	0.0E+00	NA	NA
33	Di-n-octylphthalate							0.0E+00	8.1E-06	1	0.0E+00	2.0E-02	0E+00	0.0E+00	1.1E-06	1	0.0E+00	NA	NA
34	Dibenz(a,h)anthracene							0.0E+00	8.1E-06	1	0.0E+00	4.0E-01	0E+00	0.0E+00	1.1E-06	1	0.0E+00	1.2E+01	0E+00
35	Dibenzofuran							0.0E+00	8.1E-06	1	0.0E+00	NA	NA	0.0E+00	1.1E-06	1	0.0E+00	NA	NA
36	2,4-Dimethylphenol							0.0E+00	8.1E-06	1	0.0E+00	2.0E-02	0E+00	0.0E+00	1.1E-06	1	0.0E+00	NA	NA
37	Ethyl benzene							0.0E+00	8.1E-06	1	0.0E+00	1.0E-01	0E+00	0.0E+00	1.1E-06	1	0.0E+00	NA	NA
38	Fluoranthene							0.0E+00	8.1E-06	1	0.0E+00	4.0E-02	0E+00	0.0E+00	1.1E-06	1	0.0E+00	NA	NA
39	Fluorene							0.0E+00	8.1E-06	1	0.0E+00	4.0E-02	0E+00	0.0E+00	1.1E-06	1	0.0E+00	NA	NA

40	Fluoride	4.3E+00	8.1E-06	1	3.5E-05	6.0E-02	6E-04	4.3E+00	1.1E-06	1	4.7E-06	NA	NA
41	Indeno(1,2,3-cd)pyrene	0.0E+00	8.1E-06	1	0.0E+00	4.0E-01	0E+00	0.0E+00	1.1E-06	1	0.0E+00	1.2E+01	0E+00
42	Iron	7.2E+00	8.1E-06	1	5.8E-05	NA	NA	7.2E+00	1.1E-06	1	7.9E-06	NA	NA
43	Lead	1.1E-02	8.1E-06	1	8.9E-08	NA	NA	1.1E-02	1.1E-06	1	1.2E-08	NA	NA
44	Manganese	6.9E-01	8.1E-06	1	5.6E-06	1.0E-01	6E-05	6.9E-01	1.1E-06	1	7.6E-07	NA	NA
45	Mercury	0.0E+00	8.1E-06	1	0.0E+00	3.0E-04	0E+00	0.0E+00	1.1E-06	1	0.0E+00	NA	NA
46	Methylene chloride	2.6E-03	8.1E-06	1	2.1E-08	6.0E-02	4E-07	2.6E-03	1.1E-06	1	2.9E-09	7.5E-03	2E-11
47	2-Methylnaphthalene	0.0E+00	8.1E-06	1	0.0E+00	4.0E-01	0E+00	0.0E+00	1.1E-06	1	0.0E+00	NA	NA
48	4-Methylphenol	0.0E+00	8.1E-06	1	0.0E+00	5.0E-02	0E+00	0.0E+00	1.1E-06	1	0.0E+00	NA	NA
49	Naphthalene	0.0E+00	8.1E-06	1	0.0E+00	4.0E-01	0E+00	0.0E+00	1.1E-06	1	0.0E+00	NA	NA
50	Nickel(dust)	0.0E+00	8.1E-06	1	0.0E+00	NA	NA	0.0E+00	1.1E-06	1	0.0E+00	NA	NA
51	Nickel (salts)	1.6E-02	8.1E-06	1	1.3E-07	2.0E-02	6E-06	1.6E-02	1.1E-06	1	1.8E-08	NA	NA
52	Nitrogen, ammonia	0.0E+00	8.1E-06	1	0.0E+00	NA	NA	0.0E+00	1.1E-06	1	0.0E+00	NA	NA
53	Phenanthrene	0.0E+00	8.1E-06	1	0.0E+00	4.0E-01	0E+00	0.0E+00	1.1E-06	1	0.0E+00	NA	NA
54	Pyrene	0.0E+00	8.1E-06	1	0.0E+00	3.0E-02	0E+00	0.0E+00	1.1E-06	1	0.0E+00	NA	NA
55	Silica	7.2E+00	8.1E-06	1	5.8E-05	NA	NA	7.2E+00	1.1E-06	1	7.9E-06	NA	NA
56	Silver	0.0E+00	8.1E-06	1	0.0E+00	3.0E-03	0E+00	0.0E+00	1.1E-06	1	0.0E+00	NA	NA
57	Sodium	6.5E+01	8.1E-06	1	5.3E-04	NA	NA	6.5E+01	1.1E-06	1	7.2E-05	NA	NA
58	Sulfate	1.1E+02	8.1E-06	1	8.9E-04	NA	NA	1.1E+02	1.1E-06	1	1.2E-04	NA	NA
59	Styrene	0.0E+00	8.1E-06	1	0.0E+00	2.0E-01	0E+00	0.0E+00	1.1E-06	1	0.0E+00	3.0E-02	0E+00
60	1,1,2,2-PCA	0.0E+00	8.1E-06	1	0.0E+00	NA	NA	0.0E+00	1.1E-06	1	0.0E+00	2.0E-01	0E+00
61	PCE	0.0E+00	8.1E-06	1	0.0E+00	1.0E-02	0E+00	0.0E+00	1.1E-06	1	0.0E+00	5.1E-02	0E+00
62	Thallium	0.0E+00	8.1E-06	1	0.0E+00	7.0E-05	0E+00	0.0E+00	1.1E-06	1	0.0E+00	NA	NA
63	Toluene	0.0E+00	8.1E-06	1	0.0E+00	2.0E-01	0E+00	0.0E+00	1.1E-06	1	0.0E+00	NA	NA
64	1,1,1-TCA	0.0E+00	8.1E-06	1	0.0E+00	9.0E-02	0E+00	0.0E+00	1.1E-06	1	0.0E+00	NA	NA
65	TCE	0.0E+00	8.1E-06	1	0.0E+00	NA	NA	0.0E+00	1.1E-06	1	0.0E+00	1.1E-02	0E+00
66	Vanadium	0.0E+00	8.1E-06	1	0.0E+00	7.0E-03	0E+00	0.0E+00	1.1E-06	1	0.0E+00	NA	NA

RANGE NAME: WS4

SITE NAME: ORMET
OPERABLE UNIT: CURRENT/FUTURE
FILE NAME: POP4
LAST UPDATED: 03/13/91

EXPOSURE AND RISK CALCULATION WORKSHEET

LAND USE: CURRENT
POPULATION: TRESPASSER (OR)

EXPOSURE POINT: OHIO RIV.
MEDIUM: SW
ROUTE: DERMAL

HIFs = 0.0E+00
HIFc = 7.9E-06
HIFl = 1.1E-06

		SUBCHRONIC					CHRONIC						LIFETIME					
	CHEMICAL NAME	Cs	HIFs	ABS	DIs	RfDS	HQs	Cc	HIFc	ABS	DIc	RfDC	HQc	Cl	HIFl	ABS	DIl	SF	RISK
1	Acenaphthene		0.0E+00		0.0E+00		ERR	0.0E+00	7.9E-06	1.0E-01	0.0E+00	NA	NA	0.0E+00	1.1E-06	1.0E-01	0.0E+00	NA	NA
2	Acenaphthylene							0.0E+00	7.9E-06	NA	NA	NA	NA	0.0E+00	1.1E-06	NA	NA	NA	NA
3	Acetone							2.2E-02	7.9E-06	2.5E-01	4.3E-08	1.0E-01	4E-07	2.2E-02	1.1E-06	2.5E-01	6.1E-09	NA	NA
4	Aluminum							4.0E+00	7.9E-06	NA	NA	NA	NA	4.0E+00	1.1E-06	NA	NA	NA	NA
5	Anthracene							0.0E+00	7.9E-06	NA	NA	NA	NA	0.0E+00	1.1E-06	NA	NA	NA	NA
6	Antimony							5.0E-02	7.9E-06	NA	NA	NA	NA	5.0E-02	1.1E-06	NA	NA	NA	NA
7	Aroclor 1242							1.2E-03	7.9E-06	1.0E-01	9.5E-10	NA	NA	1.2E-03	1.1E-06	1.0E-01	1.3E-10	7.7E+00	1E-09
8	Aroclor 1248							0.0E+00	7.9E-06	1.0E-01	0.0E+00	NA	NA	0.0E+00	1.1E-06	1.0E-01	0.0E+00	7.7E+00	0E+00
9	Aroclor 1254							0.0E+00	7.9E-06	1.0E-01	0.0E+00	NA	NA	0.0E+00	1.1E-06	1.0E-01	0.0E+00	7.7E+00	0E+00
10	Arsenic							5.9E-03	7.9E-06	NA	NA	NA	NA	5.9E-03	1.1E-06	NA	NA	NA	NA
11	Barium							8.3E-02	7.9E-06	NA	NA	NA	NA	8.3E-02	1.1E-06	NA	NA	NA	NA
12	Benzene							0.0E+00	7.9E-06	2.5E-01	0.0E+00	NA	NA	0.0E+00	1.1E-06	2.5E-01	0.0E+00	2.9E-02	0E+00
13	Benzo(a)anthracene							0.0E+00	7.9E-06	NA	NA	NA	NA	0.0E+00	1.1E-06	NA	NA	NA	NA
14	Benzo(a)pyrene							0.0E+00	7.9E-06	NA	NA	NA	NA	0.0E+00	1.1E-06	NA	NA	NA	NA
15	Benzo(b)fluoranthene							0.0E+00	7.9E-06	NA	NA	NA	NA	0.0E+00	1.1E-06	NA	NA	NA	NA
16	Benzo(g,h,i)perylene							0.0E+00	7.9E-06	NA	NA	NA	NA	0.0E+00	1.1E-06	NA	NA	NA	NA
17	Benzo(k)fluoranthene							0.0E+00	7.9E-06	NA	NA	NA	NA	0.0E+00	1.1E-06	NA	NA	NA	NA
18	Beryllium							0.0E+00	7.9E-06	NA	NA	NA	NA	0.0E+00	1.1E-06	NA	NA	NA	NA
19	BEHP							0.0E+00	7.9E-06	1.0E-01	0.0E+00	2.0E-02	0E+00	0.0E+00	1.1E-06	1.0E-01	0.0E+00	1.4E-02	0E+00
20	2-Butanone							0.0E+00	7.9E-06	2.5E-01	0.0E+00	5.0E-02	0E+00	0.0E+00	1.1E-06	2.5E-01	0.0E+00	NA	NA
21	Cadmium (food)							0.0E+00	7.9E-06	NA	NA	NA	NA	0.0E+00	1.1E-06	NA	NA	NA	NA
22	Cadmium (water)							2.3E-03	7.9E-06	NA	NA	NA	NA	2.3E-03	1.1E-06	NA	NA	NA	NA
23	Carbon disulfide							0.0E+00	7.9E-06	2.5E-01	0.0E+00	1.0E-01	0E+00	0.0E+00	1.1E-06	2.5E-01	0.0E+00	NA	NA
24	Chloride							2.3E+01	7.9E-06	NA	NA	NA	NA	2.3E+01	1.1E-06	NA	NA	NA	NA
25	Chlorobenzene							0.0E+00	7.9E-06	2.5E-01	0.0E+00	2.0E-02	0E+00	0.0E+00	1.1E-06	2.5E-01	0.0E+00	NA	NA
26	Chloroform							0.0E+00	7.9E-06	2.5E-01	0.0E+00	1.0E-02	0E+00	0.0E+00	1.1E-06	2.5E-01	0.0E+00	6.1E-03	0E+00
27	Chromium (VI)							1.4E-02	7.9E-06	NA	NA	NA	NA	1.4E-02	1.1E-06	NA	NA	NA	NA
28	Chrysene							0.0E+00	7.9E-06	NA	NA	4.0E-01	NA	0.0E+00	1.1E-06	NA	NA	1.2E+01	NA
29	Cobalt							8.1E-03	7.9E-06	NA	NA	NA	NA	8.1E-03	1.1E-06	NA	NA	NA	NA
30	Copper							2.1E-02	7.9E-06	NA	NA	NA	NA	2.1E-02	1.1E-06	NA	NA	NA	NA
31	Cyanide (free)							5.6E-01	7.9E-06	NA	NA	NA	NA	5.6E-01	1.1E-06	NA	NA	NA	NA
32	Di-n-butylphthalate							0.0E+00	7.9E-06	1.0E-01	0.0E+00	1.0E-01	0E+00	0.0E+00	1.1E-06	1.0E-01	0.0E+00	NA	NA
33	Di-n-octylphthalate							0.0E+00	7.9E-06	1.0E-01	0.0E+00	2.0E-02	0E+00	0.0E+00	1.1E-06	1.0E-01	0.0E+00	NA	NA
34	Dibenz(a,h)anthracene							0.0E+00	7.9E-06	NA	NA	NA	NA	0.0E+00	1.1E-06	NA	NA	NA	NA
35	Dibenzofuran							0.0E+00	7.9E-06	1.0E-01	0.0E+00	NA	NA	0.0E+00	1.1E-06	1.0E-01	0.0E+00	NA	NA
36	2,4-Dimethylphenol							0.0E+00	7.9E-06	1.0E-01	0.0E+00	2.0E-02	0E+00	0.0E+00	1.1E-06	1.0E-01	0.0E+00	NA	NA
37	Ethyl benzene							0.0E+00	7.9E-06	2.5E-01	0.0E+00	1.0E-01	0E+00	0.0E+00	1.1E-06	2.5E-01	0.0E+00	NA	NA
38	Fluoranthene							0.0E+00	7.9E-06	NA	NA	NA	NA	0.0E+00	1.1E-06	NA	NA	NA	NA
39	Fluorene							0.0E+00	7.9E-06	NA	NA	NA	NA	0.0E+00	1.1E-06	NA	NA	NA	NA

40	Fluoride	4.3E+00	7.9E-06	NA	NA	NA	NA	4.3E+00	1.1E-06	NA	NA	NA	NA
41	Indeno(1,2,3-cd)pyrene	0.0E+00	7.9E-06	NA	NA	NA	NA	0.0E+00	1.1E-06	NA	NA	NA	NA
42	Iron	7.2E+00	7.9E-06	NA	NA	NA	NA	7.2E+00	1.1E-06	NA	NA	NA	NA
43	Lead	1.1E-02	7.9E-06	NA	NA	NA	NA	1.1E-02	1.1E-06	NA	NA	NA	NA
44	Manganese	6.9E-01	7.9E-06	NA	NA	NA	NA	6.9E-01	1.1E-06	NA	NA	NA	NA
45	Mercury	0.0E+00	7.9E-06	NA	NA	NA	NA	0.0E+00	1.1E-06	NA	NA	NA	NA
46	Methylene chloride	2.6E-03	7.9E-06	2.5E-01	5.1E-09	6.0E-02	9E-08	2.6E-03	1.1E-06	2.5E-01	7.2E-10	7.5E-03	5E-12
47	2-Methylnaphthalene	0.0E+00	7.9E-06	NA	NA	NA	NA	0.0E+00	1.1E-06	NA	NA	NA	NA
48	4-Methylphenol	0.0E+00	7.9E-06	1.0E-01	0.0E+00	5.0E-02	0E+00	0.0E+00	1.1E-06	1.0E-01	0.0E+00	NA	NA
49	Naphthalene	0.0E+00	7.9E-06	NA	NA	NA	NA	0.0E+00	1.1E-06	NA	NA	NA	NA
50	Nickel(dust)	0.0E+00	7.9E-06	NA	NA	NA	NA	0.0E+00	1.1E-06	NA	NA	NA	NA
51	Nickel (salts)	1.6E-02	7.9E-06	NA	NA	NA	NA	1.6E-02	1.1E-06	NA	NA	NA	NA
52	Nitrogen, ammonia	0.0E+00	7.9E-06	NA	NA	NA	NA	0.0E+00	1.1E-06	NA	NA	NA	NA
53	Phenanthrene	0.0E+00	7.9E-06	NA	NA	NA	NA	0.0E+00	1.1E-06	NA	NA	NA	NA
54	Pyrene	0.0E+00	7.9E-06	NA	NA	NA	NA	0.0E+00	1.1E-06	NA	NA	NA	NA
55	Silica	7.2E+00	7.9E-06	NA	NA	NA	NA	7.2E+00	1.1E-06	NA	NA	NA	NA
56	Silver	0.0E+00	7.9E-06	NA	NA	NA	NA	0.0E+00	1.1E-06	NA	NA	NA	NA
57	Sodium	6.5E+01	7.9E-06	NA	NA	NA	NA	6.5E+01	1.1E-06	NA	NA	NA	NA
58	Sulfate	1.1E+02	7.9E-06	NA	NA	NA	NA	1.1E+02	1.1E-06	NA	NA	NA	NA
59	Styrene	0.0E+00	7.9E-06	2.5E-01	0.0E+00	2.0E-01	0E+00	0.0E+00	1.1E-06	2.5E-01	0.0E+00	3.0E-02	0E+00
60	1,1,2,2-PCA	0.0E+00	7.9E-06	2.5E-01	0.0E+00	NA	NA	0.0E+00	1.1E-06	2.5E-01	0.0E+00	2.0E-01	0E+00
61	PCE	0.0E+00	7.9E-06	2.5E-01	0.0E+00	1.0E-02	0E+00	0.0E+00	1.1E-06	2.5E-01	0.0E+00	5.1E-02	0E+00
62	Thallium	0.0E+00	7.9E-06	NA	NA	NA	NA	0.0E+00	1.1E-06	NA	NA	NA	NA
63	Toluene	0.0E+00	7.9E-06	2.5E-01	0.0E+00	2.0E-01	0E+00	0.0E+00	1.1E-06	2.5E-01	0.0E+00	NA	NA
64	1,1,1-TCA	0.0E+00	7.9E-06	2.5E-01	0.0E+00	9.0E-02	0E+00	0.0E+00	1.1E-06	2.5E-01	0.0E+00	NA	NA
65	TCE	0.0E+00	7.9E-06	2.5E-01	0.0E+00	NA	NA	0.0E+00	1.1E-06	2.5E-01	0.0E+00	1.1E-02	0E+00
66	Vanadium	0.0E+00	7.9E-06	NA	NA	NA	NA	0.0E+00	1.1E-06	NA	NA	NA	NA

RANGE NAME: CSUM

SITE NAME: ORMET
OPERABLE UNIT: CURRENT/FUTURE
FILE NAME: POP4
LAST UPDATED: 03/13/91

CHRONIC EXPOSURE SUMMARY

CURRENT
TRESPASSER (OR)

CHRONIC DAILY INTAKE (mg/kg/day)

	CHEMICAL NAME	SCENARIO 1 OHIO RIV. SEDIMENT ORAL (FROM WS1)	SCENARIO 2 OHIO RIV. SEDIMENT DERMAL (FROM WS2)	SCENARIO 3 OHIO RIV. SW ORAL (FROM WS3)	SCENARIO 4 OHIO RIV. SW DERMAL (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
1	Acenaphthene	1.4E-08	3.4E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00
2	Acenaphthylene	1.5E-09	NA	0.0E+00	NA		
3	Acetone	0.0E+00	0.0E+00	1.8E-07	4.3E-08		
4	Aluminum	1.1E-04	NA	3.2E-05	NA		
5	Anthracene	6.1E-09	NA	0.0E+00	NA		
6	Antimony	0.0E+00	NA	4.1E-07	NA		
7	Aroclor 1242	0.0E+00	0.0E+00	9.7E-09	9.5E-10		
8	Aroclor 1248	1.6E-08	4.0E-06	0.0E+00	0.0E+00		
9	Aroclor 1254	0.0E+00	0.0E+00	0.0E+00	0.0E+00		
10	Arsenic	8.9E-08	NA	4.8E-08	NA		
11	Barium	1.5E-06	NA	6.7E-07	NA		
12	Benzene	1.7E-10	1.1E-07	0.0E+00	0.0E+00		
13	Benzo(a)anthra	2.5E-08	NA	0.0E+00	NA		
14	Benzo(a)pyrene	2.6E-08	NA	0.0E+00	NA		
15	Benzo(b)fluora	3.6E-08	NA	0.0E+00	NA		
16	Benzo(g,h,i)pe	2.2E-08	NA	0.0E+00	NA		
17	Benzo(k)fluora	2.0E-08	NA	0.0E+00	NA		
18	Beryllium	1.7E-08	NA	0.0E+00	NA		
19	BEHP	2.7E-08	6.6E-06	0.0E+00	0.0E+00		
20	2-Butanone	8.1E-10	5.0E-07	0.0E+00	0.0E+00		
21	Cadmium (food)	1.7E-08	NA	0.0E+00	NA		
22	Cadmium (water	0.0E+00	NA	1.9E-08	NA		
23	Carbon disulfi	0.0E+00	0.0E+00	0.0E+00	0.0E+00		
24	Chloride	2.3E-06	NA	1.9E-04	NA		
25	Chlorobenzene	0.0E+00	0.0E+00	0.0E+00	0.0E+00		
26	Chloroform	5.7E-11	3.5E-08	0.0E+00	0.0E+00		
27	Chromium (VI)	4.9E-07	NA	1.1E-07	NA		
28	Chrysene	3.2E-08	NA	0.0E+00	NA		
29	Cobalt	2.8E-07	NA	6.6E-08	NA		
30	Copper	5.8E-07	NA	1.7E-07	NA		
31	Cyanide (free)	1.5E-08	NA	4.5E-06	NA		
32	Di-n-butylphth	4.7E-10	1.2E-07	0.0E+00	0.0E+00		
33	Di-n-octylphth	0.0E+00	0.0E+00	0.0E+00	0.0E+00		
34	Dibenz(a,h)ant	5.9E-09	NA	0.0E+00	NA		
35	Dibenzofuran	1.8E-09	4.4E-07	0.0E+00	0.0E+00		
36	2,4-Dimethylph	0.0E+00	0.0E+00	0.0E+00	0.0E+00		
37	Ethyl benzene	0.0E+00	0.0E+00	0.0E+00	0.0E+00		
38	Fluoranthene	0.0E+00	NA	0.0E+00	NA		
39	Fluorene	2.3E-09	NA	0.0E+00	NA		
40	Fluoride	1.3E-07	NA	3.5E-05	NA		
41	Indeno(1,2,3-c	1.1E-08	NA	0.0E+00	NA		
42	Iron	3.9E-04	NA	5.8E-05	NA		

CHRONIC RISK SUMMARY

CURRENT
TRESPASSER (OR)

CHRONIC HAZARD QUOTIENT

SCENARIO 1 OHIO RIV. SEDIMENT ORAL (FROM WS1)	SCENARIO 2 OHIO RIV. SEDIMENT DERMAL (FROM WS2)	SCENARIO 3 OHIO RIV. SW ORAL (FROM WS3)	SCENARIO 4 OHIO RIV. SW DERMAL (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
2E-07	NA	0E+00	NA	0E+00	0E+00
4E-09	NA	0E+00	NA		
0E+00	0E+00	2E-06	4E-07		
NA	NA	NA	NA		
2E-08	NA	0E+00	NA		
0E+00	NA	1E-03	NA		
NA	NA	NA	NA		
NA	NA	NA	NA		
NA	NA	NA	NA		
9E-05	NA	5E-05	NA		
2E-05	NA	1E-05	NA		
NA	NA	NA	NA		
6E-08	NA	0E+00	NA		
6E-08	NA	0E+00	NA		
9E-08	NA	0E+00	NA		
5E-08	NA	0E+00	NA		
5E-08	NA	0E+00	NA		
3E-06	NA	0E+00	NA		
1E-06	3E-04	0E+00	0E+00		
2E-08	1E-05	0E+00	0E+00		
2E-05	NA	0E+00	NA		
0E+00	NA	4E-05	NA		
0E+00	0E+00	0E+00	0E+00		
NA	NA	NA	NA		
0E+00	0E+00	0E+00	0E+00		
6E-09	4E-06	0E+00	0E+00		
1E-04	NA	2E-05	NA		
8E-08	NA	0E+00	NA		
NA	NA	NA	NA		
2E-05	NA	5E-06	NA		
8E-07	NA	2E-04	NA		
5E-09	1E-06	0E+00	0E+00		
0E+00	0E+00	0E+00	0E+00		
1E-08	NA	0E+00	NA		
NA	NA	NA	NA		
0E+00	0E+00	0E+00	0E+00		
0E+00	0E+00	0E+00	0E+00		
0E+00	NA	0E+00	NA		
6E-08	NA	0E+00	NA		
2E-06	NA	6E-04	NA		
3E-08	NA	0E+00	NA		
NA	NA	NA	NA		

43	Lead	8.9E-07	NA	8.9E-08	NA		NA	NA	NA	NA	
44	Manganese	1.3E-05	NA	5.6E-06	NA		1E-04	NA	6E-05	NA	
45	Mercury	3.4E-09	NA	0.0E+00	NA		1E-05	NA	0E+00	NA	
46	Methylene chlo	3.1E-08	1.9E-05	2.1E-08	5.1E-09		5E-07	3E-04	4E-07	9E-08	
47	2-Methylnaphth	2.0E-09	NA	0.0E+00	NA		5E-09	NA	0E+00	NA	
48	4-Methylphenol	0.0E+00	0.0E+00	0.0E+00	0.0E+00		0E+00	0E+00	0E+00	0E+00	
49	Naphthalene	2.7E-09	NA	0.0E+00	NA		7E-09	NA	0E+00	NA	
50	Nickel(dust)	0.0E+00	NA	0.0E+00	NA		NA	NA	NA	NA	
51	Nickel (salts)	6.2E-07	NA	1.3E-07	NA		3E-05	NA	6E-06	NA	
52	Nitrogen, ammo	7.4E-07	NA	0.0E+00	NA		NA	NA	NA	NA	
53	Phenanthrene	1.6E-08	NA	0.0E+00	NA		4E-08	NA	0E+00	NA	
54	Pyrene	3.5E-08	NA	0.0E+00	NA		1E-06	NA	0E+00	NA	
55	Silica	2.8E-07	NA	5.8E-05	NA		NA	NA	NA	NA	
56	Silver	0.0E+00	NA	0.0E+00	NA		0E+00	NA	0E+00	NA	
57	Sodium	3.7E-06	NA	5.3E-04	NA		NA	NA	NA	NA	
58	Sulfate	3.6E-07	NA	8.9E-04	NA		NA	NA	NA	NA	
59	Styrene	0.0E+00	0.0E+00	0.0E+00	0.0E+00		0E+00	0E+00	0E+00	0E+00	
60	1,1,2,2-PCA	0.0E+00	0.0E+00	0.0E+00	0.0E+00		NA	NA	NA	NA	
61	PCE	0.0E+00	0.0E+00	0.0E+00	0.0E+00		0E+00	0E+00	0E+00	0E+00	
62	Thallium	0.0E+00	NA	0.0E+00	NA		0E+00	NA	0E+00	NA	
63	Toluene	0.0E+00	0.0E+00	0.0E+00	0.0E+00		0E+00	0E+00	0E+00	0E+00	
64	1,1,1-TCA	0.0E+00	0.0E+00	0.0E+00	0.0E+00		0E+00	0E+00	0E+00	0E+00	
65	TCE	0.0E+00	0.0E+00	0.0E+00	0.0E+00		NA	NA	NA	NA	
66	Vanadium	1.5E-07	NA	0.0E+00	NA		2E-05	NA	0E+00	NA	
						PATHWAY SUM (HI)	4E-04	6E-04	2E-03	5E-07	0E+00	0E+00
						POPULATION TOTAL	3E-03				

RANGE NAME: LSUM

SITE NAME: ORMET
OPERABLE UNIT: CURRENT/FUTURE
FILE NAME: POP4
LAST UPDATED: 03/13/91

LIFETIME EXPOSURE SUMMARY

CURRENT
TRESPASSER (OR)

LIFETIME AVERAGE DAILY INTAKE (mg/kg/day)

	CHEMICAL NAME	SCENARIO 1 OHIO RIV. SEDIMENT ORAL (FROM WS1)	SCENARIO 2 OHIO RIV. SEDIMENT DERMAL (FROM WS2)	SCENARIO 3 OHIO RIV. SW ORAL (FROM WS3)	SCENARIO 4 OHIO RIV. SW DERMAL (FROM WS4)	SCENARIO 5 0 0 (FROM WS5)	SCENARIO 6 0 0 (FROM WS6)
1	Acenaphthene	1.9E-09	4.8E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00
2	Acenaphthylene	2.0E-10	NA	0.0E+00	NA		
3	Acetone	0.0E+00	0.0E+00	2.4E-08	6.1E-09		
4	Aluminum	1.5E-05	NA	4.4E-06	NA		
5	Anthracene	8.3E-10	NA	0.0E+00	NA		
6	Antimony	0.0E+00	NA	5.5E-08	NA		
7	Aroclor 1242	0.0E+00	0.0E+00	1.3E-09	1.3E-10		
8	Aroclor 1248	2.2E-09	5.6E-07	0.0E+00	0.0E+00		
9	Aroclor 1254	0.0E+00	0.0E+00	0.0E+00	0.0E+00		
10	Arsenic	1.2E-08	NA	6.5E-09	NA		
11	Barium	2.0E-07	NA	9.1E-08	NA		
12	Benzene	2.3E-11	1.5E-08	0.0E+00	0.0E+00		
13	Benzo(a)anthra	3.4E-09	NA	0.0E+00	NA		
14	Benzo(a)pyrene	3.5E-09	NA	0.0E+00	NA		
15	Benzo(b)fluora	5.0E-09	NA	0.0E+00	NA		
16	Benzo(g,h,i)pe	3.0E-09	NA	0.0E+00	NA		
17	Benzo(k)fluora	2.8E-09	NA	0.0E+00	NA		
18	Beryllium	2.3E-09	NA	0.0E+00	NA		
19	BEHP	3.6E-09	9.2E-07	0.0E+00	0.0E+00		
20	2-Butanone	1.1E-10	7.0E-08	0.0E+00	0.0E+00		
21	Cadmium (food)	2.3E-09	NA	0.0E+00	NA		
22	Cadmium (water	0.0E+00	NA	2.5E-09	NA		
23	Carbon disulfi	0.0E+00	0.0E+00	0.0E+00	0.0E+00		
24	Chloride	3.1E-07	NA	2.5E-05	NA		
25	Chlorobenzene	0.0E+00	0.0E+00	0.0E+00	0.0E+00		
26	Chloroform	7.7E-12	4.9E-09	0.0E+00	0.0E+00		
27	Chromium (VI)	6.6E-08	NA	1.5E-08	NA		
28	Chrysene	4.3E-09	NA	0.0E+00	NA		
29	Cobalt	3.9E-08	NA	8.9E-09	NA		
30	Copper	7.8E-08	NA	2.3E-08	NA		
31	Cyanide (free)	2.1E-09	NA	6.2E-07	NA		
32	Di-n-butylphth	6.4E-11	1.6E-08	0.0E+00	0.0E+00		
33	Di-n-octylphth	0.0E+00	0.0E+00	0.0E+00	0.0E+00		
34	Dibenz(a,h)ant	8.0E-10	NA	0.0E+00	NA		
35	Dibenzofuran	2.4E-10	6.2E-08	0.0E+00	0.0E+00		
36	2,4-Dimethylph	0.0E+00	0.0E+00	0.0E+00	0.0E+00		
37	Ethyl benzene	0.0E+00	0.0E+00	0.0E+00	0.0E+00		
38	Fluoranthene	0.0E+00	NA	0.0E+00	NA		
39	Fluorene	3.2E-10	NA	0.0E+00	NA		
40	Fluoride	1.8E-08	NA	4.7E-06	NA		
41	Indeno(1,2,3-c	1.5E-09	NA	0.0E+00	NA		
42	Iron	5.3E-05	NA	7.9E-06	NA		

LIFETIME RISK SUMMARY

CURRENT
TRESPASSER (OR)

LIFETIME EXCESS CANCER RISK

SCENARIO 1 OHIO RIV. SEDIMENT ORAL (FROM WS1)	SCENARIO 2 OHIO RIV. SEDIMENT DERMAL (FROM WS2)	SCENARIO 3 OHIO RIV. SW ORAL (FROM WS3)	SCENARIO 4 OHIO RIV. SW DERMAL (FROM WS4)	SCENARIO 5 0 0 (FROM WS5)	SCENARIO 6 0 0 (FROM WS6)
NA	NA	NA	NA	0E+00	0E+00
NA	NA	NA	NA		
NA	NA	NA	NA		
NA	NA	NA	NA		
NA	NA	NA	NA		
NA	NA	NA	NA		
0E+00	0E+00	1E-08	1E-09		
2E-08	4E-06	0E+00	0E+00		
0E+00	0E+00	0E+00	0E+00		
2E-08	NA	1E-08	NA		
NA	NA	NA	NA		
0E+00	4E-10	0E+00	0E+00		
4E-08	NA	0E+00	NA		
4E-08	NA	0E+00	NA		
6E-08	NA	0E+00	NA		
NA	NA	NA	NA		
3E-08	NA	0E+00	NA		
1E-08	NA	0E+00	NA		
5E-11	1E-08	0E+00	0E+00		
NA	NA	NA	NA		
NA	NA	NA	NA		
NA	NA	NA	NA		
NA	NA	NA	NA		
NA	NA	NA	NA		
0E+00	3E-11	0E+00	0E+00		
NA	NA	NA	NA		
5E-08	NA	0E+00	NA		
NA	NA	NA	NA		
NA	NA	NA	NA		
NA	NA	NA	NA		
NA	NA	NA	NA		
NA	NA	NA	NA		
1E-08	NA	0E+00	NA		
NA	NA	NA	NA		
NA	NA	NA	NA		
NA	NA	NA	NA		
NA	NA	NA	NA		
NA	NA	NA	NA		
2E-08	NA	0E+00	NA		
NA	NA	NA	NA		

43	Lead	1.2E-07	NA	1.2E-08	NA	NA	NA	NA	NA		
44	Manganese	1.8E-06	NA	7.6E-07	NA	NA	NA	NA	NA		
45	Mercury	4.6E-10	NA	0.0E+00	NA	NA	NA	NA	NA		
46	Methylene chlo	4.2E-09	2.7E-06	2.9E-09	7.2E-10	3E-11	2E-08	2E-11	5E-12		
47	2-Methylnaphth	2.8E-10	NA	0.0E+00	NA	NA	NA	NA	NA		
48	4-Methylphenol	0.0E+00	0.0E+00	0.0E+00	0.0E+00	NA	NA	NA	NA		
49	Naphthalene	3.6E-10	NA	0.0E+00	NA	NA	NA	NA	NA		
50	Nickel(dust)	0.0E+00	NA	0.0E+00	NA	NA	NA	NA	NA		
51	Nickel (salts)	8.5E-08	NA	1.8E-08	NA	NA	NA	NA	NA		
52	Nitrogen, ammo	1.0E-07	NA	0.0E+00	NA	NA	NA	NA	NA		
53	Phenanthrene	2.2E-09	NA	0.0E+00	NA	NA	NA	NA	NA		
54	Pyrene	4.7E-09	NA	0.0E+00	NA	NA	NA	NA	NA		
55	Silica	3.9E-08	NA	7.9E-06	NA	NA	NA	NA	NA		
56	Silver	0.0E+00	NA	0.0E+00	NA	NA	NA	NA	NA		
57	Sodium	5.1E-07	NA	7.2E-05	NA	NA	NA	NA	NA		
58	Sulfate	5.0E-08	NA	1.2E-04	NA	NA	NA	NA	NA		
59	Styrene	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0E+00	0E+00	0E+00	0E+00		
60	1,1,2,2-PCA	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0E+00	0E+00	0E+00	0E+00		
61	PCE	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0E+00	0E+00	0E+00	0E+00		
62	Thallium	0.0E+00	NA	0.0E+00	NA	NA	NA	NA	NA		
63	Toluene	0.0E+00	0.0E+00	0.0E+00	0.0E+00	NA	NA	NA	NA		
64	1,1,1-TCA	0.0E+00	0.0E+00	0.0E+00	0.0E+00	NA	NA	NA	NA		
65	TCE	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0E+00	0E+00	0E+00	0E+00		
66	Vanadium	2.0E-08	NA	0.0E+00	NA	NA	NA	NA	NA		
					TOTAL PATHWAY CANCER RISK	3E-07	4E-06	2E-08	1E-09	0E+00	0E+00
					POPULATION TOTAL EXCESS RISK	4E-06					

RANGE NAME: WS1

EXPOSURE AND RISK CALCULATION WORKSHEET

SITE NAME: ORMET
OPERABLE UNIT: CURRENT/FUTURE
FILE NAME: POP5
LAST UPDATED: 03/13/91

LAND USE: CURRENT
POPULATION: TRESPASSER (BW)

EXPOSURE POINT: BACKWATER
MEDIUM: SEDIMENT
ROUTE: ORAL

HIFs = 0.0E+00
HIFc = 8.1E-09
HIFl = 1.1E-09

		SUBCHRONIC					CHRONIC						LIFETIME					
	CHEMICAL NAME	Cs	HIFs	1	DIs	RfDS	HQs	Cc	HIFc	1	DIc	RfDC	HQc	Cl	HIFl	1	DIl	SF	RISK
1	Acenaphthene		0.0E+00		0.0E+00		ERR	1.5E+01	8.1E-09	1	1.2E-07	6.0E-02	2E-06	1.5E+01	1.1E-09	1	1.7E-08	NA	NA
2	Acenaphthylene							2.5E-01	8.1E-09	1	2.0E-09	4.0E-01	5E-09	2.5E-01	1.1E-09	1	2.8E-10	NA	NA
3	Acetone							0.0E+00	8.1E-09	1	0.0E+00	1.0E-01	0E+00	0.0E+00	1.1E-09	1	0.0E+00	NA	NA
4	Aluminum							1.0E+04	8.1E-09	1	8.1E-05	NA	NA	1.0E+04	1.1E-09	1	1.1E-05	NA	NA
5	Anthracene							2.5E+01	8.1E-09	1	2.0E-07	3.0E-01	7E-07	2.5E+01	1.1E-09	1	2.8E-08	NA	NA
6	Antimony							0.0E+00	8.1E-09	1	0.0E+00	4.0E-04	0E+00	0.0E+00	1.1E-09	1	0.0E+00	NA	NA
7	Aroclor 1242							0.0E+00	8.1E-09	1	0.0E+00	NA	NA	0.0E+00	1.1E-09	1	0.0E+00	7.7E+00	0E+00
8	Aroclor 1248							9.8E+01	8.1E-09	1	7.9E-07	NA	NA	9.8E+01	1.1E-09	1	1.1E-07	7.7E+00	8E-07
9	Aroclor 1254							0.0E+00	8.1E-09	1	0.0E+00	NA	NA	0.0E+00	1.1E-09	1	0.0E+00	7.7E+00	0E+00
10	Arsenic							5.3E+00	8.1E-09	1	4.3E-08	1.0E-03	4E-05	5.3E+00	1.1E-09	1	5.8E-09	1.8E+00	1E-08
11	Barium							7.3E+01	8.1E-09	1	5.9E-07	7.0E-02	8E-06	7.3E+01	1.1E-09	1	8.0E-08	NA	NA
12	Benzene							0.0E+00	8.1E-09	1	0.0E+00	NA	NA	0.0E+00	1.1E-09	1	0.0E+00	2.9E-02	0E+00
13	Benzo(a)anthracene							1.2E+02	8.1E-09	1	9.7E-07	4.0E-01	2E-06	1.2E+02	1.1E-09	1	1.3E-07	1.2E+01	2E-06
14	Benzo(a)pyrene							1.8E+02	8.1E-09	1	1.5E-06	4.0E-01	4E-06	1.8E+02	1.1E-09	1	2.0E-07	1.2E+01	2E-06
15	Benzo(b)fluoranthene							3.9E+02	8.1E-09	1	3.2E-06	4.0E-01	8E-06	3.9E+02	1.1E-09	1	4.3E-07	1.2E+01	5E-06
16	Benzo(g,h,i)perylene							8.8E+01	8.1E-09	1	7.1E-07	4.0E-01	2E-06	8.8E+01	1.1E-09	1	9.7E-08	NA	NA
17	Benzo(k)fluoranthene							1.7E+02	8.1E-09	1	1.4E-06	4.0E-01	3E-06	1.7E+02	1.1E-09	1	1.9E-07	1.2E+01	2E-06
18	Beryllium							1.1E+00	8.1E-09	1	8.9E-09	5.0E-03	2E-06	1.1E+00	1.1E-09	1	1.2E-09	4.3E+00	5E-09
19	BEHP							5.7E-01	8.1E-09	1	4.6E-09	2.0E-02	2E-07	5.7E-01	1.1E-09	1	6.3E-10	1.4E-02	9E-12
20	2-Butanone							0.0E+00	8.1E-09	1	0.0E+00	5.0E-02	0E+00	0.0E+00	1.1E-09	1	0.0E+00	NA	NA
21	Cadmium (food)							0.0E+00	8.1E-09	1	0.0E+00	1.0E-03	0E+00	0.0E+00	1.1E-09	1	0.0E+00	NA	NA
22	Cadmium (water)							0.0E+00	8.1E-09	1	0.0E+00	5.0E-04	0E+00	0.0E+00	1.1E-09	1	0.0E+00	NA	NA
23	Carbon disulfide							0.0E+00	8.1E-09	1	0.0E+00	1.0E-01	0E+00	0.0E+00	1.1E-09	1	0.0E+00	NA	NA
24	Chloride							9.6E+01	8.1E-09	1	7.8E-07	NA	NA	9.6E+01	1.1E-09	1	1.1E-07	NA	NA
25	Chlorobenzene							0.0E+00	8.1E-09	1	0.0E+00	2.0E-02	0E+00	0.0E+00	1.1E-09	1	0.0E+00	NA	NA
26	Chloroform							0.0E+00	8.1E-09	1	0.0E+00	1.0E-02	0E+00	0.0E+00	1.1E-09	1	0.0E+00	6.1E-03	0E+00
27	Chromium (VI)							1.3E+01	8.1E-09	1	1.1E-07	5.0E-03	2E-05	1.3E+01	1.1E-09	1	1.4E-08	NA	NA
28	Chrysene							1.2E+02	8.1E-09	1	9.7E-07	4.0E-01	2E-06	1.2E+02	1.1E-09	1	1.3E-07	1.2E+01	2E-06
29	Cobalt							2.7E+00	8.1E-09	1	2.2E-08	NA	NA	2.7E+00	1.1E-09	1	3.0E-09	NA	NA
30	Copper							1.2E+02	8.1E-09	1	9.6E-07	3.7E-02	3E-05	1.2E+02	1.1E-09	1	1.3E-07	NA	NA
31	Cyanide (free)							4.2E+01	8.1E-09	1	3.4E-07	2.0E-02	2E-05	4.2E+01	1.1E-09	1	4.6E-08	NA	NA
32	Di-n-butylphthalate							0.0E+00	8.1E-09	1	0.0E+00	1.0E-01	0E+00	0.0E+00	1.1E-09	1	0.0E+00	NA	NA
33	Di-n-octylphthalate							0.0E+00	8.1E-09	1	0.0E+00	2.0E-02	0E+00	0.0E+00	1.1E-09	1	0.0E+00	NA	NA
34	Dibenz(a,h)anthracene							2.2E+01	8.1E-09	1	1.8E-07	4.0E-01	4E-07	2.2E+01	1.1E-09	1	2.4E-08	1.2E+01	3E-07
35	Dibenzofuran							3.3E+00	8.1E-09	1	2.7E-08	NA	NA	3.3E+00	1.1E-09	1	3.6E-09	NA	NA
36	2,4-Dimethylphenol							0.0E+00	8.1E-09	1	0.0E+00	2.0E-02	0E+00	0.0E+00	1.1E-09	1	0.0E+00	NA	NA
37	Ethyl benzene							0.0E+00	8.1E-09	1	0.0E+00	1.0E-01	0E+00	0.0E+00	1.1E-09	1	0.0E+00	NA	NA
38	Fluoranthene							1.2E+02	8.1E-09	1	9.7E-07	4.0E-02	2E-05	1.2E+02	1.1E-09	1	1.3E-07	NA	NA
39	Fluorene							7.8E+00	8.1E-09	1	6.3E-08	4.0E-02	2E-06	7.8E+00	1.1E-09	1	8.6E-09	NA	NA

40	Fluoride	8.3E+01	8.1E-09	1	6.7E-07	6.0E-02	1E-05	8.3E+01	1.1E-09	1	9.1E-08	NA	NA
41	Indeno(1,2,3-cd)pyrene	8.9E+01	8.1E-09	1	7.2E-07	4.0E-01	2E-06	8.9E+01	1.1E-09	1	9.8E-08	1.2E+01	1E-06
42	Iron	1.3E+04	8.1E-09	1	1.0E-04	NA	NA	1.3E+04	1.1E-09	1	1.4E-05	NA	NA
43	Lead	2.0E+01	8.1E-09	1	1.6E-07	NA	NA	2.0E+01	1.1E-09	1	2.2E-08	NA	NA
44	Manganese	6.5E+02	8.1E-09	1	5.2E-06	1.0E-01	5E-05	6.5E+02	1.1E-09	1	7.1E-07	NA	NA
45	Mercury	0.0E+00	8.1E-09	1	0.0E+00	3.0E-04	0E+00	0.0E+00	1.1E-09	1	0.0E+00	NA	NA
46	Methylene chloride	3.2E-02	8.1E-09	1	2.6E-10	6.0E-02	4E-09	3.2E-02	1.1E-09	1	3.5E-11	7.5E-03	3E-13
47	2-Methylnaphthalene	7.4E-01	8.1E-09	1	6.0E-09	4.0E-01	1E-08	7.4E-01	1.1E-09	1	8.1E-10	NA	NA
48	4-Methylphenol	0.0E+00	8.1E-09	1	0.0E+00	5.0E-02	0E+00	0.0E+00	1.1E-09	1	0.0E+00	NA	NA
49	Naphthalene	1.6E+00	8.1E-09	1	1.3E-08	4.0E-01	3E-08	1.6E+00	1.1E-09	1	1.8E-09	NA	NA
50	Nickel(dust)	0.0E+00	8.1E-09	1	0.0E+00	NA	NA	0.0E+00	1.1E-09	1	0.0E+00	NA	NA
51	Nickel (salts)	1.0E+01	8.1E-09	1	8.1E-08	2.0E-02	4E-06	1.0E+01	1.1E-09	1	1.1E-08	NA	NA
52	Nitrogen, ammonia	0.0E+00	8.1E-09	1	0.0E+00	NA	NA	0.0E+00	1.1E-09	1	0.0E+00	NA	NA
53	Phenanthrene	4.7E+01	8.1E-09	1	3.8E-07	4.0E-01	1.0E-0	4.7E+01	1.1E-09	1	5.2E-08	NA	NA
54	Pyrene	1.2E+02	8.1E-09	1	9.7E-07	3.0E-02	3E-05	1.2E+02	1.1E-09	1	1.3E-07	NA	NA
55	Silica	1.1E+01	8.1E-09	1	8.9E-08	NA	NA	1.1E+01	1.1E-09	1	1.2E-08	NA	NA
56	Silver	0.0E+00	8.1E-09	1	0.0E+00	3.0E-03	0E+00	0.0E+00	1.1E-09	1	0.0E+00	NA	NA
57	Sodium	2.1E+03	8.1E-09	1	1.7E-05	NA	NA	2.1E+03	1.1E-09	1	2.3E-06	NA	NA
58	Sulfate	6.0E+01	8.1E-09	1	4.9E-07	NA	NA	6.0E+01	1.1E-09	1	6.6E-08	NA	NA
59	Styrene	0.0E+00	8.1E-09	1	0.0E+00	2.0E-01	0E+00	0.0E+00	1.1E-09	1	0.0E+00	3.0E-02	0E+00
60	1,1,2,2-PCA	0.0E+00	8.1E-09	1	0.0E+00	NA	NA	0.0E+00	1.1E-09	1	0.0E+00	2.0E-01	0E+00
61	PCE	0.0E+00	8.1E-09	1	0.0E+00	1.0E-02	0E+00	0.0E+00	1.1E-09	1	0.0E+00	5.1E-02	0E+00
62	Thallium	0.0E+00	8.1E-09	1	0.0E+00	7.0E-05	0E+00	0.0E+00	1.1E-09	1	0.0E+00	NA	NA
63	Toluene	0.0E+00	8.1E-09	1	0.0E+00	2.0E-01	0E+00	0.0E+00	1.1E-09	1	0.0E+00	NA	NA
64	1,1,1-TCA	0.0E+00	8.1E-09	1	0.0E+00	9.0E-02	0E+00	0.0E+00	1.1E-09	1	0.0E+00	NA	NA
65	TCE	0.0E+00	8.1E-09	1	0.0E+00	NA	NA	0.0E+00	1.1E-09	1	0.0E+00	1.1E-02	0E+00
66	Vanadium	1.0E+01	8.1E-09	1	8.1E-08	7.0E-03	1E-05	1.0E+01	1.1E-09	1	1.1E-08	NA	NA

RANGE NAME: WS2

SITE NAME: ORMET
OPERABLE UNIT: CURRENT/FUTURE
FILE NAME: POP5
LAST UPDATED: 03/13/91

EXPOSURE AND RISK CALCULATION WORKSHEET

LAND USE: CURRENT
POPULATION: TRESPASSER (BW)

EXPOSURE POINT: BACKWATER
MEDIUM: SEDIMENT
ROUTE: DERMAL

HIFs = 0.0E+00
HIFc = 2.0E-05
HIFl = 2.8E-06

		SUBCHRONIC						CHRONIC						LIFETIME					
	CHEMICAL NAME	Cs	HIFs	ABS	DIs	RfDS	HQs	Cc	HIFc	ABS	DIc	RfDC	HQc	Cl	HIFl	ABS	DIl	SF	RISK
1	Acenaphthene		0.0E+00		0.0E+00		ERR	1.5E+01	2.0E-05	1.0E-01	3.0E-05	NA	NA	1.5E+01	2.8E-06	1.0E-01	4.2E-06	NA	NA
2	Acenaphthylene							2.5E-01	2.0E-05	NA	NA	NA	NA	2.5E-01	2.8E-06	NA	NA	NA	NA
3	Acetone							0.0E+00	2.0E-05	2.5E-01	0.0E+00	1.0E-01	0E+00	0.0E+00	2.8E-06	2.5E-01	0.0E+00	NA	NA
4	Aluminum							1.0E+04	2.0E-05	NA	NA	NA	NA	1.0E+04	2.8E-06	NA	NA	NA	NA
5	Anthracene							2.5E+01	2.0E-05	NA	NA	NA	NA	2.5E+01	2.8E-06	NA	NA	NA	NA
6	Antimony							0.0E+00	2.0E-05	NA	NA	NA	NA	0.0E+00	2.8E-06	NA	NA	NA	NA
7	Aroclor 1242							0.0E+00	2.0E-05	1.0E-01	0.0E+00	NA	NA	0.0E+00	2.8E-06	1.0E-01	0.0E+00	7.7E+00	0E+00
8	Aroclor 1248							9.8E+01	2.0E-05	1.0E-01	2.0E-04	NA	NA	9.8E+01	2.8E-06	1.0E-01	2.7E-05	7.7E+00	2E-04
9	Aroclor 1254							0.0E+00	2.0E-05	1.0E-01	0.0E+00	NA	NA	0.0E+00	2.8E-06	1.0E-01	0.0E+00	7.7E+00	0E+00
10	Arsenic							5.3E+00	2.0E-05	NA	NA	NA	NA	5.3E+00	2.8E-06	NA	NA	NA	NA
11	Barium							7.3E+01	2.0E-05	NA	NA	NA	NA	7.3E+01	2.8E-06	NA	NA	NA	NA
12	Benzene							0.0E+00	2.0E-05	2.5E-01	0.0E+00	NA	NA	0.0E+00	2.8E-06	2.5E-01	0.0E+00	2.9E-02	0E+00
13	Benzo(a)anthracene							1.2E+02	2.0E-05	NA	NA	NA	NA	1.2E+02	2.8E-06	NA	NA	NA	NA
14	Benzo(a)pyrene							1.8E+02	2.0E-05	NA	NA	NA	NA	1.8E+02	2.8E-06	NA	NA	NA	NA
15	Benzo(b)fluoranthene							3.9E+02	2.0E-05	NA	NA	NA	NA	3.9E+02	2.8E-06	NA	NA	NA	NA
16	Benzo(g,h,i)perylene							8.8E+01	2.0E-05	NA	NA	NA	NA	8.8E+01	2.8E-06	NA	NA	NA	NA
17	Benzo(k)fluoranthene							1.7E+02	2.0E-05	NA	NA	NA	NA	1.7E+02	2.8E-06	NA	NA	NA	NA
18	Beryllium							1.1E+00	2.0E-05	NA	NA	NA	NA	1.1E+00	2.8E-06	NA	NA	NA	NA
19	BEHP							5.7E-01	2.0E-05	1.0E-01	1.1E-06	2.0E-02	6E-05	5.7E-01	2.8E-06	1.0E-01	1.6E-07	1.4E-02	2E-09
20	2-Butanone							0.0E+00	2.0E-05	2.5E-01	0.0E+00	5.0E-02	0E+00	0.0E+00	2.8E-06	2.5E-01	0.0E+00	NA	NA
21	Cadmium (food)							0.0E+00	2.0E-05	NA	NA	NA	NA	0.0E+00	2.8E-06	NA	NA	NA	NA
22	Cadmium (water)							0.0E+00	2.0E-05	NA	NA	NA	NA	0.0E+00	2.8E-06	NA	NA	NA	NA
23	Carbon disulfide							0.0E+00	2.0E-05	2.5E-01	0.0E+00	1.0E-01	0E+00	0.0E+00	2.8E-06	2.5E-01	0.0E+00	NA	NA
24	Chloride							9.6E+01	2.0E-05	NA	NA	NA	NA	9.6E+01	2.8E-06	NA	NA	NA	NA
25	Chlorobenzene							0.0E+00	2.0E-05	2.5E-01	0.0E+00	2.0E-02	0E+00	0.0E+00	2.8E-06	2.5E-01	0.0E+00	NA	NA
26	Chloroform							0.0E+00	2.0E-05	2.5E-01	0.0E+00	1.0E-02	0E+00	0.0E+00	2.8E-06	2.5E-01	0.0E+00	6.1E-03	0E+00
27	Chromium (VI)							1.3E+01	2.0E-05	NA	NA	NA	NA	1.3E+01	2.8E-06	NA	NA	NA	NA
28	Chrysene							1.2E+02	2.0E-05	NA	NA	4.0E-01	NA	1.2E+02	2.8E-06	NA	NA	1.2E+01	NA
29	Cobalt							2.7E+00	2.0E-05	NA	NA	NA	NA	2.7E+00	2.8E-06	NA	NA	NA	NA
30	Copper							1.2E+02	2.0E-05	NA	NA	NA	NA	1.2E+02	2.8E-06	NA	NA	NA	NA
31	Cyanide (free)							4.2E+01	2.0E-05	NA	NA	NA	NA	4.2E+01	2.8E-06	NA	NA	NA	NA
32	Di-n-butylphthalate							0.0E+00	2.0E-05	1.0E-01	0.0E+00	1.0E-01	0E+00	0.0E+00	2.8E-06	1.0E-01	0.0E+00	NA	NA
33	Di-n-octylphthalate							0.0E+00	2.0E-05	1.0E-01	0.0E+00	2.0E-02	0E+00	0.0E+00	2.8E-06	1.0E-01	0.0E+00	NA	NA
34	Dibenz(a,h)anthracene							2.2E+01	2.0E-05	NA	NA	NA	NA	2.2E+01	2.8E-06	NA	NA	NA	NA
35	Dibenzofuran							3.3E+00	2.0E-05	1.0E-01	6.6E-06	NA	NA	3.3E+00	2.8E-06	1.0E-01	9.2E-07	NA	NA
36	2,4-Dimethylphenol							0.0E+00	2.0E-05	1.0E-01	0.0E+00	2.0E-02	0E+00	0.0E+00	2.8E-06	1.0E-01	0.0E+00	NA	NA
37	Ethyl benzene							0.0E+00	2.0E-05	2.5E-01	0.0E+00	1.0E-01	0E+00	0.0E+00	2.8E-06	2.5E-01	0.0E+00	NA	NA
38	Fluoranthene							1.2E+02	2.0E-05	NA	NA	NA	NA	1.2E+02	2.8E-06	NA	NA	NA	NA
39	Fluorene							7.8E+00	2.0E-05	NA	NA	NA	NA	7.8E+00	2.8E-06	NA	NA	NA	NA

40	Fluoride	8.3E+01	2.0E-05	NA	NA	NA	NA	8.3E+01	2.8E-06	NA	NA	NA	NA
41	Indeno(1,2,3-cd)pyrene	8.9E+01	2.0E-05	NA	NA	NA	NA	8.9E+01	2.8E-06	NA	NA	NA	NA
42	Iron	1.3E+04	2.0E-05	NA	NA	NA	NA	1.3E+04	2.8E-06	NA	NA	NA	NA
43	Lead	2.0E+01	2.0E-05	NA	NA	NA	NA	2.0E+01	2.8E-06	NA	NA	NA	NA
44	Manganese	6.5E+02	2.0E-05	NA	NA	NA	NA	6.5E+02	2.8E-06	NA	NA	NA	NA
45	Mercury	0.0E+00	2.0E-05	NA	NA	NA	NA	0.0E+00	2.8E-06	NA	NA	NA	NA
46	Methylene chloride	3.2E-02	2.0E-05	2.5E-01	1.6E-07	6.0E-02	3E-06	3.2E-02	2.8E-06	2.5E-01	2.2E-08	7.5E-03	2E-10
47	2-Methylnaphthalene	7.4E-01	2.0E-05	NA	NA	NA	NA	7.4E-01	2.8E-06	NA	NA	NA	NA
48	4-Methylphenol	0.0E+00	2.0E-05	1.0E-01	0.0E+00	5.0E-02	0E+00	0.0E+00	2.8E-06	1.0E-01	0.0E+00	NA	NA
49	Naphthalene	1.6E+00	2.0E-05	NA	NA	NA	NA	1.6E+00	2.8E-06	NA	NA	NA	NA
50	Nickel(dust)	0.0E+00	2.0E-05	NA	NA	NA	NA	0.0E+00	2.8E-06	NA	NA	NA	NA
51	Nickel (salts)	1.0E+01	2.0E-05	NA	NA	NA	NA	1.0E+01	2.8E-06	NA	NA	NA	NA
52	Nitrogen, ammonia	0.0E+00	2.0E-05	NA	NA	NA	NA	0.0E+00	2.8E-06	NA	NA	NA	NA
53	Phenanthrene	4.7E+01	2.0E-05	NA	NA	NA	NA	4.7E+01	2.8E-06	NA	NA	NA	NA
54	Pyrene	1.2E+02	2.0E-05	NA	NA	NA	NA	1.2E+02	2.8E-06	NA	NA	NA	NA
55	Silica	1.1E+01	2.0E-05	NA	NA	NA	NA	1.1E+01	2.8E-06	NA	NA	NA	NA
56	Silver	0.0E+00	2.0E-05	NA	NA	NA	NA	0.0E+00	2.8E-06	NA	NA	NA	NA
57	Sodium	2.1E+03	2.0E-05	NA	NA	NA	NA	2.1E+03	2.8E-06	NA	NA	NA	NA
58	Sulfate	6.0E+01	2.0E-05	NA	NA	NA	NA	6.0E+01	2.8E-06	NA	NA	NA	NA
59	Styrene	0.0E+00	2.0E-05	2.5E-01	0.0E+00	2.0E-01	0E+00	0.0E+00	2.8E-06	2.5E-01	0.0E+00	3.0E-02	0E+00
60	1,1,2,2-PCA	0.0E+00	2.0E-05	2.5E-01	0.0E+00	NA	NA	0.0E+00	2.8E-06	2.5E-01	0.0E+00	2.0E-01	0E+00
61	PCE	0.0E+00	2.0E-05	2.5E-01	0.0E+00	1.0E-02	0E+00	0.0E+00	2.8E-06	2.5E-01	0.0E+00	5.1E-02	0E+00
62	Thallium	0.0E+00	2.0E-05	NA	NA	NA	NA	0.0E+00	2.8E-06	NA	NA	NA	NA
63	Toluene	0.0E+00	2.0E-05	2.5E-01	0.0E+00	2.0E-01	0E+00	0.0E+00	2.8E-06	2.5E-01	0.0E+00	NA	NA
64	1,1,1-TCA	0.0E+00	2.0E-05	2.5E-01	0.0E+00	9.0E-02	0E+00	0.0E+00	2.8E-06	2.5E-01	0.0E+00	NA	NA
65	TCE	0.0E+00	2.0E-05	2.5E-01	0.0E+00	NA	NA	0.0E+00	2.8E-06	2.5E-01	0.0E+00	1.1E-02	0E+00
66	Vanadium	1.0E+01	2.0E-05	NA	NA	NA	NA	1.0E+01	2.8E-06	NA	NA	NA	NA

RANGE NAME: WS3

SITE NAME: ORMET
OPERABLE UNIT: CURRENT/FUTURE
FILE NAME: POP5
LAST UPDATED: 03/13/91

EXPOSURE AND RISK CALCULATION WORKSHEET

LAND USE: CURRENT
POPULATION: TRESPASSER (BW)

EXPOSURE POINT: BACKWATER
MEDIUM: SW
ROUTE: ORAL

HIFs = 0.0E+00
HIFc = 8.1E-06
HIFl = 1.1E-06

		SUBCHRONIC					CHRONIC						LIFETIME					
	CHEMICAL NAME	Cs	HIFs	1	DIs	RfDS	HQs	Cc	HIFc	1	DIc	RfDC	HQc	Cl	HIFl	1	DIl	SF	RISK
1	Acenaphthene		0.0E+00		0.0E+00		ERR	0.0E+00	8.1E-06	1	0.0E+00	6.0E-02	0E+00	0.0E+00	1.1E-06	1	0.0E+00	NA	NA
2	Acenaphthylene							0.0E+00	8.1E-06	1	0.0E+00	4.0E-01	0E+00	0.0E+00	1.1E-06	1	0.0E+00	NA	NA
3	Acetone							1.1E-02	8.1E-06	1	8.9E-08	1.0E-01	9E-07	1.1E-02	1.1E-06	1	1.2E-08	NA	NA
4	Aluminum							1.3E+00	8.1E-06	1	1.0E-05	NA	NA	1.3E+00	1.1E-06	1	1.4E-06	NA	NA
5	Anthracene							0.0E+00	8.1E-06	1	0.0E+00	3.0E-01	0E+00	0.0E+00	1.1E-06	1	0.0E+00	NA	NA
6	Antimony							0.0E+00	8.1E-06	1	0.0E+00	4.0E-04	0E+00	0.0E+00	1.1E-06	1	0.0E+00	NA	NA
7	Aroclor 1242							1.5E-03	8.1E-06	1	1.2E-08	NA	NA	1.5E-03	1.1E-06	1	1.7E-09	7.7E+00	1E-08
8	Aroclor 1248							0.0E+00	8.1E-06	1	0.0E+00	NA	NA	0.0E+00	1.1E-06	1	0.0E+00	7.7E+00	0E+00
9	Aroclor 1254							0.0E+00	8.1E-06	1	0.0E+00	NA	NA	0.0E+00	1.1E-06	1	0.0E+00	7.7E+00	0E+00
10	Arsenic							1.1E-02	8.1E-06	1	8.9E-08	1.0E-03	9E-05	1.1E-02	1.1E-06	1	1.2E-08	1.8E+00	2E-08
11	Barium							7.8E-02	8.1E-06	1	6.3E-07	7.0E-02	9E-06	7.8E-02	1.1E-06	1	8.6E-08	NA	NA
12	Benzene							0.0E+00	8.1E-06	1	0.0E+00	NA	NA	0.0E+00	1.1E-06	1	0.0E+00	2.9E-02	0E+00
13	Benzo(a)anthracene							0.0E+00	8.1E-06	1	0.0E+00	4.0E-01	0E+00	0.0E+00	1.1E-06	1	0.0E+00	1.2E+01	0E+00
14	Benzo(a)pyrene							0.0E+00	8.1E-06	1	0.0E+00	4.0E-01	0E+00	0.0E+00	1.1E-06	1	0.0E+00	1.2E+01	0E+00
15	Benzo(b)fluoranthene							0.0E+00	8.1E-06	1	0.0E+00	4.0E-01	0E+00	0.0E+00	1.1E-06	1	0.0E+00	1.2E+01	0E+00
16	Benzo(g,h,i)perylene							0.0E+00	8.1E-06	1	0.0E+00	4.0E-01	0E+00	0.0E+00	1.1E-06	1	0.0E+00	NA	NA
17	Benzo(k)fluoranthene							0.0E+00	8.1E-06	1	0.0E+00	4.0E-01	0E+00	0.0E+00	1.1E-06	1	0.0E+00	1.2E+01	0E+00
18	Beryllium							0.0E+00	8.1E-06	1	0.0E+00	5.0E-03	0E+00	0.0E+00	1.1E-06	1	0.0E+00	4.3E+00	0E+00
19	BEHP							0.0E+00	8.1E-06	1	0.0E+00	2.0E-02	0E+00	0.0E+00	1.1E-06	1	0.0E+00	1.4E-02	0E+00
20	2-Butanone							0.0E+00	8.1E-06	1	0.0E+00	5.0E-02	0E+00	0.0E+00	1.1E-06	1	0.0E+00	NA	NA
21	Cadmium (food)							0.0E+00	8.1E-06	1	0.0E+00	1.0E-03	0E+00	0.0E+00	1.1E-06	1	0.0E+00	NA	NA
22	Cadmium (water)							0.0E+00	8.1E-06	1	0.0E+00	5.0E-04	0E+00	0.0E+00	1.1E-06	1	0.0E+00	NA	NA
23	Carbon disulfide							0.0E+00	8.1E-06	1	0.0E+00	1.0E-01	0E+00	0.0E+00	1.1E-06	1	0.0E+00	NA	NA
24	Chloride							4.1E+01	8.1E-06	1	3.3E-04	NA	NA	4.1E+01	1.1E-06	1	4.5E-05	NA	NA
25	Chlorobenzene							0.0E+00	8.1E-06	1	0.0E+00	2.0E-02	0E+00	0.0E+00	1.1E-06	1	0.0E+00	NA	NA
26	Chloroform							0.0E+00	8.1E-06	1	0.0E+00	1.0E-02	0E+00	0.0E+00	1.1E-06	1	0.0E+00	6.1E-03	0E+00
27	Chromium (VI)							1.2E-02	8.1E-06	1	9.7E-08	5.0E-03	2E-05	1.2E-02	1.1E-06	1	1.3E-08	NA	NA
28	Chrysene							3.0E-03	8.1E-06	1	2.4E-08	4.0E-01	6E-08	3.0E-03	1.1E-06	1	3.3E-09	1.2E+01	4E-08
29	Cobalt							0.0E+00	8.1E-06	1	0.0E+00	NA	NA	0.0E+00	1.1E-06	1	0.0E+00	NA	NA
30	Copper							2.6E-02	8.1E-06	1	2.1E-07	3.7E-02	6E-06	2.6E-02	1.1E-06	1	2.9E-08	NA	NA
31	Cyanide (free)							1.3E-01	8.1E-06	1	1.0E-06	2.0E-02	5E-05	1.3E-01	1.1E-06	1	1.4E-07	NA	NA
32	Di-n-butylphthalate							0.0E+00	8.1E-06	1	0.0E+00	1.0E-01	0E+00	0.0E+00	1.1E-06	1	0.0E+00	NA	NA
33	Di-n-octylphthalate							0.0E+00	8.1E-06	1	0.0E+00	2.0E-02	0E+00	0.0E+00	1.1E-06	1	0.0E+00	NA	NA
34	Dibenz(a,h)anthracene							0.0E+00	8.1E-06	1	0.0E+00	4.0E-01	0E+00	0.0E+00	1.1E-06	1	0.0E+00	1.2E+01	0E+00
35	Dibenzofuran							0.0E+00	8.1E-06	1	0.0E+00	NA	NA	0.0E+00	1.1E-06	1	0.0E+00	NA	NA
36	2,4-Dimethylphenol							0.0E+00	8.1E-06	1	0.0E+00	2.0E-02	0E+00	0.0E+00	1.1E-06	1	0.0E+00	NA	NA
37	Ethyl benzene							0.0E+00	8.1E-06	1	0.0E+00	1.0E-01	0E+00	0.0E+00	1.1E-06	1	0.0E+00	NA	NA
38	Fluoranthene							3.0E-03	8.1E-06	1	2.4E-08	4.0E-02	6E-07	3.0E-03	1.1E-06	1	3.3E-09	NA	NA
39	Fluorene							0.0E+00	8.1E-06	1	0.0E+00	4.0E-02	0E+00	0.0E+00	1.1E-06	1	0.0E+00	NA	NA

40	Fluoride	1.2E+01	8.1E-06	1	9.7E-05	6.0E-02	2E-03	1.2E+01	1.1E-06	1	1.3E-05	NA	NA
41	Indeno(1,2,3-cd)pyrene	0.0E+00	8.1E-06	1	0.0E+00	4.0E-01	0E+00	0.0E+00	1.1E-06	1	0.0E+00	1.2E+01	0E+00
42	Iron	2.2E+00	8.1E-06	1	1.7E-05	NA	NA	2.2E+00	1.1E-06	1	2.4E-06	NA	NA
43	Lead	3.0E-03	8.1E-06	1	2.4E-08	NA	NA	3.0E-03	1.1E-06	1	3.3E-09	NA	NA
44	Manganese	7.7E-01	8.1E-06	1	6.3E-06	1.0E-01	6E-05	7.7E-01	1.1E-06	1	8.5E-07	NA	NA
45	Mercury	0.0E+00	8.1E-06	1	0.0E+00	3.0E-04	0E+00	0.0E+00	1.1E-06	1	0.0E+00	NA	NA
46	Methylene chloride	2.0E-03	8.1E-06	1	1.6E-08	6.0E-02	3E-07	2.0E-03	1.1E-06	1	2.2E-09	7.5E-03	2E-11
47	2-Methylnaphthalene	0.0E+00	8.1E-06	1	0.0E+00	4.0E-01	0E+00	0.0E+00	1.1E-06	1	0.0E+00	NA	NA
48	4-Methylphenol	0.0E+00	8.1E-06	1	0.0E+00	5.0E-02	0E+00	0.0E+00	1.1E-06	1	0.0E+00	NA	NA
49	Naphthalene	0.0E+00	8.1E-06	1	0.0E+00	4.0E-01	0E+00	0.0E+00	1.1E-06	1	0.0E+00	NA	NA
50	Nickel(dust)	0.0E+00	8.1E-06	1	0.0E+00	NA	NA	0.0E+00	1.1E-06	1	0.0E+00	NA	NA
51	Nickel (salts)	0.0E+00	8.1E-06	1	0.0E+00	2.0E-02	0E+00	0.0E+00	1.1E-06	1	0.0E+00	NA	NA
52	Nitrogen, ammonia	0.0E+00	8.1E-06	1	0.0E+00	NA	NA	0.0E+00	1.1E-06	1	0.0E+00	NA	NA
53	Phenanthrene	0.0E+00	8.1E-06	1	0.0E+00	4.0E-01	0E+00	0.0E+00	1.1E-06	1	0.0E+00	NA	NA
54	Pyrene	3.0E-03	8.1E-06	1	2.4E-08	3.0E-02	8E-07	3.0E-03	1.1E-06	1	3.3E-09	NA	NA
55	Silica	0.0E+00	8.1E-06	1	0.0E+00	NA	NA	0.0E+00	1.1E-06	1	0.0E+00	NA	NA
56	Silver	0.0E+00	8.1E-06	1	0.0E+00	3.0E-03	0E+00	0.0E+00	1.1E-06	1	0.0E+00	NA	NA
57	Sodium	1.5E+02	8.1E-06	1	1.2E-03	NA	NA	1.5E+02	1.1E-06	1	1.7E-04	NA	NA
58	Sulfate	1.1E+02	8.1E-06	1	8.9E-04	NA	NA	1.1E+02	1.1E-06	1	1.2E-04	NA	NA
59	Styrene	0.0E+00	8.1E-06	1	0.0E+00	2.0E-01	0E+00	0.0E+00	1.1E-06	1	0.0E+00	3.0E-02	0E+00
60	1,1,2,2-PCA	0.0E+00	8.1E-06	1	0.0E+00	NA	NA	0.0E+00	1.1E-06	1	0.0E+00	2.0E-01	0E+00
61	PCE	0.0E+00	8.1E-06	1	0.0E+00	1.0E-02	0E+00	0.0E+00	1.1E-06	1	0.0E+00	5.1E-02	0E+00
62	Thallium	0.0E+00	8.1E-06	1	0.0E+00	7.0E-05	0E+00	0.0E+00	1.1E-06	1	0.0E+00	NA	NA
63	Toluene	0.0E+00	8.1E-06	1	0.0E+00	2.0E-01	0E+00	0.0E+00	1.1E-06	1	0.0E+00	NA	NA
64	1,1,1-TCA	0.0E+00	8.1E-06	1	0.0E+00	9.0E-02	0E+00	0.0E+00	1.1E-06	1	0.0E+00	NA	NA
65	TCE	0.0E+00	8.1E-06	1	0.0E+00	NA	NA	0.0E+00	1.1E-06	1	0.0E+00	1.1E-02	0E+00
66	Vanadium	0.0E+00	8.1E-06	1	0.0E+00	7.0E-03	0E+00	0.0E+00	1.1E-06	1	0.0E+00	NA	NA

RANGE NAME: WS4

EXPOSURE AND RISK CALCULATION WORKSHEET

LAND USE: CURRENT
POPULATION: TRESPASSER (BW)

EXPOSURE POINT: BACKWATER
MEDIUM: SW
ROUTE: DERMAL

SITE NAME: ORMET
OPERABLE UNIT: CURRENT/FUTURE
FILE NAME: POP5
LAST UPDATED: 03/13/91

HIFs = 0.0E+00
HIFc = 7.9E-06
HIFl = 1.1E-06

		SUBCHRONIC					CHRONIC						LIFETIME					
	CHEMICAL NAME	Cs	HIFs	ABS	DIs	RfDS	HQs	Cc	HIFc	ABS	DIc	RfDC	HQc	Cl	HIFl	ABS	DIl	SF	RISK
1	Acenaphthene		0.0E+00		0.0E+00		ERR	0.0E+00	7.9E-06	1.0E-01	0.0E+00	NA	NA	0.0E+00	1.1E-06	1.0E-01	0.0E+00	NA	NA
2	Acenaphthylene							0.0E+00	7.9E-06	NA	NA	NA	NA	0.0E+00	1.1E-06	NA	NA	NA	NA
3	Acetone							1.1E-02	7.9E-06	2.5E-01	2.2E-08	1.0E-01	2E-07	1.1E-02	1.1E-06	2.5E-01	3.0E-09	NA	NA
4	Aluminum							1.3E+00	7.9E-06	NA	NA	NA	NA	1.3E+00	1.1E-06	NA	NA	NA	NA
5	Anthracene							0.0E+00	7.9E-06	NA	NA	NA	NA	0.0E+00	1.1E-06	NA	NA	NA	NA
6	Antimony							0.0E+00	7.9E-06	NA	NA	NA	NA	0.0E+00	1.1E-06	NA	NA	NA	NA
7	Aroclor 1242							1.5E-03	7.9E-06	1.0E-01	1.2E-09	NA	NA	1.5E-03	1.1E-06	1.0E-01	1.7E-10	7.7E+00	1E-09
8	Aroclor 1248							0.0E+00	7.9E-06	1.0E-01	0.0E+00	NA	NA	0.0E+00	1.1E-06	1.0E-01	0.0E+00	7.7E+00	0E+00
9	Aroclor 1254							0.0E+00	7.9E-06	1.0E-01	0.0E+00	NA	NA	0.0E+00	1.1E-06	1.0E-01	0.0E+00	7.7E+00	0E+00
10	Arsenic							1.1E-02	7.9E-06	NA	NA	NA	NA	1.1E-02	1.1E-06	NA	NA	NA	NA
11	Barium							7.8E-02	7.9E-06	NA	NA	NA	NA	7.8E-02	1.1E-06	NA	NA	NA	NA
12	Benzene							0.0E+00	7.9E-06	2.5E-01	0.0E+00	NA	NA	0.0E+00	1.1E-06	2.5E-01	0.0E+00	2.9E-02	0E+00
13	Benzo(a)anthracene							0.0E+00	7.9E-06	NA	NA	NA	NA	0.0E+00	1.1E-06	NA	NA	NA	NA
14	Benzo(a)pyrene							0.0E+00	7.9E-06	NA	NA	NA	NA	0.0E+00	1.1E-06	NA	NA	NA	NA
15	Benzo(b)fluoranthene							0.0E+00	7.9E-06	NA	NA	NA	NA	0.0E+00	1.1E-06	NA	NA	NA	NA
16	Benzo(g,h,i)perylene							0.0E+00	7.9E-06	NA	NA	NA	NA	0.0E+00	1.1E-06	NA	NA	NA	NA
17	Benzo(k)fluoranthene							0.0E+00	7.9E-06	NA	NA	NA	NA	0.0E+00	1.1E-06	NA	NA	NA	NA
18	Beryllium							0.0E+00	7.9E-06	NA	NA	NA	NA	0.0E+00	1.1E-06	NA	NA	NA	NA
19	BEHP							0.0E+00	7.9E-06	1.0E-01	0.0E+00	2.0E-02	0E+00	0.0E+00	1.1E-06	1.0E-01	0.0E+00	1.4E-02	0E+00
20	2-Butanone							0.0E+00	7.9E-06	2.5E-01	0.0E+00	5.0E-02	0E+00	0.0E+00	1.1E-06	2.5E-01	0.0E+00	NA	NA
21	Cadmium (food)							0.0E+00	7.9E-06	NA	NA	NA	NA	0.0E+00	1.1E-06	NA	NA	NA	NA
22	Cadmium (water)							0.0E+00	7.9E-06	NA	NA	NA	NA	0.0E+00	1.1E-06	NA	NA	NA	NA
23	Carbon disulfide							0.0E+00	7.9E-06	2.5E-01	0.0E+00	1.0E-01	0E+00	0.0E+00	1.1E-06	2.5E-01	0.0E+00	NA	NA
24	Chloride							4.1E+01	7.9E-06	NA	NA	NA	NA	4.1E+01	1.1E-06	NA	NA	NA	NA
25	Chlorobenzene							0.0E+00	7.9E-06	2.5E-01	0.0E+00	2.0E-02	0E+00	0.0E+00	1.1E-06	2.5E-01	0.0E+00	NA	NA
26	Chloroform							0.0E+00	7.9E-06	2.5E-01	0.0E+00	1.0E-02	0E+00	0.0E+00	1.1E-06	2.5E-01	0.0E+00	6.1E-03	0E+00
27	Chromium (VI)							1.2E-02	7.9E-06	NA	NA	NA	NA	1.2E-02	1.1E-06	NA	NA	NA	NA
28	Chrysene							3.0E-03	7.9E-06	NA	NA	4.0E-01	NA	3.0E-03	1.1E-06	NA	NA	1.2E+01	NA
29	Cobalt							0.0E+00	7.9E-06	NA	NA	NA	NA	0.0E+00	1.1E-06	NA	NA	NA	NA
30	Copper							2.6E-02	7.9E-06	NA	NA	NA	NA	2.6E-02	1.1E-06	NA	NA	NA	NA
31	Cyanide (free)							1.3E-01	7.9E-06	NA	NA	NA	NA	1.3E-01	1.1E-06	NA	NA	NA	NA
32	Di-n-butylphthalate							0.0E+00	7.9E-06	1.0E-01	0.0E+00	1.0E-01	0E+00	0.0E+00	1.1E-06	1.0E-01	0.0E+00	NA	NA
33	Di-n-octylphthalate							0.0E+00	7.9E-06	1.0E-01	0.0E+00	2.0E-02	0E+00	0.0E+00	1.1E-06	1.0E-01	0.0E+00	NA	NA
34	Dibenz(a,h)anthracene							0.0E+00	7.9E-06	NA	NA	NA	NA	0.0E+00	1.1E-06	NA	NA	NA	NA
35	Dibenzofuran							0.0E+00	7.9E-06	1.0E-01	0.0E+00	NA	NA	0.0E+00	1.1E-06	1.0E-01	0.0E+00	NA	NA
36	2,4-Dimethylphenol							0.0E+00	7.9E-06	1.0E-01	0.0E+00	2.0E-02	0E+00	0.0E+00	1.1E-06	1.0E-01	0.0E+00	NA	NA
37	Ethyl benzene							0.0E+00	7.9E-06	2.5E-01	0.0E+00	1.0E-01	0E+00	0.0E+00	1.1E-06	2.5E-01	0.0E+00	NA	NA
38	Fluoranthene							3.0E-03	7.9E-06	NA	NA	NA	NA	3.0E-03	1.1E-06	NA	NA	NA	NA
39	Fluorene							0.0E+00	7.9E-06	NA	NA	NA	NA	0.0E+00	1.1E-06	NA	NA	NA	NA

40	Fluoride	1.2E+01	7.9E-06	NA	NA	NA	NA	1.2E+01	1.1E-06	NA	NA	NA	NA
41	Indeno(1,2,3-cd)pyrene	0.0E+00	7.9E-06	NA	NA	NA	NA	0.0E+00	1.1E-06	NA	NA	NA	NA
42	Iron	2.2E+00	7.9E-06	NA	NA	NA	NA	2.2E+00	1.1E-06	NA	NA	NA	NA
43	Lead	3.0E-03	7.9E-06	NA	NA	NA	NA	3.0E-03	1.1E-06	NA	NA	NA	NA
44	Manganese	7.7E-01	7.9E-06	NA	NA	NA	NA	7.7E-01	1.1E-06	NA	NA	NA	NA
45	Mercury	0.0E+00	7.9E-06	NA	NA	NA	NA	0.0E+00	1.1E-06	NA	NA	NA	NA
46	Methylene chloride	2.0E-03	7.9E-06	2.5E-01	4.0E-09	6.0E-02	7E-08	2.0E-03	1.1E-06	2.5E-01	5.5E-10	7.5E-03	4E-12
47	2-Methylnaphthalene	0.0E+00	7.9E-06	NA	NA	NA	NA	0.0E+00	1.1E-06	NA	NA	NA	NA
48	4-Methylphenol	0.0E+00	7.9E-06	1.0E-01	0.0E+00	5.0E-02	0E+00	0.0E+00	1.1E-06	1.0E-01	0.0E+00	NA	NA
49	Naphthalene	0.0E+00	7.9E-06	NA	NA	NA	NA	0.0E+00	1.1E-06	NA	NA	NA	NA
50	Nickel(dust)	0.0E+00	7.9E-06	NA	NA	NA	NA	0.0E+00	1.1E-06	NA	NA	NA	NA
51	Nickel (salts)	0.0E+00	7.9E-06	NA	NA	NA	NA	0.0E+00	1.1E-06	NA	NA	NA	NA
52	Nitrogen, ammonia	0.0E+00	7.9E-06	NA	NA	NA	NA	0.0E+00	1.1E-06	NA	NA	NA	NA
53	Phenanthrene	0.0E+00	7.9E-06	NA	NA	NA	NA	0.0E+00	1.1E-06	NA	NA	NA	NA
54	Pyrene	3.0E-03	7.9E-06	NA	NA	NA	NA	3.0E-03	1.1E-06	NA	NA	NA	NA
55	Silica	0.0E+00	7.9E-06	NA	NA	NA	NA	0.0E+00	1.1E-06	NA	NA	NA	NA
56	Silver	0.0E+00	7.9E-06	NA	NA	NA	NA	0.0E+00	1.1E-06	NA	NA	NA	NA
57	Sodium	1.5E+02	7.9E-06	NA	NA	NA	NA	1.5E+02	1.1E-06	NA	NA	NA	NA
58	Sulfate	1.1E+02	7.9E-06	NA	NA	NA	NA	1.1E+02	1.1E-06	NA	NA	NA	NA
59	Styrene	0.0E+00	7.9E-06	2.5E-01	0.0E+00	2.0E-01	0E+00	0.0E+00	1.1E-06	2.5E-01	0.0E+00	3.0E-02	0E+00
60	1,1,2,2-PCA	0.0E+00	7.9E-06	2.5E-01	0.0E+00	NA	NA	0.0E+00	1.1E-06	2.5E-01	0.0E+00	2.0E-01	0E+00
61	PCE	0.0E+00	7.9E-06	2.5E-01	0.0E+00	1.0E-02	0E+00	0.0E+00	1.1E-06	2.5E-01	0.0E+00	5.1E-02	0E+00
62	Thallium	0.0E+00	7.9E-06	NA	NA	NA	NA	0.0E+00	1.1E-06	NA	NA	NA	NA
63	Toluene	0.0E+00	7.9E-06	2.5E-01	0.0E+00	2.0E-01	0E+00	0.0E+00	1.1E-06	2.5E-01	0.0E+00	NA	NA
64	1,1,1-TCA	0.0E+00	7.9E-06	2.5E-01	0.0E+00	9.0E-02	0E+00	0.0E+00	1.1E-06	2.5E-01	0.0E+00	NA	NA
65	TCE	0.0E+00	7.9E-06	2.5E-01	0.0E+00	NA	NA	0.0E+00	1.1E-06	2.5E-01	0.0E+00	1.1E-02	0E+00
66	Vanadium	0.0E+00	7.9E-06	NA	NA	NA	NA	0.0E+00	1.1E-06	NA	NA	NA	NA

RANGE NAME: CSUM

SITE NAME: ORMET
OPERABLE UNIT: CURRENT/FUTURE
FILE NAME: POP5
LAST UPDATED: 03/13/91

CHRONIC EXPOSURE SUMMARY

CURRENT
TRESPASSER (BW)

CHRONIC DAILY INTAKE (mg/kg/day)

	CHEMICAL NAME	SCENARIO 1 BACKWATER SEDIMENT ORAL (FROM WS1)	SCENARIO 2 BACKWATER SEDIMENT DERMAL (FROM WS2)	SCENARIO 3 BACKWATER SW ORAL (FROM WS3)	SCENARIO 4 BACKWATER SW DERMAL (FROM WS4)	SCENARIO 5 0 0 (FROM WS5)	SCENARIO 6 0 0 (FROM WS6)
1	Acenaphthene	1.2E-07	3.0E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00
2	Acenaphthylene	2.0E-09	NA	0.0E+00	NA		
3	Acetone	0.0E+00	0.0E+00	8.9E-08	2.2E-08		
4	Aluminum	8.1E-05	NA	1.0E-05	NA		
5	Anthracene	2.0E-07	NA	0.0E+00	NA		
6	Antimony	0.0E+00	NA	0.0E+00	NA		
7	Aroclor 1242	0.0E+00	0.0E+00	1.2E-08	1.2E-09		
8	Aroclor 1248	7.9E-07	2.0E-04	0.0E+00	0.0E+00		
9	Aroclor 1254	0.0E+00	0.0E+00	0.0E+00	0.0E+00		
10	Arsenic	4.3E-08	NA	8.9E-08	NA		
11	Barium	5.9E-07	NA	6.3E-07	NA		
12	Benzene	0.0E+00	0.0E+00	0.0E+00	0.0E+00		
13	Benzo(a)anthra	9.7E-07	NA	0.0E+00	NA		
14	Benzo(a)pyrene	1.5E-06	NA	0.0E+00	NA		
15	Benzo(b)fluora	3.2E-06	NA	0.0E+00	NA		
16	Benzo(g,h,i)pe	7.1E-07	NA	0.0E+00	NA		
17	Benzo(k)fluora	1.4E-06	NA	0.0E+00	NA		
18	Beryllium	8.9E-09	NA	0.0E+00	NA		
19	BEHP	4.6E-09	1.1E-06	0.0E+00	0.0E+00		
20	2-Butanone	0.0E+00	0.0E+00	0.0E+00	0.0E+00		
21	Cadmium (food)	0.0E+00	NA	0.0E+00	NA		
22	Cadmium (water	0.0E+00	NA	0.0E+00	NA		
23	Carbon disulfi	0.0E+00	0.0E+00	0.0E+00	0.0E+00		
24	Chloride	7.8E-07	NA	3.3E-04	NA		
25	Chlorobenzene	0.0E+00	0.0E+00	0.0E+00	0.0E+00		
26	Chloroform	0.0E+00	0.0E+00	0.0E+00	0.0E+00		
27	Chromium (VI)	1.1E-07	NA	9.7E-08	NA		
28	Chrysene	9.7E-07	NA	2.4E-08	NA		
29	Cobalt	2.2E-08	NA	0.0E+00	NA		
30	Copper	9.6E-07	NA	2.1E-07	NA		
31	Cyanide (free)	3.4E-07	NA	1.0E-06	NA		
32	Di-n-butylphth	0.0E+00	0.0E+00	0.0E+00	0.0E+00		
33	Di-n-octylphth	0.0E+00	0.0E+00	0.0E+00	0.0E+00		
34	Dibenz(a,h)ant	1.8E-07	NA	0.0E+00	NA		
35	Dibenzofuran	2.7E-08	6.6E-06	0.0E+00	0.0E+00		
36	2,4-Dimethylph	0.0E+00	0.0E+00	0.0E+00	0.0E+00		
37	Ethyl benzene	0.0E+00	0.0E+00	0.0E+00	0.0E+00		
38	Fluoranthene	9.7E-07	NA	2.4E-08	NA		
39	Fluorene	6.3E-08	NA	0.0E+00	NA		
40	Fluoride	6.7E-07	NA	9.7E-05	NA		
41	Indeno(1,2,3-c	7.2E-07	NA	0.0E+00	NA		
42	Iron	1.0E-04	NA	1.7E-05	NA		

CHRONIC RISK SUMMARY

CURRENT
TRESPASSER (BW)

CHRONIC HAZARD QUOTIENT

SCENARIO 1 BACKWATER SEDIMENT ORAL (FROM WS1)	SCENARIO 2 BACKWATER SEDIMENT DERMAL (FROM WS2)	SCENARIO 3 BACKWATER SW ORAL (FROM WS3)	SCENARIO 4 BACKWATER SW DERMAL (FROM WS4)	SCENARIO 5 0 0 (FROM WS5)	SCENARIO 6 0 0 (FROM WS6)
2E-06	NA	0E+00	NA	0E+00	0E+00
5E-09	NA	0E+00	NA		
0E+00	0E+00	9E-07	2E-07		
NA	NA	NA	NA		
7E-07	NA	0E+00	NA		
0E+00	NA	0E+00	NA		
NA	NA	NA	NA		
NA	NA	NA	NA		
NA	NA	NA	NA		
4E-05	NA	9E-05	NA		
8E-06	NA	9E-06	NA		
NA	NA	NA	NA		
2E-06	NA	0E+00	NA		
4E-06	NA	0E+00	NA		
8E-06	NA	0E+00	NA		
2E-06	NA	0E+00	NA		
3E-06	NA	0E+00	NA		
2E-06	NA	0E+00	NA		
2E-07	6E-05	0E+00	0E+00		
0E+00	0E+00	0E+00	0E+00		
0E+00	NA	0E+00	NA		
0E+00	NA	0E+00	NA		
0E+00	0E+00	0E+00	0E+00		
NA	NA	NA	NA		
0E+00	0E+00	0E+00	0E+00		
0E+00	0E+00	0E+00	0E+00		
2E-05	NA	2E-05	NA		
2E-06	NA	6E-08	NA		
NA	NA	NA	NA		
3E-05	NA	6E-06	NA		
2E-05	NA	5E-05	NA		
0E+00	0E+00	0E+00	0E+00		
0E+00	0E+00	0E+00	0E+00		
4E-07	NA	0E+00	NA		
NA	NA	NA	NA		
0E+00	0E+00	0E+00	0E+00		
0E+00	0E+00	0E+00	0E+00		
2E-05	NA	6E-07	NA		
2E-06	NA	0E+00	NA		
1E-05	NA	2E-03	NA		
2E-06	NA	0E+00	NA		
NA	NA	NA	NA		

43	Lead	1.6E-07	NA	2.4E-08	NA		NA	NA	NA	NA		
44	Manganese	5.2E-06	NA	6.3E-06	NA		5E-05	NA	6E-05	NA		
45	Mercury	0.0E+00	NA	0.0E+00	NA		0E+00	NA	0E+00	NA		
46	Methylene chlo	2.6E-10	1.6E-07	1.6E-08	4.0E-09		4E-09	3E-06	3E-07	7E-08		
47	2-Methylnaphth	6.0E-09	NA	0.0E+00	NA		1E-08	NA	0E+00	NA		
48	4-Methylphenol	0.0E+00	0.0E+00	0.0E+00	0.0E+00		0E+00	0E+00	0E+00	0E+00		
49	Naphthalene	1.3E-08	NA	0.0E+00	NA		3E-08	NA	0E+00	NA		
50	Nickel(dust)	0.0E+00	NA	0.0E+00	NA		NA	NA	NA	NA		
51	Nickel (salts)	8.1E-08	NA	0.0E+00	NA		4E-06	NA	0E+00	NA		
52	Nitrogen, ammo	0.0E+00	NA	0.0E+00	NA		NA	NA	NA	NA		
53	Phenanthrene	3.8E-07	NA	0.0E+00	NA		1E-06	NA	0E+00	NA		
54	Pyrene	9.7E-07	NA	2.4E-08	NA		3E-05	NA	8E-07	NA		
55	Silica	8.9E-08	NA	0.0E+00	NA		NA	NA	NA	NA		
56	Silver	0.0E+00	NA	0.0E+00	NA		0E+00	NA	0E+00	NA		
57	Sodium	1.7E-05	NA	1.2E-03	NA		NA	NA	NA	NA		
58	Sulfate	4.9E-07	NA	8.9E-04	NA		NA	NA	NA	NA		
59	Styrene	0.0E+00	0.0E+00	0.0E+00	0.0E+00		0E+00	0E+00	0E+00	0E+00		
60	1,1,2,2-PCA	0.0E+00	0.0E+00	0.0E+00	0.0E+00		NA	NA	NA	NA		
61	PCE	0.0E+00	0.0E+00	0.0E+00	0.0E+00		0E+00	0E+00	0E+00	0E+00		
62	Thallium	0.0E+00	NA	0.0E+00	NA		0E+00	NA	0E+00	NA		
63	Toluene	0.0E+00	0.0E+00	0.0E+00	0.0E+00		0E+00	0E+00	0E+00	0E+00		
64	1,1,1-TCA	0.0E+00	0.0E+00	0.0E+00	0.0E+00		0E+00	0E+00	0E+00	0E+00		
65	TCE	0.0E+00	0.0E+00	0.0E+00	0.0E+00		NA	NA	NA	NA		
66	Vanadium	8.1E-08	NA	0.0E+00	NA		1E-05	NA	0E+00	NA		
						PATHWAY SUM (HI)	3E-04	6E-05	2E-03	3E-07	0E+00	0E+00
						POPULATION TOTAL	2E-03					

RANGE NAME: LSUM

SITE NAME: ORMET
OPERABLE UNIT: CURRENT/FUTURE
FILE NAME: POP5
LAST UPDATED: 03/13/91

LIFETIME EXPOSURE SUMMARY

CURRENT
TRESPASSER (BW)

LIFETIME AVERAGE DAILY INTAKE (mg/kg/day)

	CHEMICAL NAME	SCENARIO 1 BACKWATER SEDIMENT ORAL (FROM WS1)	SCENARIO 2 BACKWATER SEDIMENT DERMAL (FROM WS2)	SCENARIO 3 BACKWATER SW ORAL (FROM WS3)	SCENARIO 4 BACKWATER SW DERMAL (FROM WS4)	SCENARIO 5 0 0 (FROM WS5)	SCENARIO 6 0 0 (FROM WS6)
1	Acenaphthene	1.7E-08	4.2E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00
2	Acenaphthylene	2.8E-10	NA	0.0E+00	NA		
3	Acetone	0.0E+00	0.0E+00	1.2E-08	3.0E-09		
4	Aluminum	1.1E-05	NA	1.4E-06	NA		
5	Anthracene	2.8E-08	NA	0.0E+00	NA		
6	Antimony	0.0E+00	NA	0.0E+00	NA		
7	Aroclor 1242	0.0E+00	0.0E+00	1.7E-09	1.7E-10		
8	Aroclor 1248	1.1E-07	2.7E-05	0.0E+00	0.0E+00		
9	Aroclor 1254	0.0E+00	0.0E+00	0.0E+00	0.0E+00		
10	Arsenic	5.8E-09	NA	1.2E-08	NA		
11	Barium	8.0E-08	NA	8.6E-08	NA		
12	Benzene	0.0E+00	0.0E+00	0.0E+00	0.0E+00		
13	Benzo(a)anthra	1.3E-07	NA	0.0E+00	NA		
14	Benzo(a)pyrene	2.0E-07	NA	0.0E+00	NA		
15	Benzo(b)fluora	4.3E-07	NA	0.0E+00	NA		
16	Benzo(g,h,i)pe	9.7E-08	NA	0.0E+00	NA		
17	Benzo(k)fluora	1.9E-07	NA	0.0E+00	NA		
18	Beryllium	1.2E-09	NA	0.0E+00	NA		
19	BEHP	6.3E-10	1.6E-07	0.0E+00	0.0E+00		
20	2-Butanone	0.0E+00	0.0E+00	0.0E+00	0.0E+00		
21	Cadmium (food)	0.0E+00	NA	0.0E+00	NA		
22	Cadmium (water	0.0E+00	NA	0.0E+00	NA		
23	Carbon disulfi	0.0E+00	0.0E+00	0.0E+00	0.0E+00		
24	Chloride	1.1E-07	NA	4.5E-05	NA		
25	Chlorobenzene	0.0E+00	0.0E+00	0.0E+00	0.0E+00		
26	Chloroform	0.0E+00	0.0E+00	0.0E+00	0.0E+00		
27	Chromium (VI)	1.4E-08	NA	1.3E-08	NA		
28	Chrysene	1.3E-07	NA	3.3E-09	NA		
29	Cobalt	3.0E-09	NA	0.0E+00	NA		
30	Copper	1.3E-07	NA	2.9E-08	NA		
31	Cyanide (free)	4.6E-08	NA	1.4E-07	NA		
32	Di-n-butylphth	0.0E+00	0.0E+00	0.0E+00	0.0E+00		
33	Di-n-octylphth	0.0E+00	0.0E+00	0.0E+00	0.0E+00		
34	Dibenz(a,h)ant	2.4E-08	NA	0.0E+00	NA		
35	Dibenzofuran	3.6E-09	9.2E-07	0.0E+00	0.0E+00		
36	2,4-Dimethylph	0.0E+00	0.0E+00	0.0E+00	0.0E+00		
37	Ethyl benzene	0.0E+00	0.0E+00	0.0E+00	0.0E+00		
38	Fluoranthene	1.3E-07	NA	3.3E-09	NA		
39	Fluorene	8.6E-09	NA	0.0E+00	NA		
40	Fluoride	9.1E-08	NA	1.3E-05	NA		
41	Indeno(1,2,3-c	9.8E-08	NA	0.0E+00	NA		
42	Iron	1.4E-05	NA	2.4E-06	NA		

LIFETIME RISK SUMMARY

CURRENT
TRESPASSER (BW)

LIFETIME EXCESS CANCER RISK

SCENARIO 1 BACKWATER SEDIMENT ORAL (FROM WS1)	SCENARIO 2 BACKWATER SEDIMENT DERMAL (FROM WS2)	SCENARIO 3 BACKWATER SW ORAL (FROM WS3)	SCENARIO 4 BACKWATER SW DERMAL (FROM WS4)	SCENARIO 5 0 0 (FROM WS5)	SCENARIO 6 0 0 (FROM WS6)
NA	NA	NA	NA	0E+00	0E+00
NA	NA	NA	NA		
NA	NA	NA	NA		
NA	NA	NA	NA		
NA	NA	NA	NA		
NA	NA	NA	NA		
0E+00	0E+00	1E-08	1E-09		
8E-07	2E-04	0E+00	0E+00		
0E+00	0E+00	0E+00	0E+00		
1E-08	NA	2E-08	NA		
NA	NA	NA	NA		
0E+00	0E+00	0E+00	0E+00		
2E-06	NA	0E+00	NA		
2E-06	NA	0E+00	NA		
5E-06	NA	0E+00	NA		
NA	NA	NA	NA		
2E-06	NA	0E+00	NA		
5E-09	NA	0E+00	NA		
9E-12	2E-09	0E+00	0E+00		
NA	NA	NA	NA		
NA	NA	NA	NA		
NA	NA	NA	NA		
NA	NA	NA	NA		
NA	NA	NA	NA		
NA	NA	NA	NA		
0E+00	0E+00	0E+00	0E+00		
NA	NA	NA	NA		
2E-06	NA	4E-08	NA		
NA	NA	NA	NA		
NA	NA	NA	NA		
NA	NA	NA	NA		
NA	NA	NA	NA		
NA	NA	NA	NA		
3E-07	NA	0E+00	NA		
NA	NA	NA	NA		
NA	NA	NA	NA		
NA	NA	NA	NA		
NA	NA	NA	NA		
NA	NA	NA	NA		
1E-06	NA	0E+00	NA		
NA	NA	NA	NA		

43	Lead	2.2E-08	NA	3.3E-09	NA		NA	NA	NA	NA	
44	Manganese	7.1E-07	NA	8.5E-07	NA		NA	NA	NA	NA	
45	Mercury	0.0E+00	NA	0.0E+00	NA		NA	NA	NA	NA	
46	Methylene chlo	3.5E-11	2.2E-08	2.2E-09	5.5E-10		0E+00	2E-10	2E-11	4E-12	
47	2-Methylnaphth	8.1E-10	NA	0.0E+00	NA		NA	NA	NA	NA	
48	4-Methylphenol	0.0E+00	0.0E+00	0.0E+00	0.0E+00		NA	NA	NA	NA	
49	Naphthalene	1.8E-09	NA	0.0E+00	NA		NA	NA	NA	NA	
50	Nickel(dust)	0.0E+00	NA	0.0E+00	NA		NA	NA	NA	NA	
51	Nickel (salts)	1.1E-08	NA	0.0E+00	NA		NA	NA	NA	NA	
52	Nitrogen, ammo	0.0E+00	NA	0.0E+00	NA		NA	NA	NA	NA	
53	Phenanthrene	5.2E-08	NA	0.0E+00	NA		NA	NA	NA	NA	
54	Pyrene	1.3E-07	NA	3.3E-09	NA		NA	NA	NA	NA	
55	Silica	1.2E-08	NA	0.0E+00	NA		NA	NA	NA	NA	
56	Silver	0.0E+00	NA	0.0E+00	NA		NA	NA	NA	NA	
57	Sodium	2.3E-06	NA	1.7E-04	NA		NA	NA	NA	NA	
58	Sulfate	6.6E-08	NA	1.2E-04	NA		NA	NA	NA	NA	
59	Styrene	0.0E+00	0.0E+00	0.0E+00	0.0E+00		0E+00	0E+00	0E+00	0E+00	
60	1,1,2,2-PCA	0.0E+00	0.0E+00	0.0E+00	0.0E+00		0E+00	0E+00	0E+00	0E+00	
61	PCE	0.0E+00	0.0E+00	0.0E+00	0.0E+00		0E+00	0E+00	0E+00	0E+00	
62	Thallium	0.0E+00	NA	0.0E+00	NA		NA	NA	NA	NA	
63	Toluene	0.0E+00	0.0E+00	0.0E+00	0.0E+00		NA	NA	NA	NA	
64	1,1,1-TCA	0.0E+00	0.0E+00	0.0E+00	0.0E+00		NA	NA	NA	NA	
65	TCE	0.0E+00	0.0E+00	0.0E+00	0.0E+00		0E+00	0E+00	0E+00	0E+00	
66	Vanadium	1.1E-08	NA	0.0E+00	NA		NA	NA	NA	NA	
						TOTAL PATHWAY CANCER RISK	2E-05	2E-04	7E-08	1E-09	0E+00	0E+00
						POPULATION TOTAL EXCESS RISK	2E-04					

RANGE NAME: WS1

SITE NAME: ORMET
OPERABLE UNIT: CURRENT/FUTURE
FILE NAME: POP6
LAST UPDATED: 03/13/91

EXPOSURE AND RISK CALCULATION WORKSHEET

LAND USE: FUTURE
POPULATION: WORKER

EXPOSURE POINT: CAC WELL
MEDIUM: GW
ROUTE: ORAL

HIFs = 0.0E+00
HIFc = 2.0E-02
HIFl = 7.0E-03

		SUBCHRONIC					CHRONIC						LIFETIME					
	CHEMICAL NAME	Cs	HIFs	1	DIs	RfDS	HQs	Cc	HIFc	1	DIc	RfDC	HQc	Cl	HIFl	1	DIl	SF	RISK
1	Acenaphthene		0.0E+00		0.0E+00		ERR	0.0E+00	2.0E-02	1	0.0E+00	6.0E-02	0E+00	0.0E+00	7.0E-03	1	0.0E+00	NA	NA
2	Acenaphthylene							0.0E+00	2.0E-02	1	0.0E+00	4.0E-01	0E+00	0.0E+00	7.0E-03	1	0.0E+00	NA	NA
3	Acetone							1.1E-02	2.0E-02	1	2.2E-04	1.0E-01	2E-03	1.1E-02	7.0E-03	1	7.7E-05	NA	NA
4	Aluminum							3.6E+01	2.0E-02	1	7.2E-01	NA	NA	3.6E+01	7.0E-03	1	2.5E-01	NA	NA
5	Anthracene							0.0E+00	2.0E-02	1	0.0E+00	3.0E-01	0E+00	0.0E+00	7.0E-03	1	0.0E+00	NA	NA
6	Antimony							0.0E+00	2.0E-02	1	0.0E+00	4.0E-04	0E+00	0.0E+00	7.0E-03	1	0.0E+00	NA	NA
7	Aroclor 1242							0.0E+00	2.0E-02	1	0.0E+00	NA	NA	0.0E+00	7.0E-03	1	0.0E+00	7.7E+00	0E+00
8	Aroclor 1248							0.0E+00	2.0E-02	1	0.0E+00	NA	NA	0.0E+00	7.0E-03	1	0.0E+00	7.7E+00	0E+00
9	Aroclor 1254							0.0E+00	2.0E-02	1	0.0E+00	NA	NA	0.0E+00	7.0E-03	1	0.0E+00	7.7E+00	0E+00
10	Arsenic							8.0E-02	2.0E-02	1	1.6E-03	1.0E-03	2E+00	8.0E-02	7.0E-03	1	5.6E-04	1.8E+00	1E-03
11	Barium							7.2E-01	2.0E-02	1	1.4E-02	7.0E-02	2E-01	7.2E-01	7.0E-03	1	5.0E-03	NA	NA
12	Benzene							3.9E-03	2.0E-02	1	7.8E-05	NA	NA	3.9E-03	7.0E-03	1	2.7E-05	2.9E-02	8E-07
13	Benzo(a)anthracene							0.0E+00	2.0E-02	1	0.0E+00	4.0E-01	0E+00	0.0E+00	7.0E-03	1	0.0E+00	1.2E+01	0E+00
14	Benzo(a)pyrene							0.0E+00	2.0E-02	1	0.0E+00	4.0E-01	0E+00	0.0E+00	7.0E-03	1	0.0E+00	1.2E+01	0E+00
15	Benzo(b)fluoranthene							0.0E+00	2.0E-02	1	0.0E+00	4.0E-01	0E+00	0.0E+00	7.0E-03	1	0.0E+00	1.2E+01	0E+00
16	Benzo(g,h,i)perylene							0.0E+00	2.0E-02	1	0.0E+00	4.0E-01	0E+00	0.0E+00	7.0E-03	1	0.0E+00	NA	NA
17	Benzo(k)fluoranthene							0.0E+00	2.0E-02	1	0.0E+00	4.0E-01	0E+00	0.0E+00	7.0E-03	1	0.0E+00	1.2E+01	0E+00
18	Beryllium							5.0E-03	2.0E-02	1	1.0E-04	5.0E-03	2E-02	5.0E-03	7.0E-03	1	3.5E-05	4.3E+00	2E-04
19	BEHP							9.4E-03	2.0E-02	1	1.9E-04	2.0E-02	9E-03	9.4E-03	7.0E-03	1	6.6E-05	1.4E-02	9E-07
20	2-Butanone							0.0E+00	2.0E-02	1	0.0E+00	5.0E-02	0E+00	0.0E+00	7.0E-03	1	0.0E+00	NA	NA
21	Cadmium (food)							0.0E+00	2.0E-02	1	0.0E+00	1.0E-03	0E+00	0.0E+00	7.0E-03	1	0.0E+00	NA	NA
22	Cadmium (water)							3.2E-03	2.0E-02	1	6.4E-05	5.0E-04	1E-01	3.2E-03	7.0E-03	1	2.2E-05	NA	NA
23	Carbon disulfide							3.7E-03	2.0E-02	1	7.4E-05	1.0E-01	7E-04	3.7E-03	7.0E-03	1	2.6E-05	NA	NA
24	Chloride							1.0E+02	2.0E-02	1	2.0E+00	NA	NA	1.0E+02	7.0E-03	1	7.0E-01	NA	NA
25	Chlorobenzene							0.0E+00	2.0E-02	1	0.0E+00	2.0E-02	0E+00	0.0E+00	7.0E-03	1	0.0E+00	NA	NA
26	Chloroform							2.6E-03	2.0E-02	1	5.2E-05	1.0E-02	5E-03	2.6E-03	7.0E-03	1	1.8E-05	6.1E-03	1E-07
27	Chromium (VI)							5.8E-02	2.0E-02	1	1.2E-03	5.0E-03	2E-01	5.8E-02	7.0E-03	1	4.1E-04	NA	NA
28	Chrysene							0.0E+00	2.0E-02	1	0.0E+00	4.0E-01	0E+00	0.0E+00	7.0E-03	1	0.0E+00	1.2E+01	0E+00
29	Cobalt							1.6E-01	2.0E-02	1	3.2E-03	NA	NA	1.6E-01	7.0E-03	1	1.1E-03	NA	NA
30	Copper							2.1E-01	2.0E-02	1	4.2E-03	3.7E-02	1E-01	2.1E-01	7.0E-03	1	1.5E-03	NA	NA
31	Cyanide (free)							5.8E+00	2.0E-02	1	1.2E-01	2.0E-02	6E+00	5.8E+00	7.0E-03	1	4.1E-02	NA	NA
32	Di-n-butylphthalate							3.0E-03	2.0E-02	1	6.0E-05	1.0E-01	6E-04	3.0E-03	7.0E-03	1	2.1E-05	NA	NA
33	Di-n-octylphthalate							0.0E+00	2.0E-02	1	0.0E+00	2.0E-02	0E+00	0.0E+00	7.0E-03	1	0.0E+00	NA	NA
34	Dibenz(a,h)anthracene							0.0E+00	2.0E-02	1	0.0E+00	4.0E-01	0E+00	0.0E+00	7.0E-03	1	0.0E+00	1.2E+01	0E+00
35	Dibenzofuran							0.0E+00	2.0E-02	1	0.0E+00	NA	NA	0.0E+00	7.0E-03	1	0.0E+00	NA	NA
36	2,4-Dimethylphenol							0.0E+00	2.0E-02	1	0.0E+00	2.0E-02	0E+00	0.0E+00	7.0E-03	1	0.0E+00	NA	NA
37	Ethyl benzene							0.0E+00	2.0E-02	1	0.0E+00	1.0E-01	0E+00	0.0E+00	7.0E-03	1	0.0E+00	NA	NA
38	Fluoranthene							5.4E-03	2.0E-02	1	1.1E-04	4.0E-02	3E-03	5.4E-03	7.0E-03	1	3.8E-05	NA	NA
39	Fluorene							0.0E+00	2.0E-02	1	0.0E+00	4.0E-02	0E+00	0.0E+00	7.0E-03	1	0.0E+00	NA	NA

40	Fluoride	2.1E+02	2.0E-02	1	4.2E+00	6.0E-02	7E+01	2.1E+02	7.0E-03	1	1.5E+00	NA	NA
41	Indeno(1,2,3-cd)pyrene	0.0E+00	2.0E-02	1	0.0E+00	4.0E-01	0E+00	0.0E+00	7.0E-03	1	0.0E+00	1.2E+01	0E+00
42	Iron	3.4E+01	2.0E-02	1	6.8E-01	NA	NA	3.4E+01	7.0E-03	1	2.4E-01	NA	NA
43	Lead	2.8E-02	2.0E-02	1	5.6E-04	NA	NA	2.8E-02	7.0E-03	1	2.0E-04	NA	NA
44	Manganese	2.4E+00	2.0E-02	1	4.8E-02	1.0E-01	5E-01	2.4E+00	7.0E-03	1	1.7E-02	NA	NA
45	Mercury	5.3E-04	2.0E-02	1	1.1E-05	3.0E-04	4E-02	5.3E-04	7.0E-03	1	3.7E-06	NA	NA
46	Methylene chloride	4.4E-03	2.0E-02	1	8.8E-05	6.0E-02	1E-03	4.4E-03	7.0E-03	1	3.1E-05	7.5E-03	2E-07
47	2-Methylnaphthalene	0.0E+00	2.0E-02	1	0.0E+00	4.0E-01	0E+00	0.0E+00	7.0E-03	1	0.0E+00	NA	NA
48	4-Methylphenol	0.0E+00	2.0E-02	1	0.0E+00	5.0E-02	0E+00	0.0E+00	7.0E-03	1	0.0E+00	NA	NA
49	Naphthalene	0.0E+00	2.0E-02	1	0.0E+00	4.0E-01	0E+00	0.0E+00	7.0E-03	1	0.0E+00	NA	NA
50	Nickel(dust)	0.0E+00	2.0E-02	1	0.0E+00	NA	NA	0.0E+00	7.0E-03	1	0.0E+00	NA	NA
51	Nickel (salts)	1.2E-01	2.0E-02	1	2.4E-03	2.0E-02	1E-01	1.2E-01	7.0E-03	1	8.4E-04	NA	NA
52	Nitrogen, ammonia	2.9E+01	2.0E-02	1	5.8E-01	NA	NA	2.9E+01	7.0E-03	1	2.0E-01	NA	NA
53	Phenanthrene	5.0E-03	2.0E-02	1	1.0E-04	4.0E-01	3E-04	5.0E-03	7.0E-03	1	3.5E-05	NA	NA
54	Pyrene	5.1E-03	2.0E-02	1	1.0E-04	3.0E-02	3E-03	5.1E-03	7.0E-03	1	3.6E-05	NA	NA
55	Silica	3.8E+02	2.0E-02	1	7.6E+00	NA	NA	3.8E+02	7.0E-03	1	2.7E+00	NA	NA
56	Silver	0.0E+00	2.0E-02	1	0.0E+00	3.0E-03	0E+00	0.0E+00	7.0E-03	1	0.0E+00	NA	NA
57	Sodium	7.2E+02	2.0E-02	1	1.4E+01	NA	NA	7.2E+02	7.0E-03	1	5.0E+00	NA	NA
58	Sulfate	1.9E+02	2.0E-02	1	3.8E+00	NA	NA	1.9E+02	7.0E-03	1	1.3E+00	NA	NA
59	Styrene	0.0E+00	2.0E-02	1	0.0E+00	2.0E-01	0E+00	0.0E+00	7.0E-03	1	0.0E+00	3.0E-02	0E+00
60	1,1,2,2-PCA	0.0E+00	2.0E-02	1	0.0E+00	NA	NA	0.0E+00	7.0E-03	1	0.0E+00	2.0E-01	0E+00
61	PCE	9.0E-03	2.0E-02	1	1.8E-04	1.0E-02	2E-02	9.0E-03	7.0E-03	1	6.3E-05	5.1E-02	3E-06
62	Thallium	0.0E+00	2.0E-02	1	0.0E+00	7.0E-05	0E+00	0.0E+00	7.0E-03	1	0.0E+00	NA	NA
63	Toluene	1.0E+00	2.0E-02	1	2.0E-02	2.0E-01	1E-01	1.0E+00	7.0E-03	1	7.0E-03	NA	NA
64	1,1,1-TCA	2.5E-03	2.0E-02	1	5.0E-05	9.0E-02	6E-04	2.5E-03	7.0E-03	1	1.8E-05	NA	NA
65	TCE	2.5E-03	2.0E-02	1	5.0E-05	NA	NA	2.5E-03	7.0E-03	1	1.8E-05	1.1E-02	2E-07
66	Vanadium	8.6E-02	2.0E-02	1	1.7E-03	7.0E-03	2E-01	8.6E-02	7.0E-03	1	6.0E-04	NA	NA

RANGE NAME: CSUM

SITE NAME: ORMET
OPERABLE UNIT: CURRENT/FUTURE
FILE NAME: POP6
LAST UPDATED: 03/13/91

CHRONIC EXPOSURE SUMMARY

FUTURE
WORKER

CHRONIC DAILY INTAKE (mg/kg/day)

		SCENARIO 1	SCENARIO 2	SCENARIO 3	SCENARIO 4	SCENARIO 5	SCENARIO 6
		CAC WELL	0	0	0	0	0
		GW	0	0	0	0	0
		ORAL	0	0	0	0	0
	CHEMICAL NAME	(FROM WS1)	(FROM WS2)	(FROM WS3)	(FROM WS4)	(FROM WS5)	(FROM WS6)
1	Acenaphthene	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
2	Acenaphthylene	0.0E+00					
3	Acetone	2.2E-04					
4	Aluminum	7.2E-01					
5	Anthracene	0.0E+00					
6	Antimony	0.0E+00					
7	Aroclor 1242	0.0E+00					
8	Aroclor 1248	0.0E+00					
9	Aroclor 1254	0.0E+00					
10	Arsenic	1.6E-03					
11	Barium	1.4E-02					
12	Benzene	7.8E-05					
13	Benzo(a)anthra	0.0E+00					
14	Benzo(a)pyrene	0.0E+00					
15	Benzo(b)fluora	0.0E+00					
16	Benzo(g,h,i)pe	0.0E+00					
17	Benzo(k)fluora	0.0E+00					
18	Beryllium	1.0E-04					
19	BEHP	1.9E-04					
20	2-Butanone	0.0E+00					
21	Cadmium (food)	0.0E+00					
22	Cadmium (water	6.4E-05					
23	Carbon disulfi	7.4E-05					
24	Chloride	2.0E+00					
25	Chlorobenzene	0.0E+00					
26	Chloroform	5.2E-05					
27	Chromium (VI)	1.2E-03					
28	Chrysene	0.0E+00					
29	Cobalt	3.2E-03					
30	Copper	4.2E-03					
31	Cyanide (free)	1.2E-01					
32	Di-n-butylphth	6.0E-05					
33	Di-n-octylphth	0.0E+00					
34	Dibenz(a,h)ant	0.0E+00					
35	Dibenzofuran	0.0E+00					
36	2,4-Dimethylph	0.0E+00					
37	Ethyl benzene	0.0E+00					
38	Fluoranthene	1.1E-04					
39	Fluorene	0.0E+00					
40	Fluoride	4.2E+00					
41	Indeno(1,2,3-c	0.0E+00					
42	Iron	6.8E-01					

CHRONIC RISK SUMMARY

FUTURE
WORKER

CHRONIC HAZARD QUOTIENT

SCENARIO 1	SCENARIO 2	SCENARIO 3	SCENARIO 4	SCENARIO 5	SCENARIO 6
CAC WELL	0	0	0	0	0
GW	0	0	0	0	0
ORAL	0	0	0	0	0
(FROM WS1)	(FROM WS2)	(FROM WS3)	(FROM WS4)	(FROM WS5)	(FROM WS6)
0E+00	0E+00	0E+00	0E+00	0E+00	0E+00
0E+00					
2E-03					
NA					
0E+00					
0E+00					
NA					
NA					
NA					
2E+00					
2E-01					
NA					
0E+00					
0E+00					
0E+00					
0E+00					
0E+00					
2E-02					
9E-03					
0E+00					
0E+00					
1E-01					
7E-04					
NA					
0E+00					
5E-03					
2E-01					
0E+00					
NA					
1E-01					
6E+00					
6E-04					
0E+00					
0E+00					
NA					
0E+00					
0E+00					
3E-03					
0E+00					
7E+01					
0E+00					
NA					

43	Lead	5.6E-04		NA				
44	Manganese	4.8E-02		5E-01				
45	Mercury	1.1E-05		4E-02				
46	Methylene chlo	8.8E-05		1E-03				
47	2-Methylnaphth	0.0E+00		0E+00				
48	4-Methylphenol	0.0E+00		0E+00				
49	Naphthalene	0.0E+00		0E+00				
50	Nickel(dust)	0.0E+00		NA				
51	Nickel (salts)	2.4E-03		1E-01				
52	Nitrogen, ammo	5.8E-01		NA				
53	Phenanthrene	1.0E-04		3E-04				
54	Pyrene	1.0E-04		3E-03				
55	Silica	7.6E+00		NA				
56	Silver	0.0E+00		0E+00				
57	Sodium	1.4E+01		NA				
58	Sulfate	3.8E+00		NA				
59	Styrene	0.0E+00		0E+00				
60	1,1,2,2-PCA	0.0E+00		NA				
61	PCE	1.8E-04		2E-02				
62	Thallium	0.0E+00		0E+00				
63	Toluene	2.0E-02		1E-01				
64	1,1,1-TCA	5.0E-05		6E-04				
65	TCE	5.0E-05		NA				
66	Vanadium	1.7E-03		2E-01				
			PATHWAY SUM (HI)	8E+01	0E+00	0E+00	0E+00	0E+00	0E+00
			POPULATION TOTAL	8E+01					

RANGE NAME: LSUM

SITE NAME: ORMET
OPERABLE UNIT: CURRENT/FUTURE
FILE NAME: POP6
LAST UPDATED: 03/13/91

LIFETIME EXPOSURE SUMMARY

FUTURE
WORKER

LIFETIME AVERAGE DAILY INTAKE (mg/kg/day)

		SCENARIO 1	SCENARIO 2	SCENARIO 3	SCENARIO 4	SCENARIO 5	SCENARIO 6
		CAC WELL	0	0	0	0	0
		GW	0	0	0	0	0
		ORAL	0	0	0	0	0
	CHEMICAL NAME	(FROM WS1)	(FROM WS2)	(FROM WS3)	(FROM WS4)	(FROM WS5)	(FROM WS6)
1	Acenaphthene	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
2	Acenaphthylene	0.0E+00					
3	Acetone	7.7E-05					
4	Aluminum	2.5E-01					
5	Anthracene	0.0E+00					
6	Antimony	0.0E+00					
7	Aroclor 1242	0.0E+00					
8	Aroclor 1248	0.0E+00					
9	Aroclor 1254	0.0E+00					
10	Arsenic	5.6E-04					
11	Barium	5.0E-03					
12	Benzene	2.7E-05					
13	Benzo(a)anthra	0.0E+00					
14	Benzo(a)pyrene	0.0E+00					
15	Benzo(b)fluora	0.0E+00					
16	Benzo(g,h,i)pe	0.0E+00					
17	Benzo(k)fluora	0.0E+00					
18	Beryllium	3.5E-05					
19	BEHP	6.6E-05					
20	2-Butanone	0.0E+00					
21	Cadmium (food)	0.0E+00					
22	Cadmium (water	2.2E-05					
23	Carbon disulfi	2.6E-05					
24	Chloride	7.0E-01					
25	Chlorobenzene	0.0E+00					
26	Chloroform	1.8E-05					
27	Chromium (VI)	4.1E-04					
28	Chrysene	0.0E+00					
29	Cobalt	1.1E-03					
30	Copper	1.5E-03					
31	Cyanide (free)	4.1E-02					
32	Di-n-butylphth	2.1E-05					
33	Di-n-octylphth	0.0E+00					
34	Dibenz(a,h)ant	0.0E+00					
35	Dibenzofuran	0.0E+00					
36	2,4-Dimethylph	0.0E+00					
37	Ethyl benzene	0.0E+00					
38	Fluoranthene	3.8E-05					
39	Fluorene	0.0E+00					
40	Fluoride	1.5E+00					
41	Indeno(1,2,3-c	0.0E+00					
42	Iron	2.4E-01					

LIFETIME RISK SUMMARY

FUTURE
WORKER

LIFETIME EXCESS CANCER RISK

SCENARIO 1	SCENARIO 2	SCENARIO 3	SCENARIO 4	SCENARIO 5	SCENARIO 6
CAC WELL	0	0	0	0	0
GW	0	0	0	0	0
ORAL	0	0	0	0	0
(FROM WS1)	(FROM WS2)	(FROM WS3)	(FROM WS4)	(FROM WS5)	(FROM WS6)
NA	0E+00	0E+00	0E+00	0E+00	0E+00
NA					
NA					
NA					
NA					
NA					
0E+00					
0E+00					
0E+00					
1E-03					
NA					
8E-07					
0E+00					
0E+00					
0E+00					
NA					
0E+00					
2E-04					
9E-07					
NA					
NA					
NA					
NA					
NA					
NA					
1E-07					
NA					
0E+00					
NA					
NA					
NA					
NA					
NA					
0E+00					
NA					
NA					
NA					
NA					
NA					
NA					
0E+00					
NA					

43	Lead	2.0E-04	NA					
44	Manganese	1.7E-02	NA					
45	Mercury	3.7E-06	NA					
46	Methylene chlo	3.1E-05	2E-07					
47	2-Methylnaphth	0.0E+00	NA					
48	4-Methylphenol	0.0E+00	NA					
49	Naphthalene	0.0E+00	NA					
50	Nickel(dust)	0.0E+00	NA					
51	Nickel (salts)	8.4E-04	NA					
52	Nitrogen, ammo	2.0E-01	NA					
53	Phenanthrene	3.5E-05	NA					
54	Pyrene	3.6E-05	NA					
55	Silica	2.7E+00	NA					
56	Silver	0.0E+00	NA					
57	Sodium	5.0E+00	NA					
58	Sulfate	1.3E+00	NA					
59	Styrene	0.0E+00	0E+00					
60	1,1,2,2-PCA	0.0E+00	0E+00					
61	PCE	6.3E-05	3E-06					
62	Thallium	0.0E+00	NA					
63	Toluene	7.0E-03	NA					
64	1,1,1-TCA	1.8E-05	NA					
65	TCE	1.8E-05	2E-07					
66	Vanadium	6.0E-04	NA					
	TOTAL PATHWAY CANCER RISK		1E-03	0E+00	0E+00	0E+00	0E+00	0E+00
	POPULATION TOTAL EXCESS RISK		1E-03					

RANGE NAME: WS1

SITE NAME: ORMET
OPERABLE UNIT: FUTURE RESIDENT ADULT
FILE NAME: POP1
LAST UPDATED: 03/13/91

EXPOSURE AND RISK CALCULATION WORKSHEET

LAND USE: FUTURE
POPULATION: RES. ADULT (P)

EXPOSURE POINT: POTLINER
MEDIUM: SOIL
ROUTE: ORAL

HIFs = 0.0E+00
HIFc = 1.4E-06
HIFl = 1.4E-06

		SUBCHRONIC					CHRONIC						LIFETIME					
	CHEMICAL NAME	Cs	HIFs	1	DIs	RfDS	HQs	Cc	HIFc	1	DIc	RfDC	HQc	Cl	HIFl	1	DIl	SF	RISK
1	Acenaphthene		0.0E+00		0.0E+00		ERR	4.4E+01	1.4E-06	1	6.2E-05	6.0E-02	1E-03	4.4E+01	1.4E-06	1	6.2E-05	NA	NA
2	Acenaphthylene							1.4E+00	1.4E-06	1	2.0E-06	4.0E-01	5E-06	1.4E+00	1.4E-06	1	2.0E-06	NA	NA
3	Acetone							1.0E-01	1.4E-06	1	1.4E-07	1.0E-01	1E-06	1.0E-01	1.4E-06	1	1.4E-07	NA	NA
4	Aluminum							1.7E+04	1.4E-06	1	2.4E-02	NA	NA	1.7E+04	1.4E-06	1	2.4E-02	NA	NA
5	Anthracene							5.1E+01	1.4E-06	1	7.1E-05	3.0E-01	2E-04	5.1E+01	1.4E-06	1	7.1E-05	NA	NA
6	Antimony							0.0E+00	1.4E-06	1	0.0E+00	4.0E-04	0E+00	0.0E+00	1.4E-06	1	0.0E+00	NA	NA
7	Aroclor 1242							0.0E+00	1.4E-06	1	0.0E+00	NA	NA	0.0E+00	1.4E-06	1	0.0E+00	7.7E+00	0E+00
8	Aroclor 1248							0.0E+00	1.4E-06	1	0.0E+00	NA	NA	0.0E+00	1.4E-06	1	0.0E+00	7.7E+00	0E+00
9	Aroclor 1254							0.0E+00	1.4E-06	1	0.0E+00	NA	NA	0.0E+00	1.4E-06	1	0.0E+00	7.7E+00	0E+00
10	Arsenic							1.2E+01	1.4E-06	1	1.7E-05	1.0E-03	2E-02	1.2E+01	1.4E-06	1	1.7E-05	1.8E+00	3E-05
11	Barium							7.3E+01	1.4E-06	1	1.0E-04	7.0E-02	1E-03	7.3E+01	1.4E-06	1	1.0E-04	NA	NA
12	Benzene							0.0E+00	1.4E-06	1	0.0E+00	NA	NA	0.0E+00	1.4E-06	1	0.0E+00	2.9E-02	0E+00
13	Benzo(a)anthracene							1.7E+02	1.4E-06	1	2.4E-04	4.0E-01	6E-04	1.7E+02	1.4E-06	1	2.4E-04	1.2E+01	3E-03
14	Benzo(a)pyrene							1.6E+02	1.4E-06	1	2.2E-04	4.0E-01	6E-04	1.6E+02	1.4E-06	1	2.2E-04	1.2E+01	3E-03
15	Benzo(b)fluoranthene							2.4E+02	1.4E-06	1	3.4E-04	4.0E-01	8E-04	2.4E+02	1.4E-06	1	3.4E-04	1.2E+01	4E-03
16	Benzo(g,h,i)perylene							4.0E+01	1.4E-06	1	5.6E-05	4.0E-01	1E-04	4.0E+01	1.4E-06	1	5.6E-05	NA	NA
17	Benzo(k)fluoranthene							2.1E+02	1.4E-06	1	2.9E-04	4.0E-01	7E-04	2.1E+02	1.4E-06	1	2.9E-04	1.2E+01	4E-03
18	Beryllium							1.1E+00	1.4E-06	1	1.5E-06	5.0E-03	3E-04	1.1E+00	1.4E-06	1	1.5E-06	4.3E+00	7E-06
19	BEHP							1.7E+00	1.4E-06	1	2.4E-06	2.0E-02	1E-04	1.7E+00	1.4E-06	1	2.4E-06	1.4E-02	3E-08
20	2-Butanone							4.4E-02	1.4E-06	1	6.2E-08	5.0E-02	1E-06	4.4E-02	1.4E-06	1	6.2E-08	NA	NA
21	Cadmium (food)							0.0E+00	1.4E-06	1	0.0E+00	1.0E-03	0E+00	0.0E+00	1.4E-06	1	0.0E+00	NA	NA
22	Cadmium (water)							0.0E+00	1.4E-06	1	0.0E+00	5.0E-04	0E+00	0.0E+00	1.4E-06	1	0.0E+00	NA	NA
23	Carbon disulfide							0.0E+00	1.4E-06	1	0.0E+00	1.0E-01	0E+00	0.0E+00	1.4E-06	1	0.0E+00	NA	NA
24	Chloride							0.0E+00	1.4E-06	1	0.0E+00	NA	NA	0.0E+00	1.4E-06	1	0.0E+00	NA	NA
25	Chlorobenzene							7.6E-03	1.4E-06	1	1.1E-08	2.0E-02	5E-07	7.6E-03	1.4E-06	1	1.1E-08	NA	NA
26	Chloroform							0.0E+00	1.4E-06	1	0.0E+00	1.0E-02	0E+00	0.0E+00	1.4E-06	1	0.0E+00	6.1E-03	0E+00
27	Chromium (VI)							3.7E+01	1.4E-06	1	5.2E-05	5.0E-03	1E-02	3.7E+01	1.4E-06	1	5.2E-05	NA	NA
28	Chrysene							1.3E+02	1.4E-06	1	1.8E-04	4.0E-01	5E-04	1.3E+02	1.4E-06	1	1.8E-04	1.2E+01	2E-03
29	Cobalt							6.4E+00	1.4E-06	1	9.0E-06	NA	NA	6.4E+00	1.4E-06	1	9.0E-06	NA	NA
30	Copper							1.8E+02	1.4E-06	1	2.5E-04	3.7E-02	7E-03	1.8E+02	1.4E-06	1	2.5E-04	NA	NA
31	Cyanide (free)							1.4E+02	1.4E-06	1	2.0E-04	2.0E-02	1.0E-0	1.4E+02	1.4E-06	1	2.0E-04	NA	NA
32	Di-n-butylphthalate							6.3E-02	1.4E-06	1	8.8E-08	1.0E-01	9E-07	6.3E-02	1.4E-06	1	8.8E-08	NA	NA
33	Di-n-octylphthalate							6.7E-02	1.4E-06	1	9.4E-08	2.0E-02	5E-06	6.7E-02	1.4E-06	1	9.4E-08	NA	NA
34	Dibenz(a,h)anthracene							3.6E+01	1.4E-06	1	5.0E-05	4.0E-01	1E-04	3.6E+01	1.4E-06	1	5.0E-05	1.2E+01	6E-04
35	Dibenzofuran							2.4E+01	1.4E-06	1	3.4E-05	NA	NA	2.4E+01	1.4E-06	1	3.4E-05	NA	NA
36	2,4-Dimethylphenol							1.8E+00	1.4E-06	1	2.5E-06	2.0E-02	1E-04	1.8E+00	1.4E-06	1	2.5E-06	NA	NA
37	Ethyl benzene							0.0E+00	1.4E-06	1	0.0E+00	1.0E-01	0E+00	0.0E+00	1.4E-06	1	0.0E+00	NA	NA
38	Fluoranthene							1.6E+02	1.4E-06	1	2.2E-04	4.0E-02	6E-03	1.6E+02	1.4E-06	1	2.2E-04	NA	NA
39	Fluorene							3.2E+01	1.4E-06	1	4.5E-05	4.0E-02	1E-03	3.2E+01	1.4E-06	1	4.5E-05	NA	NA

40	Fluoride	2.0E+02	1.4E-06	1	2.8E-04	6.0E-02	5E-03	2.0E+02	1.4E-06	1	2.8E-04	NA	NA
41	Indeno(1,2,3-cd)pyrene	5.0E+01	1.4E-06	1	7.0E-05	4.0E-01	2E-04	5.0E+01	1.4E-06	1	7.0E-05	1.2E+01	8E-04
42	Iron	3.6E+04	1.4E-06	1	5.0E-02	NA	NA	3.6E+04	1.4E-06	1	5.0E-02	NA	NA
43	Lead	2.7E+01	1.4E-06	1	3.8E-05	NA	NA	2.7E+01	1.4E-06	1	3.8E-05	NA	NA
44	Manganese	1.2E+03	1.4E-06	1	1.7E-03	1.0E-01	2E-02	1.2E+03	1.4E-06	1	1.7E-03	NA	NA
45	Mercury	5.6E-02	1.4E-06	1	7.8E-08	3.0E-04	3E-04	5.6E-02	1.4E-06	1	7.8E-08	NA	NA
46	Methylene chloride	1.0E-02	1.4E-06	1	1.4E-08	6.0E-02	2E-07	1.0E-02	1.4E-06	1	1.4E-08	7.5E-03	1E-10
47	2-Methylnaphthalene	1.0E+01	1.4E-06	1	1.4E-05	4.0E-01	4E-05	1.0E+01	1.4E-06	1	1.4E-05	NA	NA
48	4-Methylphenol	1.3E+00	1.4E-06	1	1.8E-06	5.0E-02	4E-05	1.3E+00	1.4E-06	1	1.8E-06	NA	NA
49	Naphthalene	2.2E+01	1.4E-06	1	3.1E-05	4.0E-01	8E-05	2.2E+01	1.4E-06	1	3.1E-05	NA	NA
50	Nickel(dust)	0.0E+00	1.4E-06	1	0.0E+00	NA	NA	0.0E+00	1.4E-06	1	0.0E+00	NA	NA
51	Nickel (salts)	3.6E+01	1.4E-06	1	5.0E-05	2.0E-02	3E-03	3.6E+01	1.4E-06	1	5.0E-05	NA	NA
52	Nitrogen, ammonia	2.3E+01	1.4E-06	1	3.2E-05	NA	NA	2.3E+01	1.4E-06	1	3.2E-05	NA	NA
53	Phenanthrene	1.3E+02	1.4E-06	1	1.8E-04	4.0E-01	5E-04	1.3E+02	1.4E-06	1	1.8E-04	NA	NA
54	Pyrene	1.9E+02	1.4E-06	1	2.7E-04	3.0E-02	9E-03	1.9E+02	1.4E-06	1	2.7E-04	NA	NA
55	Silica	0.0E+00	1.4E-06	1	0.0E+00	NA	NA	0.0E+00	1.4E-06	1	0.0E+00	NA	NA
56	Silver	2.3E+00	1.4E-06	1	3.2E-06	3.0E-03	1E-03	2.3E+00	1.4E-06	1	3.2E-06	NA	NA
57	Sodium	6.2E+03	1.4E-06	1	8.7E-03	NA	NA	6.2E+03	1.4E-06	1	8.7E-03	NA	NA
58	Sulfate	0.0E+00	1.4E-06	1	0.0E+00	NA	NA	0.0E+00	1.4E-06	1	0.0E+00	NA	NA
59	Styrene	0.0E+00	1.4E-06	1	0.0E+00	2.0E-01	0E+00	0.0E+00	1.4E-06	1	0.0E+00	3.0E-02	0E+00
60	1,1,2,2-PCA	0.0E+00	1.4E-06	1	0.0E+00	NA	NA	0.0E+00	1.4E-06	1	0.0E+00	2.0E-01	0E+00
61	PCE	0.0E+00	1.4E-06	1	0.0E+00	1.0E-02	0E+00	0.0E+00	1.4E-06	1	0.0E+00	5.1E-02	0E+00
62	Thallium	0.0E+00	1.4E-06	1	0.0E+00	7.0E-05	0E+00	0.0E+00	1.4E-06	1	0.0E+00	NA	NA
63	Toluene	0.0E+00	1.4E-06	1	0.0E+00	2.0E-01	0E+00	0.0E+00	1.4E-06	1	0.0E+00	NA	NA
64	1,1,1-TCA	0.0E+00	1.4E-06	1	0.0E+00	9.0E-02	0E+00	0.0E+00	1.4E-06	1	0.0E+00	NA	NA
65	TCE	0.0E+00	1.4E-06	1	0.0E+00	NA	NA	0.0E+00	1.4E-06	1	0.0E+00	1.1E-02	0E+00
66	Vanadium	2.4E+01	1.4E-06	1	3.4E-05	7.0E-03	5E-03	2.4E+01	1.4E-06	1	3.4E-05	NA	NA

RANGE NAME: WS2

SITE NAME: ORMET
OPERABLE UNIT: FUTURE RESIDENT ADULT
FILE NAME: POP1
LAST UPDATED: 03/13/91

EXPOSURE AND RISK CALCULATION WORKSHEET

LAND USE: FUTURE
POPULATION: RES. ADULT (P)

EXPOSURE POINT: POTLINER
MEDIUM: SOIL
ROUTE: DERMAL

HIFs = 0.0E+00
HIFc = 2.1E-05
HIFl = 2.1E-05

		SUBCHRONIC					CHRONIC						LIFETIME					
	CHEMICAL NAME	Cs	HIFs	ABS	DIs	RfDS	HQs	Cc	HIFc	ABS	DIc	RfDC	HQc	Cl	HIFl	ABS	DIl	SF	RISK
1	Acenaphthene		0.0E+00		0.0E+00		ERR	4.4E+01	2.1E-05	1.0E-01	9.2E-05	NA	NA	4.4E+01	2.1E-05	1.0E-01	9.2E-05	NA	NA
2	Acenaphthylene							1.4E+00	2.1E-05	NA	NA	NA	NA	1.4E+00	2.1E-05	NA	NA	NA	NA
3	Acetone							1.0E-01	2.1E-05	2.5E-01	5.3E-07	1.0E-01	5E-06	1.0E-01	2.1E-05	2.5E-01	5.3E-07	NA	NA
4	Aluminum							1.7E+04	2.1E-05	NA	NA	NA	NA	1.7E+04	2.1E-05	NA	NA	NA	NA
5	Anthracene							5.1E+01	2.1E-05	NA	NA	NA	NA	5.1E+01	2.1E-05	NA	NA	NA	NA
6	Antimony							0.0E+00	2.1E-05	NA	NA	NA	NA	0.0E+00	2.1E-05	NA	NA	NA	NA
7	Aroclor 1242							0.0E+00	2.1E-05	1.0E-01	0.0E+00	NA	NA	0.0E+00	2.1E-05	1.0E-01	0.0E+00	7.7E+00	0E+00
8	Aroclor 1248							0.0E+00	2.1E-05	1.0E-01	0.0E+00	NA	NA	0.0E+00	2.1E-05	1.0E-01	0.0E+00	7.7E+00	0E+00
9	Aroclor 1254							0.0E+00	2.1E-05	1.0E-01	0.0E+00	NA	NA	0.0E+00	2.1E-05	1.0E-01	0.0E+00	7.7E+00	0E+00
10	Arsenic							1.2E+01	2.1E-05	NA	NA	NA	NA	1.2E+01	2.1E-05	NA	NA	NA	NA
11	Barium							7.3E+01	2.1E-05	NA	NA	NA	NA	7.3E+01	2.1E-05	NA	NA	NA	NA
12	Benzene							0.0E+00	2.1E-05	2.5E-01	0.0E+00	NA	NA	0.0E+00	2.1E-05	2.5E-01	0.0E+00	2.9E-02	0E+00
13	Benzo(a)anthracene							1.7E+02	2.1E-05	NA	NA	NA	NA	1.7E+02	2.1E-05	NA	NA	NA	NA
14	Benzo(a)pyrene							1.6E+02	2.1E-05	NA	NA	NA	NA	1.6E+02	2.1E-05	NA	NA	NA	NA
15	Benzo(b)fluoranthene							2.4E+02	2.1E-05	NA	NA	NA	NA	2.4E+02	2.1E-05	NA	NA	NA	NA
16	Benzo(g,h,i)perylene							4.0E+01	2.1E-05	NA	NA	NA	NA	4.0E+01	2.1E-05	NA	NA	NA	NA
17	Benzo(k)fluoranthene							2.1E+02	2.1E-05	NA	NA	NA	NA	2.1E+02	2.1E-05	NA	NA	NA	NA
18	Beryllium							1.1E+00	2.1E-05	NA	NA	NA	NA	1.1E+00	2.1E-05	NA	NA	NA	NA
19	BEHP							1.7E+00	2.1E-05	1.0E-01	3.6E-06	2.0E-02	2E-04	1.7E+00	2.1E-05	1.0E-01	3.6E-06	1.4E-02	5E-08
20	2-Butanone							4.4E-02	2.1E-05	2.5E-01	2.3E-07	5.0E-02	5E-06	4.4E-02	2.1E-05	2.5E-01	2.3E-07	NA	NA
21	Cadmium (food)							0.0E+00	2.1E-05	NA	NA	NA	NA	0.0E+00	2.1E-05	NA	NA	NA	NA
22	Cadmium (water)							0.0E+00	2.1E-05	NA	NA	NA	NA	0.0E+00	2.1E-05	NA	NA	NA	NA
23	Carbon disulfide							0.0E+00	2.1E-05	2.5E-01	0.0E+00	1.0E-01	0E+00	0.0E+00	2.1E-05	2.5E-01	0.0E+00	NA	NA
24	Chloride							0.0E+00	2.1E-05	NA	NA	NA	NA	0.0E+00	2.1E-05	NA	NA	NA	NA
25	Chlorobenzene							7.6E-03	2.1E-05	2.5E-01	4.0E-08	2.0E-02	2E-06	7.6E-03	2.1E-05	2.5E-01	4.0E-08	NA	NA
26	Chloroform							0.0E+00	2.1E-05	2.5E-01	0.0E+00	1.0E-02	0E+00	0.0E+00	2.1E-05	2.5E-01	0.0E+00	6.1E-03	0E+00
27	Chromium (VI)							3.7E+01	2.1E-05	NA	NA	NA	NA	3.7E+01	2.1E-05	NA	NA	NA	NA
28	Chrysene							1.3E+02	2.1E-05	NA	NA	4.0E-01	NA	1.3E+02	2.1E-05	NA	NA	1.2E+01	NA
29	Cobalt							6.4E+00	2.1E-05	NA	NA	NA	NA	6.4E+00	2.1E-05	NA	NA	NA	NA
30	Copper							1.8E+02	2.1E-05	NA	NA	NA	NA	1.8E+02	2.1E-05	NA	NA	NA	NA
31	Cyanide (free)							1.4E+02	2.1E-05	NA	NA	NA	NA	1.4E+02	2.1E-05	NA	NA	NA	NA
32	Di-n-butylphthalate							6.3E-02	2.1E-05	1.0E-01	1.3E-07	1.0E-01	1E-06	6.3E-02	2.1E-05	1.0E-01	1.3E-07	NA	NA
33	Di-n-octylphthalate							6.7E-02	2.1E-05	1.0E-01	1.4E-07	2.0E-02	7E-06	6.7E-02	2.1E-05	1.0E-01	1.4E-07	NA	NA
34	Dibenz(a,h)anthracene							3.6E+01	2.1E-05	NA	NA	NA	NA	3.6E+01	2.1E-05	NA	NA	NA	NA
35	Dibenzofuran							2.4E+01	2.1E-05	1.0E-01	5.0E-05	NA	NA	2.4E+01	2.1E-05	1.0E-01	5.0E-05	NA	NA
36	2,4-Dimethylphenol							1.8E+00	2.1E-05	1.0E-01	3.8E-06	2.0E-02	2E-04	1.8E+00	2.1E-05	1.0E-01	3.8E-06	NA	NA
37	Ethyl benzene							0.0E+00	2.1E-05	2.5E-01	0.0E+00	1.0E-01	0E+00	0.0E+00	2.1E-05	2.5E-01	0.0E+00	NA	NA
38	Fluoranthene							1.6E+02	2.1E-05	NA	NA	NA	NA	1.6E+02	2.1E-05	NA	NA	NA	NA
39	Fluorene							3.2E+01	2.1E-05	NA	NA	NA	NA	3.2E+01	2.1E-05	NA	NA	NA	NA

40	Fluoride	2.0E+02	2.1E-05	NA	NA	NA	NA	2.0E+02	2.1E-05	NA	NA	NA	NA
41	Indeno(1,2,3-cd)pyrene	5.0E+01	2.1E-05	NA	NA	NA	NA	5.0E+01	2.1E-05	NA	NA	NA	NA
42	Iron	3.6E+04	2.1E-05	NA	NA	NA	NA	3.6E+04	2.1E-05	NA	NA	NA	NA
43	Lead	2.7E+01	2.1E-05	NA	NA	NA	NA	2.7E+01	2.1E-05	NA	NA	NA	NA
44	Manganese	1.2E+03	2.1E-05	NA	NA	NA	NA	1.2E+03	2.1E-05	NA	NA	NA	NA
45	Mercury	5.6E-02	2.1E-05	NA	NA	NA	NA	5.6E-02	2.1E-05	NA	NA	NA	NA
46	Methylene chloride	1.0E-02	2.1E-05	2.5E-01	5.3E-08	6.0E-02	9E-07	1.0E-02	2.1E-05	2.5E-01	5.3E-08	7.5E-03	4E-10
47	2-Methylnaphthalene	1.0E+01	2.1E-05	NA	NA	NA	NA	1.0E+01	2.1E-05	NA	NA	NA	NA
48	4-Methylphenol	1.3E+00	2.1E-05	1.0E-01	2.7E-06	5.0E-02	5E-05	1.3E+00	2.1E-05	1.0E-01	2.7E-06	NA	NA
49	Naphthalene	2.2E+01	2.1E-05	NA	NA	NA	NA	2.2E+01	2.1E-05	NA	NA	NA	NA
50	Nickel(dust)	0.0E+00	2.1E-05	NA	NA	NA	NA	0.0E+00	2.1E-05	NA	NA	NA	NA
51	Nickel (salts)	3.6E+01	2.1E-05	NA	NA	NA	NA	3.6E+01	2.1E-05	NA	NA	NA	NA
52	Nitrogen, ammonia	2.3E+01	2.1E-05	NA	NA	NA	NA	2.3E+01	2.1E-05	NA	NA	NA	NA
53	Phenanthrene	1.3E+02	2.1E-05	NA	NA	NA	NA	1.3E+02	2.1E-05	NA	NA	NA	NA
54	Pyrene	1.9E+02	2.1E-05	NA	NA	NA	NA	1.9E+02	2.1E-05	NA	NA	NA	NA
55	Silica	0.0E+00	2.1E-05	NA	NA	NA	NA	0.0E+00	2.1E-05	NA	NA	NA	NA
56	Silver	2.3E+00	2.1E-05	NA	NA	NA	NA	2.3E+00	2.1E-05	NA	NA	NA	NA
57	Sodium	6.2E+03	2.1E-05	NA	NA	NA	NA	6.2E+03	2.1E-05	NA	NA	NA	NA
58	Sulfate	0.0E+00	2.1E-05	NA	NA	NA	NA	0.0E+00	2.1E-05	NA	NA	NA	NA
59	Styrene	0.0E+00	2.1E-05	2.5E-01	0.0E+00	2.0E-01	0E+00	0.0E+00	2.1E-05	2.5E-01	0.0E+00	3.0E-02	0E+00
60	1,1,2,2-PCA	0.0E+00	2.1E-05	2.5E-01	0.0E+00	NA	NA	0.0E+00	2.1E-05	2.5E-01	0.0E+00	2.0E-01	0E+00
61	PCE	0.0E+00	2.1E-05	2.5E-01	0.0E+00	1.0E-02	0E+00	0.0E+00	2.1E-05	2.5E-01	0.0E+00	5.1E-02	0E+00
62	Thallium	0.0E+00	2.1E-05	NA	NA	NA	NA	0.0E+00	2.1E-05	NA	NA	NA	NA
63	Toluene	0.0E+00	2.1E-05	2.5E-01	0.0E+00	2.0E-01	0E+00	0.0E+00	2.1E-05	2.5E-01	0.0E+00	NA	NA
64	1,1,1-TCA	0.0E+00	2.1E-05	2.5E-01	0.0E+00	9.0E-02	0E+00	0.0E+00	2.1E-05	2.5E-01	0.0E+00	NA	NA
65	TCE	0.0E+00	2.1E-05	2.5E-01	0.0E+00	NA	NA	0.0E+00	2.1E-05	2.5E-01	0.0E+00	1.1E-02	0E+00
66	Vanadium	2.4E+01	2.1E-05	NA	NA	NA	NA	2.4E+01	2.1E-05	NA	NA	NA	NA

RANGE NAME: CSUM

SITE NAME: ORMET
OPERABLE UNIT: FUTURE RESIDENT ADUL
FILE NAME: POP1
LAST UPDATED: 03/13/91

CHRONIC EXPOSURE SUMMARY

FUTURE
RES. ADULT (P)

CHRONIC DAILY INTAKE (mg/kg/day)

	CHEMICAL NAME	SCENARIO 1 POTLINER SOIL ORAL (FROM WS1)	SCENARIO 2 POTLINER SOIL DERMAL (FROM WS2)	SCENARIO 3 0 0 0 (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
1	Acenaphthene	6.2E-05	9.2E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00
2	Acenaphthylene	2.0E-06	NA				
3	Acetone	1.4E-07	5.3E-07				
4	Aluminum	2.4E-02	NA				
5	Anthracene	7.1E-05	NA				
6	Antimony	0.0E+00	NA				
7	Aroclor 1242	0.0E+00	0.0E+00				
8	Aroclor 1248	0.0E+00	0.0E+00				
9	Aroclor 1254	0.0E+00	0.0E+00				
10	Arsenic	1.7E-05	NA				
11	Barium	1.0E-04	NA				
12	Benzene	0.0E+00	0.0E+00				
13	Benzo(a)anthra	2.4E-04	NA				
14	Benzo(a)pyrene	2.2E-04	NA				
15	Benzo(b)fluora	3.4E-04	NA				
16	Benzo(g,h,i)pe	5.6E-05	NA				
17	Benzo(k)fluora	2.9E-04	NA				
18	Beryllium	1.5E-06	NA				
19	BEHP	2.4E-06	3.6E-06				
20	2-Butanone	6.2E-08	2.3E-07				
21	Cadmium (food)	0.0E+00	NA				
22	Cadmium (water	0.0E+00	NA				
23	Carbon disulfi	0.0E+00	0.0E+00				
24	Chloride	0.0E+00	NA				
25	Chlorobenzene	1.1E-08	4.0E-08				
26	Chloroform	0.0E+00	0.0E+00				
27	Chromium (VI)	5.2E-05	NA				
28	Chrysene	1.8E-04	NA				
29	Cobalt	9.0E-06	NA				
30	Copper	2.5E-04	NA				
31	Cyanide (free)	2.0E-04	NA				
32	Di-n-butylphth	8.8E-08	1.3E-07				
33	Di-n-octylphth	9.4E-08	1.4E-07				
34	Dibenz(a,h)ant	5.0E-05	NA				
35	Dibenzofuran	3.4E-05	5.0E-05				
36	2,4-Dimethylph	2.5E-06	3.8E-06				
37	Ethyl benzene	0.0E+00	0.0E+00				
38	Fluoranthene	2.2E-04	NA				
39	Fluorene	4.5E-05	NA				
40	Fluoride	2.8E-04	NA				
41	Indeno(1,2,3-c	7.0E-05	NA				
42	Iron	5.0E-02	NA				

CHRONIC RISK SUMMARY

FUTURE
RES. ADULT (P)

CHRONIC HAZARD QUOTIENT

	CHEMICAL NAME	SCENARIO 1 POTLINER SOIL ORAL (FROM WS1)	SCENARIO 2 POTLINER SOIL DERMAL (FROM WS2)	SCENARIO 3 0 0 0 (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
1	Acenaphthene	1E-03	NA	0E+00	0E+00	0E+00	0E+00
2	Acenaphthylene	5E-06	NA				
3	Acetone	1E-06	5E-06				
4	Aluminum	NA	NA				
5	Anthracene	2E-04	NA				
6	Antimony	0E+00	NA				
7	Aroclor 1242	NA	NA				
8	Aroclor 1248	NA	NA				
9	Aroclor 1254	NA	NA				
10	Arsenic	2E-02	NA				
11	Barium	1E-03	NA				
12	Benzene	NA	NA				
13	Benzo(a)anthra	6E-04	NA				
14	Benzo(a)pyrene	6E-04	NA				
15	Benzo(b)fluora	8E-04	NA				
16	Benzo(g,h,i)pe	1E-04	NA				
17	Benzo(k)fluora	7E-04	NA				
18	Beryllium	3E-04	NA				
19	BEHP	1E-04	2E-04				
20	2-Butanone	1E-06	5E-06				
21	Cadmium (food)	0E+00	NA				
22	Cadmium (water	0E+00	NA				
23	Carbon disulfi	0E+00	0E+00				
24	Chloride	NA	NA				
25	Chlorobenzene	5E-07	2E-06				
26	Chloroform	0E+00	0E+00				
27	Chromium (VI)	1E-02	NA				
28	Chrysene	5E-04	NA				
29	Cobalt	NA	NA				
30	Copper	7E-03	NA				
31	Cyanide (free)	1E-02	NA				
32	Di-n-butylphth	9E-07	1E-06				
33	Di-n-octylphth	5E-06	7E-06				
34	Dibenz(a,h)ant	1E-04	NA				
35	Dibenzofuran	NA	NA				
36	2,4-Dimethylph	1E-04	2E-04				
37	Ethyl benzene	0E+00	0E+00				
38	Fluoranthene	6E-03	NA				
39	Fluorene	1E-03	NA				
40	Fluoride	5E-03	NA				
41	Indeno(1,2,3-c	2E-04	NA				
42	Iron	NA	NA				

43	Lead	3.8E-05	NA			NA	NA			
44	Manganese	1.7E-03	NA			2E-02	NA			
45	Mercury	7.8E-08	NA			3E-04	NA			
46	Methylene chlo	1.4E-08	5.3E-08			2E-07	9E-07			
47	2-Methylnaphth	1.4E-05	NA			3E-05	NA			
48	4-Methylphenol	1.8E-06	2.7E-06			4E-05	5E-05			
49	Naphthalene	3.1E-05	NA			8E-05	NA			
50	Nickel(dust)	0.0E+00	NA			NA	NA			
51	Nickel (salts)	5.0E-05	NA			3E-03	NA			
52	Nitrogen, ammo	3.2E-05	NA			NA	NA			
53	Phenanthrene	1.8E-04	NA			5E-04	NA			
54	Pyrene	2.7E-04	NA			9E-03	NA			
55	Silica	0.0E+00	NA			NA	NA			
56	Silver	3.2E-06	NA			1E-03	NA			
57	Sodium	8.7E-03	NA			NA	NA			
58	Sulfate	0.0E+00	NA			NA	NA			
59	Styrene	0.0E+00	0.0E+00			0E+00	0E+00			
60	1,1,2,2-PCA	0.0E+00	0.0E+00			NA	NA			
61	PCE	0.0E+00	0.0E+00			0E+00	0E+00			
62	Thallium	0.0E+00	NA			0E+00	NA			
63	Toluene	0.0E+00	0.0E+00			0E+00	0E+00			
64	1,1,1-TCA	0.0E+00	0.0E+00			0E+00	0E+00			
65	TCE	0.0E+00	0.0E+00			NA	NA			
66	Vanadium	3.4E-05	NA			5E-03	NA			
				PATHWAY SUM (HI)		1E-01	5E-04	0E+00	0E+00	0E+00	0E+00
				POPULATION TOTAL		1E-01					

RANGE NAME: LSUM

SITE NAME: ORMET
OPERABLE UNIT: FUTURE RESIDENT ADUL
FILE NAME: POP1
LAST UPDATED: 03/13/91

LIFETIME EXPOSURE SUMMARY

FUTURE
RES. ADULT (P)

LIFETIME AVERAGE DAILY INTAKE (mg/kg/day)

	CHEMICAL NAME	SCENARIO 1 POTLINER SOIL ORAL (FROM WS1)	SCENARIO 2 POTLINER SOIL DERMAL (FROM WS2)	SCENARIO 3 0 0 0 (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
1	Acenaphthene	6.2E-05	9.2E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00
2	Acenaphthylene	2.0E-06	NA				
3	Acetone	1.4E-07	5.3E-07				
4	Aluminum	2.4E-02	NA				
5	Anthracene	7.1E-05	NA				
6	Antimony	0.0E+00	NA				
7	Aroclor 1242	0.0E+00	0.0E+00				
8	Aroclor 1248	0.0E+00	0.0E+00				
9	Aroclor 1254	0.0E+00	0.0E+00				
10	Arsenic	1.7E-05	NA				
11	Barium	1.0E-04	NA				
12	Benzene	0.0E+00	0.0E+00				
13	Benzo(a)anthra	2.4E-04	NA				
14	Benzo(a)pyrene	2.2E-04	NA				
15	Benzo(b)fluora	3.4E-04	NA				
16	Benzo(g,h,i)pe	5.6E-05	NA				
17	Benzo(k)fluora	2.9E-04	NA				
18	Beryllium	1.5E-06	NA				
19	BEHP	2.4E-06	3.6E-06				
20	2-Butanone	6.2E-08	2.3E-07				
21	Cadmium (food)	0.0E+00	NA				
22	Cadmium (water	0.0E+00	NA				
23	Carbon disulfi	0.0E+00	0.0E+00				
24	Chloride	0.0E+00	NA				
25	Chlorobenzene	1.1E-08	4.0E-08				
26	Chloroform	0.0E+00	0.0E+00				
27	Chromium (VI)	5.2E-05	NA				
28	Chrysene	1.8E-04	NA				
29	Cobalt	9.0E-06	NA				
30	Copper	2.5E-04	NA				
31	Cyanide (free)	2.0E-04	NA				
32	Di-n-butylphth	8.8E-08	1.3E-07				
33	Di-n-octylphth	9.4E-08	1.4E-07				
34	Dibenz(a,h)ant	5.0E-05	NA				
35	Dibenzofuran	3.4E-05	5.0E-05				
36	2,4-Dimethylph	2.5E-06	3.8E-06				
37	Ethyl benzene	0.0E+00	0.0E+00				
38	Fluoranthene	2.2E-04	NA				
39	Fluorene	4.5E-05	NA				
40	Fluoride	2.8E-04	NA				
41	Indeno(1,2,3-c	7.0E-05	NA				
42	Iron	5.0E-02	NA				

LIFETIME RISK SUMMARY

FUTURE
RES. ADULT (P)

LIFETIME EXCESS CANCER RISK

	CHEMICAL NAME	SCENARIO 1 POTLINER SOIL ORAL (FROM WS1)	SCENARIO 2 POTLINER SOIL DERMAL (FROM WS2)	SCENARIO 3 0 0 0 (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
1	Acenaphthene	NA	NA	0E+00	0E+00	0E+00	0E+00
2	Acenaphthylene	NA	NA				
3	Acetone	NA	NA				
4	Aluminum	NA	NA				
5	Anthracene	NA	NA				
6	Antimony	NA	NA				
7	Aroclor 1242	0E+00	0E+00				
8	Aroclor 1248	0E+00	0E+00				
9	Aroclor 1254	0E+00	0E+00				
10	Arsenic	3E-05	NA				
11	Barium	NA	NA				
12	Benzene	0E+00	0E+00				
13	Benzo(a)anthra	3E-03	NA				
14	Benzo(a)pyrene	3E-03	NA				
15	Benzo(b)fluora	4E-03	NA				
16	Benzo(g,h,i)pe	NA	NA				
17	Benzo(k)fluora	4E-03	NA				
18	Beryllium	7E-06	NA				
19	BEHP	3E-08	5E-08				
20	2-Butanone	NA	NA				
21	Cadmium (food)	NA	NA				
22	Cadmium (water	NA	NA				
23	Carbon disulfi	NA	NA				
24	Chloride	NA	NA				
25	Chlorobenzene	NA	NA				
26	Chloroform	0E+00	0E+00				
27	Chromium (VI)	NA	NA				
28	Chrysene	2E-03	NA				
29	Cobalt	NA	NA				
30	Copper	NA	NA				
31	Cyanide (free)	NA	NA				
32	Di-n-butylphth	NA	NA				
33	Di-n-octylphth	NA	NA				
34	Dibenz(a,h)ant	6E-04	NA				
35	Dibenzofuran	NA	NA				
36	2,4-Dimethylph	NA	NA				
37	Ethyl benzene	NA	NA				
38	Fluoranthene	NA	NA				
39	Fluorene	NA	NA				
40	Fluoride	NA	NA				
41	Indeno(1,2,3-c	8E-04	NA				
42	Iron	NA	NA				

43	Lead	3.8E-05	NA		NA	NA			
44	Manganese	1.7E-03	NA		NA	NA			
45	Mercury	7.8E-08	NA		NA	NA			
46	Methylene chlo	1.4E-08	5.3E-08		1E-10	4E-10			
47	2-Methylnaphth	1.4E-05	NA		NA	NA			
48	4-Methylphenol	1.8E-06	2.7E-06		NA	NA			
49	Naphthalene	3.1E-05	NA		NA	NA			
50	Nickel(dust)	0.0E+00	NA		NA	NA			
51	Nickel (salts)	5.0E-05	NA		NA	NA			
52	Nitrogen, ammo	3.2E-05	NA		NA	NA			
53	Phenanthrene	1.8E-04	NA		NA	NA			
54	Pyrene	2.7E-04	NA		NA	NA			
55	Silica	0.0E+00	NA		NA	NA			
56	Silver	3.2E-06	NA		NA	NA			
57	Sodium	8.7E-03	NA		NA	NA			
58	Sulfate	0.0E+00	NA		NA	NA			
59	Styrene	0.0E+00	0.0E+00		0E+00	0E+00			
60	1,1,2,2-PCA	0.0E+00	0.0E+00		0E+00	0E+00			
61	PCE	0.0E+00	0.0E+00		0E+00	0E+00			
62	Thallium	0.0E+00	NA		NA	NA			
63	Toluene	0.0E+00	0.0E+00		NA	NA			
64	1,1,1-TCA	0.0E+00	0.0E+00		NA	NA			
65	TCE	0.0E+00	0.0E+00		0E+00	0E+00			
66	Vanadium	3.4E-05	NA		NA	NA			

TOTAL PATHWAY CANCER RISK	2E-02	5E-08	0E+00	0E+00	0E+00	0E+00
POPULATION TOTAL EXCESS RISK	2E-02					

RANGE NAME: WS1

EXPOSURE AND RISK CALCULATION WORKSHEET

LAND USE: FUTURE
POPULATION: RES. ADULT (CRA)

EXPOSURE POINT: CRA
MEDIUM: SOIL
ROUTE: ORAL

SITE NAME: ORMET
OPERABLE UNIT: FUTURE RESIDENT ADULT
FILE NAME: POP2
LAST UPDATED: 03/13/91

HIFs = 0.0E+00
HIFc = 1.4E-06
HIFl = 1.4E-06

		SUBCHRONIC					CHRONIC						LIFETIME					
	CHEMICAL NAME	Cs	HIFs	1	DIs	RfDS	HQs	Cc	HIFc	1	DIc	RfDC	HQc	Cl	HIFl	1	DIl	SF	RISK
1	Acenaphthene		0.0E+00		0.0E+00		ERR	3.7E-01	1.4E-06	1	5.2E-07	6.0E-02	9E-06	3.7E-01	1.4E-06	1	5.2E-07	NA	NA
2	Acenaphthylene							0.0E+00	1.4E-06	1	0.0E+00	4.0E-01	0E+00	0.0E+00	1.4E-06	1	0.0E+00	NA	NA
3	Acetone							0.0E+00	1.4E-06	1	0.0E+00	1.0E-01	0E+00	0.0E+00	1.4E-06	1	0.0E+00	NA	NA
4	Aluminum							6.5E+04	1.4E-06	1	9.1E-02	NA	NA	6.5E+04	1.4E-06	1	9.1E-02	NA	NA
5	Anthracene							7.9E-01	1.4E-06	1	1.1E-06	3.0E-01	4E-06	7.9E-01	1.4E-06	1	1.1E-06	NA	NA
6	Antimony							2.6E+01	1.4E-06	1	3.6E-05	4.0E-04	9E-02	2.6E+01	1.4E-06	1	3.6E-05	NA	NA
7	Aroclor 1242							0.0E+00	1.4E-06	1	0.0E+00	NA	NA	0.0E+00	1.4E-06	1	0.0E+00	7.7E+00	0E+00
8	Aroclor 1248							5.6E+01	1.4E-06	1	7.8E-05	NA	NA	5.6E+01	1.4E-06	1	7.8E-05	7.7E+00	6E-04
9	Aroclor 1254							0.0E+00	1.4E-06	1	0.0E+00	NA	NA	0.0E+00	1.4E-06	1	0.0E+00	7.7E+00	0E+00
10	Arsenic							1.8E+02	1.4E-06	1	2.5E-04	1.0E-03	3E-01	1.8E+02	1.4E-06	1	2.5E-04	1.8E+00	5E-04
11	Barium							2.4E+02	1.4E-06	1	3.4E-04	7.0E-02	5E-03	2.4E+02	1.4E-06	1	3.4E-04	NA	NA
12	Benzene							8.6E-02	1.4E-06	1	1.2E-07	NA	NA	8.6E-02	1.4E-06	1	1.2E-07	2.9E-02	3E-09
13	Benzo(a)anthracene							3.5E+00	1.4E-06	1	4.9E-06	4.0E-01	1E-05	3.5E+00	1.4E-06	1	4.9E-06	1.2E+01	6E-05
14	Benzo(a)pyrene							4.0E+00	1.4E-06	1	5.6E-06	4.0E-01	1E-05	4.0E+00	1.4E-06	1	5.6E-06	1.2E+01	7E-05
15	Benzo(b)fluoranthene							5.7E+00	1.4E-06	1	8.0E-06	4.0E-01	2E-05	5.7E+00	1.4E-06	1	8.0E-06	1.2E+01	1.0E-0
16	Benzo(g,h,i)perylene							1.2E+00	1.4E-06	1	1.7E-06	4.0E-01	4E-06	1.2E+00	1.4E-06	1	1.7E-06	NA	NA
17	Benzo(k)fluoranthene							4.3E+00	1.4E-06	1	6.0E-06	4.0E-01	2E-05	4.3E+00	1.4E-06	1	6.0E-06	1.2E+01	7E-05
18	Beryllium							4.5E+00	1.4E-06	1	6.3E-06	5.0E-03	1E-03	4.5E+00	1.4E-06	1	6.3E-06	4.3E+00	3E-05
19	BEHP							1.1E-01	1.4E-06	1	1.5E-07	2.0E-02	8E-06	1.1E-01	1.4E-06	1	1.5E-07	1.4E-02	2E-09
20	2-Butanone							1.9E-02	1.4E-06	1	2.7E-08	5.0E-02	5E-07	1.9E-02	1.4E-06	1	2.7E-08	NA	NA
21	Cadmium (food)							1.1E+00	1.4E-06	1	1.5E-06	1.0E-03	2E-03	1.1E+00	1.4E-06	1	1.5E-06	NA	NA
22	Cadmium (water)							0.0E+00	1.4E-06	1	0.0E+00	5.0E-04	0E+00	0.0E+00	1.4E-06	1	0.0E+00	NA	NA
23	Carbon disulfide							0.0E+00	1.4E-06	1	0.0E+00	1.0E-01	0E+00	0.0E+00	1.4E-06	1	0.0E+00	NA	NA
24	Chloride							1.1E+02	1.4E-06	1	1.5E-04	NA	NA	1.1E+02	1.4E-06	1	1.5E-04	NA	NA
25	Chlorobenzene							5.4E-02	1.4E-06	1	7.6E-08	2.0E-02	4E-06	5.4E-02	1.4E-06	1	7.6E-08	NA	NA
26	Chloroform							6.5E-03	1.4E-06	1	9.1E-09	1.0E-02	9E-07	6.5E-03	1.4E-06	1	9.1E-09	6.1E-03	6E-11
27	Chromium (VI)							2.8E+01	1.4E-06	1	3.9E-05	5.0E-03	8E-03	2.8E+01	1.4E-06	1	3.9E-05	NA	NA
28	Chrysene							4.0E+00	1.4E-06	1	5.6E-06	4.0E-01	1E-05	4.0E+00	1.4E-06	1	5.6E-06	1.2E+01	6E-05
29	Cobalt							1.5E+01	1.4E-06	1	2.1E-05	NA	NA	1.5E+01	1.4E-06	1	2.1E-05	NA	NA
30	Copper							6.0E+01	1.4E-06	1	8.4E-05	3.7E-02	2E-03	6.0E+01	1.4E-06	1	8.4E-05	NA	NA
31	Cyanide (free)							1.1E+02	1.4E-06	1	1.5E-04	2.0E-02	8E-03	1.1E+02	1.4E-06	1	1.5E-04	NA	NA
32	Di-n-butylphthalate							2.6E-01	1.4E-06	1	3.6E-07	1.0E-01	4E-06	2.6E-01	1.4E-06	1	3.6E-07	NA	NA
33	Di-n-octylphthalate							2.9E-01	1.4E-06	1	4.1E-07	2.0E-02	2E-05	2.9E-01	1.4E-06	1	4.1E-07	NA	NA
34	Dibenz(a,h)anthracene							5.6E-01	1.4E-06	1	7.8E-07	4.0E-01	2E-06	5.6E-01	1.4E-06	1	7.8E-07	1.2E+01	9E-06
35	Dibenzofuran							3.0E-01	1.4E-06	1	4.2E-07	NA	NA	3.0E-01	1.4E-06	1	4.2E-07	NA	NA
36	2,4-Dimethylphenol							1.8E-01	1.4E-06	1	2.5E-07	2.0E-02	1E-05	1.8E-01	1.4E-06	1	2.5E-07	NA	NA
37	Ethyl benzene							0.0E+00	1.4E-06	1	0.0E+00	1.0E-01	0E+00	0.0E+00	1.4E-06	1	0.0E+00	NA	NA
38	Fluoranthene							5.1E+00	1.4E-06	1	7.1E-06	4.0E-02	2E-04	5.1E+00	1.4E-06	1	7.1E-06	NA	NA
39	Fluorene							2.4E-01	1.4E-06	1	3.4E-07	4.0E-02	8E-06	2.4E-01	1.4E-06	1	3.4E-07	NA	NA

40	Fluoride	1.8E+02	1.4E-06	1	2.5E-04	6.0E-02	4E-03	1.8E+02	1.4E-06	1	2.5E-04	NA	NA
41	Indeno(1,2,3-cd)pyrene	2.0E+00	1.4E-06	1	2.8E-06	4.0E-01	7E-06	2.0E+00	1.4E-06	1	2.8E-06	1.2E+01	3E-05
42	Iron	3.4E+04	1.4E-06	1	4.8E-02	NA	NA	3.4E+04	1.4E-06	1	4.8E-02	NA	NA
43	Lead	5.3E+01	1.4E-06	1	7.4E-05	NA	NA	5.3E+01	1.4E-06	1	7.4E-05	NA	NA
44	Manganese	1.1E+03	1.4E-06	1	1.5E-03	1.0E-01	2E-02	1.1E+03	1.4E-06	1	1.5E-03	NA	NA
45	Mercury	1.9E-01	1.4E-06	1	2.7E-07	3.0E-04	9E-04	1.9E-01	1.4E-06	1	2.7E-07	NA	NA
46	Methylene chloride	2.4E-02	1.4E-06	1	3.4E-08	6.0E-02	6E-07	2.4E-02	1.4E-06	1	3.4E-08	7.5E-03	3E-10
47	2-Methylnaphthalene	1.0E-01	1.4E-06	1	1.4E-07	4.0E-01	4E-07	1.0E-01	1.4E-06	1	1.4E-07	NA	NA
48	4-Methylphenol	5.5E-02	1.4E-06	1	7.7E-08	5.0E-02	2E-06	5.5E-02	1.4E-06	1	7.7E-08	NA	NA
49	Naphthalene	2.6E-01	1.4E-06	1	3.6E-07	4.0E-01	9E-07	2.6E-01	1.4E-06	1	3.6E-07	NA	NA
50	Nickel(dust)	0.0E+00	1.4E-06	1	0.0E+00	NA	NA	0.0E+00	1.4E-06	1	0.0E+00	NA	NA
51	Nickel (salts)	2.0E+02	1.4E-06	1	2.8E-04	2.0E-02	1E-02	2.0E+02	1.4E-06	1	2.8E-04	NA	NA
52	Nitrogen, ammonia	0.0E+00	1.4E-06	1	0.0E+00	NA	NA	0.0E+00	1.4E-06	1	0.0E+00	NA	NA
53	Phenanthrene	2.8E+00	1.4E-06	1	3.9E-06	4.0E-01	1.0E-0	2.8E+00	1.4E-06	1	3.9E-06	NA	NA
54	Pyrene	4.2E+00	1.4E-06	1	5.9E-06	3.0E-02	2E-04	4.2E+00	1.4E-06	1	5.9E-06	NA	NA
55	Silica	1.6E+01	1.4E-06	1	2.2E-05	NA	NA	1.6E+01	1.4E-06	1	2.2E-05	NA	NA
56	Silver	0.0E+00	1.4E-06	1	0.0E+00	3.0E-03	0E+00	0.0E+00	1.4E-06	1	0.0E+00	NA	NA
57	Sodium	8.1E+03	1.4E-06	1	1.1E-02	NA	NA	8.1E+03	1.4E-06	1	1.1E-02	NA	NA
58	Sulfate	7.2E+02	1.4E-06	1	1.0E-03	NA	NA	7.2E+02	1.4E-06	1	1.0E-03	NA	NA
59	Styrene	5.0E-03	1.4E-06	1	7.0E-09	2.0E-01	4E-08	5.0E-03	1.4E-06	1	7.0E-09	3.0E-02	2E-10
60	1,1,2,2-PCA	0.0E+00	1.4E-06	1	0.0E+00	NA	NA	0.0E+00	1.4E-06	1	0.0E+00	2.0E-01	0E+00
61	PCE	5.7E-03	1.4E-06	1	8.0E-09	1.0E-02	8E-07	5.7E-03	1.4E-06	1	8.0E-09	5.1E-02	4E-10
62	Thallium	4.2E-01	1.4E-06	1	5.9E-07	7.0E-05	8E-03	4.2E-01	1.4E-06	1	5.9E-07	NA	NA
63	Toluene	9.7E-03	1.4E-06	1	1.4E-08	2.0E-01	7E-08	9.7E-03	1.4E-06	1	1.4E-08	NA	NA
64	1,1,1-TCA	0.0E+00	1.4E-06	1	0.0E+00	9.0E-02	0E+00	0.0E+00	1.4E-06	1	0.0E+00	NA	NA
65	TCE	0.0E+00	1.4E-06	1	0.0E+00	NA	NA	0.0E+00	1.4E-06	1	0.0E+00	1.1E-02	0E+00
66	Vanadium	1.2E+02	1.4E-06	1	1.7E-04	7.0E-03	2E-02	1.2E+02	1.4E-06	1	1.7E-04	NA	NA

RANGE NAME: WS2

EXPOSURE AND RISK CALCULATION WORKSHEET

SITE NAME: ORMET
OPERABLE UNIT: FUTURE RESIDENT ADULT
FILE NAME: POP2
LAST UPDATED: 03/13/91

LAND USE: FUTURE
POPULATION: RES. ADULT (CRA)

EXPOSURE POINT: CRA
MEDIUM: SOIL
ROUTE: DERMAL

HIFs = 0.0E+00
HIFc = 2.1E-05
HIFl = 2.1E-05

		SUBCHRONIC					CHRONIC						LIFETIME					
	CHEMICAL NAME	Cs	HIFs	ABS	DIs	RfDS	HQs	Cc	HIFc	ABS	DIc	RfDC	HQc	Cl	HIFl	ABS	DIl	SF	RISK
1	Acenaphthene		0.0E+00		0.0E+00		ERR	3.7E-01	2.1E-05	1.0E-01	7.8E-07	NA	NA	3.7E-01	2.1E-05	1.0E-01	7.8E-07	NA	NA
2	Acenaphthylene							0.0E+00	2.1E-05	NA	NA	NA	NA	0.0E+00	2.1E-05	NA	NA	NA	NA
3	Acetone							0.0E+00	2.1E-05	2.5E-01	0.0E+00	1.0E-01	0E+00	0.0E+00	2.1E-05	2.5E-01	0.0E+00	NA	NA
4	Aluminum							6.5E+04	2.1E-05	NA	NA	NA	NA	6.5E+04	2.1E-05	NA	NA	NA	NA
5	Anthracene							7.9E-01	2.1E-05	NA	NA	NA	NA	7.9E-01	2.1E-05	NA	NA	NA	NA
6	Antimony							2.6E+01	2.1E-05	NA	NA	NA	NA	2.6E+01	2.1E-05	NA	NA	NA	NA
7	Aroclor 1242							0.0E+00	2.1E-05	1.0E-01	0.0E+00	NA	NA	0.0E+00	2.1E-05	1.0E-01	0.0E+00	7.7E+00	0E+00
8	Aroclor 1248							5.6E+01	2.1E-05	1.0E-01	1.2E-04	NA	NA	5.6E+01	2.1E-05	1.0E-01	1.2E-04	7.7E+00	9E-04
9	Aroclor 1254							0.0E+00	2.1E-05	1.0E-01	0.0E+00	NA	NA	0.0E+00	2.1E-05	1.0E-01	0.0E+00	7.7E+00	0E+00
10	Arsenic							1.8E+02	2.1E-05	NA	NA	NA	NA	1.8E+02	2.1E-05	NA	NA	NA	NA
11	Barium							2.4E+02	2.1E-05	NA	NA	NA	NA	2.4E+02	2.1E-05	NA	NA	NA	NA
12	Benzene							8.6E-02	2.1E-05	2.5E-01	4.5E-07	NA	NA	8.6E-02	2.1E-05	2.5E-01	4.5E-07	2.9E-02	1E-08
13	Benzo(a)anthracene							3.5E+00	2.1E-05	NA	NA	NA	NA	3.5E+00	2.1E-05	NA	NA	NA	NA
14	Benzo(a)pyrene							4.0E+00	2.1E-05	NA	NA	NA	NA	4.0E+00	2.1E-05	NA	NA	NA	NA
15	Benzo(b)fluoranthene							5.7E+00	2.1E-05	NA	NA	NA	NA	5.7E+00	2.1E-05	NA	NA	NA	NA
16	Benzo(g,h,i)perylene							1.2E+00	2.1E-05	NA	NA	NA	NA	1.2E+00	2.1E-05	NA	NA	NA	NA
17	Benzo(k)fluoranthene							4.3E+00	2.1E-05	NA	NA	NA	NA	4.3E+00	2.1E-05	NA	NA	NA	NA
18	Beryllium							4.5E+00	2.1E-05	NA	NA	NA	NA	4.5E+00	2.1E-05	NA	NA	NA	NA
19	BEHP							1.1E-01	2.1E-05	1.0E-01	2.3E-07	2.0E-02	1E-05	1.1E-01	2.1E-05	1.0E-01	2.3E-07	1.4E-02	3E-09
20	2-Butanone							1.9E-02	2.1E-05	2.5E-01	1.00E-07	5.0E-02	2E-06	1.9E-02	2.1E-05	2.5E-01	1.00E-07	NA	NA
21	Cadmium (food)							1.1E+00	2.1E-05	NA	NA	NA	NA	1.1E+00	2.1E-05	NA	NA	NA	NA
22	Cadmium (water)							0.0E+00	2.1E-05	NA	NA	NA	NA	0.0E+00	2.1E-05	NA	NA	NA	NA
23	Carbon disulfide							0.0E+00	2.1E-05	2.5E-01	0.0E+00	1.0E-01	0E+00	0.0E+00	2.1E-05	2.5E-01	0.0E+00	NA	NA
24	Chloride							1.1E+02	2.1E-05	NA	NA	NA	NA	1.1E+02	2.1E-05	NA	NA	NA	NA
25	Chlorobenzene							5.4E-02	2.1E-05	2.5E-01	2.8E-07	2.0E-02	1E-05	5.4E-02	2.1E-05	2.5E-01	2.8E-07	NA	NA
26	Chloroform							6.5E-03	2.1E-05	2.5E-01	3.4E-08	1.0E-02	3E-06	6.5E-03	2.1E-05	2.5E-01	3.4E-08	6.1E-03	2E-10
27	Chromium (VI)							2.8E+01	2.1E-05	NA	NA	NA	NA	2.8E+01	2.1E-05	NA	NA	NA	NA
28	Chrysene							4.0E+00	2.1E-05	NA	NA	4.0E-01	NA	4.0E+00	2.1E-05	NA	NA	1.2E+01	NA
29	Cobalt							1.5E+01	2.1E-05	NA	NA	NA	NA	1.5E+01	2.1E-05	NA	NA	NA	NA
30	Copper							6.0E+01	2.1E-05	NA	NA	NA	NA	6.0E+01	2.1E-05	NA	NA	NA	NA
31	Cyanide (free)							1.1E+02	2.1E-05	NA	NA	NA	NA	1.1E+02	2.1E-05	NA	NA	NA	NA
32	Di-n-butylphthalate							2.6E-01	2.1E-05	1.0E-01	5.5E-07	1.0E-01	5E-06	2.6E-01	2.1E-05	1.0E-01	5.5E-07	NA	NA
33	Di-n-octylphthalate							2.9E-01	2.1E-05	1.0E-01	6.1E-07	2.0E-02	3E-05	2.9E-01	2.1E-05	1.0E-01	6.1E-07	NA	NA
34	Dibenz(a,h)anthracene							5.6E-01	2.1E-05	NA	NA	NA	NA	5.6E-01	2.1E-05	NA	NA	NA	NA
35	Dibenzofuran							3.0E-01	2.1E-05	1.0E-01	6.3E-07	NA	NA	3.0E-01	2.1E-05	1.0E-01	6.3E-07	NA	NA
36	2,4-Dimethylphenol							1.8E-01	2.1E-05	1.0E-01	3.8E-07	2.0E-02	2E-05	1.8E-01	2.1E-05	1.0E-01	3.8E-07	NA	NA
37	Ethyl benzene							0.0E+00	2.1E-05	2.5E-01	0.0E+00	1.0E-01	0E+00	0.0E+00	2.1E-05	2.5E-01	0.0E+00	NA	NA
38	Fluoranthene							5.1E+00	2.1E-05	NA	NA	NA	NA	5.1E+00	2.1E-05	NA	NA	NA	NA
39	Fluorene							2.4E-01	2.1E-05	NA	NA	NA	NA	2.4E-01	2.1E-05	NA	NA	NA	NA

40	Fluoride	1.8E+02	2.1E-05	NA	NA	NA	NA	1.8E+02	2.1E-05	NA	NA	NA	NA
41	Indeno(1,2,3-cd)pyrene	2.0E+00	2.1E-05	NA	NA	NA	NA	2.0E+00	2.1E-05	NA	NA	NA	NA
42	Iron	3.4E+04	2.1E-05	NA	NA	NA	NA	3.4E+04	2.1E-05	NA	NA	NA	NA
43	Lead	5.3E+01	2.1E-05	NA	NA	NA	NA	5.3E+01	2.1E-05	NA	NA	NA	NA
44	Manganese	1.1E+03	2.1E-05	NA	NA	NA	NA	1.1E+03	2.1E-05	NA	NA	NA	NA
45	Mercury	1.9E-01	2.1E-05	NA	NA	NA	NA	1.9E-01	2.1E-05	NA	NA	NA	NA
46	Methylene chloride	2.4E-02	2.1E-05	2.5E-01	1.3E-07	6.0E-02	2E-06	2.4E-02	2.1E-05	2.5E-01	1.3E-07	7.5E-03	9E-10
47	2-Methylnaphthalene	1.0E-01	2.1E-05	NA	NA	NA	NA	1.0E-01	2.1E-05	NA	NA	NA	NA
48	4-Methylphenol	5.5E-02	2.1E-05	1.0E-01	1.2E-07	5.0E-02	2E-06	5.5E-02	2.1E-05	1.0E-01	1.2E-07	NA	NA
49	Naphthalene	2.6E-01	2.1E-05	NA	NA	NA	NA	2.6E-01	2.1E-05	NA	NA	NA	NA
50	Nickel(dust)	0.0E+00	2.1E-05	NA	NA	NA	NA	0.0E+00	2.1E-05	NA	NA	NA	NA
51	Nickel (salts)	2.0E+02	2.1E-05	NA	NA	NA	NA	2.0E+02	2.1E-05	NA	NA	NA	NA
52	Nitrogen, ammonia	0.0E+00	2.1E-05	NA	NA	NA	NA	0.0E+00	2.1E-05	NA	NA	NA	NA
53	Phenanthrene	2.8E+00	2.1E-05	NA	NA	NA	NA	2.8E+00	2.1E-05	NA	NA	NA	NA
54	Pyrene	4.2E+00	2.1E-05	NA	NA	NA	NA	4.2E+00	2.1E-05	NA	NA	NA	NA
55	Silica	1.6E+01	2.1E-05	NA	NA	NA	NA	1.6E+01	2.1E-05	NA	NA	NA	NA
56	Silver	0.0E+00	2.1E-05	NA	NA	NA	NA	0.0E+00	2.1E-05	NA	NA	NA	NA
57	Sodium	8.1E+03	2.1E-05	NA	NA	NA	NA	8.1E+03	2.1E-05	NA	NA	NA	NA
58	Sulfate	7.2E+02	2.1E-05	NA	NA	NA	NA	7.2E+02	2.1E-05	NA	NA	NA	NA
59	Styrene	5.0E-03	2.1E-05	2.5E-01	2.6E-08	2.0E-01	1E-07	5.0E-03	2.1E-05	2.5E-01	2.6E-08	3.0E-02	8E-10
60	1,1,2,2-PCA	0.0E+00	2.1E-05	2.5E-01	0.0E+00	NA	NA	0.0E+00	2.1E-05	2.5E-01	0.0E+00	2.0E-01	0E+00
61	PCE	5.7E-03	2.1E-05	2.5E-01	3.0E-08	1.0E-02	3E-06	5.7E-03	2.1E-05	2.5E-01	3.0E-08	5.1E-02	2E-09
62	Thallium	4.2E-01	2.1E-05	NA	NA	NA	NA	4.2E-01	2.1E-05	NA	NA	NA	NA
63	Toluene	9.7E-03	2.1E-05	2.5E-01	5.1E-08	2.0E-01	3E-07	9.7E-03	2.1E-05	2.5E-01	5.1E-08	NA	NA
64	1,1,1-TCA	0.0E+00	2.1E-05	2.5E-01	0.0E+00	9.0E-02	0E+00	0.0E+00	2.1E-05	2.5E-01	0.0E+00	NA	NA
65	TCE	0.0E+00	2.1E-05	2.5E-01	0.0E+00	NA	NA	0.0E+00	2.1E-05	2.5E-01	0.0E+00	1.1E-02	0E+00
66	Vanadium	1.2E+02	2.1E-05	NA	NA	NA	NA	1.2E+02	2.1E-05	NA	NA	NA	NA

RANGE NAME: CSUM

SITE NAME: ORMET
OPERABLE UNIT: FUTURE RESIDENT ADUL
FILE NAME: POP2
LAST UPDATED: 03/13/91

CHRONIC EXPOSURE SUMMARY

FUTURE
RES. ADULT (CRA)

CHRONIC DAILY INTAKE (mg/kg/day)

	CHEMICAL NAME	SCENARIO 1 CRA SOIL ORAL (FROM WS1)	SCENARIO 2 CRA SOIL DERMAL (FROM WS2)	SCENARIO 3 0 0 0 (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
1	Acenaphthene	5.2E-07	7.8E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00
2	Acenaphthylene	0.0E+00	NA				
3	Acetone	0.0E+00	0.0E+00				
4	Aluminum	9.1E-02	NA				
5	Anthracene	1.1E-06	NA				
6	Antimony	3.6E-05	NA				
7	Aroclor 1242	0.0E+00	0.0E+00				
8	Aroclor 1248	7.8E-05	1.2E-04				
9	Aroclor 1254	0.0E+00	0.0E+00				
10	Arsenic	2.5E-04	NA				
11	Barium	3.4E-04	NA				
12	Benzene	1.2E-07	4.5E-07				
13	Benzo(a)anthra	4.9E-06	NA				
14	Benzo(a)pyrene	5.6E-06	NA				
15	Benzo(b)fluora	8.0E-06	NA				
16	Benzo(g,h,i)pe	1.7E-06	NA				
17	Benzo(k)fluora	6.0E-06	NA				
18	Beryllium	6.3E-06	NA				
19	BEHP	1.5E-07	2.3E-07				
20	2-Butanone	2.7E-08	1.00E-07				
21	Cadmium (food)	1.5E-06	NA				
22	Cadmium (water	0.0E+00	NA				
23	Carbon disulfi	0.0E+00	0.0E+00				
24	Chloride	1.5E-04	NA				
25	Chlorobenzene	7.6E-08	2.8E-07				
26	Chloroform	9.1E-09	3.4E-08				
27	Chromium (VI)	3.9E-05	NA				
28	Chrysene	5.6E-06	NA				
29	Cobalt	2.1E-05	NA				
30	Copper	8.4E-05	NA				
31	Cyanide (free)	1.5E-04	NA				
32	Di-n-butylphth	3.6E-07	5.5E-07				
33	Di-n-octylphth	4.1E-07	6.1E-07				
34	Dibenz(a,h)ant	7.8E-07	NA				
35	Dibenzofuran	4.2E-07	6.3E-07				
36	2,4-Dimethylph	2.5E-07	3.8E-07				
37	Ethyl benzene	0.0E+00	0.0E+00				
38	Fluoranthene	7.1E-06	NA				
39	Fluorene	3.4E-07	NA				
40	Fluoride	2.5E-04	NA				
41	Indeno(1,2,3-c	2.8E-06	NA				
42	Iron	4.8E-02	NA				

CHRONIC RISK SUMMARY

FUTURE
RES. ADULT (CRA)

CHRONIC HAZARD QUOTIENT

SCENARIO 1 CRA SOIL ORAL (FROM WS1)	SCENARIO 2 CRA SOIL DERMAL (FROM WS2)	SCENARIO 3 0 0 0 (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
9E-06	NA	0E+00	0E+00	0E+00	0E+00
0E+00	NA				
0E+00	0E+00				
NA	NA				
4E-06	NA				
9E-02	NA				
NA	NA				
NA	NA				
NA	NA				
3E-01	NA				
5E-03	NA				
NA	NA				
1E-05	NA				
1E-05	NA				
2E-05	NA				
4E-06	NA				
2E-05	NA				
1E-03	NA				
8E-06	1E-05				
5E-07	2E-06				
2E-03	NA				
0E+00	NA				
0E+00	0E+00				
NA	NA				
4E-06	1E-05				
9E-07	3E-06				
8E-03	NA				
1E-05	NA				
NA	NA				
2E-03	NA				
8E-03	NA				
4E-06	5E-06				
2E-05	3E-05				
2E-06	NA				
NA	NA				
1E-05	2E-05				
0E+00	0E+00				
2E-04	NA				
8E-06	NA				
4E-03	NA				
7E-06	NA				
NA	NA				

43	Lead	7.4E-05	NA		NA	NA				
44	Manganese	1.5E-03	NA		2E-02	NA				
45	Mercury	2.7E-07	NA		9E-04	NA				
46	Methylene chlo	3.4E-08	1.3E-07		6E-07	2E-06				
47	2-Methylnaphth	1.4E-07	NA		4E-07	NA				
48	4-Methylphenol	7.7E-08	1.2E-07		2E-06	2E-06				
49	Naphthalene	3.6E-07	NA		9E-07	NA				
50	Nickel(dust)	0.0E+00	NA		NA	NA				
51	Nickel (salts)	2.8E-04	NA		1E-02	NA				
52	Nitrogen, ammo	0.0E+00	NA		NA	NA				
53	Phenanthrene	3.9E-06	NA		1E-05	NA				
54	Pyrene	5.9E-06	NA		2E-04	NA				
55	Silica	2.2E-05	NA		NA	NA				
56	Silver	0.0E+00	NA		0E+00	NA				
57	Sodium	1.1E-02	NA		NA	NA				
58	Sulfate	1.0E-03	NA		NA	NA				
59	Styrene	7.0E-09	2.6E-08		3E-08	1E-07				
60	1,1,2,2-PCA	0.0E+00	0.0E+00		NA	NA				
61	PCE	8.0E-09	3.0E-08		8E-07	3E-06				
62	Thallium	5.9E-07	NA		8E-03	NA				
63	Toluene	1.4E-08	5.1E-08		7E-08	3E-07				
64	1,1,1-TCA	0.0E+00	0.0E+00		0E+00	0E+00				
65	TCE	0.0E+00	0.0E+00		NA	NA				
66	Vanadium	1.7E-04	NA		2E-02	NA				
				PATHWAY SUM (HI)	5E-01	9E-05	0E+00	0E+00	0E+00	0E+00
				POPULATION TOTAL	5E-01					

RANGE NAME: LSUM

SITE NAME: ORMET
OPERABLE UNIT: FUTURE RESIDENT ADUL
FILE NAME: POP2
LAST UPDATED: 03/13/91

LIFETIME EXPOSURE SUMMARY

FUTURE
RES. ADULT (CRA)

LIFETIME AVERAGE DAILY INTAKE (mg/kg/day)

		SCENARIO 1	SCENARIO 2	SCENARIO 3	SCENARIO 4	SCENARIO 5	SCENARIO 6
		CRA	CRA	0	0	0	0
		SOIL	SOIL	0	0	0	0
		ORAL	DERMAL	0	0	0	0
	CHEMICAL NAME	(FROM WS1)	(FROM WS2)	(FROM WS3)	(FROM WS4)	(FROM WS5)	(FROM WS6)
1	Acenaphthene	5.2E-07	7.8E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00
2	Acenaphthylene	0.0E+00	NA				
3	Acetone	0.0E+00	0.0E+00				
4	Aluminum	9.1E-02	NA				
5	Anthracene	1.1E-06	NA				
6	Antimony	3.6E-05	NA				
7	Aroclor 1242	0.0E+00	0.0E+00				
8	Aroclor 1248	7.8E-05	1.2E-04				
9	Aroclor 1254	0.0E+00	0.0E+00				
10	Arsenic	2.5E-04	NA				
11	Barium	3.4E-04	NA				
12	Benzene	1.2E-07	4.5E-07				
13	Benzo(a)anthra	4.9E-06	NA				
14	Benzo(a)pyrene	5.6E-06	NA				
15	Benzo(b)fluora	8.0E-06	NA				
16	Benzo(g,h,i)pe	1.7E-06	NA				
17	Benzo(k)fluora	6.0E-06	NA				
18	Beryllium	6.3E-06	NA				
19	BEHP	1.5E-07	2.3E-07				
20	2-Butanone	2.7E-08	1.00E-07				
21	Cadmium (food)	1.5E-06	NA				
22	Cadmium (water	0.0E+00	NA				
23	Carbon disulfi	0.0E+00	0.0E+00				
24	Chloride	1.5E-04	NA				
25	Chlorobenzene	7.6E-08	2.8E-07				
26	Chloroform	9.1E-09	3.4E-08				
27	Chromium (VI)	3.9E-05	NA				
28	Chrysene	5.6E-06	NA				
29	Cobalt	2.1E-05	NA				
30	Copper	8.4E-05	NA				
31	Cyanide (free)	1.5E-04	NA				
32	Di-n-butylphth	3.6E-07	5.5E-07				
33	Di-n-octylphth	4.1E-07	6.1E-07				
34	Dibenz(a,h)ant	7.8E-07	NA				
35	Dibenzofuran	4.2E-07	6.3E-07				
36	2,4-Dimethylph	2.5E-07	3.8E-07				
37	Ethyl benzene	0.0E+00	0.0E+00				
38	Fluoranthene	7.1E-06	NA				
39	Fluorene	3.4E-07	NA				
40	Fluoride	2.5E-04	NA				
41	Indeno(1,2,3-c	2.8E-06	NA				
42	Iron	4.8E-02	NA				

LIFETIME RISK SUMMARY

FUTURE
RES. ADULT (CRA)

LIFETIME EXCESS CANCER RISK

SCENARIO 1	SCENARIO 2	SCENARIO 3	SCENARIO 4	SCENARIO 5	SCENARIO 6
CRA	CRA	0	0	0	0
SOIL	SOIL	0	0	0	0
ORAL	DERMAL	0	0	0	0
(FROM WS1)	(FROM WS2)	(FROM WS3)	(FROM WS4)	(FROM WS5)	(FROM WS6)
NA	NA	0E+00	0E+00	0E+00	0E+00
NA	NA				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
0E+00	0E+00				
6E-04	9E-04				
0E+00	0E+00				
5E-04	NA				
NA	NA				
3E-09	1E-08				
6E-05	NA				
7E-05	NA				
1E-04	NA				
NA	NA				
7E-05	NA				
3E-05	NA				
2E-09	3E-09				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
6E-11	2E-10				
NA	NA				
6E-05	NA				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
9E-06	NA				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
3E-05	NA				
NA	NA				

43	Lead	7.4E-05	NA		NA	NA				
44	Manganese	1.5E-03	NA		NA	NA				
45	Mercury	2.7E-07	NA		NA	NA				
46	Methylene chlo	3.4E-08	1.3E-07		3E-10	9E-10				
47	2-Methylnaphth	1.4E-07	NA		NA	NA				
48	4-Methylphenol	7.7E-08	1.2E-07		NA	NA				
49	Naphthalene	3.6E-07	NA		NA	NA				
50	Nickel(dust)	0.0E+00	NA		NA	NA				
51	Nickel (salts)	2.8E-04	NA		NA	NA				
52	Nitrogen, ammo	0.0E+00	NA		NA	NA				
53	Phenanthrene	3.9E-06	NA		NA	NA				
54	Pyrene	5.9E-06	NA		NA	NA				
55	Silica	2.2E-05	NA		NA	NA				
56	Silver	0.0E+00	NA		NA	NA				
57	Sodium	1.1E-02	NA		NA	NA				
58	Sulfate	1.0E-03	NA		NA	NA				
59	Styrene	7.0E-09	2.6E-08		2E-10	8E-10				
60	1,1,2,2-PCA	0.0E+00	0.0E+00		0E+00	0E+00				
61	PCE	8.0E-09	3.0E-08		4E-10	2E-09				
62	Thallium	5.9E-07	NA		NA	NA				
63	Toluene	1.4E-08	5.1E-08		NA	NA				
64	1,1,1-TCA	0.0E+00	0.0E+00		NA	NA				
65	TCE	0.0E+00	0.0E+00		0E+00	0E+00				
66	Vanadium	1.7E-04	NA		NA	NA				
				TOTAL PATHWAY CANCER RISK	2E-03	9E-04	0E+00	0E+00	0E+00	0E+00
				POPULATION TOTAL EXCESS RISK	3E-03					

RANGE NAME: WS1

EXPOSURE AND RISK CALCULATION WORKSHEET

LAND USE: FUTURE
POPULATION: RES. ADULT (CMSD)

EXPOSURE POINT: CMSD
MEDIUM: SOIL
ROUTE: ORAL

SITE NAME: ORMET
OPERABLE UNIT: FUTURE RESIDENT ADULT
FILE NAME: POP3
LAST UPDATED: 03/13/91

HIFs = 0.0E+00
HIFc = 1.4E-06
HIFl = 1.4E-06

		SUBCHRONIC					CHRONIC						LIFETIME					
	CHEMICAL NAME	Cs	HIFs	1	DIs	RfDS	HQs	Cc	HIFc	1	DIc	RfDC	HQc	Cl	HIFl	1	DIl	SF	RISK
1	Acenaphthene		0.0E+00		0.0E+00		ERR	1.3E+01	1.4E-06	1	1.8E-05	6.0E-02	3E-04	1.3E+01	1.4E-06	1	1.8E-05	NA	NA
2	Acenaphthylene							0.0E+00	1.4E-06	1	0.0E+00	4.0E-01	0E+00	0.0E+00	1.4E-06	1	0.0E+00	NA	NA
3	Acetone							2.5E-01	1.4E-06	1	3.5E-07	1.0E-01	3E-06	2.5E-01	1.4E-06	1	3.5E-07	NA	NA
4	Aluminum							1.2E+05	1.4E-06	1	1.7E-01	NA	NA	1.2E+05	1.4E-06	1	1.7E-01	NA	NA
5	Anthracene							3.3E+01	1.4E-06	1	4.6E-05	3.0E-01	2E-04	3.3E+01	1.4E-06	1	4.6E-05	NA	NA
6	Antimony							0.0E+00	1.4E-06	1	0.0E+00	4.0E-04	0E+00	0.0E+00	1.4E-06	1	0.0E+00	NA	NA
7	Aroclor 1242							0.0E+00	1.4E-06	1	0.0E+00	NA	NA	0.0E+00	1.4E-06	1	0.0E+00	7.7E+00	0E+00
8	Aroclor 1248							2.0E+01	1.4E-06	1	2.8E-05	NA	NA	2.0E+01	1.4E-06	1	2.8E-05	7.7E+00	2E-04
9	Aroclor 1254							0.0E+00	1.4E-06	1	0.0E+00	NA	NA	0.0E+00	1.4E-06	1	0.0E+00	7.7E+00	0E+00
10	Arsenic							6.1E+01	1.4E-06	1	8.5E-05	1.0E-03	9E-02	6.1E+01	1.4E-06	1	8.5E-05	1.8E+00	2E-04
11	Barium							1.3E+02	1.4E-06	1	1.8E-04	7.0E-02	3E-03	1.3E+02	1.4E-06	1	1.8E-04	NA	NA
12	Benzene							0.0E+00	1.4E-06	1	0.0E+00	NA	NA	0.0E+00	1.4E-06	1	0.0E+00	2.9E-02	0E+00
13	Benzo(a)anthracene							1.3E+02	1.4E-06	1	1.8E-04	4.0E-01	5E-04	1.3E+02	1.4E-06	1	1.8E-04	1.2E+01	2E-03
14	Benzo(a)pyrene							1.2E+02	1.4E-06	1	1.7E-04	4.0E-01	4E-04	1.2E+02	1.4E-06	1	1.7E-04	1.2E+01	2E-03
15	Benzo(b)fluoranthene							1.8E+02	1.4E-06	1	2.5E-04	4.0E-01	6E-04	1.8E+02	1.4E-06	1	2.5E-04	1.2E+01	3E-03
16	Benzo(g,h,i)perylene							1.2E+02	1.4E-06	1	1.7E-04	4.0E-01	4E-04	1.2E+02	1.4E-06	1	1.7E-04	NA	NA
17	Benzo(k)fluoranthene							4.6E+01	1.4E-06	1	6.4E-05	4.0E-01	2E-04	4.6E+01	1.4E-06	1	6.4E-05	1.2E+01	8E-04
18	Beryllium							3.7E+00	1.4E-06	1	5.2E-06	5.0E-03	1E-03	3.7E+00	1.4E-06	1	5.2E-06	4.3E+00	2E-05
19	BEHP							2.6E+01	1.4E-06	1	3.6E-05	2.0E-02	2E-03	2.6E+01	1.4E-06	1	3.6E-05	1.4E-02	5E-07
20	2-Butanone							3.8E-02	1.4E-06	1	5.3E-08	5.0E-02	1E-06	3.8E-02	1.4E-06	1	5.3E-08	NA	NA
21	Cadmium (food)							3.5E+00	1.4E-06	1	4.9E-06	1.0E-03	5E-03	3.5E+00	1.4E-06	1	4.9E-06	NA	NA
22	Cadmium (water)							0.0E+00	1.4E-06	1	0.0E+00	5.0E-04	0E+00	0.0E+00	1.4E-06	1	0.0E+00	NA	NA
23	Carbon disulfide							3.8E-03	1.4E-06	1	5.3E-09	1.0E-01	5E-08	3.8E-03	1.4E-06	1	5.3E-09	NA	NA
24	Chloride							1.0E+01	1.4E-06	1	1.4E-05	NA	NA	1.0E+01	1.4E-06	1	1.4E-05	NA	NA
25	Chlorobenzene							0.0E+00	1.4E-06	1	0.0E+00	2.0E-02	0E+00	0.0E+00	1.4E-06	1	0.0E+00	NA	NA
26	Chloroform							0.0E+00	1.4E-06	1	0.0E+00	1.0E-02	0E+00	0.0E+00	1.4E-06	1	0.0E+00	6.1E-03	0E+00
27	Chromium (VI)							3.2E+01	1.4E-06	1	4.5E-05	5.0E-03	9E-03	3.2E+01	1.4E-06	1	4.5E-05	NA	NA
28	Chrysene							1.2E+02	1.4E-06	1	1.7E-04	4.0E-01	4E-04	1.2E+02	1.4E-06	1	1.7E-04	1.2E+01	2E-03
29	Cobalt							1.1E+01	1.4E-06	1	1.5E-05	NA	NA	1.1E+01	1.4E-06	1	1.5E-05	NA	NA
30	Copper							5.1E+02	1.4E-06	1	7.1E-04	3.7E-02	2E-02	5.1E+02	1.4E-06	1	7.1E-04	NA	NA
31	Cyanide (free)							2.3E+01	1.4E-06	1	3.2E-05	2.0E-02	2E-03	2.3E+01	1.4E-06	1	3.2E-05	NA	NA
32	Di-n-butylphthalate							0.0E+00	1.4E-06	1	0.0E+00	1.0E-01	0E+00	0.0E+00	1.4E-06	1	0.0E+00	NA	NA
33	Di-n-octylphthalate							0.0E+00	1.4E-06	1	0.0E+00	2.0E-02	0E+00	0.0E+00	1.4E-06	1	0.0E+00	NA	NA
34	Dibenz(a,h)anthracene							1.7E+01	1.4E-06	1	2.4E-05	4.0E-01	6E-05	1.7E+01	1.4E-06	1	2.4E-05	1.2E+01	3E-04
35	Dibenzofuran							8.5E+00	1.4E-06	1	1.2E-05	NA	NA	8.5E+00	1.4E-06	1	1.2E-05	NA	NA
36	2,4-Dimethylphenol							0.0E+00	1.4E-06	1	0.0E+00	2.0E-02	0E+00	0.0E+00	1.4E-06	1	0.0E+00	NA	NA
37	Ethyl benzene							2.5E-03	1.4E-06	1	3.5E-09	1.0E-01	4E-08	2.5E-03	1.4E-06	1	3.5E-09	NA	NA
38	Fluoranthene							1.9E+02	1.4E-06	1	2.7E-04	4.0E-02	7E-03	1.9E+02	1.4E-06	1	2.7E-04	NA	NA
39	Fluorene							1.3E+01	1.4E-06	1	1.8E-05	4.0E-02	5E-04	1.3E+01	1.4E-06	1	1.8E-05	NA	NA

40	Fluoride	5.3E+02	1.4E-06	1	7.4E-04	6.0E-02	1E-02	5.3E+02	1.4E-06	1	7.4E-04	NA	NA
41	Indeno(1,2,3-cd)pyrene	9.4E+01	1.4E-06	1	1.3E-04	4.0E-01	3E-04	9.4E+01	1.4E-06	1	1.3E-04	1.2E+01	2E-03
42	Iron	2.7E+04	1.4E-06	1	3.8E-02	NA	NA	2.7E+04	1.4E-06	1	3.8E-02	NA	NA
43	Lead	8.3E+01	1.4E-06	1	1.2E-04	NA	NA	8.3E+01	1.4E-06	1	1.2E-04	NA	NA
44	Manganese	9.6E+02	1.4E-06	1	1.3E-03	1.0E-01	1E-02	9.6E+02	1.4E-06	1	1.3E-03	NA	NA
45	Mercury	0.0E+00	1.4E-06	1	0.0E+00	3.0E-04	0E+00	0.0E+00	1.4E-06	1	0.0E+00	NA	NA
46	Methylene chloride	1.3E-01	1.4E-06	1	1.8E-07	6.0E-02	3E-06	1.3E-01	1.4E-06	1	1.8E-07	7.5E-03	1E-09
47	2-Methylnaphthalene	4.6E-01	1.4E-06	1	6.4E-07	4.0E-01	2E-06	4.6E-01	1.4E-06	1	6.4E-07	NA	NA
48	4-Methylphenol	0.0E+00	1.4E-06	1	0.0E+00	5.0E-02	0E+00	0.0E+00	1.4E-06	1	0.0E+00	NA	NA
49	Naphthalene	1.3E+00	1.4E-06	1	1.8E-06	4.0E-01	5E-06	1.3E+00	1.4E-06	1	1.8E-06	NA	NA
50	Nickel(dust)	0.0E+00	1.4E-06	1	0.0E+00	NA	NA	0.0E+00	1.4E-06	1	0.0E+00	NA	NA
51	Nickel (salts)	6.2E+01	1.4E-06	1	8.7E-05	2.0E-02	4E-03	6.2E+01	1.4E-06	1	8.7E-05	NA	NA
52	Nitrogen, ammonia	1.1E+02	1.4E-06	1	1.5E-04	NA	NA	1.1E+02	1.4E-06	1	1.5E-04	NA	NA
53	Phenanthrene	1.2E+02	1.4E-06	1	1.7E-04	4.0E-01	4E-04	1.2E+02	1.4E-06	1	1.7E-04	NA	NA
54	Pyrene	1.9E+02	1.4E-06	1	2.7E-04	3.0E-02	9E-03	1.9E+02	1.4E-06	1	2.7E-04	NA	NA
55	Silica	0.0E+00	1.4E-06	1	0.0E+00	NA	NA	0.0E+00	1.4E-06	1	0.0E+00	NA	NA
56	Silver	0.0E+00	1.4E-06	1	0.0E+00	3.0E-03	0E+00	0.0E+00	1.4E-06	1	0.0E+00	NA	NA
57	Sodium	5.1E+04	1.4E-06	1	7.1E-02	NA	NA	5.1E+04	1.4E-06	1	7.1E-02	NA	NA
58	Sulfate	2.4E+02	1.4E-06	1	3.4E-04	NA	NA	2.4E+02	1.4E-06	1	3.4E-04	NA	NA
59	Styrene	0.0E+00	1.4E-06	1	0.0E+00	2.0E-01	0E+00	0.0E+00	1.4E-06	1	0.0E+00	3.0E-02	0E+00
60	1,1,2,2-PCA	1.1E-02	1.4E-06	1	1.5E-08	NA	NA	1.1E-02	1.4E-06	1	1.5E-08	2.0E-01	3E-09
61	PCE	3.0E-03	1.4E-06	1	4.2E-09	1.0E-02	4E-07	3.0E-03	1.4E-06	1	4.2E-09	5.1E-02	2E-10
62	Thallium	0.0E+00	1.4E-06	1	0.0E+00	7.0E-05	0E+00	0.0E+00	1.4E-06	1	0.0E+00	NA	NA
63	Toluene	2.0E-03	1.4E-06	1	2.8E-09	2.0E-01	1E-08	2.0E-03	1.4E-06	1	2.8E-09	NA	NA
64	1,1,1-TCA	0.0E+00	1.4E-06	1	0.0E+00	9.0E-02	0E+00	0.0E+00	1.4E-06	1	0.0E+00	NA	NA
65	TCE	0.0E+00	1.4E-06	1	0.0E+00	NA	NA	0.0E+00	1.4E-06	1	0.0E+00	1.1E-02	0E+00
66	Vanadium	4.3E+01	1.4E-06	1	6.0E-05	7.0E-03	9E-03	4.3E+01	1.4E-06	1	6.0E-05	NA	NA

RANGE NAME: WS2

EXPOSURE AND RISK CALCULATION WORKSHEET

SITE NAME: ORMET
OPERABLE UNIT: FUTURE RESIDENT ADULT
FILE NAME: POP3
LAST UPDATED: 03/13/91

LAND USE: FUTURE
POPULATION: RES. ADULT (CMSD)

EXPOSURE POINT: CMSD
MEDIUM: SOIL
ROUTE: DERMAL

HIFs = 0.0E+00
HIFc = 2.1E-05
HIFl = 2.1E-05

		SUBCHRONIC						CHRONIC						LIFETIME					
	CHEMICAL NAME	Cs	HIFs	ABS	DIs	RfDS	HQs	Cc	HIFc	ABS	DIc	RfDC	HQc	Cl	HIFl	ABS	DIl	SF	RISK
1	Acenaphthene		0.0E+00		0.0E+00		ERR	1.3E+01	2.1E-05	1.0E-01	2.7E-05	NA	NA	1.3E+01	2.1E-05	1.0E-01	2.7E-05	NA	NA
2	Acenaphthylene							0.0E+00	2.1E-05	NA	NA	NA	NA	0.0E+00	2.1E-05	NA	NA	NA	NA
3	Acetone							2.5E-01	2.1E-05	2.5E-01	1.3E-06	1.0E-01	1E-05	2.5E-01	2.1E-05	2.5E-01	1.3E-06	NA	NA
4	Aluminum							1.2E+05	2.1E-05	NA	NA	NA	NA	1.2E+05	2.1E-05	NA	NA	NA	NA
5	Anthracene							3.3E+01	2.1E-05	NA	NA	NA	NA	3.3E+01	2.1E-05	NA	NA	NA	NA
6	Antimony							0.0E+00	2.1E-05	NA	NA	NA	NA	0.0E+00	2.1E-05	NA	NA	NA	NA
7	Aroclor 1242							0.0E+00	2.1E-05	1.0E-01	0.0E+00	NA	NA	0.0E+00	2.1E-05	1.0E-01	0.0E+00	7.7E+00	0E+00
8	Aroclor 1248							2.0E+01	2.1E-05	1.0E-01	4.2E-05	NA	NA	2.0E+01	2.1E-05	1.0E-01	4.2E-05	7.7E+00	3E-04
9	Aroclor 1254							0.0E+00	2.1E-05	1.0E-01	0.0E+00	NA	NA	0.0E+00	2.1E-05	1.0E-01	0.0E+00	7.7E+00	0E+00
10	Arsenic							6.1E+01	2.1E-05	NA	NA	NA	NA	6.1E+01	2.1E-05	NA	NA	NA	NA
11	Barium							1.3E+02	2.1E-05	NA	NA	NA	NA	1.3E+02	2.1E-05	NA	NA	NA	NA
12	Benzene							0.0E+00	2.1E-05	2.5E-01	0.0E+00	NA	NA	0.0E+00	2.1E-05	2.5E-01	0.0E+00	2.9E-02	0E+00
13	Benzo(a)anthracene							1.3E+02	2.1E-05	NA	NA	NA	NA	1.3E+02	2.1E-05	NA	NA	NA	NA
14	Benzo(a)pyrene							1.2E+02	2.1E-05	NA	NA	NA	NA	1.2E+02	2.1E-05	NA	NA	NA	NA
15	Benzo(b)fluoranthene							1.8E+02	2.1E-05	NA	NA	NA	NA	1.8E+02	2.1E-05	NA	NA	NA	NA
16	Benzo(g,h,i)perylene							1.2E+02	2.1E-05	NA	NA	NA	NA	1.2E+02	2.1E-05	NA	NA	NA	NA
17	Benzo(k)fluoranthene							4.6E+01	2.1E-05	NA	NA	NA	NA	4.6E+01	2.1E-05	NA	NA	NA	NA
18	Beryllium							3.7E+00	2.1E-05	NA	NA	NA	NA	3.7E+00	2.1E-05	NA	NA	NA	NA
19	BEHP							2.6E+01	2.1E-05	1.0E-01	5.5E-05	2.0E-02	3E-03	2.6E+01	2.1E-05	1.0E-01	5.5E-05	1.4E-02	8E-07
20	2-Butanone							3.8E-02	2.1E-05	2.5E-01	2.0E-07	5.0E-02	4E-06	3.8E-02	2.1E-05	2.5E-01	2.0E-07	NA	NA
21	Cadmium (food)							3.5E+00	2.1E-05	NA	NA	NA	NA	3.5E+00	2.1E-05	NA	NA	NA	NA
22	Cadmium (water)							0.0E+00	2.1E-05	NA	NA	NA	NA	0.0E+00	2.1E-05	NA	NA	NA	NA
23	Carbon disulfide							3.8E-03	2.1E-05	2.5E-01	2.0E-08	1.0E-01	2E-07	3.8E-03	2.1E-05	2.5E-01	2.0E-08	NA	NA
24	Chloride							1.0E+01	2.1E-05	NA	NA	NA	NA	1.0E+01	2.1E-05	NA	NA	NA	NA
25	Chlorobenzene							0.0E+00	2.1E-05	2.5E-01	0.0E+00	2.0E-02	0E+00	0.0E+00	2.1E-05	2.5E-01	0.0E+00	NA	NA
26	Chloroform							0.0E+00	2.1E-05	2.5E-01	0.0E+00	1.0E-02	0E+00	0.0E+00	2.1E-05	2.5E-01	0.0E+00	6.1E-03	0E+00
27	Chromium (VI)							3.2E+01	2.1E-05	NA	NA	NA	NA	3.2E+01	2.1E-05	NA	NA	NA	NA
28	Chrysene							1.2E+02	2.1E-05	NA	NA	4.0E-01	NA	1.2E+02	2.1E-05	NA	NA	1.2E+01	NA
29	Cobalt							1.1E+01	2.1E-05	NA	NA	NA	NA	1.1E+01	2.1E-05	NA	NA	NA	NA
30	Copper							5.1E+02	2.1E-05	NA	NA	NA	NA	5.1E+02	2.1E-05	NA	NA	NA	NA
31	Cyanide (free)							2.3E+01	2.1E-05	NA	NA	NA	NA	2.3E+01	2.1E-05	NA	NA	NA	NA
32	Di-n-butylphthalate							0.0E+00	2.1E-05	1.0E-01	0.0E+00	1.0E-01	0E+00	0.0E+00	2.1E-05	1.0E-01	0.0E+00	NA	NA
33	Di-n-octylphthalate							0.0E+00	2.1E-05	1.0E-01	0.0E+00	2.0E-02	0E+00	0.0E+00	2.1E-05	1.0E-01	0.0E+00	NA	NA
34	Dibenz(a,h)anthracene							1.7E+01	2.1E-05	NA	NA	NA	NA	1.7E+01	2.1E-05	NA	NA	NA	NA
35	Dibenzofuran							8.5E+00	2.1E-05	1.0E-01	1.8E-05	NA	NA	8.5E+00	2.1E-05	1.0E-01	1.8E-05	NA	NA
36	2,4-Dimethylphenol							0.0E+00	2.1E-05	1.0E-01	0.0E+00	2.0E-02	0E+00	0.0E+00	2.1E-05	1.0E-01	0.0E+00	NA	NA
37	Ethyl benzene							2.5E-03	2.1E-05	2.5E-01	1.3E-08	1.0E-01	1E-07	2.5E-03	2.1E-05	2.5E-01	1.3E-08	NA	NA
38	Fluoranthene							1.9E+02	2.1E-05	NA	NA	NA	NA	1.9E+02	2.1E-05	NA	NA	NA	NA
39	Fluorene							1.3E+01	2.1E-05	NA	NA	NA	NA	1.3E+01	2.1E-05	NA	NA	NA	NA

40	Fluoride	5.3E+02	2.1E-05	NA	NA	NA	NA	5.3E+02	2.1E-05	NA	NA	NA	NA
41	Indeno(1,2,3-cd)pyrene	9.4E+01	2.1E-05	NA	NA	NA	NA	9.4E+01	2.1E-05	NA	NA	NA	NA
42	Iron	2.7E+04	2.1E-05	NA	NA	NA	NA	2.7E+04	2.1E-05	NA	NA	NA	NA
43	Lead	8.3E+01	2.1E-05	NA	NA	NA	NA	8.3E+01	2.1E-05	NA	NA	NA	NA
44	Manganese	9.6E+02	2.1E-05	NA	NA	NA	NA	9.6E+02	2.1E-05	NA	NA	NA	NA
45	Mercury	0.0E+00	2.1E-05	NA	NA	NA	NA	0.0E+00	2.1E-05	NA	NA	NA	NA
46	Methylene chloride	1.3E-01	2.1E-05	2.5E-01	6.8E-07	6.0E-02	1E-05	1.3E-01	2.1E-05	2.5E-01	6.8E-07	7.5E-03	5E-09
47	2-Methylnaphthalene	4.6E-01	2.1E-05	NA	NA	NA	NA	4.6E-01	2.1E-05	NA	NA	NA	NA
48	4-Methylphenol	0.0E+00	2.1E-05	1.0E-01	0.0E+00	5.0E-02	0E+00	0.0E+00	2.1E-05	1.0E-01	0.0E+00	NA	NA
49	Naphthalene	1.3E+00	2.1E-05	NA	NA	NA	NA	1.3E+00	2.1E-05	NA	NA	NA	NA
50	Nickel(dust)	0.0E+00	2.1E-05	NA	NA	NA	NA	0.0E+00	2.1E-05	NA	NA	NA	NA
51	Nickel (salts)	6.2E+01	2.1E-05	NA	NA	NA	NA	6.2E+01	2.1E-05	NA	NA	NA	NA
52	Nitrogen, ammonia	1.1E+02	2.1E-05	NA	NA	NA	NA	1.1E+02	2.1E-05	NA	NA	NA	NA
53	Phenanthrene	1.2E+02	2.1E-05	NA	NA	NA	NA	1.2E+02	2.1E-05	NA	NA	NA	NA
54	Pyrene	1.9E+02	2.1E-05	NA	NA	NA	NA	1.9E+02	2.1E-05	NA	NA	NA	NA
55	Silica	0.0E+00	2.1E-05	NA	NA	NA	NA	0.0E+00	2.1E-05	NA	NA	NA	NA
56	Silver	0.0E+00	2.1E-05	NA	NA	NA	NA	0.0E+00	2.1E-05	NA	NA	NA	NA
57	Sodium	5.1E+04	2.1E-05	NA	NA	NA	NA	5.1E+04	2.1E-05	NA	NA	NA	NA
58	Sulfate	2.4E+02	2.1E-05	NA	NA	NA	NA	2.4E+02	2.1E-05	NA	NA	NA	NA
59	Styrene	0.0E+00	2.1E-05	2.5E-01	0.0E+00	2.0E-01	0E+00	0.0E+00	2.1E-05	2.5E-01	0.0E+00	3.0E-02	0E+00
60	1,1,2,2-PCA	1.1E-02	2.1E-05	2.5E-01	5.8E-08	NA	NA	1.1E-02	2.1E-05	2.5E-01	5.8E-08	2.0E-01	1E-08
61	PCE	3.0E-03	2.1E-05	2.5E-01	1.6E-08	1.0E-02	2E-06	3.0E-03	2.1E-05	2.5E-01	1.6E-08	5.1E-02	8E-10
62	Thallium	0.0E+00	2.1E-05	NA	NA	NA	NA	0.0E+00	2.1E-05	NA	NA	NA	NA
63	Toluene	2.0E-03	2.1E-05	2.5E-01	1.1E-08	2.0E-01	5E-08	2.0E-03	2.1E-05	2.5E-01	1.1E-08	NA	NA
64	1,1,1-TCA	0.0E+00	2.1E-05	2.5E-01	0.0E+00	9.0E-02	0E+00	0.0E+00	2.1E-05	2.5E-01	0.0E+00	NA	NA
65	TCE	0.0E+00	2.1E-05	2.5E-01	0.0E+00	NA	NA	0.0E+00	2.1E-05	2.5E-01	0.0E+00	1.1E-02	0E+00
66	Vanadium	4.3E+01	2.1E-05	NA	NA	NA	NA	4.3E+01	2.1E-05	NA	NA	NA	NA

RANGE NAME: CSUM

SITE NAME: ORMET
OPERABLE UNIT: FUTURE RESIDENT ADUL
FILE NAME: POP3
LAST UPDATED: 03/13/91

CHRONIC EXPOSURE SUMMARY

FUTURE
RES. ADULT (CMSD)

CHRONIC DAILY INTAKE (mg/kg/day)

		SCENARIO 1	SCENARIO 2	SCENARIO 3	SCENARIO 4	SCENARIO 5	SCENARIO 6
		CMSD	CMSD	0	0	0	0
		SOIL	SOIL	0	0	0	0
		ORAL	DERMAL	0	0	0	0
	CHEMICAL NAME	(FROM WS1)	(FROM WS2)	(FROM WS3)	(FROM WS4)	(FROM WS5)	(FROM WS6)
1	Acenaphthene	1.8E-05	2.7E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00
2	Acenaphthylene	0.0E+00	NA				
3	Acetone	3.5E-07	1.3E-06				
4	Aluminum	1.7E-01	NA				
5	Anthracene	4.6E-05	NA				
6	Antimony	0.0E+00	NA				
7	Aroclor 1242	0.0E+00	0.0E+00				
8	Aroclor 1248	2.8E-05	4.2E-05				
9	Aroclor 1254	0.0E+00	0.0E+00				
10	Arsenic	8.5E-05	NA				
11	Barium	1.8E-04	NA				
12	Benzene	0.0E+00	0.0E+00				
13	Benzo(a)anthra	1.8E-04	NA				
14	Benzo(a)pyrene	1.7E-04	NA				
15	Benzo(b)fluora	2.5E-04	NA				
16	Benzo(g,h,i)pe	1.7E-04	NA				
17	Benzo(k)fluora	6.4E-05	NA				
18	Beryllium	5.2E-06	NA				
19	BEHP	3.6E-05	5.5E-05				
20	2-Butanone	5.3E-08	2.0E-07				
21	Cadmium (food)	4.9E-06	NA				
22	Cadmium (water	0.0E+00	NA				
23	Carbon disulfi	5.3E-09	2.0E-08				
24	Chloride	1.4E-05	NA				
25	Chlorobenzene	0.0E+00	0.0E+00				
26	Chloroform	0.0E+00	0.0E+00				
27	Chromium (VI)	4.5E-05	NA				
28	Chrysene	1.7E-04	NA				
29	Cobalt	1.5E-05	NA				
30	Copper	7.1E-04	NA				
31	Cyanide (free)	3.2E-05	NA				
32	Di-n-butylphth	0.0E+00	0.0E+00				
33	Di-n-octylphth	0.0E+00	0.0E+00				
34	Dibenz(a,h)ant	2.4E-05	NA				
35	Dibenzofuran	1.2E-05	1.8E-05				
36	2,4-Dimethylph	0.0E+00	0.0E+00				
37	Ethyl benzene	3.5E-09	1.3E-08				
38	Fluoranthene	2.7E-04	NA				
39	Fluorene	1.8E-05	NA				
40	Fluoride	7.4E-04	NA				
41	Indeno(1,2,3-c	1.3E-04	NA				
42	Iron	3.8E-02	NA				

CHRONIC RISK SUMMARY

FUTURE
RES. ADULT (CMSD)

CHRONIC HAZARD QUOTIENT

		SCENARIO 1	SCENARIO 2	SCENARIO 3	SCENARIO 4	SCENARIO 5	SCENARIO 6
		CMSD	CMSD	0	0	0	0
		SOIL	SOIL	0	0	0	0
		ORAL	DERMAL	0	0	0	0
	CHEMICAL NAME	(FROM WS1)	(FROM WS2)	(FROM WS3)	(FROM WS4)	(FROM WS5)	(FROM WS6)
1	Acenaphthene	3E-04	NA	0E+00	0E+00	0E+00	0E+00
2	Acenaphthylene	0E+00	NA				
3	Acetone	3E-06	1E-05				
4	Aluminum	NA	NA				
5	Anthracene	2E-04	NA				
6	Antimony	0E+00	NA				
7	Aroclor 1242	NA	NA				
8	Aroclor 1248	NA	NA				
9	Aroclor 1254	NA	NA				
10	Arsenic	9E-02	NA				
11	Barium	3E-03	NA				
12	Benzene	NA	NA				
13	Benzo(a)anthra	5E-04	NA				
14	Benzo(a)pyrene	4E-04	NA				
15	Benzo(b)fluora	6E-04	NA				
16	Benzo(g,h,i)pe	4E-04	NA				
17	Benzo(k)fluora	2E-04	NA				
18	Beryllium	1E-03	NA				
19	BEHP	2E-03	3E-03				
20	2-Butanone	1E-06	4E-06				
21	Cadmium (food)	5E-03	NA				
22	Cadmium (water	0E+00	NA				
23	Carbon disulfi	5E-08	2E-07				
24	Chloride	NA	NA				
25	Chlorobenzene	0E+00	0E+00				
26	Chloroform	0E+00	0E+00				
27	Chromium (VI)	9E-03	NA				
28	Chrysene	4E-04	NA				
29	Cobalt	NA	NA				
30	Copper	2E-02	NA				
31	Cyanide (free)	2E-03	NA				
32	Di-n-butylphth	0E+00	0E+00				
33	Di-n-octylphth	0E+00	0E+00				
34	Dibenz(a,h)ant	6E-05	NA				
35	Dibenzofuran	NA	NA				
36	2,4-Dimethylph	0E+00	0E+00				
37	Ethyl benzene	3E-08	1E-07				
38	Fluoranthene	7E-03	NA				
39	Fluorene	5E-04	NA				
40	Fluoride	1E-02	NA				
41	Indeno(1,2,3-c	3E-04	NA				
42	Iron	NA	NA				

43	Lead	1.2E-04	NA			NA	NA				
44	Manganese	1.3E-03	NA			1E-02	NA				
45	Mercury	0.0E+00	NA			0E+00	NA				
46	Methylene chlo	1.8E-07	6.8E-07			3E-06	1E-05				
47	2-Methylnaphth	6.4E-07	NA			2E-06	NA				
48	4-Methylphenol	0.0E+00	0.0E+00			0E+00	0E+00				
49	Naphthalene	1.8E-06	NA			5E-06	NA				
50	Nickel(dust)	0.0E+00	NA			NA	NA				
51	Nickel (salts)	8.7E-05	NA			4E-03	NA				
52	Nitrogen, ammo	1.5E-04	NA			NA	NA				
53	Phenanthrene	1.7E-04	NA			4E-04	NA				
54	Pyrene	2.7E-04	NA			9E-03	NA				
55	Silica	0.0E+00	NA			NA	NA				
56	Silver	0.0E+00	NA			0E+00	NA				
57	Sodium	7.1E-02	NA			NA	NA				
58	Sulfate	3.4E-04	NA			NA	NA				
59	Styrene	0.0E+00	0.0E+00			0E+00	0E+00				
60	1,1,2,2-PCA	1.5E-08	5.8E-08			NA	NA				
61	PCE	4.2E-09	1.6E-08			4E-07	2E-06				
62	Thallium	0.0E+00	NA			0E+00	NA				
63	Toluene	2.8E-09	1.1E-08			1E-08	5E-08				
64	1,1,1-TCA	0.0E+00	0.0E+00			0E+00	0E+00				
65	TCE	0.0E+00	0.0E+00			NA	NA				
66	Vanadium	6.0E-05	NA			9E-03	NA				
				PATHWAY SUM (HI)		2E-01	3E-03	0E+00	0E+00	0E+00	0E+00
				POPULATION TOTAL		2E-01					

RANGE NAME: LSUM

SITE NAME: ORMET
OPERABLE UNIT: FUTURE RESIDENT ADUL
FILE NAME: POP3
LAST UPDATED: 03/13/91

LIFETIME EXPOSURE SUMMARY

FUTURE
RES. ADULT (CMSD)

LIFETIME AVERAGE DAILY INTAKE (mg/kg/day)

		SCENARIO 1	SCENARIO 2	SCENARIO 3	SCENARIO 4	SCENARIO 5	SCENARIO 6
		CMSD	CMSD	0	0	0	0
		SOIL	SOIL	0	0	0	0
		ORAL	DERMAL	0	0	0	0
	CHEMICAL NAME	(FROM WS1)	(FROM WS2)	(FROM WS3)	(FROM WS4)	(FROM WS5)	(FROM WS6)
1	Acenaphthene	1.8E-05	2.7E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00
2	Acenaphthylene	0.0E+00	NA				
3	Acetone	3.5E-07	1.3E-06				
4	Aluminum	1.7E-01	NA				
5	Anthracene	4.6E-05	NA				
6	Antimony	0.0E+00	NA				
7	Aroclor 1242	0.0E+00	0.0E+00				
8	Aroclor 1248	2.8E-05	4.2E-05				
9	Aroclor 1254	0.0E+00	0.0E+00				
10	Arsenic	8.5E-05	NA				
11	Barium	1.8E-04	NA				
12	Benzene	0.0E+00	0.0E+00				
13	Benzo(a)anthra	1.8E-04	NA				
14	Benzo(a)pyrene	1.7E-04	NA				
15	Benzo(b)fluora	2.5E-04	NA				
16	Benzo(g,h,i)pe	1.7E-04	NA				
17	Benzo(k)fluora	6.4E-05	NA				
18	Beryllium	5.2E-06	NA				
19	BEHP	3.6E-05	5.5E-05				
20	2-Butanone	5.3E-08	2.0E-07				
21	Cadmium (food)	4.9E-06	NA				
22	Cadmium (water	0.0E+00	NA				
23	Carbon disulfi	5.3E-09	2.0E-08				
24	Chloride	1.4E-05	NA				
25	Chlorobenzene	0.0E+00	0.0E+00				
26	Chloroform	0.0E+00	0.0E+00				
27	Chromium (VI)	4.5E-05	NA				
28	Chrysene	1.7E-04	NA				
29	Cobalt	1.5E-05	NA				
30	Copper	7.1E-04	NA				
31	Cyanide (free)	3.2E-05	NA				
32	Di-n-butylphth	0.0E+00	0.0E+00				
33	Di-n-octylphth	0.0E+00	0.0E+00				
34	Dibenz(a,h)ant	2.4E-05	NA				
35	Dibenzofuran	1.2E-05	1.8E-05				
36	2,4-Dimethylph	0.0E+00	0.0E+00				
37	Ethyl benzene	3.5E-09	1.3E-08				
38	Fluoranthene	2.7E-04	NA				
39	Fluorene	1.8E-05	NA				
40	Fluoride	7.4E-04	NA				
41	Indeno(1,2,3-c	1.3E-04	NA				
42	Iron	3.8E-02	NA				

LIFETIME RISK SUMMARY

FUTURE
RES. ADULT (CMSD)

LIFETIME EXCESS CANCER RISK

SCENARIO 1	SCENARIO 2	SCENARIO 3	SCENARIO 4	SCENARIO 5	SCENARIO 6
CMSD	CMSD	0	0	0	0
SOIL	SOIL	0	0	0	0
ORAL	DERMAL	0	0	0	0
(FROM WS1)	(FROM WS2)	(FROM WS3)	(FROM WS4)	(FROM WS5)	(FROM WS6)
NA	NA	0E+00	0E+00	0E+00	0E+00
NA	NA				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
0E+00	0E+00				
2E-04	3E-04				
0E+00	0E+00				
2E-04	NA				
NA	NA				
0E+00	0E+00				
2E-03	NA				
2E-03	NA				
3E-03	NA				
NA	NA				
8E-04	NA				
2E-05	NA				
5E-07	8E-07				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
0E+00	0E+00				
NA	NA				
2E-03	NA				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
3E-04	NA				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
2E-03	NA				
NA	NA				

43	Lead	1.2E-04	NA			NA	NA			
44	Manganese	1.3E-03	NA			NA	NA			
45	Mercury	0.0E+00	NA			NA	NA			
46	Methylene chlo	1.8E-07	6.8E-07			1E-09	5E-09			
47	2-Methylnaphth	6.4E-07	NA			NA	NA			
48	4-Methylphenol	0.0E+00	0.0E+00			NA	NA			
49	Naphthalene	1.8E-06	NA			NA	NA			
50	Nickel(dust)	0.0E+00	NA			NA	NA			
51	Nickel (salts)	8.7E-05	NA			NA	NA			
52	Nitrogen, ammo	1.5E-04	NA			NA	NA			
53	Phenanthrene	1.7E-04	NA			NA	NA			
54	Pyrene	2.7E-04	NA			NA	NA			
55	Silica	0.0E+00	NA			NA	NA			
56	Silver	0.0E+00	NA			NA	NA			
57	Sodium	7.1E-02	NA			NA	NA			
58	Sulfate	3.4E-04	NA			NA	NA			
59	Styrene	0.0E+00	0.0E+00			0E+00	0E+00			
60	1,1,2,2-PCA	1.5E-08	5.8E-08			3E-09	1E-08			
61	PCE	4.2E-09	1.6E-08			2E-10	8E-10			
62	Thallium	0.0E+00	NA			NA	NA			
63	Toluene	2.8E-09	1.1E-08			NA	NA			
64	1,1,1-TCA	0.0E+00	0.0E+00			NA	NA			
65	TCE	0.0E+00	0.0E+00			0E+00	0E+00			
66	Vanadium	6.0E-05	NA			NA	NA			
				TOTAL PATHWAY CANCER RISK		1E-02	3E-04	0E+00	0E+00	0E+00	0E+00
				POPULATION TOTAL EXCESS RISK		1E-02					

RANGE NAME: WS1

EXPOSURE AND RISK CALCULATION WORKSHEET

LAND USE: FUTURE
POPULATION: RES. ADULT (1-4)

EXPOSURE POINT: POND 1-4
MEDIUM: SOIL
ROUTE: ORAL

SITE NAME: ORMET
OPERABLE UNIT: FUTURE RESIDENT ADULT
FILE NAME: POP4
LAST UPDATED: 03/13/91

HIFs = 0.0E+00
HIFc = 1.4E-06
HIFl = 1.4E-06

		SUBCHRONIC					CHRONIC						LIFETIME					
	CHEMICAL NAME	Cs	HIFs	1	DIs	RfDS	HQs	Cc	HIFc	1	DIc	RfDC	HQc	Cl	HIFl	1	DIl	SF	RISK
1	Acenaphthene		0.0E+00		0.0E+00		ERR	2.1E+00	1.4E-06	1	2.9E-06	6.0E-02	5E-05	2.1E+00	1.4E-06	1	2.9E-06	NA	NA
2	Acenaphthylene							9.9E-02	1.4E-06	1	1.4E-07	4.0E-01	3E-07	9.9E-02	1.4E-06	1	1.4E-07	NA	NA
3	Acetone							4.2E-02	1.4E-06	1	5.9E-08	1.0E-01	6E-07	4.2E-02	1.4E-06	1	5.9E-08	NA	NA
4	Aluminum							6.8E+04	1.4E-06	1	9.5E-02	NA	NA	6.8E+04	1.4E-06	1	9.5E-02	NA	NA
5	Anthracene							9.5E+00	1.4E-06	1	1.3E-05	3.0E-01	4E-05	9.5E+00	1.4E-06	1	1.3E-05	NA	NA
6	Antimony							2.5E+01	1.4E-06	1	3.5E-05	4.0E-04	9E-02	2.5E+01	1.4E-06	1	3.5E-05	NA	NA
7	Aroclor 1242							0.0E+00	1.4E-06	1	0.0E+00	NA	NA	0.0E+00	1.4E-06	1	0.0E+00	7.7E+00	0E+00
8	Aroclor 1248							0.0E+00	1.4E-06	1	0.0E+00	NA	NA	0.0E+00	1.4E-06	1	0.0E+00	7.7E+00	0E+00
9	Aroclor 1254							0.0E+00	1.4E-06	1	0.0E+00	NA	NA	0.0E+00	1.4E-06	1	0.0E+00	7.7E+00	0E+00
10	Arsenic							7.6E+01	1.4E-06	1	1.1E-04	1.0E-03	1E-01	7.6E+01	1.4E-06	1	1.1E-04	1.8E+00	2E-04
11	Barium							1.9E+02	1.4E-06	1	2.7E-04	7.0E-02	4E-03	1.9E+02	1.4E-06	1	2.7E-04	NA	NA
12	Benzene							3.1E-03	1.4E-06	1	4.3E-09	NA	NA	3.1E-03	1.4E-06	1	4.3E-09	2.9E-02	1E-10
13	Benzo(a)anthracene							2.9E+01	1.4E-06	1	4.1E-05	4.0E-01	1E-04	2.9E+01	1.4E-06	1	4.1E-05	1.2E+01	5E-04
14	Benzo(a)pyrene							1.5E+01	1.4E-06	1	2.1E-05	4.0E-01	5E-05	1.5E+01	1.4E-06	1	2.1E-05	1.2E+01	3E-04
15	Benzo(b)fluoranthene							3.9E+01	1.4E-06	1	5.5E-05	4.0E-01	1E-04	3.9E+01	1.4E-06	1	5.5E-05	1.2E+01	7E-04
16	Benzo(g,h,i)perylene							8.2E+00	1.4E-06	1	1.1E-05	4.0E-01	3E-05	8.2E+00	1.4E-06	1	1.1E-05	NA	NA
17	Benzo(k)fluoranthene							2.0E+01	1.4E-06	1	2.8E-05	4.0E-01	7E-05	2.0E+01	1.4E-06	1	2.8E-05	1.2E+01	3E-04
18	Beryllium							3.9E+00	1.4E-06	1	5.5E-06	5.0E-03	1E-03	3.9E+00	1.4E-06	1	5.5E-06	4.3E+00	2E-05
19	BEHP							2.4E+00	1.4E-06	1	3.4E-06	2.0E-02	2E-04	2.4E+00	1.4E-06	1	3.4E-06	1.4E-02	5E-08
20	2-Butanone							9.4E-03	1.4E-06	1	1.3E-08	5.0E-02	3E-07	9.4E-03	1.4E-06	1	1.3E-08	NA	NA
21	Cadmium (food)							0.0E+00	1.4E-06	1	0.0E+00	1.0E-03	0E+00	0.0E+00	1.4E-06	1	0.0E+00	NA	NA
22	Cadmium (water)							0.0E+00	1.4E-06	1	0.0E+00	5.0E-04	0E+00	0.0E+00	1.4E-06	1	0.0E+00	NA	NA
23	Carbon disulfide							4.0E-03	1.4E-06	1	5.6E-09	1.0E-01	6E-08	4.0E-03	1.4E-06	1	5.6E-09	NA	NA
24	Chloride							2.2E+01	1.4E-06	1	3.1E-05	NA	NA	2.2E+01	1.4E-06	1	3.1E-05	NA	NA
25	Chlorobenzene							0.0E+00	1.4E-06	1	0.0E+00	2.0E-02	0E+00	0.0E+00	1.4E-06	1	0.0E+00	NA	NA
26	Chloroform							1.2E-02	1.4E-06	1	1.7E-08	1.0E-02	2E-06	1.2E-02	1.4E-06	1	1.7E-08	6.1E-03	1E-10
27	Chromium (VI)							6.5E+01	1.4E-06	1	9.1E-05	5.0E-03	2E-02	6.5E+01	1.4E-06	1	9.1E-05	NA	NA
28	Chrysene							4.4E+01	1.4E-06	1	6.2E-05	4.0E-01	2E-04	4.4E+01	1.4E-06	1	6.2E-05	1.2E+01	7E-04
29	Cobalt							1.4E+01	1.4E-06	1	2.0E-05	NA	NA	1.4E+01	1.4E-06	1	2.0E-05	NA	NA
30	Copper							9.7E+01	1.4E-06	1	1.4E-04	3.7E-02	4E-03	9.7E+01	1.4E-06	1	1.4E-04	NA	NA
31	Cyanide (free)							8.4E+01	1.4E-06	1	1.2E-04	2.0E-02	6E-03	8.4E+01	1.4E-06	1	1.2E-04	NA	NA
32	Di-n-butylphthalate							1.8E+00	1.4E-06	1	2.5E-06	1.0E-01	3E-05	1.8E+00	1.4E-06	1	2.5E-06	NA	NA
33	Di-n-octylphthalate							0.0E+00	1.4E-06	1	0.0E+00	2.0E-02	0E+00	0.0E+00	1.4E-06	1	0.0E+00	NA	NA
34	Dibenz(a,h)anthracene							2.4E+00	1.4E-06	1	3.4E-06	4.0E-01	8E-06	2.4E+00	1.4E-06	1	3.4E-06	1.2E+01	4E-05
35	Dibenzofuran							2.4E+00	1.4E-06	1	3.4E-06	NA	NA	2.4E+00	1.4E-06	1	3.4E-06	NA	NA
36	2,4-Dimethylphenol							0.0E+00	1.4E-06	1	0.0E+00	2.0E-02	0E+00	0.0E+00	1.4E-06	1	0.0E+00	NA	NA
37	Ethyl benzene							0.0E+00	1.4E-06	1	0.0E+00	1.0E-01	0E+00	0.0E+00	1.4E-06	1	0.0E+00	NA	NA
38	Fluoranthene							3.8E+01	1.4E-06	1	5.3E-05	4.0E-02	1E-03	3.8E+01	1.4E-06	1	5.3E-05	NA	NA
39	Fluorene							1.4E+00	1.4E-06	1	2.0E-06	4.0E-02	5E-05	1.4E+00	1.4E-06	1	2.0E-06	NA	NA

40	Fluoride	2.3E+02	1.4E-06	1	3.2E-04	6.0E-02	5E-03	2.3E+02	1.4E-06	1	3.2E-04	NA	NA
41	Indeno(1,2,3-cd)pyrene	8.5E+00	1.4E-06	1	1.2E-05	4.0E-01	3E-05	8.5E+00	1.4E-06	1	1.2E-05	1.2E+01	1E-04
42	Iron	9.3E+03	1.4E-06	1	1.3E-02	NA	NA	9.3E+03	1.4E-06	1	1.3E-02	NA	NA
43	Lead	1.4E+02	1.4E-06	1	2.0E-04	NA	NA	1.4E+02	1.4E-06	1	2.0E-04	NA	NA
44	Manganese	1.7E+02	1.4E-06	1	2.4E-04	1.0E-01	2E-03	1.7E+02	1.4E-06	1	2.4E-04	NA	NA
45	Mercury	1.6E-01	1.4E-06	1	2.2E-07	3.0E-04	7E-04	1.6E-01	1.4E-06	1	2.2E-07	NA	NA
46	Methylene chloride	4.3E-02	1.4E-06	1	6.0E-08	6.0E-02	1E-06	4.3E-02	1.4E-06	1	6.0E-08	7.5E-03	5E-10
47	2-Methylnaphthalene	5.5E-01	1.4E-06	1	7.7E-07	4.0E-01	2E-06	5.5E-01	1.4E-06	1	7.7E-07	NA	NA
48	4-Methylphenol	0.0E+00	1.4E-06	1	0.0E+00	5.0E-02	0E+00	0.0E+00	1.4E-06	1	0.0E+00	NA	NA
49	Naphthalene	9.3E-01	1.4E-06	1	1.3E-06	4.0E-01	3E-06	9.3E-01	1.4E-06	1	1.3E-06	NA	NA
50	Nickel(dust)	0.0E+00	1.4E-06	1	0.0E+00	NA	NA	0.0E+00	1.4E-06	1	0.0E+00	NA	NA
51	Nickel (salts)	4.0E+02	1.4E-06	1	5.6E-04	2.0E-02	3E-02	4.0E+02	1.4E-06	1	5.6E-04	NA	NA
52	Nitrogen, ammonia	2.9E+01	1.4E-06	1	4.1E-05	NA	NA	2.9E+01	1.4E-06	1	4.1E-05	NA	NA
53	Phenanthrene	1.5E+01	1.4E-06	1	2.1E-05	4.0E-01	5E-05	1.5E+01	1.4E-06	1	2.1E-05	NA	NA
54	Pyrene	1.9E+01	1.4E-06	1	2.7E-05	3.0E-02	9E-04	1.9E+01	1.4E-06	1	2.7E-05	NA	NA
55	Silica	3.2E+01	1.4E-06	1	4.5E-05	NA	NA	3.2E+01	1.4E-06	1	4.5E-05	NA	NA
56	Silver	0.0E+00	1.4E-06	1	0.0E+00	3.0E-03	0E+00	0.0E+00	1.4E-06	1	0.0E+00	NA	NA
57	Sodium	1.3E+04	1.4E-06	1	1.8E-02	NA	NA	1.3E+04	1.4E-06	1	1.8E-02	NA	NA
58	Sulfate	1.8E+03	1.4E-06	1	2.5E-03	NA	NA	1.8E+03	1.4E-06	1	2.5E-03	NA	NA
59	Styrene	2.0E-03	1.4E-06	1	2.8E-09	2.0E-01	1E-08	2.0E-03	1.4E-06	1	2.8E-09	3.0E-02	8E-11
60	1,1,2,2-PCA	0.0E+00	1.4E-06	1	0.0E+00	NA	NA	0.0E+00	1.4E-06	1	0.0E+00	2.0E-01	0E+00
61	PCE	1.1E-02	1.4E-06	1	1.5E-08	1.0E-02	2E-06	1.1E-02	1.4E-06	1	1.5E-08	5.1E-02	8E-10
62	Thallium	0.0E+00	1.4E-06	1	0.0E+00	7.0E-05	0E+00	0.0E+00	1.4E-06	1	0.0E+00	NA	NA
63	Toluene	2.0E-03	1.4E-06	1	2.8E-09	2.0E-01	1E-08	2.0E-03	1.4E-06	1	2.8E-09	NA	NA
64	1,1,1-TCA	4.0E-03	1.4E-06	1	5.6E-09	9.0E-02	6E-08	4.0E-03	1.4E-06	1	5.6E-09	NA	NA
65	TCE	2.0E-03	1.4E-06	1	2.8E-09	NA	NA	2.0E-03	1.4E-06	1	2.8E-09	1.1E-02	3E-11
66	Vanadium	4.8E+02	1.4E-06	1	6.7E-04	7.0E-03	1.0E-0	4.8E+02	1.4E-06	1	6.7E-04	NA	NA

RANGE NAME: WS2

SITE NAME: ORMET
OPERABLE UNIT: FUTURE RESIDENT ADULT
FILE NAME: POP4
LAST UPDATED: 03/13/91

EXPOSURE AND RISK CALCULATION WORKSHEET

LAND USE: FUTURE
POPULATION: RES. ADULT (1-4)

EXPOSURE POINT: POND 1-4
MEDIUM: SOIL
ROUTE: DERMAL

HIFs = 0.0E+00
HIFc = 2.1E-05
HIFl = 2.1E-05

		SUBCHRONIC					CHRONIC						LIFETIME					
	CHEMICAL NAME	Cs	HIFs	ABS	DIs	RfDS	HQs	Cc	HIFc	ABS	DIc	RfDC	HQc	Cl	HIFl	ABS	DIl	SF	RISK
1	Acenaphthene		0.0E+00		0.0E+00		ERR	2.1E+00	2.1E-05	1.0E-01	4.4E-06	NA	NA	2.1E+00	2.1E-05	1.0E-01	4.4E-06	NA	NA
2	Acenaphthylene							9.9E-02	2.1E-05	NA	NA	NA	NA	9.9E-02	2.1E-05	NA	NA	NA	NA
3	Acetone							4.2E-02	2.1E-05	2.5E-01	2.2E-07	1.0E-01	2E-06	4.2E-02	2.1E-05	2.5E-01	2.2E-07	NA	NA
4	Aluminum							6.8E+04	2.1E-05	NA	NA	NA	NA	6.8E+04	2.1E-05	NA	NA	NA	NA
5	Anthracene							9.5E+00	2.1E-05	NA	NA	NA	NA	9.5E+00	2.1E-05	NA	NA	NA	NA
6	Antimony							2.5E+01	2.1E-05	NA	NA	NA	NA	2.5E+01	2.1E-05	NA	NA	NA	NA
7	Aroclor 1242							0.0E+00	2.1E-05	1.0E-01	0.0E+00	NA	NA	0.0E+00	2.1E-05	1.0E-01	0.0E+00	7.7E+00	0E+00
8	Aroclor 1248							0.0E+00	2.1E-05	1.0E-01	0.0E+00	NA	NA	0.0E+00	2.1E-05	1.0E-01	0.0E+00	7.7E+00	0E+00
9	Aroclor 1254							0.0E+00	2.1E-05	1.0E-01	0.0E+00	NA	NA	0.0E+00	2.1E-05	1.0E-01	0.0E+00	7.7E+00	0E+00
10	Arsenic							7.6E+01	2.1E-05	NA	NA	NA	NA	7.6E+01	2.1E-05	NA	NA	NA	NA
11	Barium							1.9E+02	2.1E-05	NA	NA	NA	NA	1.9E+02	2.1E-05	NA	NA	NA	NA
12	Benzene							3.1E-03	2.1E-05	2.5E-01	1.6E-08	NA	NA	3.1E-03	2.1E-05	2.5E-01	1.6E-08	2.9E-02	5E-10
13	Benzo(a)anthracene							2.9E+01	2.1E-05	NA	NA	NA	NA	2.9E+01	2.1E-05	NA	NA	NA	NA
14	Benzo(a)pyrene							1.5E+01	2.1E-05	NA	NA	NA	NA	1.5E+01	2.1E-05	NA	NA	NA	NA
15	Benzo(b)fluoranthene							3.9E+01	2.1E-05	NA	NA	NA	NA	3.9E+01	2.1E-05	NA	NA	NA	NA
16	Benzo(g,h,i)perylene							8.2E+00	2.1E-05	NA	NA	NA	NA	8.2E+00	2.1E-05	NA	NA	NA	NA
17	Benzo(k)fluoranthene							2.0E+01	2.1E-05	NA	NA	NA	NA	2.0E+01	2.1E-05	NA	NA	NA	NA
18	Beryllium							3.9E+00	2.1E-05	NA	NA	NA	NA	3.9E+00	2.1E-05	NA	NA	NA	NA
19	BEHP							2.4E+00	2.1E-05	1.0E-01	5.0E-06	2.0E-02	3E-04	2.4E+00	2.1E-05	1.0E-01	5.0E-06	1.4E-02	7E-08
20	2-Butanone							9.4E-03	2.1E-05	2.5E-01	4.9E-08	5.0E-02	1.0E-0	9.4E-03	2.1E-05	2.5E-01	4.9E-08	NA	NA
21	Cadmium (food)							0.0E+00	2.1E-05	NA	NA	NA	NA	0.0E+00	2.1E-05	NA	NA	NA	NA
22	Cadmium (water)							0.0E+00	2.1E-05	NA	NA	NA	NA	0.0E+00	2.1E-05	NA	NA	NA	NA
23	Carbon disulfide							4.0E-03	2.1E-05	2.5E-01	2.1E-08	1.0E-01	2E-07	4.0E-03	2.1E-05	2.5E-01	2.1E-08	NA	NA
24	Chloride							2.2E+01	2.1E-05	NA	NA	NA	NA	2.2E+01	2.1E-05	NA	NA	NA	NA
25	Chlorobenzene							0.0E+00	2.1E-05	2.5E-01	0.0E+00	2.0E-02	0E+00	0.0E+00	2.1E-05	2.5E-01	0.0E+00	NA	NA
26	Chloroform							1.2E-02	2.1E-05	2.5E-01	6.4E-08	1.0E-02	6E-06	1.2E-02	2.1E-05	2.5E-01	6.4E-08	6.1E-03	4E-10
27	Chromium (VI)							6.5E+01	2.1E-05	NA	NA	NA	NA	6.5E+01	2.1E-05	NA	NA	NA	NA
28	Chrysene							4.4E+01	2.1E-05	NA	NA	4.0E-01	NA	4.4E+01	2.1E-05	NA	NA	1.2E+01	NA
29	Cobalt							1.4E+01	2.1E-05	NA	NA	NA	NA	1.4E+01	2.1E-05	NA	NA	NA	NA
30	Copper							9.7E+01	2.1E-05	NA	NA	NA	NA	9.7E+01	2.1E-05	NA	NA	NA	NA
31	Cyanide (free)							8.4E+01	2.1E-05	NA	NA	NA	NA	8.4E+01	2.1E-05	NA	NA	NA	NA
32	Di-n-butylphthalate							1.8E+00	2.1E-05	1.0E-01	3.8E-06	1.0E-01	4E-05	1.8E+00	2.1E-05	1.0E-01	3.8E-06	NA	NA
33	Di-n-octylphthalate							0.0E+00	2.1E-05	1.0E-01	0.0E+00	2.0E-02	0E+00	0.0E+00	2.1E-05	1.0E-01	0.0E+00	NA	NA
34	Dibenz(a,h)anthracene							2.4E+00	2.1E-05	NA	NA	NA	NA	2.4E+00	2.1E-05	NA	NA	NA	NA
35	Dibenzofuran							2.4E+00	2.1E-05	1.0E-01	5.0E-06	NA	NA	2.4E+00	2.1E-05	1.0E-01	5.0E-06	NA	NA
36	2,4-Dimethylphenol							0.0E+00	2.1E-05	1.0E-01	0.0E+00	2.0E-02	0E+00	0.0E+00	2.1E-05	1.0E-01	0.0E+00	NA	NA
37	Ethyl benzene							0.0E+00	2.1E-05	2.5E-01	0.0E+00	1.0E-01	0E+00	0.0E+00	2.1E-05	2.5E-01	0.0E+00	NA	NA
38	Fluoranthene							3.8E+01	2.1E-05	NA	NA	NA	NA	3.8E+01	2.1E-05	NA	NA	NA	NA
39	Fluorene							1.4E+00	2.1E-05	NA	NA	NA	NA	1.4E+00	2.1E-05	NA	NA	NA	NA

40	Fluoride	2.3E+02	2.1E-05	NA	NA	NA	NA	2.3E+02	2.1E-05	NA	NA	NA	NA
41	Indeno(1,2,3-cd)pyrene	8.5E+00	2.1E-05	NA	NA	NA	NA	8.5E+00	2.1E-05	NA	NA	NA	NA
42	Iron	9.3E+03	2.1E-05	NA	NA	NA	NA	9.3E+03	2.1E-05	NA	NA	NA	NA
43	Lead	1.4E+02	2.1E-05	NA	NA	NA	NA	1.4E+02	2.1E-05	NA	NA	NA	NA
44	Manganese	1.7E+02	2.1E-05	NA	NA	NA	NA	1.7E+02	2.1E-05	NA	NA	NA	NA
45	Mercury	1.6E-01	2.1E-05	NA	NA	NA	NA	1.6E-01	2.1E-05	NA	NA	NA	NA
46	Methylene chloride	4.3E-02	2.1E-05	2.5E-01	2.3E-07	6.0E-02	4E-06	4.3E-02	2.1E-05	2.5E-01	2.3E-07	7.5E-03	2E-09
47	2-Methylnaphthalene	5.5E-01	2.1E-05	NA	NA	NA	NA	5.5E-01	2.1E-05	NA	NA	NA	NA
48	4-Methylphenol	0.0E+00	2.1E-05	1.0E-01	0.0E+00	5.0E-02	0E+00	0.0E+00	2.1E-05	1.0E-01	0.0E+00	NA	NA
49	Naphthalene	9.3E-01	2.1E-05	NA	NA	NA	NA	9.3E-01	2.1E-05	NA	NA	NA	NA
50	Nickel(dust)	0.0E+00	2.1E-05	NA	NA	NA	NA	0.0E+00	2.1E-05	NA	NA	NA	NA
51	Nickel (salts)	4.0E+02	2.1E-05	NA	NA	NA	NA	4.0E+02	2.1E-05	NA	NA	NA	NA
52	Nitrogen, ammonia	2.9E+01	2.1E-05	NA	NA	NA	NA	2.9E+01	2.1E-05	NA	NA	NA	NA
53	Phenanthrene	1.5E+01	2.1E-05	NA	NA	NA	NA	1.5E+01	2.1E-05	NA	NA	NA	NA
54	Pyrene	1.9E+01	2.1E-05	NA	NA	NA	NA	1.9E+01	2.1E-05	NA	NA	NA	NA
55	Silica	3.2E+01	2.1E-05	NA	NA	NA	NA	3.2E+01	2.1E-05	NA	NA	NA	NA
56	Silver	0.0E+00	2.1E-05	NA	NA	NA	NA	0.0E+00	2.1E-05	NA	NA	NA	NA
57	Sodium	1.3E+04	2.1E-05	NA	NA	NA	NA	1.3E+04	2.1E-05	NA	NA	NA	NA
58	Sulfate	1.8E+03	2.1E-05	NA	NA	NA	NA	1.8E+03	2.1E-05	NA	NA	NA	NA
59	Styrene	2.0E-03	2.1E-05	2.5E-01	1.1E-08	2.0E-01	5E-08	2.0E-03	2.1E-05	2.5E-01	1.1E-08	3.0E-02	3E-10
60	1,1,2,2-PCA	0.0E+00	2.1E-05	2.5E-01	0.0E+00	NA	NA	0.0E+00	2.1E-05	2.5E-01	0.0E+00	2.0E-01	0E+00
61	PCE	1.1E-02	2.1E-05	2.5E-01	5.8E-08	1.0E-02	6E-06	1.1E-02	2.1E-05	2.5E-01	5.8E-08	5.1E-02	3E-09
62	Thallium	0.0E+00	2.1E-05	NA	NA	NA	NA	0.0E+00	2.1E-05	NA	NA	NA	NA
63	Toluene	2.0E-03	2.1E-05	2.5E-01	1.1E-08	2.0E-01	5E-08	2.0E-03	2.1E-05	2.5E-01	1.1E-08	NA	NA
64	1,1,1-TCA	4.0E-03	2.1E-05	2.5E-01	2.1E-08	9.0E-02	2E-07	4.0E-03	2.1E-05	2.5E-01	2.1E-08	NA	NA
65	TCE	2.0E-03	2.1E-05	2.5E-01	1.1E-08	NA	NA	2.0E-03	2.1E-05	2.5E-01	1.1E-08	1.1E-02	1E-10
66	Vanadium	4.8E+02	2.1E-05	NA	NA	NA	NA	4.8E+02	2.1E-05	NA	NA	NA	NA

RANGE NAME: CSUM

SITE NAME: ORMET
OPERABLE UNIT: FUTURE RESIDENT ADUL
FILE NAME: POP4
LAST UPDATED: 03/13/91

CHRONIC EXPOSURE SUMMARY

FUTURE
RES. ADULT (1-4)

CHRONIC DAILY INTAKE (mg/kg/day)

		SCENARIO 1	SCENARIO 2	SCENARIO 3	SCENARIO 4	SCENARIO 5	SCENARIO 6
		POND 1-4	POND 1-4	0	0	0	0
		SOIL	SOIL	0	0	0	0
		ORAL	DERMAL	0	0	0	0
	CHEMICAL NAME	(FROM WS1)	(FROM WS2)	(FROM WS3)	(FROM WS4)	(FROM WS5)	(FROM WS6)
1	Acenaphthene	2.9E-06	4.4E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00
2	Acenaphthylene	1.4E-07	NA				
3	Acetone	5.9E-08	2.2E-07				
4	Aluminum	9.5E-02	NA				
5	Anthracene	1.3E-05	NA				
6	Antimony	3.5E-05	NA				
7	Aroclor 1242	0.0E+00	0.0E+00				
8	Aroclor 1248	0.0E+00	0.0E+00				
9	Aroclor 1254	0.0E+00	0.0E+00				
10	Arsenic	1.1E-04	NA				
11	Barium	2.7E-04	NA				
12	Benzene	4.3E-09	1.6E-08				
13	Benzo(a)anthra	4.1E-05	NA				
14	Benzo(a)pyrene	2.1E-05	NA				
15	Benzo(b)fluora	5.5E-05	NA				
16	Benzo(g,h,i)pe	1.1E-05	NA				
17	Benzo(k)fluora	2.8E-05	NA				
18	Beryllium	5.5E-06	NA				
19	BEHP	3.4E-06	5.0E-06				
20	2-Butanone	1.3E-08	4.9E-08				
21	Cadmium (food)	0.0E+00	NA				
22	Cadmium (water	0.0E+00	NA				
23	Carbon disulfi	5.6E-09	2.1E-08				
24	Chloride	3.1E-05	NA				
25	Chlorobenzene	0.0E+00	0.0E+00				
26	Chloroform	1.7E-08	6.4E-08				
27	Chromium (VI)	9.1E-05	NA				
28	Chrysene	6.2E-05	NA				
29	Cobalt	2.0E-05	NA				
30	Copper	1.4E-04	NA				
31	Cyanide (free)	1.2E-04	NA				
32	Di-n-butylphth	2.5E-06	3.8E-06				
33	Di-n-octylphth	0.0E+00	0.0E+00				
34	Dibenz(a,h)ant	3.4E-06	NA				
35	Dibenzofuran	3.4E-06	5.0E-06				
36	2,4-Dimethylph	0.0E+00	0.0E+00				
37	Ethyl benzene	0.0E+00	0.0E+00				
38	Fluoranthene	5.3E-05	NA				
39	Fluorene	2.0E-06	NA				
40	Fluoride	3.2E-04	NA				
41	Indeno(1,2,3-c	1.2E-05	NA				
42	Iron	1.3E-02	NA				

CHRONIC RISK SUMMARY

FUTURE
RES. ADULT (1-4)

CHRONIC HAZARD QUOTIENT

SCENARIO 1	SCENARIO 2	SCENARIO 3	SCENARIO 4	SCENARIO 5	SCENARIO 6
POND 1-4	POND 1-4	0	0	0	0
SOIL	SOIL	0	0	0	0
ORAL	DERMAL	0	0	0	0
(FROM WS1)	(FROM WS2)	(FROM WS3)	(FROM WS4)	(FROM WS5)	(FROM WS6)
5E-05	NA	0E+00	0E+00	0E+00	0E+00
3E-07	NA				
6E-07	2E-06				
NA	NA				
4E-05	NA				
9E-02	NA				
NA	NA				
NA	NA				
NA	NA				
1E-01	NA				
4E-03	NA				
NA	NA				
1E-04	NA				
5E-05	NA				
1E-04	NA				
3E-05	NA				
7E-05	NA				
1E-03	NA				
2E-04	3E-04				
3E-07	1E-06				
0E+00	NA				
0E+00	NA				
6E-08	2E-07				
NA	NA				
0E+00	0E+00				
2E-06	6E-06				
2E-02	NA				
2E-04	NA				
NA	NA				
4E-03	NA				
6E-03	NA				
3E-05	4E-05				
0E+00	0E+00				
8E-06	NA				
NA	NA				
0E+00	0E+00				
0E+00	0E+00				
1E-03	NA				
5E-05	NA				
5E-03	NA				
3E-05	NA				
NA	NA				

43	Lead	2.0E-04	NA			NA	NA			
44	Manganese	2.4E-04	NA			2E-03	NA			
45	Mercury	2.2E-07	NA			7E-04	NA			
46	Methylene chlo	6.0E-08	2.3E-07			1E-06	4E-06			
47	2-Methylnaphth	7.7E-07	NA			2E-06	NA			
48	4-Methylphenol	0.0E+00	0.0E+00			0E+00	0E+00			
49	Naphthalene	1.3E-06	NA			3E-06	NA			
50	Nickel(dust)	0.0E+00	NA			NA	NA			
51	Nickel (salts)	5.6E-04	NA			3E-02	NA			
52	Nitrogen, ammo	4.1E-05	NA			NA	NA			
53	Phenanthrene	2.1E-05	NA			5E-05	NA			
54	Pyrene	2.7E-05	NA			9E-04	NA			
55	Silica	4.5E-05	NA			NA	NA			
56	Silver	0.0E+00	NA			0E+00	NA			
57	Sodium	1.8E-02	NA			NA	NA			
58	Sulfate	2.5E-03	NA			NA	NA			
59	Styrene	2.8E-09	1.1E-08			1E-08	5E-08			
60	1,1,2,2-PCA	0.0E+00	0.0E+00			NA	NA			
61	PCE	1.5E-08	5.8E-08			2E-06	6E-06			
62	Thallium	0.0E+00	NA			0E+00	NA			
63	Toluene	2.8E-09	1.1E-08			1E-08	5E-08			
64	1,1,1-TCA	5.6E-09	2.1E-08			6E-08	2E-07			
65	TCE	2.8E-09	1.1E-08			NA	NA			
66	Vanadium	6.7E-04	NA			1E-01	NA			
				PATHWAY SUM (HI)		4E-01	4E-04	0E+00	0E+00	0E+00	0E+00
				POPULATION TOTAL		4E-01					

RANGE NAME: LSUM

SITE NAME: ORMET
OPERABLE UNIT: FUTURE RESIDENT ADUL
FILE NAME: POP4
LAST UPDATED: 03/13/91

LIFETIME EXPOSURE SUMMARY

FUTURE
RES. ADULT (1-4)

LIFETIME AVERAGE DAILY INTAKE (mg/kg/day)

		SCENARIO 1	SCENARIO 2	SCENARIO 3	SCENARIO 4	SCENARIO 5	SCENARIO 6
		POND 1-4	POND 1-4	0	0	0	0
		SOIL	SOIL	0	0	0	0
		ORAL	DERMAL	0	0	0	0
	CHEMICAL NAME	(FROM WS1)	(FROM WS2)	(FROM WS3)	(FROM WS4)	(FROM WS5)	(FROM WS6)
1	Acenaphthene	2.9E-06	4.4E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00
2	Acenaphthylene	1.4E-07	NA				
3	Acetone	5.9E-08	2.2E-07				
4	Aluminum	9.5E-02	NA				
5	Anthracene	1.3E-05	NA				
6	Antimony	3.5E-05	NA				
7	Aroclor 1242	0.0E+00	0.0E+00				
8	Aroclor 1248	0.0E+00	0.0E+00				
9	Aroclor 1254	0.0E+00	0.0E+00				
10	Arsenic	1.1E-04	NA				
11	Barium	2.7E-04	NA				
12	Benzene	4.3E-09	1.6E-08				
13	Benzo(a)anthra	4.1E-05	NA				
14	Benzo(a)pyrene	2.1E-05	NA				
15	Benzo(b)fluora	5.5E-05	NA				
16	Benzo(g,h,i)pe	1.1E-05	NA				
17	Benzo(k)fluora	2.8E-05	NA				
18	Beryllium	5.5E-06	NA				
19	BEHP	3.4E-06	5.0E-06				
20	2-Butanone	1.3E-08	4.9E-08				
21	Cadmium (food)	0.0E+00	NA				
22	Cadmium (water	0.0E+00	NA				
23	Carbon disulfi	5.6E-09	2.1E-08				
24	Chloride	3.1E-05	NA				
25	Chlorobenzene	0.0E+00	0.0E+00				
26	Chloroform	1.7E-08	6.4E-08				
27	Chromium (VI)	9.1E-05	NA				
28	Chrysene	6.2E-05	NA				
29	Cobalt	2.0E-05	NA				
30	Copper	1.4E-04	NA				
31	Cyanide (free)	1.2E-04	NA				
32	Di-n-butylphth	2.5E-06	3.8E-06				
33	Di-n-octylphth	0.0E+00	0.0E+00				
34	Dibenz(a,h)ant	3.4E-06	NA				
35	Dibenzofuran	3.4E-06	5.0E-06				
36	2,4-Dimethylph	0.0E+00	0.0E+00				
37	Ethyl benzene	0.0E+00	0.0E+00				
38	Fluoranthene	5.3E-05	NA				
39	Fluorene	2.0E-06	NA				
40	Fluoride	3.2E-04	NA				
41	Indeno(1,2,3-c	1.2E-05	NA				
42	Iron	1.3E-02	NA				

LIFETIME RISK SUMMARY

FUTURE
RES. ADULT (1-4)

LIFETIME EXCESS CANCER RISK

SCENARIO 1	SCENARIO 2	SCENARIO 3	SCENARIO 4	SCENARIO 5	SCENARIO 6
POND 1-4	POND 1-4	0	0	0	0
SOIL	SOIL	0	0	0	0
ORAL	DERMAL	0	0	0	0
(FROM WS1)	(FROM WS2)	(FROM WS3)	(FROM WS4)	(FROM WS5)	(FROM WS6)
NA	NA	0E+00	0E+00	0E+00	0E+00
NA	NA				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
0E+00	0E+00				
0E+00	0E+00				
0E+00	0E+00				
2E-04	NA				
NA	NA				
1E-10	5E-10				
5E-04	NA				
3E-04	NA				
7E-04	NA				
NA	NA				
3E-04	NA				
2E-05	NA				
5E-08	7E-08				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
1E-10	4E-10				
NA	NA				
7E-04	NA				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
4E-05	NA				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
1E-04	NA				
NA	NA				

43	Lead	2.0E-04	NA			NA	NA			
44	Manganese	2.4E-04	NA			NA	NA			
45	Mercury	2.2E-07	NA			NA	NA			
46	Methylene chlo	6.0E-08	2.3E-07			5E-10	2E-09			
47	2-Methylnaphth	7.7E-07	NA			NA	NA			
48	4-Methylphenol	0.0E+00	0.0E+00			NA	NA			
49	Naphthalene	1.3E-06	NA			NA	NA			
50	Nickel(dust)	0.0E+00	NA			NA	NA			
51	Nickel (salts)	5.6E-04	NA			NA	NA			
52	Nitrogen, ammo	4.1E-05	NA			NA	NA			
53	Phenanthrene	2.1E-05	NA			NA	NA			
54	Pyrene	2.7E-05	NA			NA	NA			
55	Silica	4.5E-05	NA			NA	NA			
56	Silver	0.0E+00	NA			NA	NA			
57	Sodium	1.8E-02	NA			NA	NA			
58	Sulfate	2.5E-03	NA			NA	NA			
59	Styrene	2.8E-09	1.1E-08			8E-11	3E-10			
60	1,1,2,2-PCA	0.0E+00	0.0E+00			0E+00	0E+00			
61	PCE	1.5E-08	5.8E-08			8E-10	3E-09			
62	Thallium	0.0E+00	NA			NA	NA			
63	Toluene	2.8E-09	1.1E-08			NA	NA			
64	1,1,1-TCA	5.6E-09	2.1E-08			NA	NA			
65	TCE	2.8E-09	1.1E-08			3E-11	1E-10			
66	Vanadium	6.7E-04	NA			NA	NA			
				TOTAL PATHWAY CANCER RISK		3E-03	8E-08	0E+00	0E+00	0E+00	0E+00
				POPULATION TOTAL EXCESS RISK		3E-03					

RANGE NAME: WS1

EXPOSURE AND RISK CALCULATION WORKSHEET

LAND USE: FUTURE
POPULATION: RES. ADULT (5)

EXPOSURE POINT: POND 5
MEDIUM: SOIL
ROUTE: ORAL

HIFs = 0.0E+00
HIFc = 1.4E-06
HIFl = 1.4E-06

SITE NAME: ORMET
OPERABLE UNIT: FUTURE RESIDENT ADULT
FILE NAME: POP5
LAST UPDATED: 03/13/91

		SUBCHRONIC					CHRONIC						LIFETIME					
	CHEMICAL NAME	Cs	HIFs	1	DIs	RfDS	HQs	Cc	HIFc	1	DIc	RfDC	HQc	Cl	HIFl	1	DIl	SF	RISK
1	Acenaphthene		0.0E+00		0.0E+00		ERR	1.6E+00	1.4E-06	1	2.2E-06	6.0E-02	4E-05	1.6E+00	1.4E-06	1	2.2E-06	NA	NA
2	Acenaphthylene							6.7E-01	1.4E-06	1	9.4E-07	4.0E-01	2E-06	6.7E-01	1.4E-06	1	9.4E-07	NA	NA
3	Acetone							1.8E-02	1.4E-06	1	2.5E-08	1.0E-01	3E-07	1.8E-02	1.4E-06	1	2.5E-08	NA	NA
4	Aluminum							9.8E+04	1.4E-06	1	1.4E-01	NA	NA	9.8E+04	1.4E-06	1	1.4E-01	NA	NA
5	Anthracene							2.8E+00	1.4E-06	1	3.9E-06	3.0E-01	1E-05	2.8E+00	1.4E-06	1	3.9E-06	NA	NA
6	Antimony							1.5E+01	1.4E-06	1	2.1E-05	4.0E-04	5E-02	1.5E+01	1.4E-06	1	2.1E-05	NA	NA
7	Aroclor 1242							0.0E+00	1.4E-06	1	0.0E+00	NA	NA	0.0E+00	1.4E-06	1	0.0E+00	7.7E+00	0E+00
8	Aroclor 1248							0.0E+00	1.4E-06	1	0.0E+00	NA	NA	0.0E+00	1.4E-06	1	0.0E+00	7.7E+00	0E+00
9	Aroclor 1254							0.0E+00	1.4E-06	1	0.0E+00	NA	NA	0.0E+00	1.4E-06	1	0.0E+00	7.7E+00	0E+00
10	Arsenic							3.9E+01	1.4E-06	1	5.5E-05	1.0E-03	5E-02	3.9E+01	1.4E-06	1	5.5E-05	1.8E+00	1.0E-0
11	Barium							1.5E+02	1.4E-06	1	2.1E-04	7.0E-02	3E-03	1.5E+02	1.4E-06	1	2.1E-04	NA	NA
12	Benzene							3.2E-03	1.4E-06	1	4.5E-09	NA	NA	3.2E-03	1.4E-06	1	4.5E-09	2.9E-02	1E-10
13	Benzo(a)anthracene							7.0E+00	1.4E-06	1	9.8E-06	4.0E-01	2E-05	7.0E+00	1.4E-06	1	9.8E-06	1.2E+01	1E-04
14	Benzo(a)pyrene							5.3E+00	1.4E-06	1	7.4E-06	4.0E-01	2E-05	5.3E+00	1.4E-06	1	7.4E-06	1.2E+01	9E-05
15	Benzo(b)fluoranthene							7.1E+00	1.4E-06	1	9.9E-06	4.0E-01	2E-05	7.1E+00	1.4E-06	1	9.9E-06	1.2E+01	1E-04
16	Benzo(g,h,i)perylene							2.3E+00	1.4E-06	1	3.2E-06	4.0E-01	8E-06	2.3E+00	1.4E-06	1	3.2E-06	NA	NA
17	Benzo(k)fluoranthene							4.8E+00	1.4E-06	1	6.7E-06	4.0E-01	2E-05	4.8E+00	1.4E-06	1	6.7E-06	1.2E+01	8E-05
18	Beryllium							9.3E+00	1.4E-06	1	1.3E-05	5.0E-03	3E-03	9.3E+00	1.4E-06	1	1.3E-05	4.3E+00	6E-05
19	BEHP							0.0E+00	1.4E-06	1	0.0E+00	2.0E-02	0E+00	0.0E+00	1.4E-06	1	0.0E+00	1.4E-02	0E+00
20	2-Butanone							0.0E+00	1.4E-06	1	0.0E+00	5.0E-02	0E+00	0.0E+00	1.4E-06	1	0.0E+00	NA	NA
21	Cadmium (food)							0.0E+00	1.4E-06	1	0.0E+00	1.0E-03	0E+00	0.0E+00	1.4E-06	1	0.0E+00	NA	NA
22	Cadmium (water)							0.0E+00	1.4E-06	1	0.0E+00	5.0E-04	0E+00	0.0E+00	1.4E-06	1	0.0E+00	NA	NA
23	Carbon disulfide							2.6E-02	1.4E-06	1	3.6E-08	1.0E-01	4E-07	2.6E-02	1.4E-06	1	3.6E-08	NA	NA
24	Chloride							4.5E+01	1.4E-06	1	6.3E-05	NA	NA	4.5E+01	1.4E-06	1	6.3E-05	NA	NA
25	Chlorobenzene							2.0E-03	1.4E-06	1	2.8E-09	2.0E-02	1E-07	2.0E-03	1.4E-06	1	2.8E-09	NA	NA
26	Chloroform							1.1E-02	1.4E-06	1	1.5E-08	1.0E-02	2E-06	1.1E-02	1.4E-06	1	1.5E-08	6.1E-03	9E-11
27	Chromium (VI)							1.6E+01	1.4E-06	1	2.2E-05	5.0E-03	4E-03	1.6E+01	1.4E-06	1	2.2E-05	NA	NA
28	Chrysene							7.0E+00	1.4E-06	1	9.8E-06	4.0E-01	2E-05	7.0E+00	1.4E-06	1	9.8E-06	1.2E+01	1E-04
29	Cobalt							7.3E+00	1.4E-06	1	1.0E-05	NA	NA	7.3E+00	1.4E-06	1	1.0E-05	NA	NA
30	Copper							2.6E+01	1.4E-06	1	3.6E-05	3.7E-02	1.0E-0	2.6E+01	1.4E-06	1	3.6E-05	NA	NA
31	Cyanide (free)							2.1E+02	1.4E-06	1	2.9E-04	2.0E-02	1E-02	2.1E+02	1.4E-06	1	2.9E-04	NA	NA
32	Di-n-butylphthalate							1.3E+00	1.4E-06	1	1.8E-06	1.0E-01	2E-05	1.3E+00	1.4E-06	1	1.8E-06	NA	NA
33	Di-n-octylphthalate							0.0E+00	1.4E-06	1	0.0E+00	2.0E-02	0E+00	0.0E+00	1.4E-06	1	0.0E+00	NA	NA
34	Dibenz(a,h)anthracene							5.4E-01	1.4E-06	1	7.6E-07	4.0E-01	2E-06	5.4E-01	1.4E-06	1	7.6E-07	1.2E+01	9E-06
35	Dibenzofuran							8.8E-01	1.4E-06	1	1.2E-06	NA	NA	8.8E-01	1.4E-06	1	1.2E-06	NA	NA
36	2,4-Dimethylphenol							0.0E+00	1.4E-06	1	0.0E+00	2.0E-02	0E+00	0.0E+00	1.4E-06	1	0.0E+00	NA	NA
37	Ethyl benzene							0.0E+00	1.4E-06	1	0.0E+00	1.0E-01	0E+00	0.0E+00	1.4E-06	1	0.0E+00	NA	NA
38	Fluoranthene							9.9E+00	1.4E-06	1	1.4E-05	4.0E-02	3E-04	9.9E+00	1.4E-06	1	1.4E-05	NA	NA
39	Fluorene							8.3E-01	1.4E-06	1	1.2E-06	4.0E-02	3E-05	8.3E-01	1.4E-06	1	1.2E-06	NA	NA

40	Fluoride	4.4E+02	1.4E-06	1	6.2E-04	6.0E-02	1E-02	4.4E+02	1.4E-06	1	6.2E-04	NA	NA
41	Indeno(1,2,3-cd)pyrene	2.4E+00	1.4E-06	1	3.4E-06	4.0E-01	8E-06	2.4E+00	1.4E-06	1	3.4E-06	1.2E+01	4E-05
42	Iron	5.7E+03	1.4E-06	1	8.0E-03	NA	NA	5.7E+03	1.4E-06	1	8.0E-03	NA	NA
43	Lead	2.9E+01	1.4E-06	1	4.1E-05	NA	NA	2.9E+01	1.4E-06	1	4.1E-05	NA	NA
44	Manganese	1.5E+02	1.4E-06	1	2.1E-04	1.0E-01	2E-03	1.5E+02	1.4E-06	1	2.1E-04	NA	NA
45	Mercury	1.1E-01	1.4E-06	1	1.5E-07	3.0E-04	5E-04	1.1E-01	1.4E-06	1	1.5E-07	NA	NA
46	Methylene chloride	1.1E-01	1.4E-06	1	1.5E-07	6.0E-02	3E-06	1.1E-01	1.4E-06	1	1.5E-07	7.5E-03	1E-09
47	2-Methylnaphthalene	4.9E-01	1.4E-06	1	6.9E-07	4.0E-01	2E-06	4.9E-01	1.4E-06	1	6.9E-07	NA	NA
48	4-Methylphenol	0.0E+00	1.4E-06	1	0.0E+00	5.0E-02	0E+00	0.0E+00	1.4E-06	1	0.0E+00	NA	NA
49	Naphthalene	9.5E-01	1.4E-06	1	1.3E-06	4.0E-01	3E-06	9.5E-01	1.4E-06	1	1.3E-06	NA	NA
50	Nickel(dust)	0.0E+00	1.4E-06	1	0.0E+00	NA	NA	0.0E+00	1.4E-06	1	0.0E+00	NA	NA
51	Nickel (salts)	7.9E+01	1.4E-06	1	1.1E-04	2.0E-02	6E-03	7.9E+01	1.4E-06	1	1.1E-04	NA	NA
52	Nitrogen, ammonia	1.6E+02	1.4E-06	1	2.2E-04	NA	NA	1.6E+02	1.4E-06	1	2.2E-04	NA	NA
53	Phenanthrene	7.9E+00	1.4E-06	1	1.1E-05	4.0E-01	3E-05	7.9E+00	1.4E-06	1	1.1E-05	NA	NA
54	Pyrene	8.2E+00	1.4E-06	1	1.1E-05	3.0E-02	4E-04	8.2E+00	1.4E-06	1	1.1E-05	NA	NA
55	Silica	2.9E+01	1.4E-06	1	4.1E-05	NA	NA	2.9E+01	1.4E-06	1	4.1E-05	NA	NA
56	Silver	8.7E-01	1.4E-06	1	1.2E-06	3.0E-03	4E-04	8.7E-01	1.4E-06	1	1.2E-06	NA	NA
57	Sodium	2.3E+04	1.4E-06	1	3.2E-02	NA	NA	2.3E+04	1.4E-06	1	3.2E-02	NA	NA
58	Sulfate	8.4E+02	1.4E-06	1	1.2E-03	NA	NA	8.4E+02	1.4E-06	1	1.2E-03	NA	NA
59	Styrene	0.0E+00	1.4E-06	1	0.0E+00	2.0E-01	0E+00	0.0E+00	1.4E-06	1	0.0E+00	3.0E-02	0E+00
60	1,1,2,2-PCA	0.0E+00	1.4E-06	1	0.0E+00	NA	NA	0.0E+00	1.4E-06	1	0.0E+00	2.0E-01	0E+00
61	PCE	0.0E+00	1.4E-06	1	0.0E+00	1.0E-02	0E+00	0.0E+00	1.4E-06	1	0.0E+00	5.1E-02	0E+00
62	Thallium	3.8E-01	1.4E-06	1	5.3E-07	7.0E-05	8E-03	3.8E-01	1.4E-06	1	5.3E-07	NA	NA
63	Toluene	3.8E-03	1.4E-06	1	5.3E-09	2.0E-01	3E-08	3.8E-03	1.4E-06	1	5.3E-09	NA	NA
64	1,1,1-TCA	0.0E+00	1.4E-06	1	0.0E+00	9.0E-02	0E+00	0.0E+00	1.4E-06	1	0.0E+00	NA	NA
65	TCE	0.0E+00	1.4E-06	1	0.0E+00	NA	NA	0.0E+00	1.4E-06	1	0.0E+00	1.1E-02	0E+00
66	Vanadium	5.2E+01	1.4E-06	1	7.3E-05	7.0E-03	1E-02	5.2E+01	1.4E-06	1	7.3E-05	NA	NA

RANGE NAME: WS2

EXPOSURE AND RISK CALCULATION WORKSHEET

SITE NAME: ORMET
OPERABLE UNIT: FUTURE RESIDENT ADULT
FILE NAME: POP5
LAST UPDATED: 03/13/91

LAND USE: FUTURE
POPULATION: RES. ADULT (5)

EXPOSURE POINT: POND 5
MEDIUM: SOIL
ROUTE: DERMAL

HIFs = 0.0E+00
HIFc = 2.1E-05
HIFl = 2.1E-05

		SUBCHRONIC						CHRONIC						LIFETIME					
	CHEMICAL NAME	Cs	HIFs	ABS	DIs	RfDS	HQs	Cc	HIFc	ABS	DIc	RfDC	HQc	Cl	HIFl	ABS	DIl	SF	RISK
1	Acenaphthene		0.0E+00		0.0E+00		ERR	1.6E+00	2.1E-05	1.0E-01	3.4E-06	NA	NA	1.6E+00	2.1E-05	1.0E-01	3.4E-06	NA	NA
2	Acenaphthylene							6.7E-01	2.1E-05	NA	NA	NA	NA	6.7E-01	2.1E-05	NA	NA	NA	NA
3	Acetone							1.8E-02	2.1E-05	2.5E-01	9.5E-08	1.0E-01	9E-07	1.8E-02	2.1E-05	2.5E-01	9.5E-08	NA	NA
4	Aluminum							9.8E+04	2.1E-05	NA	NA	NA	NA	9.8E+04	2.1E-05	NA	NA	NA	NA
5	Anthracene							2.8E+00	2.1E-05	NA	NA	NA	NA	2.8E+00	2.1E-05	NA	NA	NA	NA
6	Antimony							1.5E+01	2.1E-05	NA	NA	NA	NA	1.5E+01	2.1E-05	NA	NA	NA	NA
7	Aroclor 1242							0.0E+00	2.1E-05	1.0E-01	0.0E+00	NA	NA	0.0E+00	2.1E-05	1.0E-01	0.0E+00	7.7E+00	0E+00
8	Aroclor 1248							0.0E+00	2.1E-05	1.0E-01	0.0E+00	NA	NA	0.0E+00	2.1E-05	1.0E-01	0.0E+00	7.7E+00	0E+00
9	Aroclor 1254							0.0E+00	2.1E-05	1.0E-01	0.0E+00	NA	NA	0.0E+00	2.1E-05	1.0E-01	0.0E+00	7.7E+00	0E+00
10	Arsenic							3.9E+01	2.1E-05	NA	NA	NA	NA	3.9E+01	2.1E-05	NA	NA	NA	NA
11	Barium							1.5E+02	2.1E-05	NA	NA	NA	NA	1.5E+02	2.1E-05	NA	NA	NA	NA
12	Benzene							3.2E-03	2.1E-05	2.5E-01	1.7E-08	NA	NA	3.2E-03	2.1E-05	2.5E-01	1.7E-08	2.9E-02	5E-10
13	Benzo(a)anthracene							7.0E+00	2.1E-05	NA	NA	NA	NA	7.0E+00	2.1E-05	NA	NA	NA	NA
14	Benzo(a)pyrene							5.3E+00	2.1E-05	NA	NA	NA	NA	5.3E+00	2.1E-05	NA	NA	NA	NA
15	Benzo(b)fluoranthene							7.1E+00	2.1E-05	NA	NA	NA	NA	7.1E+00	2.1E-05	NA	NA	NA	NA
16	Benzo(g,h,i)perylene							2.3E+00	2.1E-05	NA	NA	NA	NA	2.3E+00	2.1E-05	NA	NA	NA	NA
17	Benzo(k)fluoranthene							4.8E+00	2.1E-05	NA	NA	NA	NA	4.8E+00	2.1E-05	NA	NA	NA	NA
18	Beryllium							9.3E+00	2.1E-05	NA	NA	NA	NA	9.3E+00	2.1E-05	NA	NA	NA	NA
19	BEHP							0.0E+00	2.1E-05	1.0E-01	0.0E+00	2.0E-02	0E+00	0.0E+00	2.1E-05	1.0E-01	0.0E+00	1.4E-02	0E+00
20	2-Butanone							0.0E+00	2.1E-05	2.5E-01	0.0E+00	5.0E-02	0E+00	0.0E+00	2.1E-05	2.5E-01	0.0E+00	NA	NA
21	Cadmium (food)							0.0E+00	2.1E-05	NA	NA	NA	NA	0.0E+00	2.1E-05	NA	NA	NA	NA
22	Cadmium (water)							0.0E+00	2.1E-05	NA	NA	NA	NA	0.0E+00	2.1E-05	NA	NA	NA	NA
23	Carbon disulfide							2.6E-02	2.1E-05	2.5E-01	1.4E-07	1.0E-01	1E-06	2.6E-02	2.1E-05	2.5E-01	1.4E-07	NA	NA
24	Chloride							4.5E+01	2.1E-05	NA	NA	NA	NA	4.5E+01	2.1E-05	NA	NA	NA	NA
25	Chlorobenzene							2.0E-03	2.1E-05	2.5E-01	1.1E-08	2.0E-02	5E-07	2.0E-03	2.1E-05	2.5E-01	1.1E-08	NA	NA
26	Chloroform							1.1E-02	2.1E-05	2.5E-01	5.8E-08	1.0E-02	6E-06	1.1E-02	2.1E-05	2.5E-01	5.8E-08	6.1E-03	4E-10
27	Chromium (VI)							1.6E+01	2.1E-05	NA	NA	NA	NA	1.6E+01	2.1E-05	NA	NA	NA	NA
28	Chrysene							7.0E+00	2.1E-05	NA	NA	4.0E-01	NA	7.0E+00	2.1E-05	NA	NA	1.2E+01	NA
29	Cobalt							7.3E+00	2.1E-05	NA	NA	NA	NA	7.3E+00	2.1E-05	NA	NA	NA	NA
30	Copper							2.6E+01	2.1E-05	NA	NA	NA	NA	2.6E+01	2.1E-05	NA	NA	NA	NA
31	Cyanide (free)							2.1E+02	2.1E-05	NA	NA	NA	NA	2.1E+02	2.1E-05	NA	NA	NA	NA
32	Di-n-butylphthalate							1.3E+00	2.1E-05	1.0E-01	2.7E-06	1.0E-01	3E-05	1.3E+00	2.1E-05	1.0E-01	2.7E-06	NA	NA
33	Di-n-octylphthalate							0.0E+00	2.1E-05	1.0E-01	0.0E+00	2.0E-02	0E+00	0.0E+00	2.1E-05	1.0E-01	0.0E+00	NA	NA
34	Dibenz(a,h)anthracene							5.4E-01	2.1E-05	NA	NA	NA	NA	5.4E-01	2.1E-05	NA	NA	NA	NA
35	Dibenzofuran							8.8E-01	2.1E-05	1.0E-01	1.8E-06	NA	NA	8.8E-01	2.1E-05	1.0E-01	1.8E-06	NA	NA
36	2,4-Dimethylphenol							0.0E+00	2.1E-05	1.0E-01	0.0E+00	2.0E-02	0E+00	0.0E+00	2.1E-05	1.0E-01	0.0E+00	NA	NA
37	Ethyl benzene							0.0E+00	2.1E-05	2.5E-01	0.0E+00	1.0E-01	0E+00	0.0E+00	2.1E-05	2.5E-01	0.0E+00	NA	NA
38	Fluoranthene							9.9E+00	2.1E-05	NA	NA	NA	NA	9.9E+00	2.1E-05	NA	NA	NA	NA
39	Fluorene							8.3E-01	2.1E-05	NA	NA	NA	NA	8.3E-01	2.1E-05	NA	NA	NA	NA

40	Fluoride	4.4E+02	2.1E-05	NA	NA	NA	NA	4.4E+02	2.1E-05	NA	NA	NA	NA
41	Indeno(1,2,3-cd)pyrene	2.4E+00	2.1E-05	NA	NA	NA	NA	2.4E+00	2.1E-05	NA	NA	NA	NA
42	Iron	5.7E+03	2.1E-05	NA	NA	NA	NA	5.7E+03	2.1E-05	NA	NA	NA	NA
43	Lead	2.9E+01	2.1E-05	NA	NA	NA	NA	2.9E+01	2.1E-05	NA	NA	NA	NA
44	Manganese	1.5E+02	2.1E-05	NA	NA	NA	NA	1.5E+02	2.1E-05	NA	NA	NA	NA
45	Mercury	1.1E-01	2.1E-05	NA	NA	NA	NA	1.1E-01	2.1E-05	NA	NA	NA	NA
46	Methylene chloride	1.1E-01	2.1E-05	2.5E-01	5.8E-07	6.0E-02	1.0E-0	1.1E-01	2.1E-05	2.5E-01	5.8E-07	7.5E-03	4E-09
47	2-Methylnaphthalene	4.9E-01	2.1E-05	NA	NA	NA	NA	4.9E-01	2.1E-05	NA	NA	NA	NA
48	4-Methylphenol	0.0E+00	2.1E-05	1.0E-01	0.0E+00	5.0E-02	0E+00	0.0E+00	2.1E-05	1.0E-01	0.0E+00	NA	NA
49	Naphthalene	9.5E-01	2.1E-05	NA	NA	NA	NA	9.5E-01	2.1E-05	NA	NA	NA	NA
50	Nickel(dust)	0.0E+00	2.1E-05	NA	NA	NA	NA	0.0E+00	2.1E-05	NA	NA	NA	NA
51	Nickel (salts)	7.9E+01	2.1E-05	NA	NA	NA	NA	7.9E+01	2.1E-05	NA	NA	NA	NA
52	Nitrogen, ammonia	1.6E+02	2.1E-05	NA	NA	NA	NA	1.6E+02	2.1E-05	NA	NA	NA	NA
53	Phenanthrene	7.9E+00	2.1E-05	NA	NA	NA	NA	7.9E+00	2.1E-05	NA	NA	NA	NA
54	Pyrene	8.2E+00	2.1E-05	NA	NA	NA	NA	8.2E+00	2.1E-05	NA	NA	NA	NA
55	Silica	2.9E+01	2.1E-05	NA	NA	NA	NA	2.9E+01	2.1E-05	NA	NA	NA	NA
56	Silver	8.7E-01	2.1E-05	NA	NA	NA	NA	8.7E-01	2.1E-05	NA	NA	NA	NA
57	Sodium	2.3E+04	2.1E-05	NA	NA	NA	NA	2.3E+04	2.1E-05	NA	NA	NA	NA
58	Sulfate	8.4E+02	2.1E-05	NA	NA	NA	NA	8.4E+02	2.1E-05	NA	NA	NA	NA
59	Styrene	0.0E+00	2.1E-05	2.5E-01	0.0E+00	2.0E-01	0E+00	0.0E+00	2.1E-05	2.5E-01	0.0E+00	3.0E-02	0E+00
60	1,1,2,2-PCA	0.0E+00	2.1E-05	2.5E-01	0.0E+00	NA	NA	0.0E+00	2.1E-05	2.5E-01	0.0E+00	2.0E-01	0E+00
61	PCE	0.0E+00	2.1E-05	2.5E-01	0.0E+00	1.0E-02	0E+00	0.0E+00	2.1E-05	2.5E-01	0.0E+00	5.1E-02	0E+00
62	Thallium	3.8E-01	2.1E-05	NA	NA	NA	NA	3.8E-01	2.1E-05	NA	NA	NA	NA
63	Toluene	3.8E-03	2.1E-05	2.5E-01	2.0E-08	2.0E-01	1.0E-0	3.8E-03	2.1E-05	2.5E-01	2.0E-08	NA	NA
64	1,1,1-TCA	0.0E+00	2.1E-05	2.5E-01	0.0E+00	9.0E-02	0E+00	0.0E+00	2.1E-05	2.5E-01	0.0E+00	NA	NA
65	TCE	0.0E+00	2.1E-05	2.5E-01	0.0E+00	NA	NA	0.0E+00	2.1E-05	2.5E-01	0.0E+00	1.1E-02	0E+00
66	Vanadium	5.2E+01	2.1E-05	NA	NA	NA	NA	5.2E+01	2.1E-05	NA	NA	NA	NA

RANGE NAME: CSUM

SITE NAME: ORMET
OPERABLE UNIT: FUTURE RESIDENT ADUL
FILE NAME: POP5
LAST UPDATED: 03/13/91

CHRONIC EXPOSURE SUMMARY

FUTURE
RES. ADULT (5)

CHRONIC DAILY INTAKE (mg/kg/day)

		SCENARIO 1	SCENARIO 2	SCENARIO 3	SCENARIO 4	SCENARIO 5	SCENARIO 6
		POND 5	POND 5	0	0	0	0
		SOIL	SOIL	0	0	0	0
		ORAL	DERMAL	0	0	0	0
	CHEMICAL NAME	(FROM WS1)	(FROM WS2)	(FROM WS3)	(FROM WS4)	(FROM WS5)	(FROM WS6)
1	Acenaphthene	2.2E-06	3.4E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00
2	Acenaphthylene	9.4E-07	NA				
3	Acetone	2.5E-08	9.5E-08				
4	Aluminum	1.4E-01	NA				
5	Anthracene	3.9E-06	NA				
6	Antimony	2.1E-05	NA				
7	Aroclor 1242	0.0E+00	0.0E+00				
8	Aroclor 1248	0.0E+00	0.0E+00				
9	Aroclor 1254	0.0E+00	0.0E+00				
10	Arsenic	5.5E-05	NA				
11	Barium	2.1E-04	NA				
12	Benzene	4.5E-09	1.7E-08				
13	Benzo(a)anthra	9.8E-06	NA				
14	Benzo(a)pyrene	7.4E-06	NA				
15	Benzo(b)fluora	9.9E-06	NA				
16	Benzo(g,h,i)pe	3.2E-06	NA				
17	Benzo(k)fluora	6.7E-06	NA				
18	Beryllium	1.3E-05	NA				
19	BEHP	0.0E+00	0.0E+00				
20	2-Butanone	0.0E+00	0.0E+00				
21	Cadmium (food)	0.0E+00	NA				
22	Cadmium (water	0.0E+00	NA				
23	Carbon disulfi	3.6E-08	1.4E-07				
24	Chloride	6.3E-05	NA				
25	Chlorobenzene	2.8E-09	1.1E-08				
26	Chloroform	1.5E-08	5.8E-08				
27	Chromium (VI)	2.2E-05	NA				
28	Chrysene	9.8E-06	NA				
29	Cobalt	1.0E-05	NA				
30	Copper	3.6E-05	NA				
31	Cyanide (free)	2.9E-04	NA				
32	Di-n-butylphth	1.8E-06	2.7E-06				
33	Di-n-octylphth	0.0E+00	0.0E+00				
34	Dibenz(a,h)ant	7.6E-07	NA				
35	Dibenzofuran	1.2E-06	1.8E-06				
36	2,4-Dimethylph	0.0E+00	0.0E+00				
37	Ethyl benzene	0.0E+00	0.0E+00				
38	Fluoranthene	1.4E-05	NA				
39	Fluorene	1.2E-06	NA				
40	Fluoride	6.2E-04	NA				
41	Indeno(1,2,3-c	3.4E-06	NA				
42	Iron	8.0E-03	NA				

CHRONIC RISK SUMMARY

FUTURE
RES. ADULT (5)

CHRONIC HAZARD QUOTIENT

SCENARIO 1	SCENARIO 2	SCENARIO 3	SCENARIO 4	SCENARIO 5	SCENARIO 6
POND 5	POND 5	0	0	0	0
SOIL	SOIL	0	0	0	0
ORAL	DERMAL	0	0	0	0
(FROM WS1)	(FROM WS2)	(FROM WS3)	(FROM WS4)	(FROM WS5)	(FROM WS6)
4E-05	NA	0E+00	0E+00	0E+00	0E+00
2E-06	NA				
3E-07	9E-07				
NA	NA				
1E-05	NA				
5E-02	NA				
NA	NA				
NA	NA				
NA	NA				
5E-02	NA				
3E-03	NA				
NA	NA				
2E-05	NA				
2E-05	NA				
2E-05	NA				
8E-06	NA				
2E-05	NA				
3E-03	NA				
0E+00	0E+00				
0E+00	0E+00				
0E+00	NA				
0E+00	NA				
4E-07	1E-06				
NA	NA				
1E-07	5E-07				
2E-06	6E-06				
4E-03	NA				
2E-05	NA				
NA	NA				
1E-03	NA				
1E-02	NA				
2E-05	3E-05				
0E+00	0E+00				
2E-06	NA				
NA	NA				
0E+00	0E+00				
0E+00	0E+00				
3E-04	NA				
3E-05	NA				
1E-02	NA				
8E-06	NA				
NA	NA				

43	Lead	4.1E-05	NA		NA	NA				
44	Manganese	2.1E-04	NA		2E-03	NA				
45	Mercury	1.5E-07	NA		5E-04	NA				
46	Methylene chlo	1.5E-07	5.8E-07		3E-06	1E-05				
47	2-Methylnaphth	6.9E-07	NA		2E-06	NA				
48	4-Methylphenol	0.0E+00	0.0E+00		0E+00	0E+00				
49	Naphthalene	1.3E-06	NA		3E-06	NA				
50	Nickel(dust)	0.0E+00	NA		NA	NA				
51	Nickel (salts)	1.1E-04	NA		6E-03	NA				
52	Nitrogen, ammo	2.2E-04	NA		NA	NA				
53	Phenanthrene	1.1E-05	NA		3E-05	NA				
54	Pyrene	1.1E-05	NA		4E-04	NA				
55	Silica	4.1E-05	NA		NA	NA				
56	Silver	1.2E-06	NA		4E-04	NA				
57	Sodium	3.2E-02	NA		NA	NA				
58	Sulfate	1.2E-03	NA		NA	NA				
59	Styrene	0.0E+00	0.0E+00		0E+00	0E+00				
60	1,1,2,2-PCA	0.0E+00	0.0E+00		NA	NA				
61	PCE	0.0E+00	0.0E+00		0E+00	0E+00				
62	Thallium	5.3E-07	NA		8E-03	NA				
63	Toluene	5.3E-09	2.0E-08		3E-08	1E-07				
64	1,1,1-TCA	0.0E+00	0.0E+00		0E+00	0E+00				
65	TCE	0.0E+00	0.0E+00		NA	NA				
66	Vanadium	7.3E-05	NA		1E-02	NA				
				PATHWAY SUM (HI)	2E-01	5E-05	0E+00	0E+00	0E+00	0E+00
				POPULATION TOTAL	2E-01					

RANGE NAME: LSUM

SITE NAME: ORMET
OPERABLE UNIT: FUTURE RESIDENT ADUL
FILE NAME: POP5
LAST UPDATED: 03/13/91

LIFETIME EXPOSURE SUMMARY

FUTURE
RES. ADULT (5)

LIFETIME AVERAGE DAILY INTAKE (mg/kg/day)

	CHEMICAL NAME	SCENARIO 1 POND 5 SOIL ORAL (FROM WS1)	SCENARIO 2 POND 5 SOIL DERMAL (FROM WS2)	SCENARIO 3 0 0 0 (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
1	Acenaphthene	2.2E-06	3.4E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00
2	Acenaphthylene	9.4E-07	NA				
3	Acetone	2.5E-08	9.5E-08				
4	Aluminum	1.4E-01	NA				
5	Anthracene	3.9E-06	NA				
6	Antimony	2.1E-05	NA				
7	Aroclor 1242	0.0E+00	0.0E+00				
8	Aroclor 1248	0.0E+00	0.0E+00				
9	Aroclor 1254	0.0E+00	0.0E+00				
10	Arsenic	5.5E-05	NA				
11	Barium	2.1E-04	NA				
12	Benzene	4.5E-09	1.7E-08				
13	Benzo(a)anthra	9.8E-06	NA				
14	Benzo(a)pyrene	7.4E-06	NA				
15	Benzo(b)fluora	9.9E-06	NA				
16	Benzo(g,h,i)pe	3.2E-06	NA				
17	Benzo(k)fluora	6.7E-06	NA				
18	Beryllium	1.3E-05	NA				
19	BEHP	0.0E+00	0.0E+00				
20	2-Butanone	0.0E+00	0.0E+00				
21	Cadmium (food)	0.0E+00	NA				
22	Cadmium (water	0.0E+00	NA				
23	Carbon disulfi	3.6E-08	1.4E-07				
24	Chloride	6.3E-05	NA				
25	Chlorobenzene	2.8E-09	1.1E-08				
26	Chloroform	1.5E-08	5.8E-08				
27	Chromium (VI)	2.2E-05	NA				
28	Chrysene	9.8E-06	NA				
29	Cobalt	1.0E-05	NA				
30	Copper	3.6E-05	NA				
31	Cyanide (free)	2.9E-04	NA				
32	Di-n-butylphth	1.8E-06	2.7E-06				
33	Di-n-octylphth	0.0E+00	0.0E+00				
34	Dibenz(a,h)ant	7.6E-07	NA				
35	Dibenzofuran	1.2E-06	1.8E-06				
36	2,4-Dimethylph	0.0E+00	0.0E+00				
37	Ethyl benzene	0.0E+00	0.0E+00				
38	Fluoranthene	1.4E-05	NA				
39	Fluorene	1.2E-06	NA				
40	Fluoride	6.2E-04	NA				
41	Indeno(1,2,3-c	3.4E-06	NA				
42	Iron	8.0E-03	NA				

LIFETIME RISK SUMMARY

FUTURE
RES. ADULT (5)

LIFETIME EXCESS CANCER RISK

SCENARIO 1 POND 5 SOIL ORAL (FROM WS1)	SCENARIO 2 POND 5 SOIL DERMAL (FROM WS2)	SCENARIO 3 0 0 0 (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
NA	NA	0E+00	0E+00	0E+00	0E+00
NA	NA				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
0E+00	0E+00				
0E+00	0E+00				
0E+00	0E+00				
1E-04	NA				
NA	NA				
1E-10	5E-10				
1E-04	NA				
9E-05	NA				
1E-04	NA				
NA	NA				
8E-05	NA				
6E-05	NA				
0E+00	0E+00				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
9E-11	4E-10				
NA	NA				
1E-04	NA				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
9E-06	NA				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
4E-05	NA				
NA	NA				

43	Lead	4.1E-05	NA		NA	NA				
44	Manganese	2.1E-04	NA		NA	NA				
45	Mercury	1.5E-07	NA		NA	NA				
46	Methylene chlo	1.5E-07	5.8E-07		1E-09	4E-09				
47	2-Methylnaphth	6.9E-07	NA		NA	NA				
48	4-Methylphenol	0.0E+00	0.0E+00		NA	NA				
49	Naphthalene	1.3E-06	NA		NA	NA				
50	Nickel(dust)	0.0E+00	NA		NA	NA				
51	Nickel (salts)	1.1E-04	NA		NA	NA				
52	Nitrogen, ammo	2.2E-04	NA		NA	NA				
53	Phenanthrene	1.1E-05	NA		NA	NA				
54	Pyrene	1.1E-05	NA		NA	NA				
55	Silica	4.1E-05	NA		NA	NA				
56	Silver	1.2E-06	NA		NA	NA				
57	Sodium	3.2E-02	NA		NA	NA				
58	Sulfate	1.2E-03	NA		NA	NA				
59	Styrene	0.0E+00	0.0E+00		0E+00	0E+00				
60	1,1,2,2-PCA	0.0E+00	0.0E+00		0E+00	0E+00				
61	PCE	0.0E+00	0.0E+00		0E+00	0E+00				
62	Thallium	5.3E-07	NA		NA	NA				
63	Toluene	5.3E-09	2.0E-08		NA	NA				
64	1,1,1-TCA	0.0E+00	0.0E+00		NA	NA				
65	TCE	0.0E+00	0.0E+00		0E+00	0E+00				
66	Vanadium	7.3E-05	NA		NA	NA				
				TOTAL PATHWAY CANCER RISK	7E-04	5E-09	0E+00	0E+00	0E+00	0E+00
				POPULATION TOTAL EXCESS RISK	7E-04					

RANGE NAME: WS1

SITE NAME: ORMET
OPERABLE UNIT: FUTURE RESIDENT ADULT
FILE NAME: POP6
LAST UPDATED: 04/30/91

EXPOSURE AND RISK CALCULATION WORKSHEET

LAND USE: FUTURE
POPULATION: RES. ADULT (RA)

EXPOSURE POINT: REC. AREA
MEDIUM: AIR (PART)
ROUTE: INHALATION

HIFs = 0.0E+00
HIFc = 2.7E-01
HIFl = 2.7E-01

		SUBCHRONIC					CHRONIC						LIFETIME					
	CHEMICAL NAME	Cs	HIFs	1	DIs	RfDS	HQs	Cc	HIFc	1	DIc	RfDC	HQc	Cl	HIFl	1	DIl	SF	RISK
1	Acenaphthene		0.0E+00		0.0E+00		ERR	6.4E-08	2.7E-01	1	1.7E-08	NA	NA	6.4E-08	2.7E-01	1	1.7E-08	NA	NA
2	Acenaphthylene							6.7E-08	2.7E-01	1	1.8E-08	NA	NA	6.7E-08	2.7E-01	1	1.8E-08	NA	NA
3	Acetone							0.0E+00	2.7E-01	1	0.0E+00	NA	NA	0.0E+00	2.7E-01	1	0.0E+00	NA	NA
4	Aluminum							3.8E-03	2.7E-01	1	1.0E-03	NA	NA	3.8E-03	2.7E-01	1	1.0E-03	NA	NA
5	Anthracene							2.4E-07	2.7E-01	1	6.5E-08	NA	NA	2.4E-07	2.7E-01	1	6.5E-08	NA	NA
6	Antimony							5.9E-07	2.7E-01	1	1.6E-07	NA	NA	5.9E-07	2.7E-01	1	1.6E-07	NA	NA
7	Aroclor 1242							0.0E+00	2.7E-01	1	0.0E+00	NA	NA	0.0E+00	2.7E-01	1	0.0E+00	NA	NA
8	Aroclor 1248							0.0E+00	2.7E-01	1	0.0E+00	NA	NA	0.0E+00	2.7E-01	1	0.0E+00	NA	NA
9	Aroclor 1254							0.0E+00	2.7E-01	1	0.0E+00	NA	NA	0.0E+00	2.7E-01	1	0.0E+00	NA	NA
10	Arsenic							1.3E-06	2.7E-01	1	3.5E-07	NA	NA	1.3E-06	2.7E-01	1	3.5E-07	1.5E+01	5E-06
11	Barium							7.6E-06	2.7E-01	1	2.1E-06	1.0E-04	2E-02	7.6E-06	2.7E-01	1	2.1E-06	NA	NA
12	Benzene							0.0E+00	2.7E-01	1	0.0E+00	NA	NA	0.0E+00	2.7E-01	1	0.0E+00	2.9E-02	0E+00
13	Benzo(a)anthracene							6.0E-07	2.7E-01	1	1.6E-07	NA	NA	6.0E-07	2.7E-01	1	1.6E-07	6.1E+00	1.0E-0
14	Benzo(a)pyrene							5.1E-07	2.7E-01	1	1.4E-07	NA	NA	5.1E-07	2.7E-01	1	1.4E-07	6.1E+00	8E-07
15	Benzo(b)fluoranthene							6.6E-07	2.7E-01	1	1.8E-07	NA	NA	6.6E-07	2.7E-01	1	1.8E-07	6.1E+00	1E-06
16	Benzo(g,h,i)perylene							2.0E-07	2.7E-01	1	5.4E-08	NA	NA	2.0E-07	2.7E-01	1	5.4E-08	NA	NA
17	Benzo(k)fluoranthene							4.6E-07	2.7E-01	1	1.2E-07	NA	NA	4.6E-07	2.7E-01	1	1.2E-07	6.1E+00	8E-07
18	Beryllium							5.7E-07	2.7E-01	1	1.5E-07	NA	NA	5.7E-07	2.7E-01	1	1.5E-07	8.4E+00	1E-06
19	BEHP							0.0E+00	2.7E-01	1	0.0E+00	NA	NA	0.0E+00	2.7E-01	1	0.0E+00	NA	NA
20	2-Butanone							0.0E+00	2.7E-01	1	0.0E+00	9.0E-02	0E+00	0.0E+00	2.7E-01	1	0.0E+00	NA	NA
21	Cadmium (food)							0.0E+00	2.7E-01	1	0.0E+00	NA	NA	0.0E+00	2.7E-01	1	0.0E+00	6.1E+00	0E+00
22	Cadmium (water)							0.0E+00	2.7E-01	1	0.0E+00	NA	NA	0.0E+00	2.7E-01	1	0.0E+00	6.1E+00	0E+00
23	Carbon disulfide							0.0E+00	2.7E-01	1	0.0E+00	1.0E-02	0E+00	0.0E+00	2.7E-01	1	0.0E+00	NA	NA
24	Chloride							1.1E-06	2.7E-01	1	3.0E-07	NA	NA	1.1E-06	2.7E-01	1	3.0E-07	NA	NA
25	Chlorobenzene							0.0E+00	2.7E-01	1	0.0E+00	5.0E-03	0E+00	0.0E+00	2.7E-01	1	0.0E+00	NA	NA
26	Chloroform							0.0E+00	2.7E-01	1	0.0E+00	NA	NA	0.0E+00	2.7E-01	1	0.0E+00	8.1E-02	0E+00
27	Chromium (VI)							8.9E-07	2.7E-01	1	2.4E-07	5.7E-07	4E-01	8.9E-07	2.7E-01	1	2.4E-07	4.1E+01	1.0E-0
28	Chrysene							6.0E-07	2.7E-01	1	1.6E-07	NA	NA	6.0E-07	2.7E-01	1	1.6E-07	6.1E+00	1.0E-0
29	Cobalt							2.3E-07	2.7E-01	1	6.2E-08	NA	NA	2.3E-07	2.7E-01	1	6.2E-08	NA	NA
30	Copper							8.0E-07	2.7E-01	1	2.2E-07	NA	NA	8.0E-07	2.7E-01	1	2.2E-07	NA	NA
31	Cyanide (free)							8.2E-06	2.7E-01	1	2.2E-06	NA	NA	8.2E-06	2.7E-01	1	2.2E-06	NA	NA
32	Di-n-butylphthalate							1.5E-07	2.7E-01	1	4.1E-08	NA	NA	1.5E-07	2.7E-01	1	4.1E-08	NA	NA
33	Di-n-octylphthalate							0.0E+00	2.7E-01	1	0.0E+00	NA	NA	0.0E+00	2.7E-01	1	0.0E+00	NA	NA
34	Dibenz(a,h)anthracene							4.5E-08	2.7E-01	1	1.2E-08	NA	NA	4.5E-08	2.7E-01	1	1.2E-08	6.1E+00	7E-08
35	Dibenzofuran							6.5E-08	2.7E-01	1	1.8E-08	NA	NA	6.5E-08	2.7E-01	1	1.8E-08	NA	NA
36	2,4-Dimethylphenol							0.0E+00	2.7E-01	1	0.0E+00	NA	NA	0.0E+00	2.7E-01	1	0.0E+00	NA	NA
37	Ethyl benzene							0.0E+00	2.7E-01	1	0.0E+00	NA	NA	0.0E+00	2.7E-01	1	0.0E+00	NA	NA
38	Fluoranthene							8.4E-07	2.7E-01	1	2.3E-07	NA	NA	8.4E-07	2.7E-01	1	2.3E-07	NA	NA
39	Fluorene							7.2E-08	2.7E-01	1	1.9E-08	NA	NA	7.2E-08	2.7E-01	1	1.9E-08	NA	NA

40	Fluoride	1.0E-05	2.7E-01	1	2.7E-06	NA	NA	1.0E-05	2.7E-01	1	2.7E-06	NA	NA
41	Indeno(1,2,3-cd)pyrene	2.1E-07	2.7E-01	1	5.7E-08	NA	NA	2.1E-07	2.7E-01	1	5.7E-08	6.1E+00	3E-07
42	Iron	2.8E-04	2.7E-01	1	7.6E-05	NA	NA	2.8E-04	2.7E-01	1	7.6E-05	NA	NA
43	Lead	1.2E-06	2.7E-01	1	3.2E-07	NA	NA	1.2E-06	2.7E-01	1	3.2E-07	NA	NA
44	Manganese	9.3E-06	2.7E-01	1	2.5E-06	1.1E-04	2E-02	9.3E-06	2.7E-01	1	2.5E-06	NA	NA
45	Mercury	0.0E+00	2.7E-01	1	0.0E+00	8.6E-05	0E+00	0.0E+00	2.7E-01	1	0.0E+00	NA	NA
46	Methylene chloride	0.0E+00	2.7E-01	1	0.0E+00	8.6E-01	0E+00	0.0E+00	2.7E-01	1	0.0E+00	1.6E-03	0E+00
47	2-Methylnaphthalene	1.3E-08	2.7E-01	1	3.5E-09	NA	NA	1.3E-08	2.7E-01	1	3.5E-09	NA	NA
48	4-Methylphenol	0.0E+00	2.7E-01	1	0.0E+00	NA	NA	0.0E+00	2.7E-01	1	0.0E+00	NA	NA
49	Naphthalene	1.8E-08	2.7E-01	1	4.9E-09	NA	NA	1.8E-08	2.7E-01	1	4.9E-09	NA	NA
50	Nickel(dust)	1.2E-06	2.7E-01	1	3.2E-07	NA	NA	1.2E-06	2.7E-01	1	3.2E-07	8.4E-01	3E-07
51	Nickel (salts)	0.0E+00	2.7E-01	1	0.0E+00	NA	NA	0.0E+00	2.7E-01	1	0.0E+00	NA	NA
52	Nitrogen, ammonia	1.1E-06	2.7E-01	1	3.0E-07	NA	NA	1.1E-06	2.7E-01	1	3.0E-07	NA	NA
53	Phenanthrene	6.6E-07	2.7E-01	1	1.8E-07	NA	NA	6.6E-07	2.7E-01	1	1.8E-07	NA	NA
54	Pyrene	6.5E-07	2.7E-01	1	1.8E-07	NA	NA	6.5E-07	2.7E-01	1	1.8E-07	NA	NA
55	Silica	4.7E-07	2.7E-01	1	1.3E-07	NA	NA	4.7E-07	2.7E-01	1	1.3E-07	NA	NA
56	Silver	0.0E+00	2.7E-01	1	0.0E+00	NA	NA	0.0E+00	2.7E-01	1	0.0E+00	NA	NA
57	Sodium	8.5E-04	2.7E-01	1	2.3E-04	NA	NA	8.5E-04	2.7E-01	1	2.3E-04	NA	NA
58	Sulfate	5.8E-06	2.7E-01	1	1.6E-06	NA	NA	5.8E-06	2.7E-01	1	1.6E-06	NA	NA
59	Styrene	0.0E+00	2.7E-01	1	0.0E+00	NA	NA	0.0E+00	2.7E-01	1	0.0E+00	2.0E-03	0E+00
60	1,1,2,2-PCA	0.0E+00	2.7E-01	1	0.0E+00	NA	NA	0.0E+00	2.7E-01	1	0.0E+00	2.0E-01	0E+00
61	PCE	0.0E+00	2.7E-01	1	0.0E+00	NA	NA	0.0E+00	2.7E-01	1	0.0E+00	1.8E-03	0E+00
62	Thallium	2.3E-08	2.7E-01	1	6.2E-09	NA	NA	2.3E-08	2.7E-01	1	6.2E-09	NA	NA
63	Toluene	0.0E+00	2.7E-01	1	0.0E+00	5.7E-01	0E+00	0.0E+00	2.7E-01	1	0.0E+00	NA	NA
64	1,1,1-TCA	0.0E+00	2.7E-01	1	0.0E+00	3.0E-01	0E+00	0.0E+00	2.7E-01	1	0.0E+00	NA	NA
65	TCE	0.0E+00	2.7E-01	1	0.0E+00	6.0E-03	0E+00	0.0E+00	2.7E-01	1	0.0E+00	NA	NA
66	Vanadium	9.0E-07	2.7E-01	1	2.4E-07	NA	NA	9.0E-07	2.7E-01	1	2.4E-07	NA	NA

RANGE NAME: CSUM

SITE NAME: ORMET
OPERABLE UNIT: FUTURE RESIDENT ADUL
FILE NAME: POP6
LAST UPDATED: 04/30/91

CHRONIC EXPOSURE SUMMARY

FUTURE
RES. ADULT (RA)

CHRONIC DAILY INTAKE (mg/kg/day)

		SCENARIO 1	SCENARIO 2	SCENARIO 3	SCENARIO 4	SCENARIO 5	SCENARIO 6
		REC. AREA	0	0	0	0	0
		AIR (PART)	0	0	0	0	0
		INHALATION	0	0	0	0	0
	CHEMICAL NAME	(FROM WS1)	(FROM WS2)	(FROM WS3)	(FROM WS4)	(FROM WS5)	(FROM WS6)
1	Acenaphthene	1.7E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
2	Acenaphthylene	1.8E-08					
3	Acetone	0.0E+00					
4	Aluminum	1.0E-03					
5	Anthracene	6.5E-08					
6	Antimony	1.6E-07					
7	Aroclor 1242	0.0E+00					
8	Aroclor 1248	0.0E+00					
9	Aroclor 1254	0.0E+00					
10	Arsenic	3.5E-07					
11	Barium	2.1E-06					
12	Benzene	0.0E+00					
13	Benzo(a)anthra	1.6E-07					
14	Benzo(a)pyrene	1.4E-07					
15	Benzo(b)fluora	1.8E-07					
16	Benzo(g,h,i)pe	5.4E-08					
17	Benzo(k)fluora	1.2E-07					
18	Beryllium	1.5E-07					
19	BEHP	0.0E+00					
20	2-Butanone	0.0E+00					
21	Cadmium (food)	0.0E+00					
22	Cadmium (water	0.0E+00					
23	Carbon disulfi	0.0E+00					
24	Chloride	3.0E-07					
25	Chlorobenzene	0.0E+00					
26	Chloroform	0.0E+00					
27	Chromium (VI)	2.4E-07					
28	Chrysene	1.6E-07					
29	Cobalt	6.2E-08					
30	Copper	2.2E-07					
31	Cyanide (free)	2.2E-06					
32	Di-n-butylphth	4.1E-08					
33	Di-n-octylphth	0.0E+00					
34	Dibenz(a,h)ant	1.2E-08					
35	Dibenzofuran	1.8E-08					
36	2,4-Dimethylph	0.0E+00					
37	Ethyl benzene	0.0E+00					
38	Fluoranthene	2.3E-07					
39	Fluorene	1.9E-08					
40	Fluoride	2.7E-06					
41	Indeno(1,2,3-c	5.7E-08					
42	Iron	7.6E-05					

CHRONIC RISK SUMMARY

FUTURE
RES. ADULT (RA)

CHRONIC HAZARD QUOTIENT

		SCENARIO 1	SCENARIO 2	SCENARIO 3	SCENARIO 4	SCENARIO 5	SCENARIO 6
		REC. AREA	0	0	0	0	0
		AIR (PART)	0	0	0	0	0
		INHALATION	0	0	0	0	0
	CHEMICAL NAME	(FROM WS1)	(FROM WS2)	(FROM WS3)	(FROM WS4)	(FROM WS5)	(FROM WS6)
1	Acenaphthene	NA	0E+00	0E+00	0E+00	0E+00	0E+00
2	Acenaphthylene	NA					
3	Acetone	NA					
4	Aluminum	NA					
5	Anthracene	NA					
6	Antimony	NA					
7	Aroclor 1242	NA					
8	Aroclor 1248	NA					
9	Aroclor 1254	NA					
10	Arsenic	NA					
11	Barium	2E-02					
12	Benzene	NA					
13	Benzo(a)anthra	NA					
14	Benzo(a)pyrene	NA					
15	Benzo(b)fluora	NA					
16	Benzo(g,h,i)pe	NA					
17	Benzo(k)fluora	NA					
18	Beryllium	NA					
19	BEHP	NA					
20	2-Butanone	0E+00					
21	Cadmium (food)	NA					
22	Cadmium (water	NA					
23	Carbon disulfi	0E+00					
24	Chloride	NA					
25	Chlorobenzene	0E+00					
26	Chloroform	NA					
27	Chromium (VI)	4E-01					
28	Chrysene	NA					
29	Cobalt	NA					
30	Copper	NA					
31	Cyanide (free)	NA					
32	Di-n-butylphth	NA					
33	Di-n-octylphth	NA					
34	Dibenz(a,h)ant	NA					
35	Dibenzofuran	NA					
36	2,4-Dimethylph	NA					
37	Ethyl benzene	NA					
38	Fluoranthene	NA					
39	Fluorene	NA					
40	Fluoride	NA					
41	Indeno(1,2,3-c	NA					
42	Iron	NA					

43 Lead	3.2E-07		NA				
44 Manganese	2.5E-06		2E-02				
45 Mercury	0.0E+00		0E+00				
46 Methylene chlo	0.0E+00		0E+00				
47 2-Methylnaphth	3.5E-09		NA				
48 4-Methylphenol	0.0E+00		NA				
49 Naphthalene	4.9E-09		NA				
50 Nickel(dust)	3.2E-07		NA				
51 Nickel (salts)	0.0E+00		NA				
52 Nitrogen, ammo	3.0E-07		NA				
53 Phenanthrene	1.8E-07		NA				
54 Pyrene	1.8E-07		NA				
55 Silica	1.3E-07		NA				
56 Silver	0.0E+00		NA				
57 Sodium	2.3E-04		NA				
58 Sulfate	1.6E-06		NA				
59 Styrene	0.0E+00		NA				
60 1,1,2,2-PCA	0.0E+00		NA				
61 PCE	0.0E+00		NA				
62 Thallium	6.2E-09		NA				
63 Toluene	0.0E+00		0E+00				
64 1,1,1-TCA	0.0E+00		0E+00				
65 TCE	0.0E+00		0E+00				
66 Vanadium	2.4E-07		NA				
		PATHWAY SUM (HI)	4E-01	0E+00	0E+00	0E+00	0E+00	0E+00
		POPULATION TOTAL	4E-01					

RANGE NAME: LSUM

SITE NAME: ORMET
OPERABLE UNIT: FUTURE RESIDENT ADUL
FILE NAME: POP6
LAST UPDATED: 04/30/91

LIFETIME EXPOSURE SUMMARY

FUTURE
RES. ADULT (RA)

LIFETIME AVERAGE DAILY INTAKE (mg/kg/day)

		SCENARIO 1	SCENARIO 2	SCENARIO 3	SCENARIO 4	SCENARIO 5	SCENARIO 6
		REC. AREA	0	0	0	0	0
		AIR (PART)	0	0	0	0	0
		INHALATION	0	0	0	0	0
	CHEMICAL NAME	(FROM WS1)	(FROM WS2)	(FROM WS3)	(FROM WS4)	(FROM WS5)	(FROM WS6)
1	Acenaphthene	1.7E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
2	Acenaphthylene	1.8E-08					
3	Acetone	0.0E+00					
4	Aluminum	1.0E-03					
5	Anthracene	6.5E-08					
6	Antimony	1.6E-07					
7	Aroclor 1242	0.0E+00					
8	Aroclor 1248	0.0E+00					
9	Aroclor 1254	0.0E+00					
10	Arsenic	3.5E-07					
11	Barium	2.1E-06					
12	Benzene	0.0E+00					
13	Benzo(a)anthra	1.6E-07					
14	Benzo(a)pyrene	1.4E-07					
15	Benzo(b)fluora	1.8E-07					
16	Benzo(g,h,i)pe	5.4E-08					
17	Benzo(k)fluora	1.2E-07					
18	Beryllium	1.5E-07					
19	BEHP	0.0E+00					
20	2-Butanone	0.0E+00					
21	Cadmium (food)	0.0E+00					
22	Cadmium (water	0.0E+00					
23	Carbon disulfi	0.0E+00					
24	Chloride	3.0E-07					
25	Chlorobenzene	0.0E+00					
26	Chloroform	0.0E+00					
27	Chromium (VI)	2.4E-07					
28	Chrysene	1.6E-07					
29	Cobalt	6.2E-08					
30	Copper	2.2E-07					
31	Cyanide (free)	2.2E-06					
32	Di-n-butylphth	4.1E-08					
33	Di-n-octylphth	0.0E+00					
34	Dibenz(a,h)ant	1.2E-08					
35	Dibenzofuran	1.8E-08					
36	2,4-Dimethylph	0.0E+00					
37	Ethyl benzene	0.0E+00					
38	Fluoranthene	2.3E-07					
39	Fluorene	1.9E-08					
40	Fluoride	2.7E-06					
41	Indeno(1,2,3-c	5.7E-08					
42	Iron	7.6E-05					

LIFETIME RISK SUMMARY

FUTURE
RES. ADULT (RA)

LIFETIME EXCESS CANCER RISK

SCENARIO 1	SCENARIO 2	SCENARIO 3	SCENARIO 4	SCENARIO 5	SCENARIO 6
REC. AREA	0	0	0	0	0
AIR (PART)	0	0	0	0	0
INHALATION	0	0	0	0	0
(FROM WS1)	(FROM WS2)	(FROM WS3)	(FROM WS4)	(FROM WS5)	(FROM WS6)
NA	0E+00	0E+00	0E+00	0E+00	0E+00
NA					
NA					
NA					
NA					
NA					
NA					
NA					
NA					
5E-06					
NA					
0E+00					
1E-06					
8E-07					
1E-06					
NA					
8E-07					
1E-06					
NA					
NA					
0E+00					
0E+00					
NA					
NA					
NA					
0E+00					
1E-05					
1E-06					
NA					
NA					
NA					
NA					
NA					
7E-08					
NA					
NA					
NA					
NA					
NA					
NA					
3E-07					
NA					

43	Lead	3.2E-07		NA				
44	Manganese	2.5E-06		NA				
45	Mercury	0.0E+00		NA				
46	Methylene chlo	0.0E+00		0E+00				
47	2-Methylnaphth	3.5E-09		NA				
48	4-Methylphenol	0.0E+00		NA				
49	Naphthalene	4.9E-09		NA				
50	Nickel(dust)	3.2E-07		3E-07				
51	Nickel (salts)	0.0E+00		NA				
52	Nitrogen, ammo	3.0E-07		NA				
53	Phenanthrene	1.8E-07		NA				
54	Pyrene	1.8E-07		NA				
55	Silica	1.3E-07		NA				
56	Silver	0.0E+00		NA				
57	Sodium	2.3E-04		NA				
58	Sulfate	1.6E-06		NA				
59	Styrene	0.0E+00		0E+00				
60	1,1,2,2-PCA	0.0E+00		0E+00				
61	PCE	0.0E+00		0E+00				
62	Thallium	6.2E-09		NA				
63	Toluene	0.0E+00		NA				
64	1,1,1-TCA	0.0E+00		NA				
65	TCE	0.0E+00		NA				
66	Vanadium	2.4E-07		NA				
			TOTAL PATHWAY CANCER RISK	2E-05	0E+00	0E+00	0E+00	0E+00	0E+00
			POPULATION TOTAL EXCESS RISK	2E-05					

RANGE NAME: WS1

EXPOSURE AND RISK CALCULATION WORKSHEET

LAND USE: FUTURE
POPULATION: RES. ADULT (OR)

EXPOSURE POINT: OHIO RIVER
MEDIUM: SW
ROUTE: ORAL

HIFs = 0.0E+00
HIFc = 6.3E-06
HIFl = 6.3E-06

SITE NAME: ORMET
OPERABLE UNIT: FUTURE RESIDENT ADULT
FILE NAME: POP7
LAST UPDATED: 03/13/91

		SUBCHRONIC					CHRONIC						LIFETIME					
	CHEMICAL NAME	Cs	HIFs	1	DIs	RfDS	HQs	Cc	HIFc	1	DIc	RfDC	HQc	Cl	HIFl	1	DIl	SF	RISK
1	Acenaphthene		0.0E+00		0.0E+00		ERR	0.0E+00	6.3E-06	1	0.0E+00	6.0E-02	0E+00	0.0E+00	6.3E-06	1	0.0E+00	NA	NA
2	Acenaphthylene							0.0E+00	6.3E-06	1	0.0E+00	4.0E-01	0E+00	0.0E+00	6.3E-06	1	0.0E+00	NA	NA
3	Acetone							2.2E-02	6.3E-06	1	1.4E-07	1.0E-01	1E-06	2.2E-02	6.3E-06	1	1.4E-07	NA	NA
4	Aluminum							4.0E+00	6.3E-06	1	2.5E-05	NA	NA	4.0E+00	6.3E-06	1	2.5E-05	NA	NA
5	Anthracene							0.0E+00	6.3E-06	1	0.0E+00	3.0E-01	0E+00	0.0E+00	6.3E-06	1	0.0E+00	NA	NA
6	Antimony							5.0E-02	6.3E-06	1	3.2E-07	4.0E-04	8E-04	5.0E-02	6.3E-06	1	3.2E-07	NA	NA
7	Aroclor 1242							1.2E-03	6.3E-06	1	7.6E-09	NA	NA	1.2E-03	6.3E-06	1	7.6E-09	7.7E+00	6E-08
8	Aroclor 1248							0.0E+00	6.3E-06	1	0.0E+00	NA	NA	0.0E+00	6.3E-06	1	0.0E+00	7.7E+00	0E+00
9	Aroclor 1254							0.0E+00	6.3E-06	1	0.0E+00	NA	NA	0.0E+00	6.3E-06	1	0.0E+00	7.7E+00	0E+00
10	Arsenic							5.9E-03	6.3E-06	1	3.7E-08	1.0E-03	4E-05	5.9E-03	6.3E-06	1	3.7E-08	1.8E+00	7E-08
11	Barium							8.3E-02	6.3E-06	1	5.2E-07	7.0E-02	7E-06	8.3E-02	6.3E-06	1	5.2E-07	NA	NA
12	Benzene							0.0E+00	6.3E-06	1	0.0E+00	NA	NA	0.0E+00	6.3E-06	1	0.0E+00	2.9E-02	0E+00
13	Benzo(a)anthracene							0.0E+00	6.3E-06	1	0.0E+00	4.0E-01	0E+00	0.0E+00	6.3E-06	1	0.0E+00	1.2E+01	0E+00
14	Benzo(a)pyrene							0.0E+00	6.3E-06	1	0.0E+00	4.0E-01	0E+00	0.0E+00	6.3E-06	1	0.0E+00	1.2E+01	0E+00
15	Benzo(b)fluoranthene							0.0E+00	6.3E-06	1	0.0E+00	4.0E-01	0E+00	0.0E+00	6.3E-06	1	0.0E+00	1.2E+01	0E+00
16	Benzo(g,h,i)perylene							0.0E+00	6.3E-06	1	0.0E+00	4.0E-01	0E+00	0.0E+00	6.3E-06	1	0.0E+00	NA	NA
17	Benzo(k)fluoranthene							0.0E+00	6.3E-06	1	0.0E+00	4.0E-01	0E+00	0.0E+00	6.3E-06	1	0.0E+00	1.2E+01	0E+00
18	Beryllium							0.0E+00	6.3E-06	1	0.0E+00	5.0E-03	0E+00	0.0E+00	6.3E-06	1	0.0E+00	4.3E+00	0E+00
19	BEHP							0.0E+00	6.3E-06	1	0.0E+00	2.0E-02	0E+00	0.0E+00	6.3E-06	1	0.0E+00	1.4E-02	0E+00
20	2-Butanone							0.0E+00	6.3E-06	1	0.0E+00	5.0E-02	0E+00	0.0E+00	6.3E-06	1	0.0E+00	NA	NA
21	Cadmium (food)							0.0E+00	6.3E-06	1	0.0E+00	1.0E-03	0E+00	0.0E+00	6.3E-06	1	0.0E+00	NA	NA
22	Cadmium (water)							2.3E-03	6.3E-06	1	1.4E-08	5.0E-04	3E-05	2.3E-03	6.3E-06	1	1.4E-08	NA	NA
23	Carbon disulfide							0.0E+00	6.3E-06	1	0.0E+00	1.0E-01	0E+00	0.0E+00	6.3E-06	1	0.0E+00	NA	NA
24	Chloride							2.3E+01	6.3E-06	1	1.4E-04	NA	NA	2.3E+01	6.3E-06	1	1.4E-04	NA	NA
25	Chlorobenzene							0.0E+00	6.3E-06	1	0.0E+00	2.0E-02	0E+00	0.0E+00	6.3E-06	1	0.0E+00	NA	NA
26	Chloroform							0.0E+00	6.3E-06	1	0.0E+00	1.0E-02	0E+00	0.0E+00	6.3E-06	1	0.0E+00	6.1E-03	0E+00
27	Chromium (VI)							1.4E-02	6.3E-06	1	8.8E-08	5.0E-03	2E-05	1.4E-02	6.3E-06	1	8.8E-08	NA	NA
28	Chrysene							0.0E+00	6.3E-06	1	0.0E+00	4.0E-01	0E+00	0.0E+00	6.3E-06	1	0.0E+00	1.2E+01	0E+00
29	Cobalt							8.1E-03	6.3E-06	1	5.1E-08	NA	NA	8.1E-03	6.3E-06	1	5.1E-08	NA	NA
30	Copper							2.1E-02	6.3E-06	1	1.3E-07	3.7E-02	4E-06	2.1E-02	6.3E-06	1	1.3E-07	NA	NA
31	Cyanide (free)							5.6E-01	6.3E-06	1	3.5E-06	2.0E-02	2E-04	5.6E-01	6.3E-06	1	3.5E-06	NA	NA
32	Di-n-butylphthalate							0.0E+00	6.3E-06	1	0.0E+00	1.0E-01	0E+00	0.0E+00	6.3E-06	1	0.0E+00	NA	NA
33	Di-n-octylphthalate							0.0E+00	6.3E-06	1	0.0E+00	2.0E-02	0E+00	0.0E+00	6.3E-06	1	0.0E+00	NA	NA
34	Dibenz(a,h)anthracene							0.0E+00	6.3E-06	1	0.0E+00	4.0E-01	0E+00	0.0E+00	6.3E-06	1	0.0E+00	1.2E+01	0E+00
35	Dibenzofuran							0.0E+00	6.3E-06	1	0.0E+00	NA	NA	0.0E+00	6.3E-06	1	0.0E+00	NA	NA
36	2,4-Dimethylphenol							0.0E+00	6.3E-06	1	0.0E+00	2.0E-02	0E+00	0.0E+00	6.3E-06	1	0.0E+00	NA	NA
37	Ethyl benzene							0.0E+00	6.3E-06	1	0.0E+00	1.0E-01	0E+00	0.0E+00	6.3E-06	1	0.0E+00	NA	NA
38	Fluoranthene							0.0E+00	6.3E-06	1	0.0E+00	4.0E-02	0E+00	0.0E+00	6.3E-06	1	0.0E+00	NA	NA
39	Fluorene							0.0E+00	6.3E-06	1	0.0E+00	4.0E-02	0E+00	0.0E+00	6.3E-06	1	0.0E+00	NA	NA

40	Fluoride	4.3E+00	6.3E-06	1	2.7E-05	6.0E-02	5E-04	4.3E+00	6.3E-06	1	2.7E-05	NA	NA
41	Indeno(1,2,3-cd)pyrene	0.0E+00	6.3E-06	1	0.0E+00	4.0E-01	0E+00	0.0E+00	6.3E-06	1	0.0E+00	1.2E+01	0E+00
42	Iron	7.2E+00	6.3E-06	1	4.5E-05	NA	NA	7.2E+00	6.3E-06	1	4.5E-05	NA	NA
43	Lead	1.1E-02	6.3E-06	1	6.9E-08	NA	NA	1.1E-02	6.3E-06	1	6.9E-08	NA	NA
44	Manganese	6.9E-01	6.3E-06	1	4.3E-06	1.0E-01	4E-05	6.9E-01	6.3E-06	1	4.3E-06	NA	NA
45	Mercury	0.0E+00	6.3E-06	1	0.0E+00	3.0E-04	0E+00	0.0E+00	6.3E-06	1	0.0E+00	NA	NA
46	Methylene chloride	2.6E-03	6.3E-06	1	1.6E-08	6.0E-02	3E-07	2.6E-03	6.3E-06	1	1.6E-08	7.5E-03	1E-10
47	2-Methylnaphthalene	0.0E+00	6.3E-06	1	0.0E+00	4.0E-01	0E+00	0.0E+00	6.3E-06	1	0.0E+00	NA	NA
48	4-Methylphenol	0.0E+00	6.3E-06	1	0.0E+00	5.0E-02	0E+00	0.0E+00	6.3E-06	1	0.0E+00	NA	NA
49	Naphthalene	0.0E+00	6.3E-06	1	0.0E+00	4.0E-01	0E+00	0.0E+00	6.3E-06	1	0.0E+00	NA	NA
50	Nickel(dust)	0.0E+00	6.3E-06	1	0.0E+00	NA	NA	0.0E+00	6.3E-06	1	0.0E+00	NA	NA
51	Nickel (salts)	1.6E-02	6.3E-06	1	1.0E-07	2.0E-02	5E-06	1.6E-02	6.3E-06	1	1.0E-07	NA	NA
52	Nitrogen, ammonia	0.0E+00	6.3E-06	1	0.0E+00	NA	NA	0.0E+00	6.3E-06	1	0.0E+00	NA	NA
53	Phenanthrene	0.0E+00	6.3E-06	1	0.0E+00	4.0E-01	0E+00	0.0E+00	6.3E-06	1	0.0E+00	NA	NA
54	Pyrene	0.0E+00	6.3E-06	1	0.0E+00	3.0E-02	0E+00	0.0E+00	6.3E-06	1	0.0E+00	NA	NA
55	Silica	7.2E+00	6.3E-06	1	4.5E-05	NA	NA	7.2E+00	6.3E-06	1	4.5E-05	NA	NA
56	Silver	0.0E+00	6.3E-06	1	0.0E+00	3.0E-03	0E+00	0.0E+00	6.3E-06	1	0.0E+00	NA	NA
57	Sodium	6.5E+01	6.3E-06	1	4.1E-04	NA	NA	6.5E+01	6.3E-06	1	4.1E-04	NA	NA
58	Sulfate	1.1E+02	6.3E-06	1	6.9E-04	NA	NA	1.1E+02	6.3E-06	1	6.9E-04	NA	NA
59	Styrene	0.0E+00	6.3E-06	1	0.0E+00	2.0E-01	0E+00	0.0E+00	6.3E-06	1	0.0E+00	3.0E-02	0E+00
60	1,1,2,2-PCA	0.0E+00	6.3E-06	1	0.0E+00	NA	NA	0.0E+00	6.3E-06	1	0.0E+00	2.0E-01	0E+00
61	PCE	0.0E+00	6.3E-06	1	0.0E+00	1.0E-02	0E+00	0.0E+00	6.3E-06	1	0.0E+00	5.1E-02	0E+00
62	Thallium	0.0E+00	6.3E-06	1	0.0E+00	7.0E-05	0E+00	0.0E+00	6.3E-06	1	0.0E+00	NA	NA
63	Toluene	0.0E+00	6.3E-06	1	0.0E+00	2.0E-01	0E+00	0.0E+00	6.3E-06	1	0.0E+00	NA	NA
64	1,1,1-TCA	0.0E+00	6.3E-06	1	0.0E+00	9.0E-02	0E+00	0.0E+00	6.3E-06	1	0.0E+00	NA	NA
65	TCE	0.0E+00	6.3E-06	1	0.0E+00	NA	NA	0.0E+00	6.3E-06	1	0.0E+00	1.1E-02	0E+00
66	Vanadium	0.0E+00	6.3E-06	1	0.0E+00	7.0E-03	0E+00	0.0E+00	6.3E-06	1	0.0E+00	NA	NA

RANGE NAME: WS2

EXPOSURE AND RISK CALCULATION WORKSHEET

LAND USE: FUTURE
POPULATION: RES. ADULT (OR)

EXPOSURE POINT: OHIO RIVER
MEDIUM: SW
ROUTE: DERMAL

HIFs = 0.0E+00
HIFc = 4.0E-06
HIF1 = 4.0E-06

SITE NAME: ORMET
OPERABLE UNIT: FUTURE RESIDENT ADULT
FILE NAME: POP7
LAST UPDATED: 03/13/91

		SUBCHRONIC					CHRONIC						LIFETIME					
	CHEMICAL NAME	Cs	HIFs	ABS	DIs	RfDS	HQs	Cc	HIFc	ABS	DIc	RfDC	HQc	C1	HIF1	ABS	DI1	SF	RISK
1	Acenaphthene		0.0E+00		0.0E+00		ERR	0.0E+00	4.0E-06	1.0E-01	0.0E+00	NA	NA	0.0E+00	4.0E-06	1.0E-01	0.0E+00	NA	NA
2	Acenaphthylene							0.0E+00	4.0E-06	NA	NA	NA	NA	0.0E+00	4.0E-06	NA	NA	NA	NA
3	Acetone							2.2E-02	4.0E-06	2.5E-01	2.2E-08	1.0E-01	2E-07	2.2E-02	4.0E-06	2.5E-01	2.2E-08	NA	NA
4	Aluminum							4.0E+00	4.0E-06	NA	NA	NA	NA	4.0E+00	4.0E-06	NA	NA	NA	NA
5	Anthracene							0.0E+00	4.0E-06	NA	NA	NA	NA	0.0E+00	4.0E-06	NA	NA	NA	NA
6	Antimony							5.0E-02	4.0E-06	NA	NA	NA	NA	5.0E-02	4.0E-06	NA	NA	NA	NA
7	Aroclor 1242							1.2E-03	4.0E-06	1.0E-01	4.8E-10	NA	NA	1.2E-03	4.0E-06	1.0E-01	4.8E-10	7.7E+00	4E-09
8	Aroclor 1248							0.0E+00	4.0E-06	1.0E-01	0.0E+00	NA	NA	0.0E+00	4.0E-06	1.0E-01	0.0E+00	7.7E+00	0E+00
9	Aroclor 1254							0.0E+00	4.0E-06	1.0E-01	0.0E+00	NA	NA	0.0E+00	4.0E-06	1.0E-01	0.0E+00	7.7E+00	0E+00
10	Arsenic							5.9E-03	4.0E-06	NA	NA	NA	NA	5.9E-03	4.0E-06	NA	NA	NA	NA
11	Barium							8.3E-02	4.0E-06	NA	NA	NA	NA	8.3E-02	4.0E-06	NA	NA	NA	NA
12	Benzene							0.0E+00	4.0E-06	2.5E-01	0.0E+00	NA	NA	0.0E+00	4.0E-06	2.5E-01	0.0E+00	2.9E-02	0E+00
13	Benzo(a)anthracene							0.0E+00	4.0E-06	NA	NA	NA	NA	0.0E+00	4.0E-06	NA	NA	NA	NA
14	Benzo(a)pyrene							0.0E+00	4.0E-06	NA	NA	NA	NA	0.0E+00	4.0E-06	NA	NA	NA	NA
15	Benzo(b)fluoranthene							0.0E+00	4.0E-06	NA	NA	NA	NA	0.0E+00	4.0E-06	NA	NA	NA	NA
16	Benzo(g,h,i)perylene							0.0E+00	4.0E-06	NA	NA	NA	NA	0.0E+00	4.0E-06	NA	NA	NA	NA
17	Benzo(k)fluoranthene							0.0E+00	4.0E-06	NA	NA	NA	NA	0.0E+00	4.0E-06	NA	NA	NA	NA
18	Beryllium							0.0E+00	4.0E-06	NA	NA	NA	NA	0.0E+00	4.0E-06	NA	NA	NA	NA
19	BEHP							0.0E+00	4.0E-06	1.0E-01	0.0E+00	2.0E-02	0E+00	0.0E+00	4.0E-06	1.0E-01	0.0E+00	1.4E-02	0E+00
20	2-Butanone							0.0E+00	4.0E-06	2.5E-01	0.0E+00	5.0E-02	0E+00	0.0E+00	4.0E-06	2.5E-01	0.0E+00	NA	NA
21	Cadmium (food)							0.0E+00	4.0E-06	NA	NA	NA	NA	0.0E+00	4.0E-06	NA	NA	NA	NA
22	Cadmium (water)							2.3E-03	4.0E-06	NA	NA	NA	NA	2.3E-03	4.0E-06	NA	NA	NA	NA
23	Carbon disulfide							0.0E+00	4.0E-06	2.5E-01	0.0E+00	1.0E-01	0E+00	0.0E+00	4.0E-06	2.5E-01	0.0E+00	NA	NA
24	Chloride							2.3E+01	4.0E-06	NA	NA	NA	NA	2.3E+01	4.0E-06	NA	NA	NA	NA
25	Chlorobenzene							0.0E+00	4.0E-06	2.5E-01	0.0E+00	2.0E-02	0E+00	0.0E+00	4.0E-06	2.5E-01	0.0E+00	NA	NA
26	Chloroform							0.0E+00	4.0E-06	2.5E-01	0.0E+00	1.0E-02	0E+00	0.0E+00	4.0E-06	2.5E-01	0.0E+00	6.1E-03	0E+00
27	Chromium (VI)							1.4E-02	4.0E-06	NA	NA	NA	NA	1.4E-02	4.0E-06	NA	NA	NA	NA
28	Chrysene							0.0E+00	4.0E-06	NA	NA	4.0E-01	NA	0.0E+00	4.0E-06	NA	NA	1.2E+01	NA
29	Cobalt							8.1E-03	4.0E-06	NA	NA	NA	NA	8.1E-03	4.0E-06	NA	NA	NA	NA
30	Copper							2.1E-02	4.0E-06	NA	NA	NA	NA	2.1E-02	4.0E-06	NA	NA	NA	NA
31	Cyanide (free)							5.6E-01	4.0E-06	NA	NA	NA	NA	5.6E-01	4.0E-06	NA	NA	NA	NA
32	Di-n-butylphthalate							0.0E+00	4.0E-06	1.0E-01	0.0E+00	1.0E-01	0E+00	0.0E+00	4.0E-06	1.0E-01	0.0E+00	NA	NA
33	Di-n-octylphthalate							0.0E+00	4.0E-06	1.0E-01	0.0E+00	2.0E-02	0E+00	0.0E+00	4.0E-06	1.0E-01	0.0E+00	NA	NA
34	Dibenz(a,h)anthracene							0.0E+00	4.0E-06	NA	NA	NA	NA	0.0E+00	4.0E-06	NA	NA	NA	NA
35	Dibenzofuran							0.0E+00	4.0E-06	1.0E-01	0.0E+00	NA	NA	0.0E+00	4.0E-06	1.0E-01	0.0E+00	NA	NA
36	2,4-Dimethylphenol							0.0E+00	4.0E-06	1.0E-01	0.0E+00	2.0E-02	0E+00	0.0E+00	4.0E-06	1.0E-01	0.0E+00	NA	NA
37	Ethyl benzene							0.0E+00	4.0E-06	2.5E-01	0.0E+00	1.0E-01	0E+00	0.0E+00	4.0E-06	2.5E-01	0.0E+00	NA	NA
38	Fluoranthene							0.0E+00	4.0E-06	NA	NA	NA	NA	0.0E+00	4.0E-06	NA	NA	NA	NA
39	Fluorene							0.0E+00	4.0E-06	NA	NA	NA	NA	0.0E+00	4.0E-06	NA	NA	NA	NA

40	Fluoride	4.3E+00	4.0E-06	NA	NA	NA	NA	4.3E+00	4.0E-06	NA	NA	NA	NA
41	Indeno(1,2,3-cd)pyrene	0.0E+00	4.0E-06	NA	NA	NA	NA	0.0E+00	4.0E-06	NA	NA	NA	NA
42	Iron	7.2E+00	4.0E-06	NA	NA	NA	NA	7.2E+00	4.0E-06	NA	NA	NA	NA
43	Lead	1.1E-02	4.0E-06	NA	NA	NA	NA	1.1E-02	4.0E-06	NA	NA	NA	NA
44	Manganese	6.9E-01	4.0E-06	NA	NA	NA	NA	6.9E-01	4.0E-06	NA	NA	NA	NA
45	Mercury	0.0E+00	4.0E-06	NA	NA	NA	NA	0.0E+00	4.0E-06	NA	NA	NA	NA
46	Methylene chloride	2.6E-03	4.0E-06	2.5E-01	2.6E-09	6.0E-02	4E-08	2.6E-03	4.0E-06	2.5E-01	2.6E-09	7.5E-03	2E-11
47	2-Methylnaphthalene	0.0E+00	4.0E-06	NA	NA	NA	NA	0.0E+00	4.0E-06	NA	NA	NA	NA
48	4-Methylphenol	0.0E+00	4.0E-06	1.0E-01	0.0E+00	5.0E-02	0E+00	0.0E+00	4.0E-06	1.0E-01	0.0E+00	NA	NA
49	Naphthalene	0.0E+00	4.0E-06	NA	NA	NA	NA	0.0E+00	4.0E-06	NA	NA	NA	NA
50	Nickel(dust)	0.0E+00	4.0E-06	NA	NA	NA	NA	0.0E+00	4.0E-06	NA	NA	NA	NA
51	Nickel (salts)	1.6E-02	4.0E-06	NA	NA	NA	NA	1.6E-02	4.0E-06	NA	NA	NA	NA
52	Nitrogen, ammonia	0.0E+00	4.0E-06	NA	NA	NA	NA	0.0E+00	4.0E-06	NA	NA	NA	NA
53	Phenanthrene	0.0E+00	4.0E-06	NA	NA	NA	NA	0.0E+00	4.0E-06	NA	NA	NA	NA
54	Pyrene	0.0E+00	4.0E-06	NA	NA	NA	NA	0.0E+00	4.0E-06	NA	NA	NA	NA
55	Silica	7.2E+00	4.0E-06	NA	NA	NA	NA	7.2E+00	4.0E-06	NA	NA	NA	NA
56	Silver	0.0E+00	4.0E-06	NA	NA	NA	NA	0.0E+00	4.0E-06	NA	NA	NA	NA
57	Sodium	6.5E+01	4.0E-06	NA	NA	NA	NA	6.5E+01	4.0E-06	NA	NA	NA	NA
58	Sulfate	1.1E+02	4.0E-06	NA	NA	NA	NA	1.1E+02	4.0E-06	NA	NA	NA	NA
59	Styrene	0.0E+00	4.0E-06	2.5E-01	0.0E+00	2.0E-01	0E+00	0.0E+00	4.0E-06	2.5E-01	0.0E+00	3.0E-02	0E+00
60	1,1,2,2-PCA	0.0E+00	4.0E-06	2.5E-01	0.0E+00	NA	NA	0.0E+00	4.0E-06	2.5E-01	0.0E+00	2.0E-01	0E+00
61	PCE	0.0E+00	4.0E-06	2.5E-01	0.0E+00	1.0E-02	0E+00	0.0E+00	4.0E-06	2.5E-01	0.0E+00	5.1E-02	0E+00
62	Thallium	0.0E+00	4.0E-06	NA	NA	NA	NA	0.0E+00	4.0E-06	NA	NA	NA	NA
63	Toluene	0.0E+00	4.0E-06	2.5E-01	0.0E+00	2.0E-01	0E+00	0.0E+00	4.0E-06	2.5E-01	0.0E+00	NA	NA
64	1,1,1-TCA	0.0E+00	4.0E-06	2.5E-01	0.0E+00	9.0E-02	0E+00	0.0E+00	4.0E-06	2.5E-01	0.0E+00	NA	NA
65	TCE	0.0E+00	4.0E-06	2.5E-01	0.0E+00	NA	NA	0.0E+00	4.0E-06	2.5E-01	0.0E+00	1.1E-02	0E+00
66	Vanadium	0.0E+00	4.0E-06	NA	NA	NA	NA	0.0E+00	4.0E-06	NA	NA	NA	NA

RANGE NAME: WS3

EXPOSURE AND RISK CALCULATION WORKSHEET

SITE NAME: ORMET
OPERABLE UNIT: FUTURE RESIDENT ADULT
FILE NAME: POP7
LAST UPDATED: 03/13/91

LAND USE: FUTURE
POPULATION: RES. ADULT (OR)

EXPOSURE POINT: OHIO RIVER
MEDIUM: SEDIMENT
ROUTE: ORAL

HIFs = 0.0E+00
HIFc = 6.3E-09
HIFl = 6.3E-09

		SUBCHRONIC					CHRONIC						LIFETIME					
	CHEMICAL NAME	Cs	HIFs	1	DIs	RfDS	HQs	Cc	HIFc	1	DIc	RfDC	HQc	Cl	HIFl	1	DIl	SF	RISK
1	Acenaphthene		0.0E+00		0.0E+00		ERR	1.7E+00	6.3E-09	1	1.1E-08	6.0E-02	2E-07	1.7E+00	6.3E-09	1	1.1E-08	NA	NA
2	Acenaphthylene							1.8E-01	6.3E-09	1	1.1E-09	4.0E-01	3E-09	1.8E-01	6.3E-09	1	1.1E-09	NA	NA
3	Acetone							0.0E+00	6.3E-09	1	0.0E+00	1.0E-01	0E+00	0.0E+00	6.3E-09	1	0.0E+00	NA	NA
4	Aluminum							1.4E+04	6.3E-09	1	8.8E-05	NA	NA	1.4E+04	6.3E-09	1	8.8E-05	NA	NA
5	Anthracene							7.5E-01	6.3E-09	1	4.7E-09	3.0E-01	2E-08	7.5E-01	6.3E-09	1	4.7E-09	NA	NA
6	Antimony							0.0E+00	6.3E-09	1	0.0E+00	4.0E-04	0E+00	0.0E+00	6.3E-09	1	0.0E+00	NA	NA
7	Aroclor 1242							0.0E+00	6.3E-09	1	0.0E+00	NA	NA	0.0E+00	6.3E-09	1	0.0E+00	7.7E+00	0E+00
8	Aroclor 1248							2.0E+00	6.3E-09	1	1.3E-08	NA	NA	2.0E+00	6.3E-09	1	1.3E-08	7.7E+00	1.0E-0
9	Aroclor 1254							0.0E+00	6.3E-09	1	0.0E+00	NA	NA	0.0E+00	6.3E-09	1	0.0E+00	7.7E+00	0E+00
10	Arsenic							1.1E+01	6.3E-09	1	6.9E-08	1.0E-03	7E-05	1.1E+01	6.3E-09	1	6.9E-08	1.8E+00	1E-07
11	Barium							1.8E+02	6.3E-09	1	1.1E-06	7.0E-02	2E-05	1.8E+02	6.3E-09	1	1.1E-06	NA	NA
12	Benzene							2.1E-02	6.3E-09	1	1.3E-10	NA	NA	2.1E-02	6.3E-09	1	1.3E-10	2.9E-02	4E-12
13	Benzo(a)anthracene							3.1E+00	6.3E-09	1	2.0E-08	4.0E-01	5E-08	3.1E+00	6.3E-09	1	2.0E-08	1.2E+01	2E-07
14	Benzo(a)pyrene							3.2E+00	6.3E-09	1	2.0E-08	4.0E-01	5E-08	3.2E+00	6.3E-09	1	2.0E-08	1.2E+01	2E-07
15	Benzo(b)fluoranthene							4.5E+00	6.3E-09	1	2.8E-08	4.0E-01	7E-08	4.5E+00	6.3E-09	1	2.8E-08	1.2E+01	3E-07
16	Benzo(g,h,i)perylene							2.7E+00	6.3E-09	1	1.7E-08	4.0E-01	4E-08	2.7E+00	6.3E-09	1	1.7E-08	NA	NA
17	Benzo(k)fluoranthene							2.5E+00	6.3E-09	1	1.6E-08	4.0E-01	4E-08	2.5E+00	6.3E-09	1	1.6E-08	1.2E+01	2E-07
18	Beryllium							2.1E+00	6.3E-09	1	1.3E-08	5.0E-03	3E-06	2.1E+00	6.3E-09	1	1.3E-08	4.3E+00	6E-08
19	BEHP							3.3E-01	6.3E-09	1	2.1E-09	2.0E-02	1E-07	3.3E-01	6.3E-09	1	2.1E-09	1.4E-02	3E-11
20	2-Butanone							1.0E-01	6.3E-09	1	6.3E-10	5.0E-02	1E-08	1.0E-01	6.3E-09	1	6.3E-10	NA	NA
21	Cadmium (food)							2.1E+00	6.3E-09	1	1.3E-08	1.0E-03	1E-05	2.1E+00	6.3E-09	1	1.3E-08	NA	NA
22	Cadmium (water)							0.0E+00	6.3E-09	1	0.0E+00	5.0E-04	0E+00	0.0E+00	6.3E-09	1	0.0E+00	NA	NA
23	Carbon disulfide							0.0E+00	6.3E-09	1	0.0E+00	1.0E-01	0E+00	0.0E+00	6.3E-09	1	0.0E+00	NA	NA
24	Chloride							2.8E+02	6.3E-09	1	1.8E-06	NA	NA	2.8E+02	6.3E-09	1	1.8E-06	NA	NA
25	Chlorobenzene							0.0E+00	6.3E-09	1	0.0E+00	2.0E-02	0E+00	0.0E+00	6.3E-09	1	0.0E+00	NA	NA
26	Chloroform							7.0E-03	6.3E-09	1	4.4E-11	1.0E-02	4E-09	7.0E-03	6.3E-09	1	4.4E-11	6.1E-03	3E-13
27	Chromium (VI)							6.0E+01	6.3E-09	1	3.8E-07	5.0E-03	8E-05	6.0E+01	6.3E-09	1	3.8E-07	NA	NA
28	Chrysene							3.9E+00	6.3E-09	1	2.5E-08	4.0E-01	6E-08	3.9E+00	6.3E-09	1	2.5E-08	1.2E+01	3E-07
29	Cobalt							3.5E+01	6.3E-09	1	2.2E-07	NA	NA	3.5E+01	6.3E-09	1	2.2E-07	NA	NA
30	Copper							7.1E+01	6.3E-09	1	4.5E-07	3.7E-02	1E-05	7.1E+01	6.3E-09	1	4.5E-07	NA	NA
31	Cyanide (free)							1.9E+00	6.3E-09	1	1.2E-08	2.0E-02	6E-07	1.9E+00	6.3E-09	1	1.2E-08	NA	NA
32	Di-n-butylphthalate							5.8E-02	6.3E-09	1	3.7E-10	1.0E-01	4E-09	5.8E-02	6.3E-09	1	3.7E-10	NA	NA
33	Di-n-octylphthalate							0.0E+00	6.3E-09	1	0.0E+00	2.0E-02	0E+00	0.0E+00	6.3E-09	1	0.0E+00	NA	NA
34	Dibenz(a,h)anthracene							7.3E-01	6.3E-09	1	4.6E-09	4.0E-01	1E-08	7.3E-01	6.3E-09	1	4.6E-09	1.2E+01	6E-08
35	Dibenzofuran							2.2E-01	6.3E-09	1	1.4E-09	NA	NA	2.2E-01	6.3E-09	1	1.4E-09	NA	NA
36	2,4-Dimethylphenol							0.0E+00	6.3E-09	1	0.0E+00	2.0E-02	0E+00	0.0E+00	6.3E-09	1	0.0E+00	NA	NA
37	Ethyl benzene							0.0E+00	6.3E-09	1	0.0E+00	1.0E-01	0E+00	0.0E+00	6.3E-09	1	0.0E+00	NA	NA
38	Fluoranthene							4.4E+00	6.3E-09	1	2.8E-08	4.0E-02	7E-07	4.4E+00	6.3E-09	1	2.8E-08	NA	NA
39	Fluorene							2.9E-01	6.3E-09	1	1.8E-09	4.0E-02	5E-08	2.9E-01	6.3E-09	1	1.8E-09	NA	NA

40	Fluoride	1.6E+01	6.3E-09	1	1.0E-07	6.0E-02	2E-06	1.6E+01	6.3E-09	1	1.0E-07	NA	NA
41	Indeno(1,2,3-cd)pyrene	1.4E+00	6.3E-09	1	8.8E-09	4.0E-01	2E-08	1.4E+00	6.3E-09	1	8.8E-09	1.2E+01	1E-07
42	Iron	4.8E+04	6.3E-09	1	3.0E-04	NA	NA	4.8E+04	6.3E-09	1	3.0E-04	NA	NA
43	Lead	1.1E+02	6.3E-09	1	6.9E-07	NA	NA	1.1E+02	6.3E-09	1	6.9E-07	NA	NA
44	Manganese	1.6E+03	6.3E-09	1	1.0E-05	1.0E-01	1E-04	1.6E+03	6.3E-09	1	1.0E-05	NA	NA
45	Mercury	4.2E-01	6.3E-09	1	2.6E-09	3.0E-04	9E-06	4.2E-01	6.3E-09	1	2.6E-09	NA	NA
46	Methylene chloride	3.8E-02	6.3E-09	1	2.4E-10	6.0E-02	4E-09	3.8E-02	6.3E-09	1	2.4E-10	7.5E-03	2E-12
47	2-Methylnaphthalene	2.5E-01	6.3E-09	1	1.6E-09	4.0E-01	4E-09	2.5E-01	6.3E-09	1	1.6E-09	NA	NA
48	4-Methylphenol	0.0E+00	6.3E-09	1	0.0E+00	5.0E-02	0E+00	0.0E+00	6.3E-09	1	0.0E+00	NA	NA
49	Naphthalene	3.3E-01	6.3E-09	1	2.1E-09	4.0E-01	5E-09	3.3E-01	6.3E-09	1	2.1E-09	NA	NA
50	Nickel(dust)	0.0E+00	6.3E-09	1	0.0E+00	NA	NA	0.0E+00	6.3E-09	1	0.0E+00	NA	NA
51	Nickel (salts)	7.7E+01	6.3E-09	1	4.9E-07	2.0E-02	2E-05	7.7E+01	6.3E-09	1	4.9E-07	NA	NA
52	Nitrogen, ammonia	9.1E+01	6.3E-09	1	5.7E-07	NA	NA	9.1E+01	6.3E-09	1	5.7E-07	NA	NA
53	Phenanthrene	2.0E+00	6.3E-09	1	1.3E-08	4.0E-01	3E-08	2.0E+00	6.3E-09	1	1.3E-08	NA	NA
54	Pyrene	4.3E+00	6.3E-09	1	2.7E-08	3.0E-02	9E-07	4.3E+00	6.3E-09	1	2.7E-08	NA	NA
55	Silica	3.5E+01	6.3E-09	1	2.2E-07	NA	NA	3.5E+01	6.3E-09	1	2.2E-07	NA	NA
56	Silver	0.0E+00	6.3E-09	1	0.0E+00	3.0E-03	0E+00	0.0E+00	6.3E-09	1	0.0E+00	NA	NA
57	Sodium	4.6E+02	6.3E-09	1	2.9E-06	NA	NA	4.6E+02	6.3E-09	1	2.9E-06	NA	NA
58	Sulfate	4.5E+01	6.3E-09	1	2.8E-07	NA	NA	4.5E+01	6.3E-09	1	2.8E-07	NA	NA
59	Styrene	0.0E+00	6.3E-09	1	0.0E+00	2.0E-01	0E+00	0.0E+00	6.3E-09	1	0.0E+00	3.0E-02	0E+00
60	1,1,2,2-PCA	0.0E+00	6.3E-09	1	0.0E+00	NA	NA	0.0E+00	6.3E-09	1	0.0E+00	2.0E-01	0E+00
61	PCE	0.0E+00	6.3E-09	1	0.0E+00	1.0E-02	0E+00	0.0E+00	6.3E-09	1	0.0E+00	5.1E-02	0E+00
62	Thallium	0.0E+00	6.3E-09	1	0.0E+00	7.0E-05	0E+00	0.0E+00	6.3E-09	1	0.0E+00	NA	NA
63	Toluene	0.0E+00	6.3E-09	1	0.0E+00	2.0E-01	0E+00	0.0E+00	6.3E-09	1	0.0E+00	NA	NA
64	1,1,1-TCA	0.0E+00	6.3E-09	1	0.0E+00	9.0E-02	0E+00	0.0E+00	6.3E-09	1	0.0E+00	NA	NA
65	TCE	0.0E+00	6.3E-09	1	0.0E+00	NA	NA	0.0E+00	6.3E-09	1	0.0E+00	1.1E-02	0E+00
66	Vanadium	1.8E+01	6.3E-09	1	1.1E-07	7.0E-03	2E-05	1.8E+01	6.3E-09	1	1.1E-07	NA	NA

RANGE NAME: WS4

SITE NAME: ORMET
OPERABLE UNIT: FUTURE RESIDENT ADULT
FILE NAME: POP7
LAST UPDATED: 03/13/91

EXPOSURE AND RISK CALCULATION WORKSHEET

LAND USE: FUTURE
POPULATION: RES. ADULT (OR)

EXPOSURE POINT: OHIO RIVER
MEDIUM: SEDIMENT
ROUTE: DERMAL

HIFs = 0.0E+00
HIFc = 1.0E-05
HIFl = 1.0E-05

		SUBCHRONIC					CHRONIC						LIFETIME					
	CHEMICAL NAME	Cs	HIFs	ABS	DIs	RfDS	HQs	Cc	HIFc	ABS	DIc	RfDC	HQc	Cl	HIFl	ABS	DIl	SF	RISK
1	Acenaphthene		0.0E+00		0.0E+00		ERR	1.7E+00	1.0E-05	1.0E-01	1.7E-06	NA	NA	1.7E+00	1.0E-05	1.0E-01	1.7E-06	NA	NA
2	Acenaphthylene							1.8E-01	1.0E-05	NA	NA	NA	NA	1.8E-01	1.0E-05	NA	NA	NA	NA
3	Acetone							0.0E+00	1.0E-05	2.5E-01	0.0E+00	1.0E-01	0E+00	0.0E+00	1.0E-05	2.5E-01	0.0E+00	NA	NA
4	Aluminum							1.4E+04	1.0E-05	NA	NA	NA	NA	1.4E+04	1.0E-05	NA	NA	NA	NA
5	Anthracene							7.5E-01	1.0E-05	NA	NA	NA	NA	7.5E-01	1.0E-05	NA	NA	NA	NA
6	Antimony							0.0E+00	1.0E-05	NA	NA	NA	NA	0.0E+00	1.0E-05	NA	NA	NA	NA
7	Aroclor 1242							0.0E+00	1.0E-05	1.0E-01	0.0E+00	NA	NA	0.0E+00	1.0E-05	1.0E-01	0.0E+00	7.7E+00	0E+00
8	Aroclor 1248							2.0E+00	1.0E-05	1.0E-01	2.0E-06	NA	NA	2.0E+00	1.0E-05	1.0E-01	2.0E-06	7.7E+00	2E-05
9	Aroclor 1254							0.0E+00	1.0E-05	1.0E-01	0.0E+00	NA	NA	0.0E+00	1.0E-05	1.0E-01	0.0E+00	7.7E+00	0E+00
10	Arsenic							1.1E+01	1.0E-05	NA	NA	NA	NA	1.1E+01	1.0E-05	NA	NA	NA	NA
11	Barium							1.8E+02	1.0E-05	NA	NA	NA	NA	1.8E+02	1.0E-05	NA	NA	NA	NA
12	Benzene							2.1E-02	1.0E-05	2.5E-01	5.3E-08	NA	NA	2.1E-02	1.0E-05	2.5E-01	5.3E-08	2.9E-02	2E-09
13	Benzo(a)anthracene							3.1E+00	1.0E-05	NA	NA	NA	NA	3.1E+00	1.0E-05	NA	NA	NA	NA
14	Benzo(a)pyrene							3.2E+00	1.0E-05	NA	NA	NA	NA	3.2E+00	1.0E-05	NA	NA	NA	NA
15	Benzo(b)fluoranthene							4.5E+00	1.0E-05	NA	NA	NA	NA	4.5E+00	1.0E-05	NA	NA	NA	NA
16	Benzo(g,h,i)perylene							2.7E+00	1.0E-05	NA	NA	NA	NA	2.7E+00	1.0E-05	NA	NA	NA	NA
17	Benzo(k)fluoranthene							2.5E+00	1.0E-05	NA	NA	NA	NA	2.5E+00	1.0E-05	NA	NA	NA	NA
18	Beryllium							2.1E+00	1.0E-05	NA	NA	NA	NA	2.1E+00	1.0E-05	NA	NA	NA	NA
19	BEHP							3.3E-01	1.0E-05	1.0E-01	3.3E-07	2.0E-02	2E-05	3.3E-01	1.0E-05	1.0E-01	3.3E-07	1.4E-02	5E-09
20	2-Butanone							1.0E-01	1.0E-05	2.5E-01	2.5E-07	5.0E-02	5E-06	1.0E-01	1.0E-05	2.5E-01	2.5E-07	NA	NA
21	Cadmium (food)							2.1E+00	1.0E-05	NA	NA	NA	NA	2.1E+00	1.0E-05	NA	NA	NA	NA
22	Cadmium (water)							0.0E+00	1.0E-05	NA	NA	NA	NA	0.0E+00	1.0E-05	NA	NA	NA	NA
23	Carbon disulfide							0.0E+00	1.0E-05	2.5E-01	0.0E+00	1.0E-01	0E+00	0.0E+00	1.0E-05	2.5E-01	0.0E+00	NA	NA
24	Chloride							2.8E+02	1.0E-05	NA	NA	NA	NA	2.8E+02	1.0E-05	NA	NA	NA	NA
25	Chlorobenzene							0.0E+00	1.0E-05	2.5E-01	0.0E+00	2.0E-02	0E+00	0.0E+00	1.0E-05	2.5E-01	0.0E+00	NA	NA
26	Chloroform							7.0E-03	1.0E-05	2.5E-01	1.8E-08	1.0E-02	2E-06	7.0E-03	1.0E-05	2.5E-01	1.8E-08	6.1E-03	1E-10
27	Chromium (VI)							6.0E+01	1.0E-05	NA	NA	NA	NA	6.0E+01	1.0E-05	NA	NA	NA	NA
28	Chrysene							3.9E+00	1.0E-05	NA	NA	4.0E-01	NA	3.9E+00	1.0E-05	NA	NA	1.2E+01	NA
29	Cobalt							3.5E+01	1.0E-05	NA	NA	NA	NA	3.5E+01	1.0E-05	NA	NA	NA	NA
30	Copper							7.1E+01	1.0E-05	NA	NA	NA	NA	7.1E+01	1.0E-05	NA	NA	NA	NA
31	Cyanide (free)							1.9E+00	1.0E-05	NA	NA	NA	NA	1.9E+00	1.0E-05	NA	NA	NA	NA
32	Di-n-butylphthalate							5.8E-02	1.0E-05	1.0E-01	5.8E-08	1.0E-01	6E-07	5.8E-02	1.0E-05	1.0E-01	5.8E-08	NA	NA
33	Di-n-octylphthalate							0.0E+00	1.0E-05	1.0E-01	0.0E+00	2.0E-02	0E+00	0.0E+00	1.0E-05	1.0E-01	0.0E+00	NA	NA
34	Dibenz(a,h)anthracene							7.3E-01	1.0E-05	NA	NA	NA	NA	7.3E-01	1.0E-05	NA	NA	NA	NA
35	Dibenzofuran							2.2E-01	1.0E-05	1.0E-01	2.2E-07	NA	NA	2.2E-01	1.0E-05	1.0E-01	2.2E-07	NA	NA
36	2,4-Dimethylphenol							0.0E+00	1.0E-05	1.0E-01	0.0E+00	2.0E-02	0E+00	0.0E+00	1.0E-05	1.0E-01	0.0E+00	NA	NA
37	Ethyl benzene							0.0E+00	1.0E-05	2.5E-01	0.0E+00	1.0E-01	0E+00	0.0E+00	1.0E-05	2.5E-01	0.0E+00	NA	NA
38	Fluoranthene							4.4E+00	1.0E-05	NA	NA	NA	NA	4.4E+00	1.0E-05	NA	NA	NA	NA
39	Fluorene							2.9E-01	1.0E-05	NA	NA	NA	NA	2.9E-01	1.0E-05	NA	NA	NA	NA

40	Fluoride	1.6E+01	1.0E-05	NA	NA	NA	NA	1.6E+01	1.0E-05	NA	NA	NA	NA
41	Indeno(1,2,3-cd)pyrene	1.4E+00	1.0E-05	NA	NA	NA	NA	1.4E+00	1.0E-05	NA	NA	NA	NA
42	Iron	4.8E+04	1.0E-05	NA	NA	NA	NA	4.8E+04	1.0E-05	NA	NA	NA	NA
43	Lead	1.1E+02	1.0E-05	NA	NA	NA	NA	1.1E+02	1.0E-05	NA	NA	NA	NA
44	Manganese	1.6E+03	1.0E-05	NA	NA	NA	NA	1.6E+03	1.0E-05	NA	NA	NA	NA
45	Mercury	4.2E-01	1.0E-05	NA	NA	NA	NA	4.2E-01	1.0E-05	NA	NA	NA	NA
46	Methylene chloride	3.8E-02	1.0E-05	2.5E-01	9.5E-08	6.0E-02	2E-06	3.8E-02	1.0E-05	2.5E-01	9.5E-08	7.5E-03	7E-10
47	2-Methylnaphthalene	2.5E-01	1.0E-05	NA	NA	NA	NA	2.5E-01	1.0E-05	NA	NA	NA	NA
48	4-Methylphenol	0.0E+00	1.0E-05	1.0E-01	0.0E+00	5.0E-02	0E+00	0.0E+00	1.0E-05	1.0E-01	0.0E+00	NA	NA
49	Naphthalene	3.3E-01	1.0E-05	NA	NA	NA	NA	3.3E-01	1.0E-05	NA	NA	NA	NA
50	Nickel(dust)	0.0E+00	1.0E-05	NA	NA	NA	NA	0.0E+00	1.0E-05	NA	NA	NA	NA
51	Nickel (salts)	7.7E+01	1.0E-05	NA	NA	NA	NA	7.7E+01	1.0E-05	NA	NA	NA	NA
52	Nitrogen, ammonia	9.1E+01	1.0E-05	NA	NA	NA	NA	9.1E+01	1.0E-05	NA	NA	NA	NA
53	Phenanthrene	2.0E+00	1.0E-05	NA	NA	NA	NA	2.0E+00	1.0E-05	NA	NA	NA	NA
54	Pyrene	4.3E+00	1.0E-05	NA	NA	NA	NA	4.3E+00	1.0E-05	NA	NA	NA	NA
55	Silica	3.5E+01	1.0E-05	NA	NA	NA	NA	3.5E+01	1.0E-05	NA	NA	NA	NA
56	Silver	0.0E+00	1.0E-05	NA	NA	NA	NA	0.0E+00	1.0E-05	NA	NA	NA	NA
57	Sodium	4.6E+02	1.0E-05	NA	NA	NA	NA	4.6E+02	1.0E-05	NA	NA	NA	NA
58	Sulfate	4.5E+01	1.0E-05	NA	NA	NA	NA	4.5E+01	1.0E-05	NA	NA	NA	NA
59	Styrene	0.0E+00	1.0E-05	2.5E-01	0.0E+00	2.0E-01	0E+00	0.0E+00	1.0E-05	2.5E-01	0.0E+00	3.0E-02	0E+00
60	1,1,2,2-PCA	0.0E+00	1.0E-05	2.5E-01	0.0E+00	NA	NA	0.0E+00	1.0E-05	2.5E-01	0.0E+00	2.0E-01	0E+00
61	PCE	0.0E+00	1.0E-05	2.5E-01	0.0E+00	1.0E-02	0E+00	0.0E+00	1.0E-05	2.5E-01	0.0E+00	5.1E-02	0E+00
62	Thallium	0.0E+00	1.0E-05	NA	NA	NA	NA	0.0E+00	1.0E-05	NA	NA	NA	NA
63	Toluene	0.0E+00	1.0E-05	2.5E-01	0.0E+00	2.0E-01	0E+00	0.0E+00	1.0E-05	2.5E-01	0.0E+00	NA	NA
64	1,1,1-TCA	0.0E+00	1.0E-05	2.5E-01	0.0E+00	9.0E-02	0E+00	0.0E+00	1.0E-05	2.5E-01	0.0E+00	NA	NA
65	TCE	0.0E+00	1.0E-05	2.5E-01	0.0E+00	NA	NA	0.0E+00	1.0E-05	2.5E-01	0.0E+00	1.1E-02	0E+00
66	Vanadium	1.8E+01	1.0E-05	NA	NA	NA	NA	1.8E+01	1.0E-05	NA	NA	NA	NA

RANGE NAME: WS5

EXPOSURE AND RISK CALCULATION WORKSHEET

LAND USE: FUTURE
POPULATION: RES. ADULT (OR)

EXPOSURE POINT: OHIO RIVER
MEDIUM: FISH
ROUTE: ORAL

HIFs = 0.0E+00
HIFc = 3.7E-04
HIFl = 3.7E-04

SITE NAME: ORMET
OPERABLE UNIT: FUTURE RESIDENT ADULT
FILE NAME: POP7
LAST UPDATED: 03/13/91

		SUBCHRONIC						CHRONIC						LIFETIME					
	CHEMICAL NAME	Cs	HIFs	1	DIs	RfDS	HQs	Cc	HIFc	1	DIc	RfDC	HQc	Cl	HIFl	1	DIl	SF	RISK
1	Acenaphthene		0.0E+00		0.0E+00		ERR	0.0E+00	3.7E-04	1	0.0E+00	6.0E-02	0E+00	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
2	Acenaphthylene							0.0E+00	3.7E-04	1	0.0E+00	4.0E-01	0E+00	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
3	Acetone							0.0E+00	3.7E-04	1	0.0E+00	1.0E-01	0E+00	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
4	Aluminum							0.0E+00	3.7E-04	1	0.0E+00	NA	NA	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
5	Anthracene							0.0E+00	3.7E-04	1	0.0E+00	3.0E-01	0E+00	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
6	Antimony							5.0E-02	3.7E-04	1	1.9E-05	4.0E-04	5E-02	5.0E-02	3.7E-04	1	1.9E-05	NA	NA
7	Aroclor 1242							1.2E+02	3.7E-04	1	4.4E-02	NA	NA	1.2E+02	3.7E-04	1	4.4E-02	7.7E+00	3E-01
8	Aroclor 1248							0.0E+00	3.7E-04	1	0.0E+00	NA	NA	0.0E+00	3.7E-04	1	0.0E+00	7.7E+00	0E+00
9	Aroclor 1254							0.0E+00	3.7E-04	1	0.0E+00	NA	NA	0.0E+00	3.7E-04	1	0.0E+00	7.7E+00	0E+00
10	Arsenic							2.6E-01	3.7E-04	1	9.6E-05	1.0E-03	1.0E-0	2.6E-01	3.7E-04	1	9.6E-05	1.8E+00	2E-04
11	Barium							0.0E+00	3.7E-04	1	0.0E+00	7.0E-02	0E+00	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
12	Benzene							0.0E+00	3.7E-04	1	0.0E+00	NA	NA	0.0E+00	3.7E-04	1	0.0E+00	2.9E-02	0E+00
13	Benzo(a)anthracene							0.0E+00	3.7E-04	1	0.0E+00	4.0E-01	0E+00	0.0E+00	3.7E-04	1	0.0E+00	1.2E+01	0E+00
14	Benzo(a)pyrene							0.0E+00	3.7E-04	1	0.0E+00	4.0E-01	0E+00	0.0E+00	3.7E-04	1	0.0E+00	1.2E+01	0E+00
15	Benzo(b)fluoranthene							0.0E+00	3.7E-04	1	0.0E+00	4.0E-01	0E+00	0.0E+00	3.7E-04	1	0.0E+00	1.2E+01	0E+00
16	Benzo(g,h,i)perylene							0.0E+00	3.7E-04	1	0.0E+00	4.0E-01	0E+00	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
17	Benzo(k)fluoranthene							0.0E+00	3.7E-04	1	0.0E+00	4.0E-01	0E+00	0.0E+00	3.7E-04	1	0.0E+00	1.2E+01	0E+00
18	Beryllium							0.0E+00	3.7E-04	1	0.0E+00	5.0E-03	0E+00	0.0E+00	3.7E-04	1	0.0E+00	4.3E+00	0E+00
19	BEHP							0.0E+00	3.7E-04	1	0.0E+00	2.0E-02	0E+00	0.0E+00	3.7E-04	1	0.0E+00	1.4E-02	0E+00
20	2-Butanone							0.0E+00	3.7E-04	1	0.0E+00	5.0E-02	0E+00	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
21	Cadmium (food)							1.9E-01	3.7E-04	1	7.0E-05	1.0E-03	7E-02	1.9E-01	3.7E-04	1	7.0E-05	NA	NA
22	Cadmium (water)							0.0E+00	3.7E-04	1	0.0E+00	5.0E-04	0E+00	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
23	Carbon disulfide							0.0E+00	3.7E-04	1	0.0E+00	1.0E-01	0E+00	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
24	Chloride							0.0E+00	3.7E-04	1	0.0E+00	NA	NA	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
25	Chlorobenzene							0.0E+00	3.7E-04	1	0.0E+00	2.0E-02	0E+00	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
26	Chloroform							0.0E+00	3.7E-04	1	0.0E+00	1.0E-02	0E+00	0.0E+00	3.7E-04	1	0.0E+00	6.1E-03	0E+00
27	Chromium (VI)							2.2E-01	3.7E-04	1	8.1E-05	5.0E-03	2E-02	2.2E-01	3.7E-04	1	8.1E-05	NA	NA
28	Chrysene							0.0E+00	3.7E-04	1	0.0E+00	4.0E-01	0E+00	0.0E+00	3.7E-04	1	0.0E+00	1.2E+01	0E+00
29	Cobalt							0.0E+00	3.7E-04	1	0.0E+00	NA	NA	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
30	Copper							4.2E+00	3.7E-04	1	1.6E-03	3.7E-02	4E-02	4.2E+00	3.7E-04	1	1.6E-03	NA	NA
31	Cyanide (free)							0.0E+00	3.7E-04	1	0.0E+00	2.0E-02	0E+00	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
32	Di-n-butylphthalate							0.0E+00	3.7E-04	1	0.0E+00	1.0E-01	0E+00	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
33	Di-n-octylphthalate							0.0E+00	3.7E-04	1	0.0E+00	2.0E-02	0E+00	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
34	Dibenz(a,h)anthracene							0.0E+00	3.7E-04	1	0.0E+00	4.0E-01	0E+00	0.0E+00	3.7E-04	1	0.0E+00	1.2E+01	0E+00
35	Dibenzofuran							0.0E+00	3.7E-04	1	0.0E+00	NA	NA	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
36	2,4-Dimethylphenol							0.0E+00	3.7E-04	1	0.0E+00	2.0E-02	0E+00	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
37	Ethyl benzene							0.0E+00	3.7E-04	1	0.0E+00	1.0E-01	0E+00	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
38	Fluoranthene							0.0E+00	3.7E-04	1	0.0E+00	4.0E-02	0E+00	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
39	Fluorene							0.0E+00	3.7E-04	1	0.0E+00	4.0E-02	0E+00	0.0E+00	3.7E-04	1	0.0E+00	NA	NA

40	Fluoride	0.0E+00	3.7E-04	1	0.0E+00	6.0E-02	0E+00	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
41	Indeno(1,2,3-cd)pyrene	0.0E+00	3.7E-04	1	0.0E+00	4.0E-01	0E+00	0.0E+00	3.7E-04	1	0.0E+00	1.2E+01	0E+00
42	Iron	0.0E+00	3.7E-04	1	0.0E+00	NA	NA	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
43	Lead	5.6E-01	3.7E-04	1	2.1E-04	NA	NA	5.6E-01	3.7E-04	1	2.1E-04	NA	NA
44	Manganese	0.0E+00	3.7E-04	1	0.0E+00	1.0E-01	0E+00	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
45	Mercury	0.0E+00	3.7E-04	1	0.0E+00	3.0E-04	0E+00	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
46	Methylene chloride	1.3E-02	3.7E-04	1	4.8E-06	6.0E-02	8E-05	1.3E-02	3.7E-04	1	4.8E-06	7.5E-03	4E-08
47	2-Methylnaphthalene	0.0E+00	3.7E-04	1	0.0E+00	4.0E-01	0E+00	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
48	4-Methylphenol	0.0E+00	3.7E-04	1	0.0E+00	5.0E-02	0E+00	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
49	Naphthalene	0.0E+00	3.7E-04	1	0.0E+00	4.0E-01	0E+00	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
50	Nickel(dust)	0.0E+00	3.7E-04	1	0.0E+00	NA	NA	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
51	Nickel (salts)	7.5E-01	3.7E-04	1	2.8E-04	2.0E-02	1E-02	7.5E-01	3.7E-04	1	2.8E-04	NA	NA
52	Nitrogen, ammonia	0.0E+00	3.7E-04	1	0.0E+00	NA	NA	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
53	Phenanthrene	0.0E+00	3.7E-04	1	0.0E+00	4.0E-01	0E+00	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
54	Pyrene	0.0E+00	3.7E-04	1	0.0E+00	3.0E-02	0E+00	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
55	Silica	0.0E+00	3.7E-04	1	0.0E+00	NA	NA	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
56	Silver	0.0E+00	3.7E-04	1	0.0E+00	3.0E-03	0E+00	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
57	Sodium	0.0E+00	3.7E-04	1	0.0E+00	NA	NA	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
58	Sulfate	0.0E+00	3.7E-04	1	0.0E+00	NA	NA	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
59	Styrene	0.0E+00	3.7E-04	1	0.0E+00	2.0E-01	0E+00	0.0E+00	3.7E-04	1	0.0E+00	3.0E-02	0E+00
60	1,1,2,2-PCA	0.0E+00	3.7E-04	1	0.0E+00	NA	NA	0.0E+00	3.7E-04	1	0.0E+00	2.0E-01	0E+00
61	PCE	0.0E+00	3.7E-04	1	0.0E+00	1.0E-02	0E+00	0.0E+00	3.7E-04	1	0.0E+00	5.1E-02	0E+00
62	Thallium	0.0E+00	3.7E-04	1	0.0E+00	7.0E-05	0E+00	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
63	Toluene	0.0E+00	3.7E-04	1	0.0E+00	2.0E-01	0E+00	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
64	1,1,1-TCA	0.0E+00	3.7E-04	1	0.0E+00	9.0E-02	0E+00	0.0E+00	3.7E-04	1	0.0E+00	NA	NA
65	TCE	0.0E+00	3.7E-04	1	0.0E+00	NA	NA	0.0E+00	3.7E-04	1	0.0E+00	1.1E-02	0E+00
66	Vanadium	0.0E+00	3.7E-04	1	0.0E+00	7.0E-03	0E+00	0.0E+00	3.7E-04	1	0.0E+00	NA	NA

RANGE NAME: CSUM

SITE NAME: ORMET
OPERABLE UNIT: FUTURE RESIDENT ADUL
FILE NAME: POP7
LAST UPDATED: 03/13/91

CHRONIC EXPOSURE SUMMARY

FUTURE
RES. ADULT (OR)

CHRONIC DAILY INTAKE (mg/kg/day)

	CHEMICAL NAME	SCENARIO 1 OHIO RIVER SW ORAL (FROM WS1)	SCENARIO 2 OHIO RIVER SW DERMAL (FROM WS2)	SCENARIO 3 OHIO RIVER SEDIMENT ORAL (FROM WS3)	SCENARIO 4 OHIO RIVER SEDIMENT DERMAL (FROM WS4)	SCENARIO 5 OHIO RIVER FISH ORAL (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
1	Acenaphthene	0.0E+00	0.0E+00	1.1E-08	1.7E-06	0.0E+00	0.0E+00
2	Acenaphthylene	0.0E+00	NA	1.1E-09	NA	0.0E+00	
3	Acetone	1.4E-07	2.2E-08	0.0E+00	0.0E+00	0.0E+00	
4	Aluminum	2.5E-05	NA	8.8E-05	NA	0.0E+00	
5	Anthracene	0.0E+00	NA	4.7E-09	NA	0.0E+00	
6	Antimony	3.2E-07	NA	0.0E+00	NA	1.9E-05	
7	Aroclor 1242	7.6E-09	4.8E-10	0.0E+00	0.0E+00	4.4E-02	
8	Aroclor 1248	0.0E+00	0.0E+00	1.3E-08	2.0E-06	0.0E+00	
9	Aroclor 1254	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	
10	Arsenic	3.7E-08	NA	6.9E-08	NA	9.6E-05	
11	Barium	5.2E-07	NA	1.1E-06	NA	0.0E+00	
12	Benzene	0.0E+00	0.0E+00	1.3E-10	5.3E-08	0.0E+00	
13	Benzo(a)anthra	0.0E+00	NA	2.0E-08	NA	0.0E+00	
14	Benzo(a)pyrene	0.0E+00	NA	2.0E-08	NA	0.0E+00	
15	Benzo(b)fluora	0.0E+00	NA	2.8E-08	NA	0.0E+00	
16	Benzo(g,h,i)pe	0.0E+00	NA	1.7E-08	NA	0.0E+00	
17	Benzo(k)fluora	0.0E+00	NA	1.6E-08	NA	0.0E+00	
18	Beryllium	0.0E+00	NA	1.3E-08	NA	0.0E+00	
19	BEHP	0.0E+00	0.0E+00	2.1E-09	3.3E-07	0.0E+00	
20	2-Butanone	0.0E+00	0.0E+00	6.3E-10	2.5E-07	0.0E+00	
21	Cadmium (food)	0.0E+00	NA	1.3E-08	NA	7.0E-05	
22	Cadmium (water	1.4E-08	NA	0.0E+00	NA	0.0E+00	
23	Carbon disulfi	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	
24	Chloride	1.4E-04	NA	1.8E-06	NA	0.0E+00	
25	Chlorobenzene	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	
26	Chloroform	0.0E+00	0.0E+00	4.4E-11	1.8E-08	0.0E+00	
27	Chromium (VI)	8.8E-08	NA	3.8E-07	NA	8.1E-05	
28	Chrysene	0.0E+00	NA	2.5E-08	NA	0.0E+00	
29	Cobalt	5.1E-08	NA	2.2E-07	NA	0.0E+00	
30	Copper	1.3E-07	NA	4.5E-07	NA	1.6E-03	
31	Cyanide (free)	3.5E-06	NA	1.2E-08	NA	0.0E+00	
32	Di-n-butylphth	0.0E+00	0.0E+00	3.7E-10	5.8E-08	0.0E+00	
33	Di-n-octylphth	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	
34	Dibenz(a,h)ant	0.0E+00	NA	4.6E-09	NA	0.0E+00	
35	Dibenzofuran	0.0E+00	0.0E+00	1.4E-09	2.2E-07	0.0E+00	
36	2,4-Dimethylph	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	
37	Ethyl benzene	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	
38	Fluoranthene	0.0E+00	NA	2.8E-08	NA	0.0E+00	
39	Fluorene	0.0E+00	NA	1.8E-09	NA	0.0E+00	
40	Fluoride	2.7E-05	NA	1.0E-07	NA	0.0E+00	
41	Indeno(1,2,3-c	0.0E+00	NA	8.8E-09	NA	0.0E+00	
42	Iron	4.5E-05	NA	3.0E-04	NA	0.0E+00	

CHRONIC RISK SUMMARY

FUTURE
RES. ADULT (OR)

CHRONIC HAZARD QUOTIENT

	CHEMICAL NAME	SCENARIO 1 OHIO RIVER SW ORAL (FROM WS1)	SCENARIO 2 OHIO RIVER SW DERMAL (FROM WS2)	SCENARIO 3 OHIO RIVER SEDIMENT ORAL (FROM WS3)	SCENARIO 4 OHIO RIVER SEDIMENT DERMAL (FROM WS4)	SCENARIO 5 OHIO RIVER FISH ORAL (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
1	Acenaphthene	0E+00	NA	2E-07	NA	0E+00	0E+00
2	Acenaphthylene	0E+00	NA	3E-09	NA	0E+00	
3	Acetone	1E-06	2E-07	0E+00	0E+00	0E+00	
4	Aluminum	NA	NA	NA	NA	NA	
5	Anthracene	0E+00	NA	2E-08	NA	0E+00	
6	Antimony	8E-04	NA	0E+00	NA	5E-02	
7	Aroclor 1242	NA	NA	NA	NA	NA	
8	Aroclor 1248	NA	NA	NA	NA	NA	
9	Aroclor 1254	NA	NA	NA	NA	NA	
10	Arsenic	4E-05	NA	7E-05	NA	1E-01	
11	Barium	7E-06	NA	2E-05	NA	0E+00	
12	Benzene	NA	NA	NA	NA	NA	
13	Benzo(a)anthra	0E+00	NA	5E-08	NA	0E+00	
14	Benzo(a)pyrene	0E+00	NA	5E-08	NA	0E+00	
15	Benzo(b)fluora	0E+00	NA	7E-08	NA	0E+00	
16	Benzo(g,h,i)pe	0E+00	NA	4E-08	NA	0E+00	
17	Benzo(k)fluora	0E+00	NA	4E-08	NA	0E+00	
18	Beryllium	0E+00	NA	3E-06	NA	0E+00	
19	BEHP	0E+00	0E+00	1E-07	2E-05	0E+00	
20	2-Butanone	0E+00	0E+00	1E-08	5E-06	0E+00	
21	Cadmium (food)	0E+00	NA	1E-05	NA	7E-02	
22	Cadmium (water	3E-05	NA	0E+00	NA	0E+00	
23	Carbon disulfi	0E+00	0E+00	0E+00	0E+00	0E+00	
24	Chloride	NA	NA	NA	NA	NA	
25	Chlorobenzene	0E+00	0E+00	0E+00	0E+00	0E+00	
26	Chloroform	0E+00	0E+00	4E-09	2E-06	0E+00	
27	Chromium (VI)	2E-05	NA	8E-05	NA	2E-02	
28	Chrysene	0E+00	NA	6E-08	NA	0E+00	
29	Cobalt	NA	NA	NA	NA	NA	
30	Copper	4E-06	NA	1E-05	NA	4E-02	
31	Cyanide (free)	2E-04	NA	6E-07	NA	0E+00	
32	Di-n-butylphth	0E+00	0E+00	4E-09	6E-07	0E+00	
33	Di-n-octylphth	0E+00	0E+00	0E+00	0E+00	0E+00	
34	Dibenz(a,h)ant	0E+00	NA	1E-08	NA	0E+00	
35	Dibenzofuran	NA	NA	NA	NA	NA	
36	2,4-Dimethylph	0E+00	0E+00	0E+00	0E+00	0E+00	
37	Ethyl benzene	0E+00	0E+00	0E+00	0E+00	0E+00	
38	Fluoranthene	0E+00	NA	7E-07	NA	0E+00	
39	Fluorene	0E+00	NA	5E-08	NA	0E+00	
40	Fluoride	5E-04	NA	2E-06	NA	0E+00	
41	Indeno(1,2,3-c	0E+00	NA	2E-08	NA	0E+00	
42	Iron	NA	NA	NA	NA	NA	

43	Lead	6.9E-08	NA	6.9E-07	NA	2.1E-04	NA	NA	NA	NA	NA	
44	Manganese	4.3E-06	NA	1.0E-05	NA	0.0E+00	4E-05	NA	1E-04	NA	0E+00	
45	Mercury	0.0E+00	NA	2.6E-09	NA	0.0E+00	0E+00	NA	9E-06	NA	0E+00	
46	Methylene chlo	1.6E-08	2.6E-09	2.4E-10	9.5E-08	4.8E-06	3E-07	4E-08	4E-09	2E-06	8E-05	
47	2-Methylnaphth	0.0E+00	NA	1.6E-09	NA	0.0E+00	0E+00	NA	4E-09	NA	0E+00	
48	4-Methylphenol	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0E+00	0E+00	0E+00	0E+00	0E+00	
49	Naphthalene	0.0E+00	NA	2.1E-09	NA	0.0E+00	0E+00	NA	5E-09	NA	0E+00	
50	Nickel(dust)	0.0E+00	NA	0.0E+00	NA	0.0E+00	NA	NA	NA	NA	NA	
51	Nickel (salts)	1.0E-07	NA	4.9E-07	NA	2.8E-04	5E-06	NA	2E-05	NA	1E-02	
52	Nitrogen, ammo	0.0E+00	NA	5.7E-07	NA	0.0E+00	NA	NA	NA	NA	NA	
53	Phenanthrene	0.0E+00	NA	1.3E-08	NA	0.0E+00	0E+00	NA	3E-08	NA	0E+00	
54	Pyrene	0.0E+00	NA	2.7E-08	NA	0.0E+00	0E+00	NA	9E-07	NA	0E+00	
55	Silica	4.5E-05	NA	2.2E-07	NA	0.0E+00	NA	NA	NA	NA	NA	
56	Silver	0.0E+00	NA	0.0E+00	NA	0.0E+00	0E+00	NA	0E+00	NA	0E+00	
57	Sodium	4.1E-04	NA	2.9E-06	NA	0.0E+00	NA	NA	NA	NA	NA	
58	Sulfate	6.9E-04	NA	2.8E-07	NA	0.0E+00	NA	NA	NA	NA	NA	
59	Styrene	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0E+00	0E+00	0E+00	0E+00	0E+00	
60	1,1,2,2-PCA	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	NA	NA	NA	NA	NA	
61	PCE	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0E+00	0E+00	0E+00	0E+00	0E+00	
62	Thallium	0.0E+00	NA	0.0E+00	NA	0.0E+00	0E+00	NA	0E+00	NA	0E+00	
63	Toluene	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0E+00	0E+00	0E+00	0E+00	0E+00	
64	1,1,1-TCA	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0E+00	0E+00	0E+00	0E+00	0E+00	
65	TCE	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	NA	NA	NA	NA	NA	
66	Vanadium	0.0E+00	NA	1.1E-07	NA	0.0E+00	0E+00	NA	2E-05	NA	0E+00	
						PATHWAY SUM (HI)	2E-03	2E-07	3E-04	3E-05	3E-01	0E+00
						POPULATION TOTAL	3E-01					

RANGE NAME: LSUM

SITE NAME: ORMET
OPERABLE UNIT: FUTURE RESIDENT ADUL
FILE NAME: POP7
LAST UPDATED: 03/13/91

LIFETIME EXPOSURE SUMMARY

FUTURE
RES. ADULT (OR)

LIFETIME AVERAGE DAILY INTAKE (mg/kg/day)

	CHEMICAL NAME	SCENARIO 1 OHIO RIVER SW ORAL (FROM WS1)	SCENARIO 2 OHIO RIVER SW DERMAL (FROM WS2)	SCENARIO 3 OHIO RIVER SEDIMENT ORAL (FROM WS3)	SCENARIO 4 OHIO RIVER SEDIMENT DERMAL (FROM WS4)	SCENARIO 5 OHIO RIVER FISH ORAL (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
1	Acenaphthene	0.0E+00	0.0E+00	1.1E-08	1.7E-06	0.0E+00	0.0E+00
2	Acenaphthylene	0.0E+00	NA	1.1E-09	NA	0.0E+00	
3	Acetone	1.4E-07	2.2E-08	0.0E+00	0.0E+00	0.0E+00	
4	Aluminum	2.5E-05	NA	8.8E-05	NA	0.0E+00	
5	Anthracene	0.0E+00	NA	4.7E-09	NA	0.0E+00	
6	Antimony	3.2E-07	NA	0.0E+00	NA	1.9E-05	
7	Aroclor 1242	7.6E-09	4.8E-10	0.0E+00	0.0E+00	4.4E-02	
8	Aroclor 1248	0.0E+00	0.0E+00	1.3E-08	2.0E-06	0.0E+00	
9	Aroclor 1254	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	
10	Arsenic	3.7E-08	NA	6.9E-08	NA	9.6E-05	
11	Barium	5.2E-07	NA	1.1E-06	NA	0.0E+00	
12	Benzene	0.0E+00	0.0E+00	1.3E-10	5.3E-08	0.0E+00	
13	Benzo(a)anthra	0.0E+00	NA	2.0E-08	NA	0.0E+00	
14	Benzo(a)pyrene	0.0E+00	NA	2.0E-08	NA	0.0E+00	
15	Benzo(b)fluora	0.0E+00	NA	2.8E-08	NA	0.0E+00	
16	Benzo(g,h,i)pe	0.0E+00	NA	1.7E-08	NA	0.0E+00	
17	Benzo(k)fluora	0.0E+00	NA	1.6E-08	NA	0.0E+00	
18	Beryllium	0.0E+00	NA	1.3E-08	NA	0.0E+00	
19	BEHP	0.0E+00	0.0E+00	2.1E-09	3.3E-07	0.0E+00	
20	2-Butanone	0.0E+00	0.0E+00	6.3E-10	2.5E-07	0.0E+00	
21	Cadmium (food)	0.0E+00	NA	1.3E-08	NA	7.0E-05	
22	Cadmium (water	1.4E-08	NA	0.0E+00	NA	0.0E+00	
23	Carbon disulfi	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	
24	Chloride	1.4E-04	NA	1.8E-06	NA	0.0E+00	
25	Chlorobenzene	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	
26	Chloroform	0.0E+00	0.0E+00	4.4E-11	1.8E-08	0.0E+00	
27	Chromium (VI)	8.8E-08	NA	3.8E-07	NA	8.1E-05	
28	Chrysene	0.0E+00	NA	2.5E-08	NA	0.0E+00	
29	Cobalt	5.1E-08	NA	2.2E-07	NA	0.0E+00	
30	Copper	1.3E-07	NA	4.5E-07	NA	1.6E-03	
31	Cyanide (free)	3.5E-06	NA	1.2E-08	NA	0.0E+00	
32	Di-n-butylphth	0.0E+00	0.0E+00	3.7E-10	5.8E-08	0.0E+00	
33	Di-n-octylphth	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	
34	Dibenz(a,h)ant	0.0E+00	NA	4.6E-09	NA	0.0E+00	
35	Dibenzofuran	0.0E+00	0.0E+00	1.4E-09	2.2E-07	0.0E+00	
36	2,4-Dimethylph	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	
37	Ethyl benzene	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	
38	Fluoranthene	0.0E+00	NA	2.8E-08	NA	0.0E+00	
39	Fluorene	0.0E+00	NA	1.8E-09	NA	0.0E+00	
40	Fluoride	2.7E-05	NA	1.0E-07	NA	0.0E+00	
41	Indeno(1,2,3-c	0.0E+00	NA	8.8E-09	NA	0.0E+00	
42	Iron	4.5E-05	NA	3.0E-04	NA	0.0E+00	

LIFETIME RISK SUMMARY

FUTURE
RES. ADULT (OR)

LIFETIME EXCESS CANCER RISK

	CHEMICAL NAME	SCENARIO 1 OHIO RIVER SW ORAL (FROM WS1)	SCENARIO 2 OHIO RIVER SW DERMAL (FROM WS2)	SCENARIO 3 OHIO RIVER SEDIMENT ORAL (FROM WS3)	SCENARIO 4 OHIO RIVER SEDIMENT DERMAL (FROM WS4)	SCENARIO 5 OHIO RIVER FISH ORAL (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
1	Acenaphthene	NA	NA	NA	NA	NA	0E+00
2	Acenaphthylene	NA	NA	NA	NA	NA	
3	Acetone	NA	NA	NA	NA	NA	
4	Aluminum	NA	NA	NA	NA	NA	
5	Anthracene	NA	NA	NA	NA	NA	
6	Antimony	NA	NA	NA	NA	NA	
7	Aroclor 1242	6E-08	4E-09	0E+00	0E+00	3E-01	
8	Aroclor 1248	0E+00	0E+00	1E-07	2E-05	0E+00	
9	Aroclor 1254	0E+00	0E+00	0E+00	0E+00	0E+00	
10	Arsenic	7E-08	NA	1E-07	NA	2E-04	
11	Barium	NA	NA	NA	NA	NA	
12	Benzene	0E+00	0E+00	4E-12	2E-09	0E+00	
13	Benzo(a)anthra	0E+00	NA	2E-07	NA	0E+00	
14	Benzo(a)pyrene	0E+00	NA	2E-07	NA	0E+00	
15	Benzo(b)fluora	0E+00	NA	3E-07	NA	0E+00	
16	Benzo(g,h,i)pe	NA	NA	NA	NA	NA	
17	Benzo(k)fluora	0E+00	NA	2E-07	NA	0E+00	
18	Beryllium	0E+00	NA	6E-08	NA	0E+00	
19	BEHP	0E+00	0E+00	3E-11	5E-09	0E+00	
20	2-Butanone	NA	NA	NA	NA	NA	
21	Cadmium (food)	NA	NA	NA	NA	NA	
22	Cadmium (water	NA	NA	NA	NA	NA	
23	Carbon disulfi	NA	NA	NA	NA	NA	
24	Chloride	NA	NA	NA	NA	NA	
25	Chlorobenzene	NA	NA	NA	NA	NA	
26	Chloroform	0E+00	0E+00	0E+00	1E-10	0E+00	
27	Chromium (VI)	NA	NA	NA	NA	NA	
28	Chrysene	0E+00	NA	3E-07	NA	0E+00	
29	Cobalt	NA	NA	NA	NA	NA	
30	Copper	NA	NA	NA	NA	NA	
31	Cyanide (free)	NA	NA	NA	NA	NA	
32	Di-n-butylphth	NA	NA	NA	NA	NA	
33	Di-n-octylphth	NA	NA	NA	NA	NA	
34	Dibenz(a,h)ant	0E+00	NA	6E-08	NA	0E+00	
35	Dibenzofuran	NA	NA	NA	NA	NA	
36	2,4-Dimethylph	NA	NA	NA	NA	NA	
37	Ethyl benzene	NA	NA	NA	NA	NA	
38	Fluoranthene	NA	NA	NA	NA	NA	
39	Fluorene	NA	NA	NA	NA	NA	
40	Fluoride	NA	NA	NA	NA	NA	
41	Indeno(1,2,3-c	0E+00	NA	1E-07	NA	0E+00	
42	Iron	NA	NA	NA	NA	NA	

43	Lead	6.9E-08	NA	6.9E-07	NA	2.1E-04	NA	NA	NA	NA	NA
44	Manganese	4.3E-06	NA	1.0E-05	NA	0.0E+00	NA	NA	NA	NA	NA
45	Mercury	0.0E+00	NA	2.6E-09	NA	0.0E+00	NA	NA	NA	NA	NA
46	Methylene chlo	1.6E-08	2.6E-09	2.4E-10	9.5E-08	4.8E-06	1E-10	2E-11	2E-12	7E-10	4E-08
47	2-Methylnaphth	0.0E+00	NA	1.6E-09	NA	0.0E+00	NA	NA	NA	NA	NA
48	4-Methylphenol	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	NA	NA	NA	NA	NA
49	Naphthalene	0.0E+00	NA	2.1E-09	NA	0.0E+00	NA	NA	NA	NA	NA
50	Nickel(dust)	0.0E+00	NA	0.0E+00	NA	0.0E+00	NA	NA	NA	NA	NA
51	Nickel (salts)	1.0E-07	NA	4.9E-07	NA	2.8E-04	NA	NA	NA	NA	NA
52	Nitrogen, ammo	0.0E+00	NA	5.7E-07	NA	0.0E+00	NA	NA	NA	NA	NA
53	Phenanthrene	0.0E+00	NA	1.3E-08	NA	0.0E+00	NA	NA	NA	NA	NA
54	Pyrene	0.0E+00	NA	2.7E-08	NA	0.0E+00	NA	NA	NA	NA	NA
55	Silica	4.5E-05	NA	2.2E-07	NA	0.0E+00	NA	NA	NA	NA	NA
56	Silver	0.0E+00	NA	0.0E+00	NA	0.0E+00	NA	NA	NA	NA	NA
57	Sodium	4.1E-04	NA	2.9E-06	NA	0.0E+00	NA	NA	NA	NA	NA
58	Sulfate	6.9E-04	NA	2.8E-07	NA	0.0E+00	NA	NA	NA	NA	NA
59	Styrene	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0E+00	0E+00	0E+00	0E+00	0E+00
60	1,1,2,2-PCA	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0E+00	0E+00	0E+00	0E+00	0E+00
61	PCE	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0E+00	0E+00	0E+00	0E+00	0E+00
62	Thallium	0.0E+00	NA	0.0E+00	NA	0.0E+00	NA	NA	NA	NA	NA
63	Toluene	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	NA	NA	NA	NA	NA
64	1,1,1-TCA	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	NA	NA	NA	NA	NA
65	TCE	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0E+00	0E+00	0E+00	0E+00	0E+00
66	Vanadium	0.0E+00	NA	1.1E-07	NA	0.0E+00	NA	NA	NA	NA	NA
						TOTAL PATHWAY CANCER RISK	1E-07	4E-09	2E-06	2E-05	3E-01	0E+00
						POPULATION TOTAL EXCESS RISK	3E-01				

RANGE NAME: WS1

SITE NAME: ORMET
OPERABLE UNIT: FUTURE RESIDENT ADULT
FILE NAME: POP8
LAST UPDATED: 03/13/91

EXPOSURE AND RISK CALCULATION WORKSHEET

LAND USE: FUTURE
POPULATION: RES. ADULT (GW)

EXPOSURE POINT: PLUME
MEDIUM: GW
ROUTE: ORAL

HIFs = 0.0E+00
HIFc = 2.9E-02
HIFl = 2.9E-02

		SUBCHRONIC						CHRONIC						LIFETIME					
	CHEMICAL NAME	Cs	HIFs	1	DIs	RfDS	HQs	Cc	HIFc	1	DIc	RfDC	HQc	Cl	HIFl	1	DIl	SF	RISK
1	Acenaphthene		0.0E+00		0.0E+00		ERR	0.0E+00	2.9E-02	1	0.0E+00	6.0E-02	0E+00	0.0E+00	2.9E-02	1	0.0E+00	NA	NA
2	Acenaphthylene							0.0E+00	2.9E-02	1	0.0E+00	4.0E-01	0E+00	0.0E+00	2.9E-02	1	0.0E+00	NA	NA
3	Acetone							1.1E-02	2.9E-02	1	3.2E-04	1.0E-01	3E-03	1.1E-02	2.9E-02	1	3.2E-04	NA	NA
4	Aluminum							3.6E+01	2.9E-02	1	1.0E+00	NA	NA	3.6E+01	2.9E-02	1	1.0E+00	NA	NA
5	Anthracene							0.0E+00	2.9E-02	1	0.0E+00	3.0E-01	0E+00	0.0E+00	2.9E-02	1	0.0E+00	NA	NA
6	Antimony							0.0E+00	2.9E-02	1	0.0E+00	4.0E-04	0E+00	0.0E+00	2.9E-02	1	0.0E+00	NA	NA
7	Aroclor 1242							0.0E+00	2.9E-02	1	0.0E+00	NA	NA	0.0E+00	2.9E-02	1	0.0E+00	7.7E+00	0E+00
8	Aroclor 1248							0.0E+00	2.9E-02	1	0.0E+00	NA	NA	0.0E+00	2.9E-02	1	0.0E+00	7.7E+00	0E+00
9	Aroclor 1254							0.0E+00	2.9E-02	1	0.0E+00	NA	NA	0.0E+00	2.9E-02	1	0.0E+00	7.7E+00	0E+00
10	Arsenic							8.0E-02	2.9E-02	1	2.3E-03	1.0E-03	2E+00	8.0E-02	2.9E-02	1	2.3E-03	1.8E+00	4E-03
11	Barium							7.2E-01	2.9E-02	1	2.1E-02	7.0E-02	3E-01	7.2E-01	2.9E-02	1	2.1E-02	NA	NA
12	Benzene							3.9E-03	2.9E-02	1	1.1E-04	NA	NA	3.9E-03	2.9E-02	1	1.1E-04	2.9E-02	3E-06
13	Benzo(a)anthracene							0.0E+00	2.9E-02	1	0.0E+00	4.0E-01	0E+00	0.0E+00	2.9E-02	1	0.0E+00	1.2E+01	0E+00
14	Benzo(a)pyrene							0.0E+00	2.9E-02	1	0.0E+00	4.0E-01	0E+00	0.0E+00	2.9E-02	1	0.0E+00	1.2E+01	0E+00
15	Benzo(b)fluoranthene							0.0E+00	2.9E-02	1	0.0E+00	4.0E-01	0E+00	0.0E+00	2.9E-02	1	0.0E+00	1.2E+01	0E+00
16	Benzo(g,h,i)perylene							0.0E+00	2.9E-02	1	0.0E+00	4.0E-01	0E+00	0.0E+00	2.9E-02	1	0.0E+00	NA	NA
17	Benzo(k)fluoranthene							0.0E+00	2.9E-02	1	0.0E+00	4.0E-01	0E+00	0.0E+00	2.9E-02	1	0.0E+00	1.2E+01	0E+00
18	Beryllium							5.0E-03	2.9E-02	1	1.5E-04	5.0E-03	3E-02	5.0E-03	2.9E-02	1	1.5E-04	4.3E+00	6E-04
19	BEHP							9.4E-03	2.9E-02	1	2.7E-04	2.0E-02	1E-02	9.4E-03	2.9E-02	1	2.7E-04	1.4E-02	4E-06
20	2-Butanone							0.0E+00	2.9E-02	1	0.0E+00	5.0E-02	0E+00	0.0E+00	2.9E-02	1	0.0E+00	NA	NA
21	Cadmium (food)							0.0E+00	2.9E-02	1	0.0E+00	1.0E-03	0E+00	0.0E+00	2.9E-02	1	0.0E+00	NA	NA
22	Cadmium (water)							3.2E-03	2.9E-02	1	9.3E-05	5.0E-04	2E-01	3.2E-03	2.9E-02	1	9.3E-05	NA	NA
23	Carbon disulfide							3.7E-03	2.9E-02	1	1.1E-04	1.0E-01	1E-03	3.7E-03	2.9E-02	1	1.1E-04	NA	NA
24	Chloride							1.0E+02	2.9E-02	1	2.9E+00	NA	NA	1.0E+02	2.9E-02	1	2.9E+00	NA	NA
25	Chlorobenzene							0.0E+00	2.9E-02	1	0.0E+00	2.0E-02	0E+00	0.0E+00	2.9E-02	1	0.0E+00	NA	NA
26	Chloroform							2.6E-03	2.9E-02	1	7.5E-05	1.0E-02	8E-03	2.6E-03	2.9E-02	1	7.5E-05	6.1E-03	5E-07
27	Chromium (VI)							5.8E-02	2.9E-02	1	1.7E-03	5.0E-03	3E-01	5.8E-02	2.9E-02	1	1.7E-03	NA	NA
28	Chrysene							0.0E+00	2.9E-02	1	0.0E+00	4.0E-01	0E+00	0.0E+00	2.9E-02	1	0.0E+00	1.2E+01	0E+00
29	Cobalt							1.6E-01	2.9E-02	1	4.6E-03	NA	NA	1.6E-01	2.9E-02	1	4.6E-03	NA	NA
30	Copper							2.1E-01	2.9E-02	1	6.1E-03	3.7E-02	2E-01	2.1E-01	2.9E-02	1	6.1E-03	NA	NA
31	Cyanide (free)							5.8E+00	2.9E-02	1	1.7E-01	2.0E-02	8E+00	5.8E+00	2.9E-02	1	1.7E-01	NA	NA
32	Di-n-butylphthalate							3.0E-03	2.9E-02	1	8.7E-05	1.0E-01	9E-04	3.0E-03	2.9E-02	1	8.7E-05	NA	NA
33	Di-n-octylphthalate							0.0E+00	2.9E-02	1	0.0E+00	2.0E-02	0E+00	0.0E+00	2.9E-02	1	0.0E+00	NA	NA
34	Dibenz(a,h)anthracene							0.0E+00	2.9E-02	1	0.0E+00	4.0E-01	0E+00	0.0E+00	2.9E-02	1	0.0E+00	1.2E+01	0E+00
35	Dibenzofuran							0.0E+00	2.9E-02	1	0.0E+00	NA	NA	0.0E+00	2.9E-02	1	0.0E+00	NA	NA
36	2,4-Dimethylphenol							0.0E+00	2.9E-02	1	0.0E+00	2.0E-02	0E+00	0.0E+00	2.9E-02	1	0.0E+00	NA	NA
37	Ethyl benzene							0.0E+00	2.9E-02	1	0.0E+00	1.0E-01	0E+00	0.0E+00	2.9E-02	1	0.0E+00	NA	NA
38	Fluoranthene							5.4E-03	2.9E-02	1	1.6E-04	4.0E-02	4E-03	5.4E-03	2.9E-02	1	1.6E-04	NA	NA
39	Fluorene							0.0E+00	2.9E-02	1	0.0E+00	4.0E-02	0E+00	0.0E+00	2.9E-02	1	0.0E+00	NA	NA

40	Fluoride	2.1E+02	2.9E-02	1	6.1E+00	6.0E-02	1E+02	2.1E+02	2.9E-02	1	6.1E+00	NA	NA
41	Indeno(1,2,3-cd)pyrene	0.0E+00	2.9E-02	1	0.0E+00	4.0E-01	0E+00	0.0E+00	2.9E-02	1	0.0E+00	1.2E+01	0E+00
42	Iron	3.4E+01	2.9E-02	1	9.9E-01	NA	NA	3.4E+01	2.9E-02	1	9.9E-01	NA	NA
43	Lead	2.8E-02	2.9E-02	1	8.1E-04	NA	NA	2.8E-02	2.9E-02	1	8.1E-04	NA	NA
44	Manganese	2.4E+00	2.9E-02	1	7.0E-02	1.0E-01	7E-01	2.4E+00	2.9E-02	1	7.0E-02	NA	NA
45	Mercury	5.3E-04	2.9E-02	1	1.5E-05	3.0E-04	5E-02	5.3E-04	2.9E-02	1	1.5E-05	NA	NA
46	Methylene chloride	4.4E-03	2.9E-02	1	1.3E-04	6.0E-02	2E-03	4.4E-03	2.9E-02	1	1.3E-04	7.5E-03	1.0E-0
47	2-Methylnaphthalene	0.0E+00	2.9E-02	1	0.0E+00	4.0E-01	0E+00	0.0E+00	2.9E-02	1	0.0E+00	NA	NA
48	4-Methylphenol	0.0E+00	2.9E-02	1	0.0E+00	5.0E-02	0E+00	0.0E+00	2.9E-02	1	0.0E+00	NA	NA
49	Naphthalene	0.0E+00	2.9E-02	1	0.0E+00	4.0E-01	0E+00	0.0E+00	2.9E-02	1	0.0E+00	NA	NA
50	Nickel(dust)	0.0E+00	2.9E-02	1	0.0E+00	NA	NA	0.0E+00	2.9E-02	1	0.0E+00	NA	NA
51	Nickel (salts)	1.2E-01	2.9E-02	1	3.5E-03	2.0E-02	2E-01	1.2E-01	2.9E-02	1	3.5E-03	NA	NA
52	Nitrogen, ammonia	2.9E+01	2.9E-02	1	8.4E-01	NA	NA	2.9E+01	2.9E-02	1	8.4E-01	NA	NA
53	Phenanthrene	4.0E-03	2.9E-02	1	1.2E-04	4.0E-01	3E-04	4.0E-03	2.9E-02	1	1.2E-04	NA	NA
54	Pyrene	3.0E-03	2.9E-02	1	8.7E-05	3.0E-02	3E-03	3.0E-03	2.9E-02	1	8.7E-05	NA	NA
55	Silica	3.8E+02	2.9E-02	1	1.1E+01	NA	NA	3.8E+02	2.9E-02	1	1.1E+01	NA	NA
56	Silver	0.0E+00	2.9E-02	1	0.0E+00	3.0E-03	0E+00	0.0E+00	2.9E-02	1	0.0E+00	NA	NA
57	Sodium	7.2E+02	2.9E-02	1	2.1E+01	NA	NA	7.2E+02	2.9E-02	1	2.1E+01	NA	NA
58	Sulfate	1.9E+02	2.9E-02	1	5.5E+00	NA	NA	1.9E+02	2.9E-02	1	5.5E+00	NA	NA
59	Styrene	0.0E+00	2.9E-02	1	0.0E+00	2.0E-01	0E+00	0.0E+00	2.9E-02	1	0.0E+00	3.0E-02	0E+00
60	1,1,2,2-PCA	0.0E+00	2.9E-02	1	0.0E+00	NA	NA	0.0E+00	2.9E-02	1	0.0E+00	2.0E-01	0E+00
61	PCE	9.0E-03	2.9E-02	1	2.6E-04	1.0E-02	3E-02	9.0E-03	2.9E-02	1	2.6E-04	5.1E-02	1E-05
62	Thallium	0.0E+00	2.9E-02	1	0.0E+00	7.0E-05	0E+00	0.0E+00	2.9E-02	1	0.0E+00	NA	NA
63	Toluene	1.0E-03	2.9E-02	1	2.9E-05	2.0E-01	1E-04	1.0E-03	2.9E-02	1	2.9E-05	NA	NA
64	1,1,1-TCA	2.5E-03	2.9E-02	1	7.3E-05	9.0E-02	8E-04	2.5E-03	2.9E-02	1	7.3E-05	NA	NA
65	TCE	2.5E-03	2.9E-02	1	7.3E-05	NA	NA	2.5E-03	2.9E-02	1	7.3E-05	1.1E-02	8E-07
66	Vanadium	8.6E-02	2.9E-02	1	2.5E-03	7.0E-03	4E-01	8.6E-02	2.9E-02	1	2.5E-03	NA	NA

RANGE NAME: CSUM

SITE NAME: ORMET
OPERABLE UNIT: FUTURE RESIDENT ADUL
FILE NAME: POP8
LAST UPDATED: 03/13/91

CHRONIC EXPOSURE SUMMARY

FUTURE
RES. ADULT (GW)

CHRONIC DAILY INTAKE (mg/kg/day)

		SCENARIO 1	SCENARIO 2	SCENARIO 3	SCENARIO 4	SCENARIO 5	SCENARIO 6
		PLUME	0	0	0	0	0
		GW	0	0	0	0	0
		ORAL	0	0	0	0	0
	CHEMICAL NAME	(FROM WS1)	(FROM WS2)	(FROM WS3)	(FROM WS4)	(FROM WS5)	(FROM WS6)
1	Acenaphthene	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
2	Acenaphthylene	0.0E+00					
3	Acetone	3.2E-04					
4	Aluminum	1.0E+00					
5	Anthracene	0.0E+00					
6	Antimony	0.0E+00					
7	Aroclor 1242	0.0E+00					
8	Aroclor 1248	0.0E+00					
9	Aroclor 1254	0.0E+00					
10	Arsenic	2.3E-03					
11	Barium	2.1E-02					
12	Benzene	1.1E-04					
13	Benzo(a)anthra	0.0E+00					
14	Benzo(a)pyrene	0.0E+00					
15	Benzo(b)fluora	0.0E+00					
16	Benzo(g,h,i)pe	0.0E+00					
17	Benzo(k)fluora	0.0E+00					
18	Beryllium	1.5E-04					
19	BEHP	2.7E-04					
20	2-Butanone	0.0E+00					
21	Cadmium (food)	0.0E+00					
22	Cadmium (water	9.3E-05					
23	Carbon disulfi	1.1E-04					
24	Chloride	2.9E+00					
25	Chlorobenzene	0.0E+00					
26	Chloroform	7.5E-05					
27	Chromium (VI)	1.7E-03					
28	Chrysene	0.0E+00					
29	Cobalt	4.6E-03					
30	Copper	6.1E-03					
31	Cyanide (free)	1.7E-01					
32	Di-n-butylphth	8.7E-05					
33	Di-n-octylphth	0.0E+00					
34	Dibenz(a,h)ant	0.0E+00					
35	Dibenzofuran	0.0E+00					
36	2,4-Dimethylph	0.0E+00					
37	Ethyl benzene	0.0E+00					
38	Fluoranthene	1.6E-04					
39	Fluorene	0.0E+00					
40	Fluoride	6.1E+00					
41	Indeno(1,2,3-c	0.0E+00					
42	Iron	9.9E-01					

CHRONIC RISK SUMMARY

FUTURE
RES. ADULT (GW)

CHRONIC HAZARD QUOTIENT

SCENARIO 1	SCENARIO 2	SCENARIO 3	SCENARIO 4	SCENARIO 5	SCENARIO 6
PLUME 0	0	0	0	0	0
GW 0	0	0	0	0	0
ORAL 0	0	0	0	0	0
(FROM WS1)	(FROM WS2)	(FROM WS3)	(FROM WS4)	(FROM WS5)	(FROM WS6)
0E+00	0E+00	0E+00	0E+00	0E+00	0E+00
0E+00					
3E-03					
NA					
0E+00					
0E+00					
NA					
NA					
NA					
2E+00					
3E-01					
NA					
0E+00					
0E+00					
0E+00					
0E+00					
0E+00					
3E-02					
1E-02					
0E+00					
0E+00					
2E-01					
1E-03					
NA					
0E+00					
8E-03					
3E-01					
0E+00					
NA					
2E-01					
8E+00					
9E-04					
0E+00					
0E+00					
NA					
0E+00					
0E+00					
4E-03					
0E+00					
1E+02					
0E+00					
NA					

43	Lead	8.1E-04		NA				
44	Manganese	7.0E-02		7E-01				
45	Mercury	1.5E-05		5E-02				
46	Methylene chlo	1.3E-04		2E-03				
47	2-Methylnaphth	0.0E+00		0E+00				
48	4-Methylphenol	0.0E+00		0E+00				
49	Naphthalene	0.0E+00		0E+00				
50	Nickel(dust)	0.0E+00		NA				
51	Nickel (salts)	3.5E-03		2E-01				
52	Nitrogen, ammo	8.4E-01		NA				
53	Phenanthrene	1.2E-04		3E-04				
54	Pyrene	8.7E-05		3E-03				
55	Silica	1.1E+01		NA				
56	Silver	0.0E+00		0E+00				
57	Sodium	2.1E+01		NA				
58	Sulfate	5.5E+00		NA				
59	Styrene	0.0E+00		0E+00				
60	1,1,2,2-PCA	0.0E+00		NA				
61	PCE	2.6E-04		3E-02				
62	Thallium	0.0E+00		0E+00				
63	Toluene	2.9E-05		1E-04				
64	1,1,1-TCA	7.3E-05		8E-04				
65	TCE	7.3E-05		NA				
66	Vanadium	2.5E-03		4E-01				
	PATHWAY SUM (HI)		1E+02	0E+00	0E+00	0E+00	0E+00	0E+00
	POPULATION TOTAL		1E+02					

RANGE NAME: LSUM

SITE NAME: ORMET
OPERABLE UNIT: FUTURE RESIDENT ADUL
FILE NAME: POP8
LAST UPDATED: 03/13/91

LIFETIME EXPOSURE SUMMARY

FUTURE
RES. ADULT (GW)

LIFETIME AVERAGE DAILY INTAKE (mg/kg/day)

		SCENARIO 1	SCENARIO 2	SCENARIO 3	SCENARIO 4	SCENARIO 5	SCENARIO 6
		PLUME	0	0	0	0	0
		GW	0	0	0	0	0
		ORAL	0	0	0	0	0
	CHEMICAL NAME	(FROM WS1)	(FROM WS2)	(FROM WS3)	(FROM WS4)	(FROM WS5)	(FROM WS6)
1	Acenaphthene	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
2	Acenaphthylene	0.0E+00					
3	Acetone	3.2E-04					
4	Aluminum	1.0E+00					
5	Anthracene	0.0E+00					
6	Antimony	0.0E+00					
7	Aroclor 1242	0.0E+00					
8	Aroclor 1248	0.0E+00					
9	Aroclor 1254	0.0E+00					
10	Arsenic	2.3E-03					
11	Barium	2.1E-02					
12	Benzene	1.1E-04					
13	Benzo(a)anthra	0.0E+00					
14	Benzo(a)pyrene	0.0E+00					
15	Benzo(b)fluora	0.0E+00					
16	Benzo(g,h,i)pe	0.0E+00					
17	Benzo(k)fluora	0.0E+00					
18	Beryllium	1.5E-04					
19	BEHP	2.7E-04					
20	2-Butanone	0.0E+00					
21	Cadmium (food)	0.0E+00					
22	Cadmium (water	9.3E-05					
23	Carbon disulfi	1.1E-04					
24	Chloride	2.9E+00					
25	Chlorobenzene	0.0E+00					
26	Chloroform	7.5E-05					
27	Chromium (VI)	1.7E-03					
28	Chrysene	0.0E+00					
29	Cobalt	4.6E-03					
30	Copper	6.1E-03					
31	Cyanide (free)	1.7E-01					
32	Di-n-butylphth	8.7E-05					
33	Di-n-octylphth	0.0E+00					
34	Dibenz(a,h)ant	0.0E+00					
35	Dibenzofuran	0.0E+00					
36	2,4-Dimethylph	0.0E+00					
37	Ethyl benzene	0.0E+00					
38	Fluoranthene	1.6E-04					
39	Fluorene	0.0E+00					
40	Fluoride	6.1E+00					
41	Indeno(1,2,3-c	0.0E+00					
42	Iron	9.9E-01					

LIFETIME RISK SUMMARY

FUTURE
RES. ADULT (GW)

LIFETIME EXCESS CANCER RISK

SCENARIO 1	SCENARIO 2	SCENARIO 3	SCENARIO 4	SCENARIO 5	SCENARIO 6
PLUME	0	0	0	0	0
GW	0	0	0	0	0
ORAL	0	0	0	0	0
(FROM WS1)	(FROM WS2)	(FROM WS3)	(FROM WS4)	(FROM WS5)	(FROM WS6)
NA	0E+00	0E+00	0E+00	0E+00	0E+00
NA					
NA					
NA					
NA					
NA					
0E+00					
0E+00					
0E+00					
4E-03					
NA					
3E-06					
0E+00					
0E+00					
0E+00					
NA					
0E+00					
6E-04					
4E-06					
NA					
NA					
NA					
NA					
NA					
NA					
5E-07					
NA					
0E+00					
NA					
NA					
NA					
NA					
NA					
0E+00					
NA					
NA					
NA					
NA					
NA					
NA					
NA					
0E+00					
NA					

43	Lead	8.1E-04		NA				
44	Manganese	7.0E-02		NA				
45	Mercury	1.5E-05		NA				
46	Methylene chlo	1.3E-04		1E-06				
47	2-Methylnaphth	0.0E+00		NA				
48	4-Methylphenol	0.0E+00		NA				
49	Naphthalene	0.0E+00		NA				
50	Nickel(dust)	0.0E+00		NA				
51	Nickel (salts)	3.5E-03		NA				
52	Nitrogen, ammo	8.4E-01		NA				
53	Phenanthrene	1.2E-04		NA				
54	Pyrene	8.7E-05		NA				
55	Silica	1.1E+01		NA				
56	Silver	0.0E+00		NA				
57	Sodium	2.1E+01		NA				
58	Sulfate	5.5E+00		NA				
59	Styrene	0.0E+00		0E+00				
60	1,1,2,2-PCA	0.0E+00		0E+00				
61	PCE	2.6E-04		1E-05				
62	Thallium	0.0E+00		NA				
63	Toluene	2.9E-05		NA				
64	1,1,1-TCA	7.3E-05		NA				
65	TCE	7.3E-05		8E-07				
66	Vanadium	2.5E-03		NA				
			TOTAL PATHWAY CANCER RISK	5E-03	0E+00	0E+00	0E+00	0E+00	0E+00
			POPULATION TOTAL EXCESS RISK	5E-03					

RANGE NAME: WS1

SITE NAME: ORMET
OPERABLE UNIT: FUTURE RESIDENT ADULT
FILE NAME: POP9
LAST UPDATED: 03/13/91

EXPOSURE AND RISK CALCULATION WORKSHEET

LAND USE: FUTURE
POPULATION: RES. ADULT (BW)

EXPOSURE POINT: BACKWATER
MEDIUM: SW
ROUTE: ORAL

HIFs = 0.0E+00
HIFc = 6.3E-06
HIFl = 6.3E-06

		SUBCHRONIC					CHRONIC						LIFETIME					
	CHEMICAL NAME	Cs	HIFs	1	DIs	RfDS	HQs	Cc	HIFc	1	DIc	RfDC	HQc	Cl	HIFl	1	DIl	SF	RISK
1	Acenaphthene		0.0E+00		0.0E+00		ERR	0.0E+00	6.3E-06	1	0.0E+00	6.0E-02	0E+00	0.0E+00	6.3E-06	1	0.0E+00	NA	NA
2	Acenaphthylene							0.0E+00	6.3E-06	1	0.0E+00	4.0E-01	0E+00	0.0E+00	6.3E-06	1	0.0E+00	NA	NA
3	Acetone							1.1E-02	6.3E-06	1	6.9E-08	1.0E-01	7E-07	1.1E-02	6.3E-06	1	6.9E-08	NA	NA
4	Aluminum							1.3E+00	6.3E-06	1	8.2E-06	NA	NA	1.3E+00	6.3E-06	1	8.2E-06	NA	NA
5	Anthracene							0.0E+00	6.3E-06	1	0.0E+00	3.0E-01	0E+00	0.0E+00	6.3E-06	1	0.0E+00	NA	NA
6	Antimony							0.0E+00	6.3E-06	1	0.0E+00	4.0E-04	0E+00	0.0E+00	6.3E-06	1	0.0E+00	NA	NA
7	Aroclor 1242							1.5E-03	6.3E-06	1	9.5E-09	NA	NA	1.5E-03	6.3E-06	1	9.5E-09	7.7E+00	7E-08
8	Aroclor 1248							0.0E+00	6.3E-06	1	0.0E+00	NA	NA	0.0E+00	6.3E-06	1	0.0E+00	7.7E+00	0E+00
9	Aroclor 1254							0.0E+00	6.3E-06	1	0.0E+00	NA	NA	0.0E+00	6.3E-06	1	0.0E+00	7.7E+00	0E+00
10	Arsenic							1.1E-02	6.3E-06	1	6.9E-08	1.0E-03	7E-05	1.1E-02	6.3E-06	1	6.9E-08	1.8E+00	1E-07
11	Barium							7.8E-02	6.3E-06	1	4.9E-07	7.0E-02	7E-06	7.8E-02	6.3E-06	1	4.9E-07	NA	NA
12	Benzene							0.0E+00	6.3E-06	1	0.0E+00	NA	NA	0.0E+00	6.3E-06	1	0.0E+00	2.9E-02	0E+00
13	Benzo(a)anthracene							0.0E+00	6.3E-06	1	0.0E+00	4.0E-01	0E+00	0.0E+00	6.3E-06	1	0.0E+00	1.2E+01	0E+00
14	Benzo(a)pyrene							0.0E+00	6.3E-06	1	0.0E+00	4.0E-01	0E+00	0.0E+00	6.3E-06	1	0.0E+00	1.2E+01	0E+00
15	Benzo(b)fluoranthene							0.0E+00	6.3E-06	1	0.0E+00	4.0E-01	0E+00	0.0E+00	6.3E-06	1	0.0E+00	1.2E+01	0E+00
16	Benzo(g,h,i)perylene							0.0E+00	6.3E-06	1	0.0E+00	4.0E-01	0E+00	0.0E+00	6.3E-06	1	0.0E+00	NA	NA
17	Benzo(k)fluoranthene							0.0E+00	6.3E-06	1	0.0E+00	4.0E-01	0E+00	0.0E+00	6.3E-06	1	0.0E+00	1.2E+01	0E+00
18	Beryllium							0.0E+00	6.3E-06	1	0.0E+00	5.0E-03	0E+00	0.0E+00	6.3E-06	1	0.0E+00	4.3E+00	0E+00
19	BEHP							0.0E+00	6.3E-06	1	0.0E+00	2.0E-02	0E+00	0.0E+00	6.3E-06	1	0.0E+00	1.4E-02	0E+00
20	2-Butanone							0.0E+00	6.3E-06	1	0.0E+00	5.0E-02	0E+00	0.0E+00	6.3E-06	1	0.0E+00	NA	NA
21	Cadmium (food)							0.0E+00	6.3E-06	1	0.0E+00	1.0E-03	0E+00	0.0E+00	6.3E-06	1	0.0E+00	NA	NA
22	Cadmium (water)							0.0E+00	6.3E-06	1	0.0E+00	5.0E-04	0E+00	0.0E+00	6.3E-06	1	0.0E+00	NA	NA
23	Carbon disulfide							0.0E+00	6.3E-06	1	0.0E+00	1.0E-01	0E+00	0.0E+00	6.3E-06	1	0.0E+00	NA	NA
24	Chloride							4.1E+01	6.3E-06	1	2.6E-04	NA	NA	4.1E+01	6.3E-06	1	2.6E-04	NA	NA
25	Chlorobenzene							0.0E+00	6.3E-06	1	0.0E+00	2.0E-02	0E+00	0.0E+00	6.3E-06	1	0.0E+00	NA	NA
26	Chloroform							0.0E+00	6.3E-06	1	0.0E+00	1.0E-02	0E+00	0.0E+00	6.3E-06	1	0.0E+00	6.1E-03	0E+00
27	Chromium (VI)							1.2E-02	6.3E-06	1	7.6E-08	5.0E-03	2E-05	1.2E-02	6.3E-06	1	7.6E-08	NA	NA
28	Chrysene							3.0E-03	6.3E-06	1	1.9E-08	4.0E-01	5E-08	3.0E-03	6.3E-06	1	1.9E-08	1.2E+01	2E-07
29	Cobalt							0.0E+00	6.3E-06	1	0.0E+00	NA	NA	0.0E+00	6.3E-06	1	0.0E+00	NA	NA
30	Copper							2.6E-02	6.3E-06	1	1.6E-07	3.7E-02	4E-06	2.6E-02	6.3E-06	1	1.6E-07	NA	NA
31	Cyanide (free)							1.3E-01	6.3E-06	1	8.2E-07	2.0E-02	4E-05	1.3E-01	6.3E-06	1	8.2E-07	NA	NA
32	Di-n-butylphthalate							0.0E+00	6.3E-06	1	0.0E+00	1.0E-01	0E+00	0.0E+00	6.3E-06	1	0.0E+00	NA	NA
33	Di-n-octylphthalate							0.0E+00	6.3E-06	1	0.0E+00	2.0E-02	0E+00	0.0E+00	6.3E-06	1	0.0E+00	NA	NA
34	Dibenz(a,h)anthracene							0.0E+00	6.3E-06	1	0.0E+00	4.0E-01	0E+00	0.0E+00	6.3E-06	1	0.0E+00	1.2E+01	0E+00
35	Dibenzofuran							0.0E+00	6.3E-06	1	0.0E+00	NA	NA	0.0E+00	6.3E-06	1	0.0E+00	NA	NA
36	2,4-Dimethylphenol							0.0E+00	6.3E-06	1	0.0E+00	2.0E-02	0E+00	0.0E+00	6.3E-06	1	0.0E+00	NA	NA
37	Ethyl benzene							0.0E+00	6.3E-06	1	0.0E+00	1.0E-01	0E+00	0.0E+00	6.3E-06	1	0.0E+00	NA	NA
38	Fluoranthene							3.0E-03	6.3E-06	1	1.9E-08	4.0E-02	5E-07	3.0E-03	6.3E-06	1	1.9E-08	NA	NA
39	Fluorene							0.0E+00	6.3E-06	1	0.0E+00	4.0E-02	0E+00	0.0E+00	6.3E-06	1	0.0E+00	NA	NA

40	Fluoride	1.2E+01	6.3E-06	1	7.6E-05	6.0E-02	1E-03	1.2E+01	6.3E-06	1	7.6E-05	NA	NA
41	Indeno(1,2,3-cd)pyrene	0.0E+00	6.3E-06	1	0.0E+00	4.0E-01	0E+00	0.0E+00	6.3E-06	1	0.0E+00	1.2E+01	0E+00
42	Iron	2.2E+00	6.3E-06	1	1.4E-05	NA	NA	2.2E+00	6.3E-06	1	1.4E-05	NA	NA
43	Lead	3.0E-03	6.3E-06	1	1.9E-08	NA	NA	3.0E-03	6.3E-06	1	1.9E-08	NA	NA
44	Manganese	7.7E-01	6.3E-06	1	4.9E-06	1.0E-01	5E-05	7.7E-01	6.3E-06	1	4.9E-06	NA	NA
45	Mercury	0.0E+00	6.3E-06	1	0.0E+00	3.0E-04	0E+00	0.0E+00	6.3E-06	1	0.0E+00	NA	NA
46	Methylene chloride	2.0E-03	6.3E-06	1	1.3E-08	6.0E-02	2E-07	2.0E-03	6.3E-06	1	1.3E-08	7.5E-03	9E-11
47	2-Methylnaphthalene	0.0E+00	6.3E-06	1	0.0E+00	4.0E-01	0E+00	0.0E+00	6.3E-06	1	0.0E+00	NA	NA
48	4-Methylphenol	0.0E+00	6.3E-06	1	0.0E+00	5.0E-02	0E+00	0.0E+00	6.3E-06	1	0.0E+00	NA	NA
49	Naphthalene	0.0E+00	6.3E-06	1	0.0E+00	4.0E-01	0E+00	0.0E+00	6.3E-06	1	0.0E+00	NA	NA
50	Nickel(dust)	0.0E+00	6.3E-06	1	0.0E+00	NA	NA	0.0E+00	6.3E-06	1	0.0E+00	NA	NA
51	Nickel (salts)	0.0E+00	6.3E-06	1	0.0E+00	2.0E-02	0E+00	0.0E+00	6.3E-06	1	0.0E+00	NA	NA
52	Nitrogen, ammonia	0.0E+00	6.3E-06	1	0.0E+00	NA	NA	0.0E+00	6.3E-06	1	0.0E+00	NA	NA
53	Phenanthrene	0.0E+00	6.3E-06	1	0.0E+00	4.0E-01	0E+00	0.0E+00	6.3E-06	1	0.0E+00	NA	NA
54	Pyrene	3.0E-03	6.3E-06	1	1.9E-08	3.0E-02	6E-07	3.0E-03	6.3E-06	1	1.9E-08	NA	NA
55	Silica	0.0E+00	6.3E-06	1	0.0E+00	NA	NA	0.0E+00	6.3E-06	1	0.0E+00	NA	NA
56	Silver	0.0E+00	6.3E-06	1	0.0E+00	3.0E-03	0E+00	0.0E+00	6.3E-06	1	0.0E+00	NA	NA
57	Sodium	1.5E+02	6.3E-06	1	9.5E-04	NA	NA	1.5E+02	6.3E-06	1	9.5E-04	NA	NA
58	Sulfate	1.1E+02	6.3E-06	1	6.9E-04	NA	NA	1.1E+02	6.3E-06	1	6.9E-04	NA	NA
59	Styrene	0.0E+00	6.3E-06	1	0.0E+00	2.0E-01	0E+00	0.0E+00	6.3E-06	1	0.0E+00	3.0E-02	0E+00
60	1,1,2,2-PCA	0.0E+00	6.3E-06	1	0.0E+00	NA	NA	0.0E+00	6.3E-06	1	0.0E+00	2.0E-01	0E+00
61	PCE	0.0E+00	6.3E-06	1	0.0E+00	1.0E-02	0E+00	0.0E+00	6.3E-06	1	0.0E+00	5.1E-02	0E+00
62	Thallium	0.0E+00	6.3E-06	1	0.0E+00	7.0E-05	0E+00	0.0E+00	6.3E-06	1	0.0E+00	NA	NA
63	Toluene	0.0E+00	6.3E-06	1	0.0E+00	2.0E-01	0E+00	0.0E+00	6.3E-06	1	0.0E+00	NA	NA
64	1,1,1-TCA	0.0E+00	6.3E-06	1	0.0E+00	9.0E-02	0E+00	0.0E+00	6.3E-06	1	0.0E+00	NA	NA
65	TCE	0.0E+00	6.3E-06	1	0.0E+00	NA	NA	0.0E+00	6.3E-06	1	0.0E+00	1.1E-02	0E+00
66	Vanadium	0.0E+00	6.3E-06	1	0.0E+00	7.0E-03	0E+00	0.0E+00	6.3E-06	1	0.0E+00	NA	NA

RANGE NAME: WS2

EXPOSURE AND RISK CALCULATION WORKSHEET

SITE NAME: ORMET
OPERABLE UNIT: FUTURE RESIDENT ADULT
FILE NAME: POP9
LAST UPDATED: 03/13/91

LAND USE: FUTURE
POPULATION: RES. ADULT (BW)

EXPOSURE POINT: BACKWATER
MEDIUM: SW
ROUTE: DERMAL

HIFs = 0.0E+00
HIFc = 1.0E-05
HIFl = 1.0E-05

		SUBCHRONIC						CHRONIC						LIFETIME					
	CHEMICAL NAME	Cs	HIFs	ABS	DIs	RfDS	HQs	Cc	HIFc	ABS	DIc	RfDC	HQc	Cl	HIFl	ABS	DIl	SF	RISK
1	Acenaphthene		0.0E+00		0.0E+00		ERR	0.0E+00	1.0E-05	1.0E-01	0.0E+00	NA	NA	0.0E+00	1.0E-05	1.0E-01	0.0E+00	NA	NA
2	Acenaphthylene							0.0E+00	1.0E-05	NA	NA	NA	NA	0.0E+00	1.0E-05	NA	NA	NA	NA
3	Acetone							1.1E-02	1.0E-05	2.5E-01	2.8E-08	1.0E-01	3E-07	1.1E-02	1.0E-05	2.5E-01	2.8E-08	NA	NA
4	Aluminum							1.3E+00	1.0E-05	NA	NA	NA	NA	1.3E+00	1.0E-05	NA	NA	NA	NA
5	Anthracene							0.0E+00	1.0E-05	NA	NA	NA	NA	0.0E+00	1.0E-05	NA	NA	NA	NA
6	Antimony							0.0E+00	1.0E-05	NA	NA	NA	NA	0.0E+00	1.0E-05	NA	NA	NA	NA
7	Aroclor 1242							1.5E-03	1.0E-05	1.0E-01	1.5E-09	NA	NA	1.5E-03	1.0E-05	1.0E-01	1.5E-09	7.7E+00	1E-08
8	Aroclor 1248							0.0E+00	1.0E-05	1.0E-01	0.0E+00	NA	NA	0.0E+00	1.0E-05	1.0E-01	0.0E+00	7.7E+00	0E+00
9	Aroclor 1254							0.0E+00	1.0E-05	1.0E-01	0.0E+00	NA	NA	0.0E+00	1.0E-05	1.0E-01	0.0E+00	7.7E+00	0E+00
10	Arsenic							1.1E-02	1.0E-05	NA	NA	NA	NA	1.1E-02	1.0E-05	NA	NA	NA	NA
11	Barium							7.8E-02	1.0E-05	NA	NA	NA	NA	7.8E-02	1.0E-05	NA	NA	NA	NA
12	Benzene							0.0E+00	1.0E-05	2.5E-01	0.0E+00	NA	NA	0.0E+00	1.0E-05	2.5E-01	0.0E+00	2.9E-02	0E+00
13	Benzo(a)anthracene							0.0E+00	1.0E-05	NA	NA	NA	NA	0.0E+00	1.0E-05	NA	NA	NA	NA
14	Benzo(a)pyrene							0.0E+00	1.0E-05	NA	NA	NA	NA	0.0E+00	1.0E-05	NA	NA	NA	NA
15	Benzo(b)fluoranthene							0.0E+00	1.0E-05	NA	NA	NA	NA	0.0E+00	1.0E-05	NA	NA	NA	NA
16	Benzo(g,h,i)perylene							0.0E+00	1.0E-05	NA	NA	NA	NA	0.0E+00	1.0E-05	NA	NA	NA	NA
17	Benzo(k)fluoranthene							0.0E+00	1.0E-05	NA	NA	NA	NA	0.0E+00	1.0E-05	NA	NA	NA	NA
18	Beryllium							0.0E+00	1.0E-05	NA	NA	NA	NA	0.0E+00	1.0E-05	NA	NA	NA	NA
19	BEHP							0.0E+00	1.0E-05	1.0E-01	0.0E+00	2.0E-02	0E+00	0.0E+00	1.0E-05	1.0E-01	0.0E+00	1.4E-02	0E+00
20	2-Butanone							0.0E+00	1.0E-05	2.5E-01	0.0E+00	5.0E-02	0E+00	0.0E+00	1.0E-05	2.5E-01	0.0E+00	NA	NA
21	Cadmium (food)							0.0E+00	1.0E-05	NA	NA	NA	NA	0.0E+00	1.0E-05	NA	NA	NA	NA
22	Cadmium (water)							0.0E+00	1.0E-05	NA	NA	NA	NA	0.0E+00	1.0E-05	NA	NA	NA	NA
23	Carbon disulfide							0.0E+00	1.0E-05	2.5E-01	0.0E+00	1.0E-01	0E+00	0.0E+00	1.0E-05	2.5E-01	0.0E+00	NA	NA
24	Chloride							4.1E+01	1.0E-05	NA	NA	NA	NA	4.1E+01	1.0E-05	NA	NA	NA	NA
25	Chlorobenzene							0.0E+00	1.0E-05	2.5E-01	0.0E+00	2.0E-02	0E+00	0.0E+00	1.0E-05	2.5E-01	0.0E+00	NA	NA
26	Chloroform							0.0E+00	1.0E-05	2.5E-01	0.0E+00	1.0E-02	0E+00	0.0E+00	1.0E-05	2.5E-01	0.0E+00	6.1E-03	0E+00
27	Chromium (VI)							1.2E-02	1.0E-05	NA	NA	NA	NA	1.2E-02	1.0E-05	NA	NA	NA	NA
28	Chrysene							3.0E-03	1.0E-05	NA	NA	4.0E-01	NA	3.0E-03	1.0E-05	NA	NA	1.2E+01	NA
29	Cobalt							0.0E+00	1.0E-05	NA	NA	NA	NA	0.0E+00	1.0E-05	NA	NA	NA	NA
30	Copper							2.6E-02	1.0E-05	NA	NA	NA	NA	2.6E-02	1.0E-05	NA	NA	NA	NA
31	Cyanide (free)							1.3E-01	1.0E-05	NA	NA	NA	NA	1.3E-01	1.0E-05	NA	NA	NA	NA
32	Di-n-butylphthalate							0.0E+00	1.0E-05	1.0E-01	0.0E+00	1.0E-01	0E+00	0.0E+00	1.0E-05	1.0E-01	0.0E+00	NA	NA
33	Di-n-octylphthalate							0.0E+00	1.0E-05	1.0E-01	0.0E+00	2.0E-02	0E+00	0.0E+00	1.0E-05	1.0E-01	0.0E+00	NA	NA
34	Dibenz(a,h)anthracene							0.0E+00	1.0E-05	NA	NA	NA	NA	0.0E+00	1.0E-05	NA	NA	NA	NA
35	Dibenzofuran							0.0E+00	1.0E-05	1.0E-01	0.0E+00	NA	NA	0.0E+00	1.0E-05	1.0E-01	0.0E+00	NA	NA
36	2,4-Dimethylphenol							0.0E+00	1.0E-05	1.0E-01	0.0E+00	2.0E-02	0E+00	0.0E+00	1.0E-05	1.0E-01	0.0E+00	NA	NA
37	Ethyl benzene							0.0E+00	1.0E-05	2.5E-01	0.0E+00	1.0E-01	0E+00	0.0E+00	1.0E-05	2.5E-01	0.0E+00	NA	NA
38	Fluoranthene							3.0E-03	1.0E-05	NA	NA	NA	NA	3.0E-03	1.0E-05	NA	NA	NA	NA
39	Fluorene							0.0E+00	1.0E-05	NA	NA	NA	NA	0.0E+00	1.0E-05	NA	NA	NA	NA

40	Fluoride	1.2E+01	1.0E-05	NA	NA	NA	NA	1.2E+01	1.0E-05	NA	NA	NA	NA
41	Indeno(1,2,3-cd)pyrene	0.0E+00	1.0E-05	NA	NA	NA	NA	0.0E+00	1.0E-05	NA	NA	NA	NA
42	Iron	2.2E+00	1.0E-05	NA	NA	NA	NA	2.2E+00	1.0E-05	NA	NA	NA	NA
43	Lead	3.0E-03	1.0E-05	NA	NA	NA	NA	3.0E-03	1.0E-05	NA	NA	NA	NA
44	Manganese	7.7E-01	1.0E-05	NA	NA	NA	NA	7.7E-01	1.0E-05	NA	NA	NA	NA
45	Mercury	0.0E+00	1.0E-05	NA	NA	NA	NA	0.0E+00	1.0E-05	NA	NA	NA	NA
46	Methylene chloride	2.0E-03	1.0E-05	2.5E-01	5.0E-09	6.0E-02	8E-08	2.0E-03	1.0E-05	2.5E-01	5.0E-09	7.5E-03	4E-11
47	2-Methylnaphthalene	0.0E+00	1.0E-05	NA	NA	NA	NA	0.0E+00	1.0E-05	NA	NA	NA	NA
48	4-Methylphenol	0.0E+00	1.0E-05	1.0E-01	0.0E+00	5.0E-02	0E+00	0.0E+00	1.0E-05	1.0E-01	0.0E+00	NA	NA
49	Naphthalene	0.0E+00	1.0E-05	NA	NA	NA	NA	0.0E+00	1.0E-05	NA	NA	NA	NA
50	Nickel(dust)	0.0E+00	1.0E-05	NA	NA	NA	NA	0.0E+00	1.0E-05	NA	NA	NA	NA
51	Nickel (salts)	0.0E+00	1.0E-05	NA	NA	NA	NA	0.0E+00	1.0E-05	NA	NA	NA	NA
52	Nitrogen, ammonia	0.0E+00	1.0E-05	NA	NA	NA	NA	0.0E+00	1.0E-05	NA	NA	NA	NA
53	Phenanthrene	0.0E+00	1.0E-05	NA	NA	NA	NA	0.0E+00	1.0E-05	NA	NA	NA	NA
54	Pyrene	3.0E-03	1.0E-05	NA	NA	NA	NA	3.0E-03	1.0E-05	NA	NA	NA	NA
55	Silica	0.0E+00	1.0E-05	NA	NA	NA	NA	0.0E+00	1.0E-05	NA	NA	NA	NA
56	Silver	0.0E+00	1.0E-05	NA	NA	NA	NA	0.0E+00	1.0E-05	NA	NA	NA	NA
57	Sodium	1.5E+02	1.0E-05	NA	NA	NA	NA	1.5E+02	1.0E-05	NA	NA	NA	NA
58	Sulfate	1.1E+02	1.0E-05	NA	NA	NA	NA	1.1E+02	1.0E-05	NA	NA	NA	NA
59	Styrene	0.0E+00	1.0E-05	2.5E-01	0.0E+00	2.0E-01	0E+00	0.0E+00	1.0E-05	2.5E-01	0.0E+00	3.0E-02	0E+00
60	1,1,2,2-PCA	0.0E+00	1.0E-05	2.5E-01	0.0E+00	NA	NA	0.0E+00	1.0E-05	2.5E-01	0.0E+00	2.0E-01	0E+00
61	PCE	0.0E+00	1.0E-05	2.5E-01	0.0E+00	1.0E-02	0E+00	0.0E+00	1.0E-05	2.5E-01	0.0E+00	5.1E-02	0E+00
62	Thallium	0.0E+00	1.0E-05	NA	NA	NA	NA	0.0E+00	1.0E-05	NA	NA	NA	NA
63	Toluene	0.0E+00	1.0E-05	2.5E-01	0.0E+00	2.0E-01	0E+00	0.0E+00	1.0E-05	2.5E-01	0.0E+00	NA	NA
64	1,1,1-TCA	0.0E+00	1.0E-05	2.5E-01	0.0E+00	9.0E-02	0E+00	0.0E+00	1.0E-05	2.5E-01	0.0E+00	NA	NA
65	TCE	0.0E+00	1.0E-05	2.5E-01	0.0E+00	NA	NA	0.0E+00	1.0E-05	2.5E-01	0.0E+00	1.1E-02	0E+00
66	Vanadium	0.0E+00	1.0E-05	NA	NA	NA	NA	0.0E+00	1.0E-05	NA	NA	NA	NA

RANGE NAME: WS3

EXPOSURE AND RISK CALCULATION WORKSHEET

SITE NAME: ORMET
OPERABLE UNIT: FUTURE RESIDENT ADULT
FILE NAME: POP9
LAST UPDATED: 03/13/91

LAND USE: FUTURE
POPULATION: RES. ADULT (BW)

EXPOSURE POINT: BACKWATER
MEDIUM: SEDIMENT
ROUTE: ORAL

HIFs = 0.0E+00
HIFc = 6.3E-09
HIFl = 6.3E-09

		SUBCHRONIC					CHRONIC						LIFETIME					
	CHEMICAL NAME	Cs	HIFs	1	DIs	RfDS	HQs	Cc	HIFc	1	DIc	RfDC	HQc	Cl	HIFl	1	DIl	SF	RISK
1	Acenaphthene		0.0E+00		0.0E+00		ERR	1.5E+01	6.3E-09	1	9.5E-08	6.0E-02	2E-06	1.5E+01	6.3E-09	1	9.5E-08	NA	NA
2	Acenaphthylene							2.5E-01	6.3E-09	1	1.6E-09	4.0E-01	4E-09	2.5E-01	6.3E-09	1	1.6E-09	NA	NA
3	Acetone							0.0E+00	6.3E-09	1	0.0E+00	1.0E-01	0E+00	0.0E+00	6.3E-09	1	0.0E+00	NA	NA
4	Aluminum							1.0E+04	6.3E-09	1	6.3E-05	NA	NA	1.0E+04	6.3E-09	1	6.3E-05	NA	NA
5	Anthracene							2.5E+01	6.3E-09	1	1.6E-07	3.0E-01	5E-07	2.5E+01	6.3E-09	1	1.6E-07	NA	NA
6	Antimony							0.0E+00	6.3E-09	1	0.0E+00	4.0E-04	0E+00	0.0E+00	6.3E-09	1	0.0E+00	NA	NA
7	Aroclor 1242							0.0E+00	6.3E-09	1	0.0E+00	NA	NA	0.0E+00	6.3E-09	1	0.0E+00	7.7E+00	0E+00
8	Aroclor 1248							9.8E+01	6.3E-09	1	6.2E-07	NA	NA	9.8E+01	6.3E-09	1	6.2E-07	7.7E+00	5E-06
9	Aroclor 1254							0.0E+00	6.3E-09	1	0.0E+00	NA	NA	0.0E+00	6.3E-09	1	0.0E+00	7.7E+00	0E+00
10	Arsenic							5.3E+00	6.3E-09	1	3.3E-08	1.0E-03	3E-05	5.3E+00	6.3E-09	1	3.3E-08	1.8E+00	6E-08
11	Barium							7.3E+01	6.3E-09	1	4.6E-07	7.0E-02	7E-06	7.3E+01	6.3E-09	1	4.6E-07	NA	NA
12	Benzene							0.0E+00	6.3E-09	1	0.0E+00	NA	NA	0.0E+00	6.3E-09	1	0.0E+00	2.9E-02	0E+00
13	Benzo(a)anthracene							1.2E+02	6.3E-09	1	7.6E-07	4.0E-01	2E-06	1.2E+02	6.3E-09	1	7.6E-07	1.2E+01	9E-06
14	Benzo(a)pyrene							1.8E+02	6.3E-09	1	1.1E-06	4.0E-01	3E-06	1.8E+02	6.3E-09	1	1.1E-06	1.2E+01	1E-05
15	Benzo(b)fluoranthene							3.9E+02	6.3E-09	1	2.5E-06	4.0E-01	6E-06	3.9E+02	6.3E-09	1	2.5E-06	1.2E+01	3E-05
16	Benzo(g,h,i)perylene							8.8E+01	6.3E-09	1	5.5E-07	4.0E-01	1E-06	8.8E+01	6.3E-09	1	5.5E-07	NA	NA
17	Benzo(k)fluoranthene							1.7E+02	6.3E-09	1	1.1E-06	4.0E-01	3E-06	1.7E+02	6.3E-09	1	1.1E-06	1.2E+01	1E-05
18	Beryllium							1.1E+00	6.3E-09	1	6.9E-09	5.0E-03	1E-06	1.1E+00	6.3E-09	1	6.9E-09	4.3E+00	3E-08
19	BEHP							5.7E-01	6.3E-09	1	3.6E-09	2.0E-02	2E-07	5.7E-01	6.3E-09	1	3.6E-09	1.4E-02	5E-11
20	2-Butanone							0.0E+00	6.3E-09	1	0.0E+00	5.0E-02	0E+00	0.0E+00	6.3E-09	1	0.0E+00	NA	NA
21	Cadmium (food)							0.0E+00	6.3E-09	1	0.0E+00	1.0E-03	0E+00	0.0E+00	6.3E-09	1	0.0E+00	NA	NA
22	Cadmium (water)							0.0E+00	6.3E-09	1	0.0E+00	5.0E-04	0E+00	0.0E+00	6.3E-09	1	0.0E+00	NA	NA
23	Carbon disulfide							0.0E+00	6.3E-09	1	0.0E+00	1.0E-01	0E+00	0.0E+00	6.3E-09	1	0.0E+00	NA	NA
24	Chloride							9.6E+01	6.3E-09	1	6.0E-07	NA	NA	9.6E+01	6.3E-09	1	6.0E-07	NA	NA
25	Chlorobenzene							0.0E+00	6.3E-09	1	0.0E+00	2.0E-02	0E+00	0.0E+00	6.3E-09	1	0.0E+00	NA	NA
26	Chloroform							0.0E+00	6.3E-09	1	0.0E+00	1.0E-02	0E+00	0.0E+00	6.3E-09	1	0.0E+00	6.1E-03	0E+00
27	Chromium (VI)							1.3E+01	6.3E-09	1	8.2E-08	5.0E-03	2E-05	1.3E+01	6.3E-09	1	8.2E-08	NA	NA
28	Chrysene							1.2E+02	6.3E-09	1	7.6E-07	4.0E-01	2E-06	1.2E+02	6.3E-09	1	7.6E-07	1.2E+01	9E-06
29	Cobalt							2.7E+00	6.3E-09	1	1.7E-08	NA	NA	2.7E+00	6.3E-09	1	1.7E-08	NA	NA
30	Copper							1.2E+02	6.3E-09	1	7.6E-07	3.7E-02	2E-05	1.2E+02	6.3E-09	1	7.6E-07	NA	NA
31	Cyanide (free)							4.2E+01	6.3E-09	1	2.6E-07	2.0E-02	1E-05	4.2E+01	6.3E-09	1	2.6E-07	NA	NA
32	Di-n-butylphthalate							0.0E+00	6.3E-09	1	0.0E+00	1.0E-01	0E+00	0.0E+00	6.3E-09	1	0.0E+00	NA	NA
33	Di-n-octylphthalate							0.0E+00	6.3E-09	1	0.0E+00	2.0E-02	0E+00	0.0E+00	6.3E-09	1	0.0E+00	NA	NA
34	Dibenz(a,h)anthracene							2.2E+01	6.3E-09	1	1.4E-07	4.0E-01	3E-07	2.2E+01	6.3E-09	1	1.4E-07	1.2E+01	2E-06
35	Dibenzofuran							3.3E+00	6.3E-09	1	2.1E-08	NA	NA	3.3E+00	6.3E-09	1	2.1E-08	NA	NA
36	2,4-Dimethylphenol							0.0E+00	6.3E-09	1	0.0E+00	2.0E-02	0E+00	0.0E+00	6.3E-09	1	0.0E+00	NA	NA
37	Ethyl benzene							0.0E+00	6.3E-09	1	0.0E+00	1.0E-01	0E+00	0.0E+00	6.3E-09	1	0.0E+00	NA	NA
38	Fluoranthene							1.2E+02	6.3E-09	1	7.6E-07	4.0E-02	2E-05	1.2E+02	6.3E-09	1	7.6E-07	NA	NA
39	Fluorene							7.8E+00	6.3E-09	1	4.9E-08	4.0E-02	1E-06	7.8E+00	6.3E-09	1	4.9E-08	NA	NA

40	Fluoride	8.3E+01	6.3E-09	1	5.2E-07	6.0E-02	9E-06	8.3E+01	6.3E-09	1	5.2E-07	NA	NA
41	Indeno(1,2,3-cd)pyrene	8.9E+01	6.3E-09	1	5.6E-07	4.0E-01	1E-06	8.9E+01	6.3E-09	1	5.6E-07	1.2E+01	7E-06
42	Iron	1.3E+04	6.3E-09	1	8.2E-05	NA	NA	1.3E+04	6.3E-09	1	8.2E-05	NA	NA
43	Lead	2.0E+01	6.3E-09	1	1.3E-07	NA	NA	2.0E+01	6.3E-09	1	1.3E-07	NA	NA
44	Manganese	6.5E+02	6.3E-09	1	4.1E-06	1.0E-01	4E-05	6.5E+02	6.3E-09	1	4.1E-06	NA	NA
45	Mercury	0.0E+00	6.3E-09	1	0.0E+00	3.0E-04	0E+00	0.0E+00	6.3E-09	1	0.0E+00	NA	NA
46	Methylene chloride	3.2E-02	6.3E-09	1	2.0E-10	6.0E-02	3E-09	3.2E-02	6.3E-09	1	2.0E-10	7.5E-03	2E-12
47	2-Methylnaphthalene	7.4E-01	6.3E-09	1	4.7E-09	4.0E-01	1E-08	7.4E-01	6.3E-09	1	4.7E-09	NA	NA
48	4-Methylphenol	0.0E+00	6.3E-09	1	0.0E+00	5.0E-02	0E+00	0.0E+00	6.3E-09	1	0.0E+00	NA	NA
49	Naphthalene	1.6E+00	6.3E-09	1	1.0E-08	4.0E-01	3E-08	1.6E+00	6.3E-09	1	1.0E-08	NA	NA
50	Nickel(dust)	0.0E+00	6.3E-09	1	0.0E+00	NA	NA	0.0E+00	6.3E-09	1	0.0E+00	NA	NA
51	Nickel (salts)	1.0E+01	6.3E-09	1	6.3E-08	2.0E-02	3E-06	1.0E+01	6.3E-09	1	6.3E-08	NA	NA
52	Nitrogen, ammonia	0.0E+00	6.3E-09	1	0.0E+00	NA	NA	0.0E+00	6.3E-09	1	0.0E+00	NA	NA
53	Phenanthrene	4.7E+01	6.3E-09	1	3.0E-07	4.0E-01	7E-07	4.7E+01	6.3E-09	1	3.0E-07	NA	NA
54	Pyrene	1.2E+02	6.3E-09	1	7.6E-07	3.0E-02	3E-05	1.2E+02	6.3E-09	1	7.6E-07	NA	NA
55	Silica	1.1E+01	6.3E-09	1	6.9E-08	NA	NA	1.1E+01	6.3E-09	1	6.9E-08	NA	NA
56	Silver	0.0E+00	6.3E-09	1	0.0E+00	3.0E-03	0E+00	0.0E+00	6.3E-09	1	0.0E+00	NA	NA
57	Sodium	2.1E+03	6.3E-09	1	1.3E-05	NA	NA	2.1E+03	6.3E-09	1	1.3E-05	NA	NA
58	Sulfate	6.0E+01	6.3E-09	1	3.8E-07	NA	NA	6.0E+01	6.3E-09	1	3.8E-07	NA	NA
59	Styrene	0.0E+00	6.3E-09	1	0.0E+00	2.0E-01	0E+00	0.0E+00	6.3E-09	1	0.0E+00	3.0E-02	0E+00
60	1,1,2,2-PCA	0.0E+00	6.3E-09	1	0.0E+00	NA	NA	0.0E+00	6.3E-09	1	0.0E+00	2.0E-01	0E+00
61	PCE	0.0E+00	6.3E-09	1	0.0E+00	1.0E-02	0E+00	0.0E+00	6.3E-09	1	0.0E+00	5.1E-02	0E+00
62	Thallium	0.0E+00	6.3E-09	1	0.0E+00	7.0E-05	0E+00	0.0E+00	6.3E-09	1	0.0E+00	NA	NA
63	Toluene	0.0E+00	6.3E-09	1	0.0E+00	2.0E-01	0E+00	0.0E+00	6.3E-09	1	0.0E+00	NA	NA
64	1,1,1-TCA	0.0E+00	6.3E-09	1	0.0E+00	9.0E-02	0E+00	0.0E+00	6.3E-09	1	0.0E+00	NA	NA
65	TCE	0.0E+00	6.3E-09	1	0.0E+00	NA	NA	0.0E+00	6.3E-09	1	0.0E+00	1.1E-02	0E+00
66	Vanadium	1.0E+01	6.3E-09	1	6.3E-08	7.0E-03	9E-06	1.0E+01	6.3E-09	1	6.3E-08	NA	NA

RANGE NAME: WS4

EXPOSURE AND RISK CALCULATION WORKSHEET

SITE NAME: ORMET
OPERABLE UNIT: FUTURE RESIDENT ADULT
FILE NAME: POP9
LAST UPDATED: 03/13/91

LAND USE: FUTURE
POPULATION: RES. ADULT (BW)

EXPOSURE POINT: BACKWATER
MEDIUM: SEDIMENT
ROUTE: DERMAL

HIFs = 0.0E+00
HIFc = 1.0E-05
HIFl = 1.0E-05

		SUBCHRONIC						CHRONIC						LIFETIME					
	CHEMICAL NAME	Cs	HIFs	ABS	DIs	RfDS	HQs	Cc	HIFc	ABS	DIc	RfDC	HQc	Cl	HIFl	ABS	DIl	SF	RISK
1	Acenaphthene		0.0E+00		0.0E+00		ERR	1.5E+01	1.0E-05	1.0E-01	1.5E-05	NA	NA	1.5E+01	1.0E-05	1.0E-01	1.5E-05	NA	NA
2	Acenaphthylene							2.5E-01	1.0E-05	NA	NA	NA	NA	2.5E-01	1.0E-05	NA	NA	NA	NA
3	Acetone							0.0E+00	1.0E-05	2.5E-01	0.0E+00	1.0E-01	0E+00	0.0E+00	1.0E-05	2.5E-01	0.0E+00	NA	NA
4	Aluminum							1.0E+04	1.0E-05	NA	NA	NA	NA	1.0E+04	1.0E-05	NA	NA	NA	NA
5	Anthracene							2.5E+01	1.0E-05	NA	NA	NA	NA	2.5E+01	1.0E-05	NA	NA	NA	NA
6	Antimony							0.0E+00	1.0E-05	NA	NA	NA	NA	0.0E+00	1.0E-05	NA	NA	NA	NA
7	Aroclor 1242							0.0E+00	1.0E-05	1.0E-01	0.0E+00	NA	NA	0.0E+00	1.0E-05	1.0E-01	0.0E+00	7.7E+00	0E+00
8	Aroclor 1248							9.8E+01	1.0E-05	1.0E-01	9.8E-05	NA	NA	9.8E+01	1.0E-05	1.0E-01	9.8E-05	7.7E+00	8E-04
9	Aroclor 1254							0.0E+00	1.0E-05	1.0E-01	0.0E+00	NA	NA	0.0E+00	1.0E-05	1.0E-01	0.0E+00	7.7E+00	0E+00
10	Arsenic							5.3E+00	1.0E-05	NA	NA	NA	NA	5.3E+00	1.0E-05	NA	NA	NA	NA
11	Barium							7.3E+01	1.0E-05	NA	NA	NA	NA	7.3E+01	1.0E-05	NA	NA	NA	NA
12	Benzene							0.0E+00	1.0E-05	2.5E-01	0.0E+00	NA	NA	0.0E+00	1.0E-05	2.5E-01	0.0E+00	2.9E-02	0E+00
13	Benzo(a)anthracene							1.2E+02	1.0E-05	NA	NA	NA	NA	1.2E+02	1.0E-05	NA	NA	NA	NA
14	Benzo(a)pyrene							1.8E+02	1.0E-05	NA	NA	NA	NA	1.8E+02	1.0E-05	NA	NA	NA	NA
15	Benzo(b)fluoranthene							3.9E+02	1.0E-05	NA	NA	NA	NA	3.9E+02	1.0E-05	NA	NA	NA	NA
16	Benzo(g,h,i)perylene							8.8E+01	1.0E-05	NA	NA	NA	NA	8.8E+01	1.0E-05	NA	NA	NA	NA
17	Benzo(k)fluoranthene							1.7E+02	1.0E-05	NA	NA	NA	NA	1.7E+02	1.0E-05	NA	NA	NA	NA
18	Beryllium							1.1E+00	1.0E-05	NA	NA	NA	NA	1.1E+00	1.0E-05	NA	NA	NA	NA
19	BEHP							5.7E-01	1.0E-05	1.0E-01	5.7E-07	2.0E-02	3E-05	5.7E-01	1.0E-05	1.0E-01	5.7E-07	1.4E-02	8E-09
20	2-Butanone							0.0E+00	1.0E-05	2.5E-01	0.0E+00	5.0E-02	0E+00	0.0E+00	1.0E-05	2.5E-01	0.0E+00	NA	NA
21	Cadmium (food)							0.0E+00	1.0E-05	NA	NA	NA	NA	0.0E+00	1.0E-05	NA	NA	NA	NA
22	Cadmium (water)							0.0E+00	1.0E-05	NA	NA	NA	NA	0.0E+00	1.0E-05	NA	NA	NA	NA
23	Carbon disulfide							0.0E+00	1.0E-05	2.5E-01	0.0E+00	1.0E-01	0E+00	0.0E+00	1.0E-05	2.5E-01	0.0E+00	NA	NA
24	Chloride							9.6E+01	1.0E-05	NA	NA	NA	NA	9.6E+01	1.0E-05	NA	NA	NA	NA
25	Chlorobenzene							0.0E+00	1.0E-05	2.5E-01	0.0E+00	2.0E-02	0E+00	0.0E+00	1.0E-05	2.5E-01	0.0E+00	NA	NA
26	Chloroform							0.0E+00	1.0E-05	2.5E-01	0.0E+00	1.0E-02	0E+00	0.0E+00	1.0E-05	2.5E-01	0.0E+00	6.1E-03	0E+00
27	Chromium (VI)							1.3E+01	1.0E-05	NA	NA	NA	NA	1.3E+01	1.0E-05	NA	NA	NA	NA
28	Chrysene							1.2E+02	1.0E-05	NA	NA	4.0E-01	NA	1.2E+02	1.0E-05	NA	NA	1.2E+01	NA
29	Cobalt							2.7E+00	1.0E-05	NA	NA	NA	NA	2.7E+00	1.0E-05	NA	NA	NA	NA
30	Copper							1.2E+02	1.0E-05	NA	NA	NA	NA	1.2E+02	1.0E-05	NA	NA	NA	NA
31	Cyanide (free)							4.2E+01	1.0E-05	NA	NA	NA	NA	4.2E+01	1.0E-05	NA	NA	NA	NA
32	Di-n-butylphthalate							0.0E+00	1.0E-05	1.0E-01	0.0E+00	1.0E-01	0E+00	0.0E+00	1.0E-05	1.0E-01	0.0E+00	NA	NA
33	Di-n-octylphthalate							0.0E+00	1.0E-05	1.0E-01	0.0E+00	2.0E-02	0E+00	0.0E+00	1.0E-05	1.0E-01	0.0E+00	NA	NA
34	Dibenz(a,h)anthracene							2.2E+01	1.0E-05	NA	NA	NA	NA	2.2E+01	1.0E-05	NA	NA	NA	NA
35	Dibenzofuran							3.3E+00	1.0E-05	1.0E-01	3.3E-06	NA	NA	3.3E+00	1.0E-05	1.0E-01	3.3E-06	NA	NA
36	2,4-Dimethylphenol							0.0E+00	1.0E-05	1.0E-01	0.0E+00	2.0E-02	0E+00	0.0E+00	1.0E-05	1.0E-01	0.0E+00	NA	NA
37	Ethyl benzene							0.0E+00	1.0E-05	2.5E-01	0.0E+00	1.0E-01	0E+00	0.0E+00	1.0E-05	2.5E-01	0.0E+00	NA	NA
38	Fluoranthene							1.2E+02	1.0E-05	NA	NA	NA	NA	1.2E+02	1.0E-05	NA	NA	NA	NA
39	Fluorene							7.8E+00	1.0E-05	NA	NA	NA	NA	7.8E+00	1.0E-05	NA	NA	NA	NA

40	Fluoride	8.3E+01	1.0E-05	NA	NA	NA	NA	8.3E+01	1.0E-05	NA	NA	NA	NA
41	Indeno(1,2,3-cd)pyrene	8.9E+01	1.0E-05	NA	NA	NA	NA	8.9E+01	1.0E-05	NA	NA	NA	NA
42	Iron	1.3E+04	1.0E-05	NA	NA	NA	NA	1.3E+04	1.0E-05	NA	NA	NA	NA
43	Lead	2.0E+01	1.0E-05	NA	NA	NA	NA	2.0E+01	1.0E-05	NA	NA	NA	NA
44	Manganese	6.5E+02	1.0E-05	NA	NA	NA	NA	6.5E+02	1.0E-05	NA	NA	NA	NA
45	Mercury	0.0E+00	1.0E-05	NA	NA	NA	NA	0.0E+00	1.0E-05	NA	NA	NA	NA
46	Methylene chloride	3.2E-02	1.0E-05	2.5E-01	8.0E-08	6.0E-02	1E-06	3.2E-02	1.0E-05	2.5E-01	8.0E-08	7.5E-03	6E-10
47	2-Methylnaphthalene	7.4E-01	1.0E-05	NA	NA	NA	NA	7.4E-01	1.0E-05	NA	NA	NA	NA
48	4-Methylphenol	0.0E+00	1.0E-05	1.0E-01	0.0E+00	5.0E-02	0E+00	0.0E+00	1.0E-05	1.0E-01	0.0E+00	NA	NA
49	Naphthalene	1.6E+00	1.0E-05	NA	NA	NA	NA	1.6E+00	1.0E-05	NA	NA	NA	NA
50	Nickel(dust)	0.0E+00	1.0E-05	NA	NA	NA	NA	0.0E+00	1.0E-05	NA	NA	NA	NA
51	Nickel (salts)	1.0E+01	1.0E-05	NA	NA	NA	NA	1.0E+01	1.0E-05	NA	NA	NA	NA
52	Nitrogen, ammonia	0.0E+00	1.0E-05	NA	NA	NA	NA	0.0E+00	1.0E-05	NA	NA	NA	NA
53	Phenanthrene	4.7E+01	1.0E-05	NA	NA	NA	NA	4.7E+01	1.0E-05	NA	NA	NA	NA
54	Pyrene	1.2E+02	1.0E-05	NA	NA	NA	NA	1.2E+02	1.0E-05	NA	NA	NA	NA
55	Silica	1.1E+01	1.0E-05	NA	NA	NA	NA	1.1E+01	1.0E-05	NA	NA	NA	NA
56	Silver	0.0E+00	1.0E-05	NA	NA	NA	NA	0.0E+00	1.0E-05	NA	NA	NA	NA
57	Sodium	2.1E+03	1.0E-05	NA	NA	NA	NA	2.1E+03	1.0E-05	NA	NA	NA	NA
58	Sulfate	6.0E+01	1.0E-05	NA	NA	NA	NA	6.0E+01	1.0E-05	NA	NA	NA	NA
59	Styrene	0.0E+00	1.0E-05	2.5E-01	0.0E+00	2.0E-01	0E+00	0.0E+00	1.0E-05	2.5E-01	0.0E+00	3.0E-02	0E+00
60	1,1,2,2-PCA	0.0E+00	1.0E-05	2.5E-01	0.0E+00	NA	NA	0.0E+00	1.0E-05	2.5E-01	0.0E+00	2.0E-01	0E+00
61	PCE	0.0E+00	1.0E-05	2.5E-01	0.0E+00	1.0E-02	0E+00	0.0E+00	1.0E-05	2.5E-01	0.0E+00	5.1E-02	0E+00
62	Thallium	0.0E+00	1.0E-05	NA	NA	NA	NA	0.0E+00	1.0E-05	NA	NA	NA	NA
63	Toluene	0.0E+00	1.0E-05	2.5E-01	0.0E+00	2.0E-01	0E+00	0.0E+00	1.0E-05	2.5E-01	0.0E+00	NA	NA
64	1,1,1-TCA	0.0E+00	1.0E-05	2.5E-01	0.0E+00	9.0E-02	0E+00	0.0E+00	1.0E-05	2.5E-01	0.0E+00	NA	NA
65	TCE	0.0E+00	1.0E-05	2.5E-01	0.0E+00	NA	NA	0.0E+00	1.0E-05	2.5E-01	0.0E+00	1.1E-02	0E+00
66	Vanadium	1.0E+01	1.0E-05	NA	NA	NA	NA	1.0E+01	1.0E-05	NA	NA	NA	NA

RANGE NAME: CSUM

SITE NAME: ORMET
OPERABLE UNIT: FUTURE RESIDENT ADUL
FILE NAME: POP9
LAST UPDATED: 03/13/91

CHRONIC EXPOSURE SUMMARY

FUTURE
RES. ADULT (BW)

CHRONIC DAILY INTAKE (mg/kg/day)

	CHEMICAL NAME	SCENARIO 1 BACKWATER SW ORAL (FROM WS1)	SCENARIO 2 BACKWATER SW DERMAL (FROM WS2)	SCENARIO 3 BACKWATER SEDIMENT ORAL (FROM WS3)	SCENARIO 4 BACKWATER SEDIMENT DERMAL (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
1	Acenaphthene	0.0E+00	0.0E+00	9.5E-08	1.5E-05	0.0E+00	0.0E+00
2	Acenaphthylene	0.0E+00	NA	1.9E-09	NA		
3	Acetone	6.9E-08	2.8E-08	0.0E+00	0.0E+00		
4	Aluminum	8.2E-06	NA	6.3E-05	NA		
5	Anthracene	0.0E+00	NA	1.6E-07	NA		
6	Antimony	0.0E+00	NA	0.0E+00	NA		
7	Aroclor 1242	9.5E-09	1.5E-09	0.0E+00	0.0E+00		
8	Aroclor 1248	0.0E+00	0.0E+00	6.2E-07	9.8E-05		
9	Aroclor 1254	0.0E+00	0.0E+00	0.0E+00	0.0E+00		
10	Arsenic	6.9E-08	NA	3.3E-08	NA		
11	Barium	4.9E-07	NA	4.6E-07	NA		
12	Benzene	0.0E+00	0.0E+00	0.0E+00	0.0E+00		
13	Benzo(a)anthra	0.0E+00	NA	7.6E-07	NA		
14	Benzo(a)pyrene	0.0E+00	NA	1.1E-06	NA		
15	Benzo(b)fluora	0.0E+00	NA	2.5E-06	NA		
16	Benzo(g,h,i)pe	0.0E+00	NA	5.5E-07	NA		
17	Benzo(k)fluora	0.0E+00	NA	1.1E-06	NA		
18	Beryllium	0.0E+00	NA	6.9E-09	NA		
19	BEHP	0.0E+00	0.0E+00	3.6E-09	5.7E-07		
20	2-Butanone	0.0E+00	0.0E+00	0.0E+00	0.0E+00		
21	Cadmium (food)	0.0E+00	NA	0.0E+00	NA		
22	Cadmium (water	0.0E+00	NA	0.0E+00	NA		
23	Carbon disulfi	0.0E+00	0.0E+00	0.0E+00	0.0E+00		
24	Chloride	2.6E-04	NA	6.0E-07	NA		
25	Chlorobenzene	0.0E+00	0.0E+00	0.0E+00	0.0E+00		
26	Chloroform	0.0E+00	0.0E+00	0.0E+00	0.0E+00		
27	Chromium (VI)	7.6E-08	NA	8.2E-08	NA		
28	Chrysene	1.9E-08	NA	7.6E-07	NA		
29	Cobalt	0.0E+00	NA	1.7E-08	NA		
30	Copper	1.6E-07	NA	7.6E-07	NA		
31	Cyanide (free)	8.2E-07	NA	2.6E-07	NA		
32	Di-n-butylphth	0.0E+00	0.0E+00	0.0E+00	0.0E+00		
33	Di-n-octylphth	0.0E+00	0.0E+00	0.0E+00	0.0E+00		
34	Dibenz(a,h)ant	0.0E+00	NA	1.4E-07	NA		
35	Dibenzofuran	0.0E+00	0.0E+00	2.1E-08	3.3E-06		
36	2,4-Dimethylph	0.0E+00	0.0E+00	0.0E+00	0.0E+00		
37	Ethyl benzene	0.0E+00	0.0E+00	0.0E+00	0.0E+00		
38	Fluoranthene	1.9E-08	NA	7.6E-07	NA		
39	Fluorene	0.0E+00	NA	4.9E-08	NA		
40	Fluoride	7.6E-05	NA	5.2E-07	NA		
41	Indeno(1,2,3-c	0.0E+00	NA	5.6E-07	NA		
42	Iron	1.4E-05	NA	8.2E-05	NA		

CHRONIC RISK SUMMARY

FUTURE
RES. ADULT (BW)

CHRONIC HAZARD QUOTIENT

SCENARIO 1 BACKWATER SW ORAL (FROM WS1)	SCENARIO 2 BACKWATER SW DERMAL (FROM WS2)	SCENARIO 3 BACKWATER SEDIMENT ORAL (FROM WS3)	SCENARIO 4 BACKWATER SEDIMENT DERMAL (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
0E+00	NA	2E-06	NA	0E+00	0E+00
0E+00	NA	4E-09	NA		
7E-07	3E-07	0E+00	0E+00		
NA	NA	NA	NA		
0E+00	NA	5E-07	NA		
0E+00	NA	0E+00	NA		
NA	NA	NA	NA		
NA	NA	NA	NA		
NA	NA	NA	NA		
7E-05	NA	3E-05	NA		
7E-06	NA	7E-06	NA		
NA	NA	NA	NA		
0E+00	NA	2E-06	NA		
0E+00	NA	3E-06	NA		
0E+00	NA	6E-06	NA		
0E+00	NA	1E-06	NA		
0E+00	NA	3E-06	NA		
0E+00	NA	1E-06	NA		
0E+00	0E+00	2E-07	3E-05		
0E+00	0E+00	0E+00	0E+00		
0E+00	NA	0E+00	NA		
0E+00	NA	0E+00	NA		
0E+00	0E+00	0E+00	0E+00		
NA	NA	NA	NA		
0E+00	0E+00	0E+00	0E+00		
0E+00	0E+00	0E+00	0E+00		
2E-05	NA	2E-05	NA		
5E-08	NA	2E-06	NA		
NA	NA	NA	NA		
4E-06	NA	2E-05	NA		
4E-05	NA	1E-05	NA		
0E+00	0E+00	0E+00	0E+00		
0E+00	0E+00	0E+00	0E+00		
0E+00	NA	3E-07	NA		
NA	NA	NA	NA		
0E+00	0E+00	0E+00	0E+00		
0E+00	0E+00	0E+00	0E+00		
5E-07	NA	2E-05	NA		
0E+00	NA	1E-06	NA		
1E-03	NA	9E-06	NA		
0E+00	NA	1E-06	NA		
NA	NA	NA	NA		

43	Lead	1.9E-08	NA	1.3E-07	NA		NA	NA	NA	NA		
44	Manganese	4.9E-06	NA	4.1E-06	NA		5E-05	NA	4E-05	NA		
45	Mercury	0.0E+00	NA	0.0E+00	NA		0E+00	NA	0E+00	NA		
46	Methylene chlo	1.3E-08	5.0E-09	2.0E-10	8.0E-08		2E-07	8E-08	3E-09	1E-06		
47	2-Methylnaphth	0.0E+00	NA	4.7E-09	NA		0E+00	NA	1E-08	NA		
48	4-Methylphenol	0.0E+00	0.0E+00	0.0E+00	0.0E+00		0E+00	0E+00	0E+00	0E+00		
49	Naphthalene	0.0E+00	NA	1.0E-08	NA		0E+00	NA	3E-08	NA		
50	Nickel(dust)	0.0E+00	NA	0.0E+00	NA		NA	NA	NA	NA		
51	Nickel (salts)	0.0E+00	NA	6.3E-08	NA		0E+00	NA	3E-06	NA		
52	Nitrogen, ammo	0.0E+00	NA	0.0E+00	NA		NA	NA	NA	NA		
53	Phenanthrene	0.0E+00	NA	3.0E-07	NA		0E+00	NA	7E-07	NA		
54	Pyrene	1.9E-08	NA	7.6E-07	NA		6E-07	NA	3E-05	NA		
55	Silica	0.0E+00	NA	6.9E-08	NA		NA	NA	NA	NA		
56	Silver	0.0E+00	NA	0.0E+00	NA		0E+00	NA	0E+00	NA		
57	Sodium	9.5E-04	NA	1.3E-05	NA		NA	NA	NA	NA		
58	Sulfate	6.9E-04	NA	3.8E-07	NA		NA	NA	NA	NA		
59	Styrene	0.0E+00	0.0E+00	0.0E+00	0.0E+00		0E+00	0E+00	0E+00	0E+00		
60	1,1,2,2-PCA	0.0E+00	0.0E+00	0.0E+00	0.0E+00		NA	NA	NA	NA		
61	PCE	0.0E+00	0.0E+00	0.0E+00	0.0E+00		0E+00	0E+00	0E+00	0E+00		
62	Thallium	0.0E+00	NA	0.0E+00	NA		0E+00	NA	0E+00	NA		
63	Toluene	0.0E+00	0.0E+00	0.0E+00	0.0E+00		0E+00	0E+00	0E+00	0E+00		
64	1,1,1-TCA	0.0E+00	0.0E+00	0.0E+00	0.0E+00		0E+00	0E+00	0E+00	0E+00		
65	TCE	0.0E+00	0.0E+00	0.0E+00	0.0E+00		NA	NA	NA	NA		
66	Vanadium	0.0E+00	NA	6.3E-08	NA		0E+00	NA	9E-06	NA		
						PATHWAY SUM (HI)	1E-03	4E-07	2E-04	3E-05	0E+00	0E+00
						POPULATION TOTAL	1E-03					

RANGE NAME: LSUM

SITE NAME: ORMET
OPERABLE UNIT: FUTURE RESIDENT ADUL
FILE NAME: POP9
LAST UPDATED: 03/13/91

LIFETIME EXPOSURE SUMMARY

FUTURE
RES. ADULT (BW)

LIFETIME AVERAGE DAILY INTAKE (mg/kg/day)

	CHEMICAL NAME	SCENARIO 1 BACKWATER SW ORAL (FROM WS1)	SCENARIO 2 BACKWATER SW DERMAL (FROM WS2)	SCENARIO 3 BACKWATER SEDIMENT ORAL (FROM WS3)	SCENARIO 4 BACKWATER SEDIMENT DERMAL (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
1	Acenaphthene	0.0E+00	0.0E+00	9.5E-08	1.5E-05	0.0E+00	0.0E+00
2	Acenaphthylene	0.0E+00	NA	1.6E-09	NA		
3	Acetone	6.9E-08	2.8E-08	0.0E+00	0.0E+00		
4	Aluminum	8.2E-06	NA	6.3E-05	NA		
5	Anthracene	0.0E+00	NA	1.6E-07	NA		
6	Antimony	0.0E+00	NA	0.0E+00	NA		
7	Aroclor 1242	9.5E-09	1.5E-09	0.0E+00	0.0E+00		
8	Aroclor 1248	0.0E+00	0.0E+00	6.2E-07	9.8E-05		
9	Aroclor 1254	0.0E+00	0.0E+00	0.0E+00	0.0E+00		
10	Arsenic	6.9E-08	NA	3.3E-08	NA		
11	Barium	4.9E-07	NA	4.6E-07	NA		
12	Benzene	0.0E+00	0.0E+00	0.0E+00	0.0E+00		
13	Benzo(a)anthra	0.0E+00	NA	7.6E-07	NA		
14	Benzo(a)pyrene	0.0E+00	NA	1.1E-06	NA		
15	Benzo(b)fluora	0.0E+00	NA	2.5E-06	NA		
16	Benzo(g,h,i)pe	0.0E+00	NA	5.5E-07	NA		
17	Benzo(k)fluora	0.0E+00	NA	1.1E-06	NA		
18	Beryllium	0.0E+00	NA	6.9E-09	NA		
19	BEHP	0.0E+00	0.0E+00	3.6E-09	5.7E-07		
20	2-Butanone	0.0E+00	0.0E+00	0.0E+00	0.0E+00		
21	Cadmium (food)	0.0E+00	NA	0.0E+00	NA		
22	Cadmium (water	0.0E+00	NA	0.0E+00	NA		
23	Carbon disulfi	0.0E+00	0.0E+00	0.0E+00	0.0E+00		
24	Chloride	2.6E-04	NA	6.0E-07	NA		
25	Chlorobenzene	0.0E+00	0.0E+00	0.0E+00	0.0E+00		
26	Chloroform	0.0E+00	0.0E+00	0.0E+00	0.0E+00		
27	Chromium (VI)	7.6E-08	NA	8.2E-08	NA		
28	Chrysene	1.9E-08	NA	7.6E-07	NA		
29	Cobalt	0.0E+00	NA	1.7E-08	NA		
30	Copper	1.6E-07	NA	7.6E-07	NA		
31	Cyanide (free)	8.2E-07	NA	2.6E-07	NA		
32	Di-n-butylphth	0.0E+00	0.0E+00	0.0E+00	0.0E+00		
33	Di-n-octylphth	0.0E+00	0.0E+00	0.0E+00	0.0E+00		
34	Dibenz(a,h)ant	0.0E+00	NA	1.4E-07	NA		
35	Dibenzofuran	0.0E+00	0.0E+00	2.1E-08	3.3E-06		
36	2,4-Dimethylph	0.0E+00	0.0E+00	0.0E+00	0.0E+00		
37	Ethyl benzene	0.0E+00	0.0E+00	0.0E+00	0.0E+00		
38	Fluoranthene	1.9E-08	NA	7.6E-07	NA		
39	Fluorene	0.0E+00	NA	4.9E-08	NA		
40	Fluoride	7.6E-05	NA	5.2E-07	NA		
41	Indeno(1,2,3-c	0.0E+00	NA	5.6E-07	NA		
42	Iron	1.4E-05	NA	8.2E-05	NA		

LIFETIME RISK SUMMARY

FUTURE
RES. ADULT (BW)

LIFETIME EXCESS CANCER RISK

SCENARIO 1 BACKWATER SW ORAL (FROM WS1)	SCENARIO 2 BACKWATER SW DERMAL (FROM WS2)	SCENARIO 3 BACKWATER SEDIMENT ORAL (FROM WS3)	SCENARIO 4 BACKWATER SEDIMENT DERMAL (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
NA	NA	NA	NA	0E+00	0E+00
NA	NA	NA	NA		
NA	NA	NA	NA		
NA	NA	NA	NA		
NA	NA	NA	NA		
NA	NA	NA	NA		
7E-08	1E-08	0E+00	0E+00		
0E+00	0E+00	5E-06	8E-04		
0E+00	0E+00	0E+00	0E+00		
1E-07	NA	6E-08	NA		
NA	NA	NA	NA		
0E+00	0E+00	0E+00	0E+00		
0E+00	NA	9E-06	NA		
0E+00	NA	1E-05	NA		
0E+00	NA	3E-05	NA		
NA	NA	NA	NA		
0E+00	NA	1E-05	NA		
0E+00	NA	3E-08	NA		
0E+00	0E+00	5E-11	8E-09		
NA	NA	NA	NA		
NA	NA	NA	NA		
NA	NA	NA	NA		
NA	NA	NA	NA		
NA	NA	NA	NA		
NA	NA	NA	NA		
0E+00	0E+00	0E+00	0E+00		
NA	NA	NA	NA		
2E-07	NA	9E-06	NA		
NA	NA	NA	NA		
NA	NA	NA	NA		
NA	NA	NA	NA		
NA	NA	NA	NA		
NA	NA	NA	NA		
0E+00	NA	2E-06	NA		
NA	NA	NA	NA		
NA	NA	NA	NA		
NA	NA	NA	NA		
NA	NA	NA	NA		
NA	NA	NA	NA		
NA	NA	NA	NA		
0E+00	NA	7E-06	NA		
NA	NA	NA	NA		

43	Lead	1.9E-08	NA	1.3E-07	NA		NA	NA	NA	NA		
44	Manganese	4.9E-06	NA	4.1E-06	NA		NA	NA	NA	NA		
45	Mercury	0.0E+00	NA	0.0E+00	NA		NA	NA	NA	NA		
46	Methylene chlo	1.3E-08	5.0E-09	2.0E-10	8.0E-08		9E-11	4E-11	2E-12	6E-10		
47	2-Methylnaphth	0.0E+00	NA	4.7E-09	NA		NA	NA	NA	NA		
48	4-Methylphenol	0.0E+00	0.0E+00	0.0E+00	0.0E+00		NA	NA	NA	NA		
49	Naphthalene	0.0E+00	NA	1.0E-08	NA		NA	NA	NA	NA		
50	Nickel(dust)	0.0E+00	NA	0.0E+00	NA		NA	NA	NA	NA		
51	Nickel (salts)	0.0E+00	NA	6.3E-08	NA		NA	NA	NA	NA		
52	Nitrogen, ammo	0.0E+00	NA	0.0E+00	NA		NA	NA	NA	NA		
53	Phenanthrene	0.0E+00	NA	3.0E-07	NA		NA	NA	NA	NA		
54	Pyrene	1.9E-08	NA	7.6E-07	NA		NA	NA	NA	NA		
55	Silica	0.0E+00	NA	6.9E-08	NA		NA	NA	NA	NA		
56	Silver	0.0E+00	NA	0.0E+00	NA		NA	NA	NA	NA		
57	Sodium	9.5E-04	NA	1.3E-05	NA		NA	NA	NA	NA		
58	Sulfate	6.9E-04	NA	3.8E-07	NA		NA	NA	NA	NA		
59	Styrene	0.0E+00	0.0E+00	0.0E+00	0.0E+00		0E+00	0E+00	0E+00	0E+00		
60	1,1,2,2-PCA	0.0E+00	0.0E+00	0.0E+00	0.0E+00		0E+00	0E+00	0E+00	0E+00		
61	PCE	0.0E+00	0.0E+00	0.0E+00	0.0E+00		0E+00	0E+00	0E+00	0E+00		
62	Thallium	0.0E+00	NA	0.0E+00	NA		NA	NA	NA	NA		
63	Toluene	0.0E+00	0.0E+00	0.0E+00	0.0E+00		NA	NA	NA	NA		
64	1,1,1-TCA	0.0E+00	0.0E+00	0.0E+00	0.0E+00		NA	NA	NA	NA		
65	TCE	0.0E+00	0.0E+00	0.0E+00	0.0E+00		0E+00	0E+00	0E+00	0E+00		
66	Vanadium	0.0E+00	NA	6.3E-08	NA		NA	NA	NA	NA		
						TOTAL PATHWAY CANCER RISK	4E-07	1E-08	8E-05	8E-04	0E+00	0E+00
						POPULATION TOTAL EXCESS RISK	9E-04					

RANGE NAME: WS1

SITE NAME: ORMET
OPERABLE UNIT: FUTURE RESIDENT CHILD
FILE NAME: POP1
LAST UPDATED: 03/13/91

EXPOSURE AND RISK CALCULATION WORKSHEET

LAND USE: FUTURE
POPULATION: RES. CHILD (P)

EXPOSURE POINT: POTLINER
MEDIUM: SOIL
ROUTE: ORAL

HIFs = 1.3E-05
HIFc = 0.0E+00
HIFl = 0.0E+00

		SUBCHRONIC						CHRONIC						LIFETIME					
	CHEMICAL NAME	Cs	HIFs	1	DIs	RfDS	HQs	Cc	HIFc	1	DIc	RfDC	HQc	Cl	HIFl	1	DIl	SF	RISK
1	Acenaphthene	4.4E+01	1.3E-05	1	5.7E-04	6.0E-01	1.0E-03		0.0E+00		0.0E+00		ERR		0.0E+00		0.0E+00		0E+00
2	Acenaphthylene	1.4E+00	1.3E-05	1	1.8E-05	4.0E-01	5E-05												
3	Acetone	1.0E-01	1.3E-05	1	1.3E-06	1.0E+00	1E-06												
4	Aluminum	1.7E+04	1.3E-05	1	2.2E-01	NA	NA												
5	Anthracene	5.1E+01	1.3E-05	1	6.6E-04	3.0E+00	2E-04												
6	Antimony	0.0E+00	1.3E-05	1	0.0E+00	4.0E-04	0E+00												
7	Aroclor 1242	0.0E+00	1.3E-05	1	0.0E+00	NA	NA												
8	Aroclor 1248	0.0E+00	1.3E-05	1	0.0E+00	NA	NA												
9	Aroclor 1254	0.0E+00	1.3E-05	1	0.0E+00	NA	NA												
10	Arsenic	1.2E+01	1.3E-05	1	1.6E-04	1.0E-03	2E-01												
11	Barium	7.3E+01	1.3E-05	1	9.5E-04	5.0E-02	2E-02												
12	Benzene	0.0E+00	1.3E-05	1	0.0E+00	NA	NA												
13	Benzo(a)anthra	1.7E+02	1.3E-05	1	2.2E-03	4.0E-01	6E-03												
14	Benzo(a)pyrene	1.6E+02	1.3E-05	1	2.1E-03	4.0E-01	5E-03												
15	Benzo(b)fluora	2.4E+02	1.3E-05	1	3.1E-03	4.0E-01	8E-03												
16	Benzo(g,h,i)pe	4.0E+01	1.3E-05	1	5.2E-04	4.0E-01	1E-03												
17	Benzo(k)fluora	2.1E+02	1.3E-05	1	2.7E-03	4.0E-01	7E-03												
18	Beryllium	1.1E+00	1.3E-05	1	1.4E-05	5.0E-03	3E-03												
19	BEHP	1.7E+00	1.3E-05	1	2.2E-05	2.0E-02	1E-03												
20	2-Butanone	4.4E-02	1.3E-05	1	5.7E-07	5.0E-01	1E-06												
21	Cadmium (food)	0.0E+00	1.3E-05	1	0.0E+00	NA	NA												
22	Cadmium (water	0.0E+00	1.3E-05	1	0.0E+00	NA	NA												
23	Carbon disulfi	0.0E+00	1.3E-05	1	0.0E+00	1.0E-01	0E+00												
24	Chloride	0.0E+00	1.3E-05	1	0.0E+00	NA	NA												
25	Chlorobenzene	7.6E-03	1.3E-05	1	9.9E-08	2.0E-01	5E-07												
26	Chloroform	0.0E+00	1.3E-05	1	0.0E+00	1.0E-02	0E+00												
27	Chromium (VI)	3.7E+01	1.3E-05	1	4.8E-04	2.0E-02	2E-02												
28	Chrysene	1.3E+02	1.3E-05	1	1.7E-03	4.0E-01	4E-03												
29	Cobalt	6.4E+00	1.3E-05	1	8.3E-05	NA	NA												
30	Copper	1.8E+02	1.3E-05	1	2.3E-03	3.7E-02	6E-02												
31	Cyanide (free)	1.4E+02	1.3E-05	1	1.8E-03	2.0E-02	9E-02												
32	Di-n-butylphth	6.3E-02	1.3E-05	1	8.2E-07	1.0E+00	8E-07												
33	Di-n-octylphth	6.7E-02	1.3E-05	1	8.7E-07	2.0E-02	4E-05												
34	Dibenz(a,h)ant	3.6E+01	1.3E-05	1	4.7E-04	4.0E-01	1E-03												
35	Dibenzofuran	2.4E+01	1.3E-05	1	3.1E-04	NA	NA												
36	2,4-Dimethylph	1.8E+00	1.3E-05	1	2.3E-05	2.0E-01	1E-04												
37	Ethyl benzene	0.0E+00	1.3E-05	1	0.0E+00	1.0E+00	0E+00												
38	Fluoranthene	1.6E+02	1.3E-05	1	2.1E-03	4.0E-01	5E-03												
39	Fluorene	3.2E+01	1.3E-05	1	4.2E-04	4.0E-01	1E-03												

40	Fluoride	2.0E+02	1.3E-05	1	2.6E-03	6.0E-02	4E-02
41	Indeno(1,2,3-c	5.0E+01	1.3E-05	1	6.5E-04	4.0E-01	2E-03
42	Iron	3.6E+04	1.3E-05	1	4.7E-01	NA	NA
43	Lead	2.7E+01	1.3E-05	1	3.5E-04	NA	NA
44	Manganese	1.2E+03	1.3E-05	1	1.6E-02	1.0E-01	2E-01
45	Mercury	5.6E-02	1.3E-05	1	7.3E-07	3.0E-04	2E-03
46	Methylene chlo	1.0E-02	1.3E-05	1	1.3E-07	6.0E-02	2E-06
47	2-Methylnaphth	1.0E+01	1.3E-05	1	1.3E-04	4.0E-01	3E-04
48	4-Methylphenol	1.3E+00	1.3E-05	1	1.7E-05	5.0E-01	3E-05
49	Naphthalene	2.2E+01	1.3E-05	1	2.9E-04	4.0E-01	7E-04
50	Nickel(dust)	0.0E+00	1.3E-05	1	0.0E+00	NA	NA
51	Nickel (salts)	3.6E+01	1.3E-05	1	4.7E-04	2.0E-02	2E-02
52	Nitrogen, ammo	2.3E+01	1.3E-05	1	3.0E-04	NA	NA
53	Phenanthrene	1.3E+02	1.3E-05	1	1.7E-03	4.0E-01	4E-03
54	Pyrene	1.9E+02	1.3E-05	1	2.5E-03	3.0E-01	8E-03
55	Silica	0.0E+00	1.3E-05	1	0.0E+00	NA	NA
56	Silver	2.3E+00	1.3E-05	1	3.0E-05	3.0E-03	1.0E-02
57	Sodium	6.2E+03	1.3E-05	1	8.1E-02	NA	NA
58	Sulfate	0.0E+00	1.3E-05	1	0.0E+00	NA	NA
59	Styrene	0.0E+00	1.3E-05	1	0.0E+00	2.0E+00	0E+00
60	1,1,2,2-PCA	0.0E+00	1.3E-05	1	0.0E+00	NA	NA
61	PCE	0.0E+00	1.3E-05	1	0.0E+00	1.0E-01	0E+00
62	Thallium	0.0E+00	1.3E-05	1	0.0E+00	7.0E-04	0E+00
63	Toluene	0.0E+00	1.3E-05	1	0.0E+00	2.0E+00	0E+00
64	1,1,1-TCA	0.0E+00	1.3E-05	1	0.0E+00	9.0E-01	0E+00
65	TCE	0.0E+00	1.3E-05	1	0.0E+00	NA	NA
66	Vanadium	2.4E+01	1.3E-05	1	3.1E-04	7.0E-03	4E-02

RANGE NAME: WS2

SITE NAME: ORMET
OPERABLE UNIT: FUTURE RESIDENT CHILD
FILE NAME: POP1
LAST UPDATED: 03/13/91

EXPOSURE AND RISK CALCULATION WORKSHEET

LAND USE: FUTURE
POPULATION: RES. CHILD (P)

EXPOSURE POINT: POTLINER
MEDIUM: SOIL
ROUTE: DERMAL

HIFs = 2.4E-04
HIFc = 0.0E+00
HIFl = 0.0E+00

		SUBCHRONIC						CHRONIC						LIFETIME					
	CHEMICAL NAME	Cs	HIFs	ABS	DIs	RfDS	HQs	Cc	HIFc	ABS	DIc	RfDC	HQc	Cl	HIFl	ABS	DIl	SF	RISK
1	Acenaphthene	4.4E+01	2.4E-04	1.0E-01	1.1E-03	NA	NA		0.0E+00		0.0E+00		ERR		0.0E+00		0.0E+00		0E+00
2	Acenaphthylene	1.4E+00	2.4E-04	NA	NA	NA	NA												
3	Acetone	1.0E-01	2.4E-04	2.5E-01	6.0E-06	1.0E+00	6E-06												
4	Aluminum	1.7E+04	2.4E-04	NA	NA	NA	NA												
5	Anthracene	5.1E+01	2.4E-04	NA	NA	NA	NA												
6	Antimony	0.0E+00	2.4E-04	NA	NA	NA	NA												
7	Aroclor 1242	0.0E+00	2.4E-04	1.0E-01	0.0E+00	NA	NA												
8	Aroclor 1248	0.0E+00	2.4E-04	1.0E-01	0.0E+00	NA	NA												
9	Aroclor 1254	0.0E+00	2.4E-04	1.0E-01	0.0E+00	NA	NA												
10	Arsenic	1.2E+01	2.4E-04	NA	NA	NA	NA												
11	Barium	7.3E+01	2.4E-04	NA	NA	NA	NA												
12	Benzene	0.0E+00	2.4E-04	2.5E-01	0.0E+00	NA	NA												
13	Benzo(a)anthra	1.7E+02	2.4E-04	NA	NA	NA	NA												
14	Benzo(a)pyrene	1.6E+02	2.4E-04	NA	NA	NA	NA												
15	Benzo(b)fluora	2.4E+02	2.4E-04	NA	NA	NA	NA												
16	Benzo(g,h,i)pe	4.0E+01	2.4E-04	NA	NA	NA	NA												
17	Benzo(k)fluora	2.1E+02	2.4E-04	NA	NA	NA	NA												
18	Beryllium	1.1E+00	2.4E-04	NA	NA	NA	NA												
19	BEHP	1.7E+00	2.4E-04	1.0E-01	4.1E-05	2.0E-02	2E-03												
20	2-Butanone	4.4E-02	2.4E-04	2.5E-01	2.6E-06	5.0E-01	5E-06												
21	Cadmium (food)	0.0E+00	2.4E-04	NA	NA	NA	NA												
22	Cadmium (water	0.0E+00	2.4E-04	NA	NA	NA	NA												
23	Carbon disulfi	0.0E+00	2.4E-04	2.5E-01	0.0E+00	1.0E-01	0E+00												
24	Chloride	0.0E+00	2.4E-04	NA	NA	NA	NA												
25	Chlorobenzene	7.6E-03	2.4E-04	2.5E-01	4.6E-07	2.0E-01	2E-06												
26	Chloroform	0.0E+00	2.4E-04	2.5E-01	0.0E+00	1.0E-02	0E+00												
27	Chromium (VI)	3.7E+01	2.4E-04	NA	NA	NA	NA												
28	Chrysene	1.3E+02	2.4E-04	NA	NA	4.0E-01	NA												
29	Cobalt	6.4E+00	2.4E-04	NA	NA	NA	NA												
30	Copper	1.8E+02	2.4E-04	NA	NA	NA	NA												
31	Cyanide (free)	1.4E+02	2.4E-04	NA	NA	NA	NA												
32	Di-n-butylphth	6.3E-02	2.4E-04	1.0E-01	1.5E-06	1.0E+00	2E-06												
33	Di-n-octylphth	6.7E-02	2.4E-04	1.0E-01	1.6E-06	2.0E-02	8E-05												
34	Dibenz(a,h)ant	3.6E+01	2.4E-04	NA	NA	NA	NA												
35	Dibenzofuran	2.4E+01	2.4E-04	1.0E-01	5.8E-04	NA	NA												
36	2,4-Dimethylph	1.8E+00	2.4E-04	1.0E-01	4.3E-05	2.0E-01	2E-04												
37	Ethyl benzene	0.0E+00	2.4E-04	2.5E-01	0.0E+00	1.0E+00	0E+00												
38	Fluoranthene	1.6E+02	2.4E-04	NA	NA	NA	NA												
39	Fluorene	3.2E+01	2.4E-04	NA	NA	NA	NA												

40	Fluoride	2.0E+02	2.4E-04	NA	NA	NA	NA
41	Indeno(1,2,3-c	5.0E+01	2.4E-04	NA	NA	NA	NA
42	Iron	3.6E+04	2.4E-04	NA	NA	NA	NA
43	Lead	2.7E+01	2.4E-04	NA	NA	NA	NA
44	Manganese	1.2E+03	2.4E-04	NA	NA	NA	NA
45	Mercury	5.6E-02	2.4E-04	NA	NA	NA	NA
46	Methylene chlo	1.0E-02	2.4E-04	2.5E-01	6.0E-07	6.0E-02	1E-05
47	2-Methylnaphth	1.0E+01	2.4E-04	NA	NA	NA	NA
48	4-Methylphenol	1.3E+00	2.4E-04	1.0E-01	3.1E-05	5.0E-01	6E-05
49	Naphthalene	2.2E+01	2.4E-04	NA	NA	NA	NA
50	Nickel(dust)	0.0E+00	2.4E-04	NA	NA	NA	NA
51	Nickel (salts)	3.6E+01	2.4E-04	NA	NA	NA	NA
52	Nitrogen, ammo	2.3E+01	2.4E-04	NA	NA	NA	NA
53	Phenanthrene	1.3E+02	2.4E-04	NA	NA	NA	NA
54	Pyrene	1.9E+02	2.4E-04	NA	NA	NA	NA
55	Silica	0.0E+00	2.4E-04	NA	NA	NA	NA
56	Silver	2.3E+00	2.4E-04	NA	NA	NA	NA
57	Sodium	6.2E+03	2.4E-04	NA	NA	NA	NA
58	Sulfate	0.0E+00	2.4E-04	NA	NA	NA	NA
59	Styrene	0.0E+00	2.4E-04	2.5E-01	0.0E+00	2.0E+00	0E+00
60	1,1,2,2-PCA	0.0E+00	2.4E-04	2.5E-01	0.0E+00	NA	NA
61	PCE	0.0E+00	2.4E-04	2.5E-01	0.0E+00	1.0E-01	0E+00
62	Thallium	0.0E+00	2.4E-04	NA	NA	NA	NA
63	Toluene	0.0E+00	2.4E-04	2.5E-01	0.0E+00	2.0E+00	0E+00
64	1,1,1-TCA	0.0E+00	2.4E-04	2.5E-01	0.0E+00	9.0E-01	0E+00
65	TCE	0.0E+00	2.4E-04	2.5E-01	0.0E+00	NA	NA
66	Vanadium	2.4E+01	2.4E-04	NA	NA	NA	NA

RANGE NAME: SSUM

SITE NAME: ORMET
OPERABLE UNIT: FUTURE RESIDENT CHIL
FILE NAME: POP1
LAST UPDATED: 03/13/91

SUBCHRONIC EXPOSURE SUMMARY

FUTURE
RES. CHILD (P)

SUBCHRONIC DAILY INTAKE (mg/kg/day)

	CHEMICAL NAME	SCENARIO 1 POTLINER SOIL ORAL (FROM WS1)	SCENARIO 2 POTLINER SOIL DERMAL (FROM WS2)	SCENARIO 3 0 0 0 (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
1	Acenaphthene	5.7E-04	1.1E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00
2	Acenaphthylene	1.8E-05	NA				
3	Acetone	1.3E-06	6.0E-06				
4	Aluminum	2.2E-01	NA				
5	Anthracene	6.6E-04	NA				
6	Antimony	0.0E+00	NA				
7	Aroclor 1242	0.0E+00	0.0E+00				
8	Aroclor 1248	0.0E+00	0.0E+00				
9	Aroclor 1254	0.0E+00	0.0E+00				
10	Arsenic	1.6E-04	NA				
11	Barium	9.5E-04	NA				
12	Benzene	0.0E+00	0.0E+00				
13	Benzo(a)anthra	2.2E-03	NA				
14	Benzo(a)pyrene	2.1E-03	NA				
15	Benzo(b)fluora	3.1E-03	NA				
16	Benzo(g,h,i)pe	5.2E-04	NA				
17	Benzo(k)fluora	2.7E-03	NA				
18	Beryllium	1.4E-05	NA				
19	BEHP	2.2E-05	4.1E-05				
20	2-Butanone	5.7E-07	2.6E-06				
21	Cadmium (food)	0.0E+00	NA				
22	Cadmium (water	0.0E+00	NA				
23	Carbon disulfi	0.0E+00	0.0E+00				
24	Chloride	0.0E+00	NA				
25	Chlorobenzene	9.9E-08	4.6E-07				
26	Chloroform	0.0E+00	0.0E+00				
27	Chromium (VI)	4.8E-04	NA				
28	Chrysene	1.7E-03	NA				
29	Cobalt	8.3E-05	NA				
30	Copper	2.3E-03	NA				
31	Cyanide (free)	1.8E-03	NA				
32	Di-n-butylphth	8.2E-07	1.5E-06				
33	Di-n-octylphth	8.7E-07	1.6E-06				
34	Dibenz(a,h)ant	4.7E-04	NA				
35	Dibenzofuran	3.1E-04	5.8E-04				
36	2,4-Dimethylph	2.3E-05	4.3E-05				
37	Ethyl benzene	0.0E+00	0.0E+00				
38	Fluoranthene	2.1E-03	NA				
39	Fluorene	4.2E-04	NA				
40	Fluoride	2.6E-03	NA				
41	Indeno(1,2,3-c	6.5E-04	NA				
42	Iron	4.7E-01	NA				

SUBCHRONIC RISK SUMMARY

FUTURE
RES. CHILD (P)

SUBCHRONIC HAZARD QUOTIENT

SCENARIO 1 POTLINER SOIL ORAL (FROM WS1)	SCENARIO 2 POTLINER SOIL DERMAL (FROM WS2)	SCENARIO 3 0 0 0 (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
1E-03	NA	0E+00	0E+00	0E+00	0E+00
5E-05	NA				
1E-06	6E-06				
NA	NA				
2E-04	NA				
0E+00	NA				
NA	NA				
NA	NA				
NA	NA				
2E-01	NA				
2E-02	NA				
NA	NA				
6E-03	NA				
5E-03	NA				
8E-03	NA				
1E-03	NA				
7E-03	NA				
3E-03	NA				
1E-03	2E-03				
1E-06	5E-06				
NA	NA				
NA	NA				
0E+00	0E+00				
NA	NA				
5E-07	2E-06				
0E+00	0E+00				
2E-02	NA				
4E-03	NA				
NA	NA				
6E-02	NA				
9E-02	NA				
8E-07	2E-06				
4E-05	8E-05				
1E-03	NA				
NA	NA				
1E-04	2E-04				
0E+00	0E+00				
5E-03	NA				
1E-03	NA				
4E-02	NA				
2E-03	NA				
NA	NA				

43	Lead	3.5E-04	NA		NA	NA			
44	Manganese	1.6E-02	NA		2E-01	NA			
45	Mercury	7.3E-07	NA		2E-03	NA			
46	Methylene chlo	1.3E-07	6.0E-07		2E-06	1E-05			
47	2-Methylnaphth	1.3E-04	NA		3E-04	NA			
48	4-Methylphenol	1.7E-05	3.1E-05		3E-05	6E-05			
49	Naphthalene	2.9E-04	NA		7E-04	NA			
50	Nickel(dust)	0.0E+00	NA		NA	NA			
51	Nickel (salts)	4.7E-04	NA		2E-02	NA			
52	Nitrogen, ammo	3.0E-04	NA		NA	NA			
53	Phenanthrene	1.7E-03	NA		4E-03	NA			
54	Pyrene	2.5E-03	NA		8E-03	NA			
55	Silica	0.0E+00	NA		NA	NA			
56	Silver	3.0E-05	NA		1E-02	NA			
57	Sodium	8.1E-02	NA		NA	NA			
58	Sulfate	0.0E+00	NA		NA	NA			
59	Styrene	0.0E+00	0.0E+00		0E+00	0E+00			
60	1,1,2,2-PCA	0.0E+00	0.0E+00		NA	NA			
61	PCE	0.0E+00	0.0E+00		0E+00	0E+00			
62	Thallium	0.0E+00	NA		0E+00	NA			
63	Toluene	0.0E+00	0.0E+00		0E+00	0E+00			
64	1,1,1-TCA	0.0E+00	0.0E+00		0E+00	0E+00			
65	TCE	0.0E+00	0.0E+00		NA	NA			
66	Vanadium	3.1E-04	NA		4E-02	NA			
				PATHWAY SUM (HI)	8E-01	2E-03	0E+00	0E+00	0E+00	0E+00
				POPULATION TOTAL	8E-01					

RANGE NAME: WS1

SITE NAME: ORMET
OPERABLE UNIT: FUTURE RESIDENT CHILD
FILE NAME: POP2
LAST UPDATED: 03/13/91

EXPOSURE AND RISK CALCULATION WORKSHEET

LAND USE: FUTURE
POPULATION: RES. CHILD (CRA)

EXPOSURE POINT: CRA
MEDIUM: SOIL
ROUTE: ORAL

HIFs = 1.3E-05
HIFc = 0.0E+00
HIFl = 0.0E+00

		SUBCHRONIC						CHRONIC						LIFETIME					
	CHEMICAL NAME	Cs	HIFs	1	DIs	RfDS	HQs	Cc	HIFc	1	DIc	RfDC	HQc	Cl	HIFl	1	DIl	SF	RISK
1	Acenaphthene	3.7E-01	1.3E-05	1	4.8E-06	6.0E-01	8E-06		0.0E+00		0.0E+00		ERR		0.0E+00		0.0E+00		0E+00
2	Acenaphthylene	0.0E+00	1.3E-05	1	0.0E+00	4.0E-01	0E+00												
3	Acetone	0.0E+00	1.3E-05	1	0.0E+00	1.0E+00	0E+00												
4	Aluminum	6.5E+04	1.3E-05	1	8.5E-01	NA	NA												
5	Anthracene	7.9E-01	1.3E-05	1	1.0E-05	3.0E+00	3E-06												
6	Antimony	2.6E+01	1.3E-05	1	3.4E-04	4.0E-04	8E-01												
7	Aroclor 1242	0.0E+00	1.3E-05	1	0.0E+00	NA	NA												
8	Aroclor 1248	5.6E+01	1.3E-05	1	7.3E-04	NA	NA												
9	Aroclor 1254	0.0E+00	1.3E-05	1	0.0E+00	NA	NA												
10	Arsenic	1.8E+02	1.3E-05	1	2.3E-03	1.0E-03	2E+00												
11	Barium	2.4E+02	1.3E-05	1	3.1E-03	5.0E-02	6E-02												
12	Benzene	8.6E-02	1.3E-05	1	1.1E-06	NA	NA												
13	Benzo(a)anthra	3.5E+00	1.3E-05	1	4.6E-05	4.0E-01	1E-04												
14	Benzo(a)pyrene	4.0E+00	1.3E-05	1	5.2E-05	4.0E-01	1E-04												
15	Benzo(b)fluora	5.7E+00	1.3E-05	1	7.4E-05	4.0E-01	2E-04												
16	Benzo(g,h,i)pe	1.2E+00	1.3E-05	1	1.6E-05	4.0E-01	4E-05												
17	Benzo(k)fluora	4.3E+00	1.3E-05	1	5.6E-05	4.0E-01	1E-04												
18	Beryllium	4.5E+00	1.3E-05	1	5.9E-05	5.0E-03	1E-02												
19	BEHP	1.1E-01	1.3E-05	1	1.4E-06	2.0E-02	7E-05												
20	2-Butanone	1.9E-02	1.3E-05	1	2.5E-07	5.0E-01	5E-07												
21	Cadmium (food)	1.1E+00	1.3E-05	1	1.4E-05	NA	NA												
22	Cadmium (water	0.0E+00	1.3E-05	1	0.0E+00	NA	NA												
23	Carbon disulfi	0.0E+00	1.3E-05	1	0.0E+00	1.0E-01	0E+00												
24	Chloride	1.1E+02	1.3E-05	1	1.4E-03	NA	NA												
25	Chlorobenzene	5.4E-02	1.3E-05	1	7.0E-07	2.0E-01	4E-06												
26	Chloroform	6.5E-03	1.3E-05	1	8.5E-08	1.0E-02	8E-06												
27	Chromium (VI)	2.8E+01	1.3E-05	1	3.6E-04	2.0E-02	2E-02												
28	Chrysene	4.0E+00	1.3E-05	1	5.2E-05	4.0E-01	1E-04												
29	Cobalt	1.5E+01	1.3E-05	1	2.0E-04	NA	NA												
30	Copper	6.0E+01	1.3E-05	1	7.8E-04	3.7E-02	2E-02												
31	Cyanide (free)	1.1E+02	1.3E-05	1	1.4E-03	2.0E-02	7E-02												
32	Di-n-butylphth	2.6E-01	1.3E-05	1	3.4E-06	1.0E+00	3E-06												
33	Di-n-octylphth	2.9E-01	1.3E-05	1	3.8E-06	2.0E-02	2E-04												
34	Dibenz(a,h)ant	5.6E-01	1.3E-05	1	7.3E-06	4.0E-01	2E-05												
35	Dibenzofuran	3.0E-01	1.3E-05	1	3.9E-06	NA	NA												
36	2,4-Dimethylph	1.8E-01	1.3E-05	1	2.3E-06	2.0E-01	1E-05												
37	Ethyl benzene	0.0E+00	1.3E-05	1	0.0E+00	1.0E+00	0E+00												
38	Fluoranthene	5.1E+00	1.3E-05	1	6.6E-05	4.0E-01	2E-04												
39	Fluorene	2.4E-01	1.3E-05	1	3.1E-06	4.0E-01	8E-06												

40	Fluoride	1.8E+02	1.3E-05	1	2.3E-03	6.0E-02	4E-02
41	Indeno(1,2,3-c	2.0E+00	1.3E-05	1	2.6E-05	4.0E-01	7E-05
42	Iron	3.4E+04	1.3E-05	1	4.4E-01	NA	NA
43	Lead	5.3E+01	1.3E-05	1	6.9E-04	NA	NA
44	Manganese	1.1E+03	1.3E-05	1	1.4E-02	1.0E-01	1E-01
45	Mercury	1.9E-01	1.3E-05	1	2.5E-06	3.0E-04	8E-03
46	Methylene chlo	2.4E-02	1.3E-05	1	3.1E-07	6.0E-02	5E-06
47	2-Methylnaphth	1.0E-01	1.3E-05	1	1.3E-06	4.0E-01	3E-06
48	4-Methylphenol	5.5E-02	1.3E-05	1	7.2E-07	5.0E-01	1E-06
49	Naphthalene	2.6E-01	1.3E-05	1	3.4E-06	4.0E-01	8E-06
50	Nickel(dust)	0.0E+00	1.3E-05	1	0.0E+00	NA	NA
51	Nickel (salts)	2.0E+02	1.3E-05	1	2.6E-03	2.0E-02	1E-01
52	Nitrogen, ammo	0.0E+00	1.3E-05	1	0.0E+00	NA	NA
53	Phenanthrene	2.8E+00	1.3E-05	1	3.6E-05	4.0E-01	9E-05
54	Pyrene	4.2E+00	1.3E-05	1	5.5E-05	3.0E-01	2E-04
55	Silica	1.6E+01	1.3E-05	1	2.1E-04	NA	NA
56	Silver	0.0E+00	1.3E-05	1	0.0E+00	3.0E-03	0E+00
57	Sodium	8.1E+03	1.3E-05	1	1.1E-01	NA	NA
58	Sulfate	7.2E+02	1.3E-05	1	9.4E-03	NA	NA
59	Styrene	5.0E-03	1.3E-05	1	6.5E-08	2.0E+00	3E-08
60	1,1,2,2-PCA	0.0E+00	1.3E-05	1	0.0E+00	NA	NA
61	PCE	5.7E-03	1.3E-05	1	7.4E-08	1.0E-01	7E-07
62	Thallium	4.2E-01	1.3E-05	1	5.5E-06	7.0E-04	8E-03
63	Toluene	9.7E-03	1.3E-05	1	1.3E-07	2.0E+00	6E-08
64	1,1,1-TCA	0.0E+00	1.3E-05	1	0.0E+00	9.0E-01	0E+00
65	TCE	0.0E+00	1.3E-05	1	0.0E+00	NA	NA
66	Vanadium	1.2E+02	1.3E-05	1	1.6E-03	7.0E-03	2E-01

RANGE NAME: WS2

SITE NAME: ORMET
OPERABLE UNIT: FUTURE RESIDENT CHILD
FILE NAME: POP2
LAST UPDATED: 03/13/91

EXPOSURE AND RISK CALCULATION WORKSHEET

LAND USE: FUTURE
POPULATION: RES. CHILD (CRA)

EXPOSURE POINT: CRA
MEDIUM: SOIL
ROUTE: DERMAL

HIFs = 2.4E-04
HIFc = 0.0E+00
HIFl = 0.0E+00

		SUBCHRONIC						CHRONIC						LIFETIME					
	CHEMICAL NAME	Cs	HIFs	ABS	DIs	RfDS	HQs	Cc	HIFc	ABS	DIc	RfDC	HQc	Cl	HIFl	ABS	DIl	SF	RISK
1	Acenaphthene	3.7E-01	2.4E-04	1.0E-01	8.9E-06	NA	NA		0.0E+00		0.0E+00		ERR		0.0E+00		0.0E+00		0E+00
2	Acenaphthylene	0.0E+00	2.4E-04	NA	NA	NA	NA												
3	Acetone	0.0E+00	2.4E-04	2.5E-01	0.0E+00	1.0E+00	0E+00												
4	Aluminum	6.5E+04	2.4E-04	NA	NA	NA	NA												
5	Anthracene	7.9E-01	2.4E-04	NA	NA	NA	NA												
6	Antimony	2.6E+01	2.4E-04	NA	NA	NA	NA												
7	Aroclor 1242	0.0E+00	2.4E-04	1.0E-01	0.0E+00	NA	NA												
8	Aroclor 1248	5.6E+01	2.4E-04	1.0E-01	1.3E-03	NA	NA												
9	Aroclor 1254	0.0E+00	2.4E-04	1.0E-01	0.0E+00	NA	NA												
10	Arsenic	1.8E+02	2.4E-04	NA	NA	NA	NA												
11	Barium	2.4E+02	2.4E-04	NA	NA	NA	NA												
12	Benzene	8.6E-02	2.4E-04	2.5E-01	5.2E-06	NA	NA												
13	Benzo(a)anthra	3.5E+00	2.4E-04	NA	NA	NA	NA												
14	Benzo(a)pyrene	4.0E+00	2.4E-04	NA	NA	NA	NA												
15	Benzo(b)fluora	5.7E+00	2.4E-04	NA	NA	NA	NA												
16	Benzo(g,h,i)pe	1.2E+00	2.4E-04	NA	NA	NA	NA												
17	Benzo(k)fluora	4.3E+00	2.4E-04	NA	NA	NA	NA												
18	Beryllium	4.5E+00	2.4E-04	NA	NA	NA	NA												
19	BEHP	1.1E-01	2.4E-04	1.0E-01	2.6E-06	2.0E-02	1E-04												
20	2-Butanone	1.9E-02	2.4E-04	2.5E-01	1.1E-06	5.0E-01	2E-06												
21	Cadmium (food)	1.1E+00	2.4E-04	NA	NA	NA	NA												
22	Cadmium (water	0.0E+00	2.4E-04	NA	NA	NA	NA												
23	Carbon disulfi	0.0E+00	2.4E-04	2.5E-01	0.0E+00	1.0E-01	0E+00												
24	Chloride	1.1E+02	2.4E-04	NA	NA	NA	NA												
25	Chlorobenzene	5.4E-02	2.4E-04	2.5E-01	3.2E-06	2.0E-01	2E-05												
26	Chloroform	6.5E-03	2.4E-04	2.5E-01	3.9E-07	1.0E-02	4E-05												
27	Chromium (VI)	2.8E+01	2.4E-04	NA	NA	NA	NA												
28	Chrysene	4.0E+00	2.4E-04	NA	NA	4.0E-01	NA												
29	Cobalt	1.5E+01	2.4E-04	NA	NA	NA	NA												
30	Copper	6.0E+01	2.4E-04	NA	NA	NA	NA												
31	Cyanide (free)	1.1E+02	2.4E-04	NA	NA	NA	NA												
32	Di-n-butylphth	2.6E-01	2.4E-04	1.0E-01	6.2E-06	1.0E+00	6E-06												
33	Di-n-octylphth	2.9E-01	2.4E-04	1.0E-01	7.0E-06	2.0E-02	3E-04												
34	Dibenz(a,h)ant	5.6E-01	2.4E-04	NA	NA	NA	NA												
35	Dibenzofuran	3.0E-01	2.4E-04	1.0E-01	7.2E-06	NA	NA												
36	2,4-Dimethylph	1.8E-01	2.4E-04	1.0E-01	4.3E-06	2.0E-01	2E-05												
37	Ethyl benzene	0.0E+00	2.4E-04	2.5E-01	0.0E+00	1.0E+00	0E+00												
38	Fluoranthene	5.1E+00	2.4E-04	NA	NA	NA	NA												
39	Fluorene	2.4E-01	2.4E-04	NA	NA	NA	NA												

40	Fluoride	1.8E+02	2.4E-04	NA	NA	NA	NA
41	Indeno(1,2,3-c	2.0E+00	2.4E-04	NA	NA	NA	NA
42	Iron	3.4E+04	2.4E-04	NA	NA	NA	NA
43	Lead	5.3E+01	2.4E-04	NA	NA	NA	NA
44	Manganese	1.1E+03	2.4E-04	NA	NA	NA	NA
45	Mercury	1.9E-01	2.4E-04	NA	NA	NA	NA
46	Methylene chlo	2.4E-02	2.4E-04	2.5E-01	1.4E-06	6.0E-02	2E-05
47	2-Methylnaphth	1.0E-01	2.4E-04	NA	NA	NA	NA
48	4-Methylphenol	5.5E-02	2.4E-04	1.0E-01	1.3E-06	5.0E-01	3E-06
49	Naphthalene	2.6E-01	2.4E-04	NA	NA	NA	NA
50	Nickel(dust)	0.0E+00	2.4E-04	NA	NA	NA	NA
51	Nickel (salts)	2.0E+02	2.4E-04	NA	NA	NA	NA
52	Nitrogen, ammo	0.0E+00	2.4E-04	NA	NA	NA	NA
53	Phenanthrene	2.8E+00	2.4E-04	NA	NA	NA	NA
54	Pyrene	4.2E+00	2.4E-04	NA	NA	NA	NA
55	Silica	1.6E+01	2.4E-04	NA	NA	NA	NA
56	Silver	0.0E+00	2.4E-04	NA	NA	NA	NA
57	Sodium	8.1E+03	2.4E-04	NA	NA	NA	NA
58	Sulfate	7.2E+02	2.4E-04	NA	NA	NA	NA
59	Styrene	5.0E-03	2.4E-04	2.5E-01	3.0E-07	2.0E+00	2E-07
60	1,1,2,2-PCA	0.0E+00	2.4E-04	2.5E-01	0.0E+00	NA	NA
61	PCE	5.7E-03	2.4E-04	2.5E-01	3.4E-07	1.0E-01	3E-06
62	Thallium	4.2E-01	2.4E-04	NA	NA	NA	NA
63	Toluene	9.7E-03	2.4E-04	2.5E-01	5.8E-07	2.0E+00	3E-07
64	1,1,1-TCA	0.0E+00	2.4E-04	2.5E-01	0.0E+00	9.0E-01	0E+00
65	TCE	0.0E+00	2.4E-04	2.5E-01	0.0E+00	NA	NA
66	Vanadium	1.2E+02	2.4E-04	NA	NA	NA	NA

RANGE NAME: SSUM

SITE NAME: ORMET
OPERABLE UNIT: FUTURE RESIDENT CHIL
FILE NAME: POP2
LAST UPDATED: 03/13/91

SUBCHRONIC EXPOSURE SUMMARY

FUTURE
RES. CHILD (CRA)

SUBCHRONIC DAILY INTAKE (mg/kg/day)

		SCENARIO 1	SCENARIO 2	SCENARIO 3	SCENARIO 4	SCENARIO 5	SCENARIO 6
		CRA	CRA	0	0	0	0
		SOIL	SOIL	0	0	0	0
		ORAL	DERMAL	0	0	0	0
	CHEMICAL NAME	(FROM WS1)	(FROM WS2)	(FROM WS3)	(FROM WS4)	(FROM WS5)	(FROM WS6)
1	Acenaphthene	4.8E-06	8.9E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00
2	Acenaphthylene	0.0E+00	NA				
3	Acetone	0.0E+00	0.0E+00				
4	Aluminum	8.5E-01	NA				
5	Anthracene	1.0E-05	NA				
6	Antimony	3.4E-04	NA				
7	Aroclor 1242	0.0E+00	0.0E+00				
8	Aroclor 1248	7.3E-04	1.3E-03				
9	Aroclor 1254	0.0E+00	0.0E+00				
10	Arsenic	2.3E-03	NA				
11	Barium	3.1E-03	NA				
12	Benzene	1.1E-06	5.2E-06				
13	Benzo(a)anthra	4.6E-05	NA				
14	Benzo(a)pyrene	5.2E-05	NA				
15	Benzo(b)fluora	7.4E-05	NA				
16	Benzo(g,h,i)pe	1.6E-05	NA				
17	Benzo(k)fluora	5.6E-05	NA				
18	Beryllium	5.9E-05	NA				
19	BEHP	1.4E-06	2.6E-06				
20	2-Butanone	2.5E-07	1.1E-06				
21	Cadmium (food)	1.4E-05	NA				
22	Cadmium (water	0.0E+00	NA				
23	Carbon disulfi	0.0E+00	0.0E+00				
24	Chloride	1.4E-03	NA				
25	Chlorobenzene	7.0E-07	3.2E-06				
26	Chloroform	8.5E-08	3.9E-07				
27	Chromium (VI)	3.6E-04	NA				
28	Chrysene	5.2E-05	NA				
29	Cobalt	2.0E-04	NA				
30	Copper	7.8E-04	NA				
31	Cyanide (free)	1.4E-03	NA				
32	Di-n-butylphth	3.4E-06	6.2E-06				
33	Di-n-octylphth	3.8E-06	7.0E-06				
34	Dibenz(a,h)ant	7.3E-06	NA				
35	Dibenzofuran	3.9E-06	7.2E-06				
36	2,4-Dimethylph	2.3E-06	4.3E-06				
37	Ethyl benzene	0.0E+00	0.0E+00				
38	Fluoranthene	6.6E-05	NA				
39	Fluorene	3.1E-06	NA				
40	Fluoride	2.3E-03	NA				
41	Indeno(1,2,3-c	2.6E-05	NA				
42	Iron	4.4E-01	NA				

SUBCHRONIC RISK SUMMARY

FUTURE
RES. CHILD (CRA)

SUBCHRONIC HAZARD QUOTIENT

SCENARIO 1	SCENARIO 2	SCENARIO 3	SCENARIO 4	SCENARIO 5	SCENARIO 6
CRA	CRA	0	0	0	0
SOIL	SOIL	0	0	0	0
ORAL	DERMAL	0	0	0	0
(FROM WS1)	(FROM WS2)	(FROM WS3)	(FROM WS4)	(FROM WS5)	(FROM WS6)
8E-06	NA	0E+00	0E+00	0E+00	0E+00
0E+00	NA				
0E+00	0E+00				
NA	NA				
3E-06	NA				
8E-01	NA				
NA	NA				
NA	NA				
NA	NA				
2E+00	NA				
6E-02	NA				
NA	NA				
1E-04	NA				
1E-04	NA				
2E-04	NA				
4E-05	NA				
1E-04	NA				
1E-02	NA				
7E-05	1E-04				
5E-07	2E-06				
NA	NA				
NA	NA				
0E+00	0E+00				
NA	NA				
4E-06	2E-05				
8E-06	4E-05				
2E-02	NA				
1E-04	NA				
NA	NA				
2E-02	NA				
7E-02	NA				
3E-06	6E-06				
2E-04	3E-04				
2E-05	NA				
NA	NA				
1E-05	2E-05				
0E+00	0E+00				
2E-04	NA				
8E-06	NA				
4E-02	NA				
6E-05	NA				
NA	NA				

43	Lead	6.9E-04	NA		NA	NA				
44	Manganese	1.4E-02	NA		1E-01	NA				
45	Mercury	2.5E-06	NA		8E-03	NA				
46	Methylene chlo	3.1E-07	1.4E-06		5E-06	2E-05				
47	2-Methylnaphth	1.3E-06	NA		3E-06	NA				
48	4-Methylphenol	7.2E-07	1.3E-06		1E-06	3E-06				
49	Naphthalene	3.4E-06	NA		8E-06	NA				
50	Nickel(dust)	0.0E+00	NA		NA	NA				
51	Nickel (salts)	2.6E-03	NA		1E-01	NA				
52	Nitrogen, ammo	0.0E+00	NA		NA	NA				
53	Phenanthrene	3.6E-05	NA		9E-05	NA				
54	Pyrene	5.5E-05	NA		2E-04	NA				
55	Silica	2.1E-04	NA		NA	NA				
56	Silver	0.0E+00	NA		0E+00	NA				
57	Sodium	1.1E-01	NA		NA	NA				
58	Sulfate	9.4E-03	NA		NA	NA				
59	Styrene	6.5E-08	3.0E-07		3E-08	2E-07				
60	1,1,2,2-PCA	0.0E+00	0.0E+00		NA	NA				
61	PCE	7.4E-08	3.4E-07		7E-07	3E-06				
62	Thallium	5.5E-06	NA		8E-03	NA				
63	Toluene	1.3E-07	5.8E-07		6E-08	3E-07				
64	1,1,1-TCA	0.0E+00	0.0E+00		0E+00	0E+00				
65	TCE	0.0E+00	0.0E+00		NA	NA				
66	Vanadium	1.6E-03	NA		2E-01	NA				
	PATHWAY SUM (HI)				3E+00	5E-04	0E+00	0E+00	0E+00	0E+00
	POPULATION TOTAL				3E+00					

RANGE NAME: WS1

SITE NAME: ORMET
OPERABLE UNIT: FUTURE RESIDENT CHILD
FILE NAME: POP3
LAST UPDATED: 03/13/91

EXPOSURE AND RISK CALCULATION WORKSHEET

LAND USE: FUTURE
POPULATION: RES. CHILD (CMSD)

EXPOSURE POINT: CMSD
MEDIUM: SOIL
ROUTE: ORAL

HIFs = 1.3E-05
HIFc = 0.0E+00
HIFl = 0.0E+00

		SUBCHRONIC						CHRONIC						LIFETIME					
	CHEMICAL NAME	Cs	HIFs	1	DIs	RfDS	HQs	Cc	HIFc	1	DIc	RfDC	HQc	Cl	HIFl	1	DIl	SF	RISK
1	Acenaphthene	1.3E+01	1.3E-05	1	1.7E-04	6.0E-01	3E-04		0.0E+00		0.0E+00		ERR		0.0E+00		0.0E+00		0E+00
2	Acenaphthylene	0.0E+00	1.3E-05	1	0.0E+00	4.0E-01	0E+00												
3	Acetone	2.5E-01	1.3E-05	1	3.3E-06	1.0E+00	3E-06												
4	Aluminum	1.2E+05	1.3E-05	1	1.6E+00	NA	NA												
5	Anthracene	3.3E+01	1.3E-05	1	4.3E-04	3.0E+00	1E-04												
6	Antimony	0.0E+00	1.3E-05	1	0.0E+00	4.0E-04	0E+00												
7	Aroclor 1242	0.0E+00	1.3E-05	1	0.0E+00	NA	NA												
8	Aroclor 1248	2.0E+01	1.3E-05	1	2.6E-04	NA	NA												
9	Aroclor 1254	0.0E+00	1.3E-05	1	0.0E+00	NA	NA												
10	Arsenic	6.1E+01	1.3E-05	1	7.9E-04	1.0E-03	8E-01												
11	Barium	1.3E+02	1.3E-05	1	1.7E-03	5.0E-02	3E-02												
12	Benzene	0.0E+00	1.3E-05	1	0.0E+00	NA	NA												
13	Benzo(a)anthra	1.3E+02	1.3E-05	1	1.7E-03	4.0E-01	4E-03												
14	Benzo(a)pyrene	1.2E+02	1.3E-05	1	1.6E-03	4.0E-01	4E-03												
15	Benzo(b)fluora	1.8E+02	1.3E-05	1	2.3E-03	4.0E-01	6E-03												
16	Benzo(g,h,i)pe	1.2E+02	1.3E-05	1	1.6E-03	4.0E-01	4E-03												
17	Benzo(k)fluora	4.6E+01	1.3E-05	1	6.0E-04	4.0E-01	1E-03												
18	Beryllium	3.7E+00	1.3E-05	1	4.8E-05	5.0E-03	1.0E-02												
19	BEHP	2.6E+01	1.3E-05	1	3.4E-04	2.0E-02	2E-02												
20	2-Butanone	3.8E-02	1.3E-05	1	4.9E-07	5.0E-01	1.0E-06												
21	Cadmium (food)	3.5E+00	1.3E-05	1	4.6E-05	NA	NA												
22	Cadmium (water	0.0E+00	1.3E-05	1	0.0E+00	NA	NA												
23	Carbon disulfi	3.8E-03	1.3E-05	1	4.9E-08	1.0E-01	5E-07												
24	Chloride	1.0E+01	1.3E-05	1	1.3E-04	NA	NA												
25	Chlorobenzene	0.0E+00	1.3E-05	1	0.0E+00	2.0E-01	0E+00												
26	Chloroform	0.0E+00	1.3E-05	1	0.0E+00	1.0E-02	0E+00												
27	Chromium (VI)	3.2E+01	1.3E-05	1	4.2E-04	2.0E-02	2E-02												
28	Chrysene	1.2E+02	1.3E-05	1	1.6E-03	4.0E-01	4E-03												
29	Cobalt	1.1E+01	1.3E-05	1	1.4E-04	NA	NA												
30	Copper	5.1E+02	1.3E-05	1	6.6E-03	3.7E-02	2E-01												
31	Cyanide (free)	2.3E+01	1.3E-05	1	3.0E-04	2.0E-02	1E-02												
32	Di-n-butylphth	0.0E+00	1.3E-05	1	0.0E+00	1.0E+00	0E+00												
33	Di-n-octylphth	0.0E+00	1.3E-05	1	0.0E+00	2.0E-02	0E+00												
34	Dibenz(a,h)ant	1.7E+01	1.3E-05	1	2.2E-04	4.0E-01	6E-04												
35	Dibenzofuran	8.5E+00	1.3E-05	1	1.1E-04	NA	NA												
36	2,4-Dimethylph	0.0E+00	1.3E-05	1	0.0E+00	2.0E-01	0E+00												
37	Ethyl benzene	2.5E-03	1.3E-05	1	3.3E-08	1.0E+00	3E-08												
38	Fluoranthene	1.9E+02	1.3E-05	1	2.5E-03	4.0E-01	6E-03												
39	Fluorene	1.3E+01	1.3E-05	1	1.7E-04	4.0E-01	4E-04												

40	Fluoride	5.3E+02	1.3E-05	1	6.9E-03	6.0E-02	1E-01
41	Indeno(1,2,3-c	9.4E+01	1.3E-05	1	1.2E-03	4.0E-01	3E-03
42	Iron	2.7E+04	1.3E-05	1	3.5E-01	NA	NA
43	Lead	8.3E+01	1.3E-05	1	1.1E-03	NA	NA
44	Manganese	9.6E+02	1.3E-05	1	1.2E-02	1.0E-01	1E-01
45	Mercury	0.0E+00	1.3E-05	1	0.0E+00	3.0E-04	0E+00
46	Methylene chlo	1.3E-01	1.3E-05	1	1.7E-06	6.0E-02	3E-05
47	2-Methylnaphth	4.6E-01	1.3E-05	1	6.0E-06	4.0E-01	1E-05
48	4-Methylphenol	0.0E+00	1.3E-05	1	0.0E+00	5.0E-01	0E+00
49	Naphthalene	1.3E+00	1.3E-05	1	1.7E-05	4.0E-01	4E-05
50	Nickel(dust)	0.0E+00	1.3E-05	1	0.0E+00	NA	NA
51	Nickel (salts)	6.2E+01	1.3E-05	1	8.1E-04	2.0E-02	4E-02
52	Nitrogen, ammo	1.1E+02	1.3E-05	1	1.4E-03	NA	NA
53	Phenanthrene	1.2E+02	1.3E-05	1	1.6E-03	4.0E-01	4E-03
54	Pyrene	1.9E+02	1.3E-05	1	2.5E-03	3.0E-01	8E-03
55	Silica	0.0E+00	1.3E-05	1	0.0E+00	NA	NA
56	Silver	0.0E+00	1.3E-05	1	0.0E+00	3.0E-03	0E+00
57	Sodium	5.1E+04	1.3E-05	1	6.6E-01	NA	NA
58	Sulfate	2.4E+02	1.3E-05	1	3.1E-03	NA	NA
59	Styrene	0.0E+00	1.3E-05	1	0.0E+00	2.0E+00	0E+00
60	1,1,2,2-PCA	1.1E-02	1.3E-05	1	1.4E-07	NA	NA
61	PCE	3.0E-03	1.3E-05	1	3.9E-08	1.0E-01	4E-07
62	Thallium	0.0E+00	1.3E-05	1	0.0E+00	7.0E-04	0E+00
63	Toluene	2.0E-03	1.3E-05	1	2.6E-08	2.0E+00	1E-08
64	1,1,1-TCA	0.0E+00	1.3E-05	1	0.0E+00	9.0E-01	0E+00
65	TCE	0.0E+00	1.3E-05	1	0.0E+00	NA	NA
66	Vanadium	4.3E+01	1.3E-05	1	5.6E-04	7.0E-03	8E-02

RANGE NAME: WS2

SITE NAME: ORMET
OPERABLE UNIT: FUTURE RESIDENT CHILD
FILE NAME: POP3
LAST UPDATED: 03/13/91

EXPOSURE AND RISK CALCULATION WORKSHEET

LAND USE: FUTURE
POPULATION: RES. CHILD (CMSD)

EXPOSURE POINT: CMSD
MEDIUM: SOIL
ROUTE: DERMAL

HIFs = 2.4E-04
HIFc = 0.0E+00
HIFl = 0.0E+00

		SUBCHRONIC						CHRONIC						LIFETIME					
	CHEMICAL NAME	Cs	HIFs	ABS	DIs	RfDS	HQs	Cc	HIFc	ABS	DIc	RfDC	HQc	Cl	HIFl	ABS	DIl	SF	RISK
1	Acenaphthene	1.3E+01	2.4E-04	1.0E-01	3.1E-04	NA	NA		0.0E+00		0.0E+00		ERR		0.0E+00		0.0E+00		0E+00
2	Acenaphthylene	0.0E+00	2.4E-04	NA	NA	NA	NA												
3	Acetone	2.5E-01	2.4E-04	2.5E-01	1.5E-05	1.0E+00	2E-05												
4	Aluminum	1.2E+05	2.4E-04	NA	NA	NA	NA												
5	Anthracene	3.3E+01	2.4E-04	NA	NA	NA	NA												
6	Antimony	0.0E+00	2.4E-04	NA	NA	NA	NA												
7	Aroclor 1242	0.0E+00	2.4E-04	1.0E-01	0.0E+00	NA	NA												
8	Aroclor 1248	2.0E+01	2.4E-04	1.0E-01	4.8E-04	NA	NA												
9	Aroclor 1254	0.0E+00	2.4E-04	1.0E-01	0.0E+00	NA	NA												
10	Arsenic	6.1E+01	2.4E-04	NA	NA	NA	NA												
11	Barium	1.3E+02	2.4E-04	NA	NA	NA	NA												
12	Benzene	0.0E+00	2.4E-04	2.5E-01	0.0E+00	NA	NA												
13	Benzo(a)anthra	1.3E+02	2.4E-04	NA	NA	NA	NA												
14	Benzo(a)pyrene	1.2E+02	2.4E-04	NA	NA	NA	NA												
15	Benzo(b)fluora	1.8E+02	2.4E-04	NA	NA	NA	NA												
16	Benzo(g,h,i)pe	1.2E+02	2.4E-04	NA	NA	NA	NA												
17	Benzo(k)fluora	4.6E+01	2.4E-04	NA	NA	NA	NA												
18	Beryllium	3.7E+00	2.4E-04	NA	NA	NA	NA												
19	BEHP	2.6E+01	2.4E-04	1.0E-01	6.2E-04	2.0E-02	3E-02												
20	2-Butanone	3.8E-02	2.4E-04	2.5E-01	2.3E-06	5.0E-01	5E-06												
21	Cadmium (food)	3.5E+00	2.4E-04	NA	NA	NA	NA												
22	Cadmium (water	0.0E+00	2.4E-04	NA	NA	NA	NA												
23	Carbon disulfi	3.8E-03	2.4E-04	2.5E-01	2.3E-07	1.0E-01	2E-06												
24	Chloride	1.0E+01	2.4E-04	NA	NA	NA	NA												
25	Chlorobenzene	0.0E+00	2.4E-04	2.5E-01	0.0E+00	2.0E-01	0E+00												
26	Chloroform	0.0E+00	2.4E-04	2.5E-01	0.0E+00	1.0E-02	0E+00												
27	Chromium (VI)	3.2E+01	2.4E-04	NA	NA	NA	NA												
28	Chrysene	1.2E+02	2.4E-04	NA	NA	4.0E-01	NA												
29	Cobalt	1.1E+01	2.4E-04	NA	NA	NA	NA												
30	Copper	5.1E+02	2.4E-04	NA	NA	NA	NA												
31	Cyanide (free)	2.3E+01	2.4E-04	NA	NA	NA	NA												
32	Di-n-butylphth	0.0E+00	2.4E-04	1.0E-01	0.0E+00	1.0E+00	0E+00												
33	Di-n-octylphth	0.0E+00	2.4E-04	1.0E-01	0.0E+00	2.0E-02	0E+00												
34	Dibenz(a,h)ant	1.7E+01	2.4E-04	NA	NA	NA	NA												
35	Dibenzofuran	8.5E+00	2.4E-04	1.0E-01	2.0E-04	NA	NA												
36	2,4-Dimethylph	0.0E+00	2.4E-04	1.0E-01	0.0E+00	2.0E-01	0E+00												
37	Ethyl benzene	2.5E-03	2.4E-04	2.5E-01	1.5E-07	1.0E+00	2E-07												
38	Fluoranthene	1.9E+02	2.4E-04	NA	NA	NA	NA												
39	Fluorene	1.3E+01	2.4E-04	NA	NA	NA	NA												

40	Fluoride	5.3E+02	2.4E-04	NA	NA	NA	NA
41	Indeno(1,2,3-c	9.4E+01	2.4E-04	NA	NA	NA	NA
42	Iron	2.7E+04	2.4E-04	NA	NA	NA	NA
43	Lead	8.3E+01	2.4E-04	NA	NA	NA	NA
44	Manganese	9.6E+02	2.4E-04	NA	NA	NA	NA
45	Mercury	0.0E+00	2.4E-04	NA	NA	NA	NA
46	Methylene chlo	1.3E-01	2.4E-04	2.5E-01	7.8E-06	6.0E-02	1E-04
47	2-Methylnaphth	4.6E-01	2.4E-04	NA	NA	NA	NA
48	4-Methylphenol	0.0E+00	2.4E-04	1.0E-01	0.0E+00	5.0E-01	0E+00
49	Naphthalene	1.3E+00	2.4E-04	NA	NA	NA	NA
50	Nickel(dust)	0.0E+00	2.4E-04	NA	NA	NA	NA
51	Nickel (salts)	6.2E+01	2.4E-04	NA	NA	NA	NA
52	Nitrogen, ammo	1.1E+02	2.4E-04	NA	NA	NA	NA
53	Phenanthrene	1.2E+02	2.4E-04	NA	NA	NA	NA
54	Pyrene	1.9E+02	2.4E-04	NA	NA	NA	NA
55	Silica	0.0E+00	2.4E-04	NA	NA	NA	NA
56	Silver	0.0E+00	2.4E-04	NA	NA	NA	NA
57	Sodium	5.1E+04	2.4E-04	NA	NA	NA	NA
58	Sulfate	2.4E+02	2.4E-04	NA	NA	NA	NA
59	Styrene	0.0E+00	2.4E-04	2.5E-01	0.0E+00	2.0E+00	0E+00
60	1,1,2,2-PCA	1.1E-02	2.4E-04	2.5E-01	6.6E-07	NA	NA
61	PCE	3.0E-03	2.4E-04	2.5E-01	1.8E-07	1.0E-01	2E-06
62	Thallium	0.0E+00	2.4E-04	NA	NA	NA	NA
63	Toluene	2.0E-03	2.4E-04	2.5E-01	1.2E-07	2.0E+00	6E-08
64	1,1,1-TCA	0.0E+00	2.4E-04	2.5E-01	0.0E+00	9.0E-01	0E+00
65	TCE	0.0E+00	2.4E-04	2.5E-01	0.0E+00	NA	NA
66	Vanadium	4.3E+01	2.4E-04	NA	NA	NA	NA

RANGE NAME: SSUM

SITE NAME: ORMET
OPERABLE UNIT: FUTURE RESIDENT CHIL
FILE NAME: POP3
LAST UPDATED: 03/13/91

SUBCHRONIC EXPOSURE SUMMARY

FUTURE
RES. CHILD (CMSD)

SUBCHRONIC DAILY INTAKE (mg/kg/day)

		SCENARIO 1	SCENARIO 2	SCENARIO 3	SCENARIO 4	SCENARIO 5	SCENARIO 6
		CMSD	CMSD	0	0	0	0
		SOIL	SOIL	0	0	0	0
		ORAL	DERMAL	0	0	0	0
	CHEMICAL NAME	(FROM WS1)	(FROM WS2)	(FROM WS3)	(FROM WS4)	(FROM WS5)	(FROM WS6)
1	Acenaphthene	1.7E-04	3.1E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00
2	Acenaphthylene	0.0E+00	NA				
3	Acetone	3.3E-06	1.5E-05				
4	Aluminum	1.6E+00	NA				
5	Anthracene	4.3E-04	NA				
6	Antimony	0.0E+00	NA				
7	Aroclor 1242	0.0E+00	0.0E+00				
8	Aroclor 1248	2.6E-04	4.8E-04				
9	Aroclor 1254	0.0E+00	0.0E+00				
10	Arsenic	7.9E-04	NA				
11	Barium	1.7E-03	NA				
12	Benzene	0.0E+00	0.0E+00				
13	Benzo(a)anthra	1.7E-03	NA				
14	Benzo(a)pyrene	1.6E-03	NA				
15	Benzo(b)fluora	2.3E-03	NA				
16	Benzo(g,h,i)pe	1.6E-03	NA				
17	Benzo(k)fluora	6.0E-04	NA				
18	Beryllium	4.8E-05	NA				
19	BEHP	3.4E-04	6.2E-04				
20	2-Butanone	4.9E-07	2.3E-06				
21	Cadmium (food)	4.6E-05	NA				
22	Cadmium (water	0.0E+00	NA				
23	Carbon disulfi	4.9E-08	2.3E-07				
24	Chloride	1.3E-04	NA				
25	Chlorobenzene	0.0E+00	0.0E+00				
26	Chloroform	0.0E+00	0.0E+00				
27	Chromium (VI)	4.2E-04	NA				
28	Chrysene	1.6E-03	NA				
29	Cobalt	1.4E-04	NA				
30	Copper	6.6E-03	NA				
31	Cyanide (free)	3.0E-04	NA				
32	Di-n-butylphth	0.0E+00	0.0E+00				
33	Di-n-octylphth	0.0E+00	0.0E+00				
34	Dibenz(a,h)ant	2.2E-04	NA				
35	Dibenzofuran	1.1E-04	2.0E-04				
36	2,4-Dimethylph	0.0E+00	0.0E+00				
37	Ethyl benzene	3.3E-08	1.5E-07				
38	Fluoranthene	2.5E-03	NA				
39	Fluorene	1.7E-04	NA				
40	Fluoride	6.9E-03	NA				
41	Indeno(1,2,3-c	1.2E-03	NA				
42	Iron	3.5E-01	NA				

SUBCHRONIC RISK SUMMARY

FUTURE
RES. CHILD (CMSD)

SUBCHRONIC HAZARD QUOTIENT

SCENARIO 1	SCENARIO 2	SCENARIO 3	SCENARIO 4	SCENARIO 5	SCENARIO 6
CMSD	CMSD	0	0	0	0
SOIL	SOIL	0	0	0	0
ORAL	DERMAL	0	0	0	0
(FROM WS1)	(FROM WS2)	(FROM WS3)	(FROM WS4)	(FROM WS5)	(FROM WS6)
3E-04	NA	0E+00	0E+00	0E+00	0E+00
0E+00	NA				
3E-06	2E-05				
NA	NA				
1E-04	NA				
0E+00	NA				
NA	NA				
NA	NA				
NA	NA				
8E-01	NA				
3E-02	NA				
NA	NA				
4E-03	NA				
4E-03	NA				
6E-03	NA				
4E-03	NA				
1E-03	NA				
1E-02	NA				
2E-02	3E-02				
1E-06	5E-06				
NA	NA				
NA	NA				
5E-07	2E-06				
NA	NA				
0E+00	0E+00				
0E+00	0E+00				
2E-02	NA				
4E-03	NA				
NA	NA				
2E-01	NA				
1E-02	NA				
0E+00	0E+00				
0E+00	0E+00				
6E-04	NA				
NA	NA				
0E+00	0E+00				
3E-08	2E-07				
6E-03	NA				
4E-04	NA				
1E-01	NA				
3E-03	NA				
NA	NA				

43	Lead	1.1E-03	NA			NA	NA			
44	Manganese	1.2E-02	NA			1E-01	NA			
45	Mercury	0.0E+00	NA			0E+00	NA			
46	Methylene chlo	1.7E-06	7.8E-06			3E-05	1E-04			
47	2-Methylnaphth	6.0E-06	NA			1E-05	NA			
48	4-Methylphenol	0.0E+00	0.0E+00			0E+00	0E+00			
49	Naphthalene	1.7E-05	NA			4E-05	NA			
50	Nickel(dust)	0.0E+00	NA			NA	NA			
51	Nickel (salts)	8.1E-04	NA			4E-02	NA			
52	Nitrogen, ammo	1.4E-03	NA			NA	NA			
53	Phenanthrene	1.6E-03	NA			4E-03	NA			
54	Pyrene	2.5E-03	NA			8E-03	NA			
55	Silica	0.0E+00	NA			NA	NA			
56	Silver	0.0E+00	NA			0E+00	NA			
57	Sodium	6.6E-01	NA			NA	NA			
58	Sulfate	3.1E-03	NA			NA	NA			
59	Styrene	0.0E+00	0.0E+00			0E+00	0E+00			
60	1,1,2,2-PCA	1.4E-07	6.6E-07			NA	NA			
61	PCE	3.9E-08	1.8E-07			4E-07	2E-06			
62	Thallium	0.0E+00	NA			0E+00	NA			
63	Toluene	2.6E-08	1.2E-07			1E-08	6E-08			
64	1,1,1-TCA	0.0E+00	0.0E+00			0E+00	0E+00			
65	TCE	0.0E+00	0.0E+00			NA	NA			
66	Vanadium	5.6E-04	NA			8E-02	NA			
				PATHWAY SUM (HI)		1E+00	3E-02	0E+00	0E+00	0E+00	0E+00
				POPULATION TOTAL		1E+00					

RANGE NAME: WS1

SITE NAME: ORMET
OPERABLE UNIT: FUTURE RESIDENT CHILD
FILE NAME: POP4
LAST UPDATED: 03/13/91

EXPOSURE AND RISK CALCULATION WORKSHEET

LAND USE: FUTURE
POPULATION: RES. CHILD (1-4)

EXPOSURE POINT: POND 1-4
MEDIUM: SOIL
ROUTE: ORAL

HIFs = 1.3E-05
HIFc = 0.0E+00
HIFl = 0.0E+00

		SUBCHRONIC						CHRONIC						LIFETIME					
	CHEMICAL NAME	Cs	HIFs	1	DIs	RfDS	HQs	Cc	HIFc	1	DIc	RfDC	HQc	Cl	HIFl	1	DIl	SF	RISK
1	Acenaphthene	2.1E+00	1.3E-05	1	2.7E-05	6.0E-01	5E-05		0.0E+00		0.0E+00		ERR		0.0E+00		0.0E+00		0E+00
2	Acenaphthylene	9.9E-02	1.3E-05	1	1.3E-06	4.0E-01	3E-06												
3	Acetone	4.2E-02	1.3E-05	1	5.5E-07	1.0E+00	5E-07												
4	Aluminum	6.8E+04	1.3E-05	1	8.8E-01	NA	NA												
5	Anthracene	9.5E+00	1.3E-05	1	1.2E-04	3.0E+00	4E-05												
6	Antimony	2.5E+01	1.3E-05	1	3.3E-04	4.0E-04	8E-01												
7	Aroclor 1242	0.0E+00	1.3E-05	1	0.0E+00	NA	NA												
8	Aroclor 1248	0.0E+00	1.3E-05	1	0.0E+00	NA	NA												
9	Aroclor 1254	0.0E+00	1.3E-05	1	0.0E+00	NA	NA												
10	Arsenic	7.6E+01	1.3E-05	1	9.9E-04	1.0E-03	1.0E+00												
11	Barium	1.9E+02	1.3E-05	1	2.5E-03	5.0E-02	5E-02												
12	Benzene	3.1E-03	1.3E-05	1	4.0E-08	NA	NA												
13	Benzo(a)anthra	2.9E+01	1.3E-05	1	3.8E-04	4.0E-01	9E-04												
14	Benzo(a)pyrene	1.5E+01	1.3E-05	1	2.0E-04	4.0E-01	5E-04												
15	Benzo(b)fluora	3.9E+01	1.3E-05	1	5.1E-04	4.0E-01	1E-03												
16	Benzo(g,h,i)pe	8.2E+00	1.3E-05	1	1.1E-04	4.0E-01	3E-04												
17	Benzo(k)fluora	2.0E+01	1.3E-05	1	2.6E-04	4.0E-01	6E-04												
18	Beryllium	3.9E+00	1.3E-05	1	5.1E-05	5.0E-03	1E-02												
19	BEHP	2.4E+00	1.3E-05	1	3.1E-05	2.0E-02	2E-03												
20	2-Butanone	9.4E-03	1.3E-05	1	1.2E-07	5.0E-01	2E-07												
21	Cadmium (food)	0.0E+00	1.3E-05	1	0.0E+00	NA	NA												
22	Cadmium (water	0.0E+00	1.3E-05	1	0.0E+00	NA	NA												
23	Carbon disulfi	4.0E-03	1.3E-05	1	5.2E-08	1.0E-01	5E-07												
24	Chloride	2.2E+01	1.3E-05	1	2.9E-04	NA	NA												
25	Chlorobenzene	0.0E+00	1.3E-05	1	0.0E+00	2.0E-01	0E+00												
26	Chloroform	1.2E-02	1.3E-05	1	1.6E-07	1.0E-02	2E-05												
27	Chromium (VI)	6.5E+01	1.3E-05	1	8.5E-04	2.0E-02	4E-02												
28	Chrysene	4.4E+01	1.3E-05	1	5.7E-04	4.0E-01	1E-03												
29	Cobalt	1.4E+01	1.3E-05	1	1.8E-04	NA	NA												
30	Copper	9.7E+01	1.3E-05	1	1.3E-03	3.7E-02	3E-02												
31	Cyanide (free)	8.4E+01	1.3E-05	1	1.1E-03	2.0E-02	5E-02												
32	Di-n-butylphth	1.8E+00	1.3E-05	1	2.3E-05	1.0E+00	2E-05												
33	Di-n-octylphth	0.0E+00	1.3E-05	1	0.0E+00	2.0E-02	0E+00												
34	Dibenz(a,h)ant	2.4E+00	1.3E-05	1	3.1E-05	4.0E-01	8E-05												
35	Dibenzofuran	2.4E+00	1.3E-05	1	3.1E-05	NA	NA												
36	2,4-Dimethylph	0.0E+00	1.3E-05	1	0.0E+00	2.0E-01	0E+00												
37	Ethyl benzene	0.0E+00	1.3E-05	1	0.0E+00	1.0E+00	0E+00												
38	Fluoranthene	3.8E+01	1.3E-05	1	4.9E-04	4.0E-01	1E-03												
39	Fluorene	1.4E+00	1.3E-05	1	1.8E-05	4.0E-01	5E-05												

40	Fluoride	2.3E+02	1.3E-05	1	3.0E-03	6.0E-02	5E-02
41	Indeno(1,2,3-c	8.5E+00	1.3E-05	1	1.1E-04	4.0E-01	3E-04
42	Iron	9.3E+03	1.3E-05	1	1.2E-01	NA	NA
43	Lead	1.4E+02	1.3E-05	1	1.8E-03	NA	NA
44	Manganese	1.7E+02	1.3E-05	1	2.2E-03	1.0E-01	2E-02
45	Mercury	1.6E-01	1.3E-05	1	2.1E-06	3.0E-04	7E-03
46	Methylene chlo	4.3E-02	1.3E-05	1	5.6E-07	6.0E-02	9E-06
47	2-Methylnaphth	5.5E-01	1.3E-05	1	7.2E-06	4.0E-01	2E-05
48	4-Methylphenol	0.0E+00	1.3E-05	1	0.0E+00	5.0E-01	0E+00
49	Naphthalene	9.3E-01	1.3E-05	1	1.2E-05	4.0E-01	3E-05
50	Nickel(dust)	0.0E+00	1.3E-05	1	0.0E+00	NA	NA
51	Nickel (salts)	4.0E+02	1.3E-05	1	5.2E-03	2.0E-02	3E-01
52	Nitrogen, ammo	2.9E+01	1.3E-05	1	3.8E-04	NA	NA
53	Phenanthrene	1.5E+01	1.3E-05	1	2.0E-04	4.0E-01	5E-04
54	Pyrene	1.9E+01	1.3E-05	1	2.5E-04	3.0E-01	8E-04
55	Silica	3.2E+01	1.3E-05	1	4.2E-04	NA	NA
56	Silver	0.0E+00	1.3E-05	1	0.0E+00	3.0E-03	0E+00
57	Sodium	1.3E+04	1.3E-05	1	1.7E-01	NA	NA
58	Sulfate	1.8E+03	1.3E-05	1	2.3E-02	NA	NA
59	Styrene	2.0E-03	1.3E-05	1	2.6E-08	2.0E+00	1E-08
60	1,1,2,2-PCA	0.0E+00	1.3E-05	1	0.0E+00	NA	NA
61	PCE	1.1E-02	1.3E-05	1	1.4E-07	1.0E-01	1E-06
62	Thallium	0.0E+00	1.3E-05	1	0.0E+00	7.0E-04	0E+00
63	Toluene	2.0E-03	1.3E-05	1	2.6E-08	2.0E+00	1E-08
64	1,1,1-TCA	4.0E-03	1.3E-05	1	5.2E-08	9.0E-01	6E-08
65	TCE	2.0E-03	1.3E-05	1	2.6E-08	NA	NA
66	Vanadium	4.8E+02	1.3E-05	1	6.2E-03	7.0E-03	9E-01

RANGE NAME: WS2

SITE NAME: ORMET
OPERABLE UNIT: FUTURE RESIDENT CHILD
FILE NAME: POP4
LAST UPDATED: 03/13/91

EXPOSURE AND RISK CALCULATION WORKSHEET

LAND USE: FUTURE
POPULATION: RES. CHILD (1-4)

EXPOSURE POINT: POND 1-4
MEDIUM: SOIL
ROUTE: DERMAL

HIFs = 2.4E-04
HIFc = 0.0E+00
HIFl = 0.0E+00

		SUBCHRONIC						CHRONIC						LIFETIME					
	CHEMICAL NAME	Cs	HIFs	ABS	DIs	RfDS	HQs	Cc	HIFc	ABS	DIc	RfDC	HQc	Cl	HIFl	ABS	DIl	SF	RISK
1	Acenaphthene	2.1E+00	2.4E-04	1.0E-01	5.0E-05	NA	NA		0.0E+00		0.0E+00		ERR		0.0E+00		0.0E+00		0E+00
2	Acenaphthylene	9.9E-02	2.4E-04	NA	NA	NA	NA												
3	Acetone	4.2E-02	2.4E-04	2.5E-01	2.5E-06	1.0E+00	3E-06												
4	Aluminum	6.8E+04	2.4E-04	NA	NA	NA	NA												
5	Anthracene	9.5E+00	2.4E-04	NA	NA	NA	NA												
6	Antimony	2.5E+01	2.4E-04	NA	NA	NA	NA												
7	Aroclor 1242	0.0E+00	2.4E-04	1.0E-01	0.0E+00	NA	NA												
8	Aroclor 1248	0.0E+00	2.4E-04	1.0E-01	0.0E+00	NA	NA												
9	Aroclor 1254	0.0E+00	2.4E-04	1.0E-01	0.0E+00	NA	NA												
10	Arsenic	7.6E+01	2.4E-04	NA	NA	NA	NA												
11	Barium	1.9E+02	2.4E-04	NA	NA	NA	NA												
12	Benzene	3.1E-03	2.4E-04	2.5E-01	1.9E-07	NA	NA												
13	Benzo(a)anthra	2.9E+01	2.4E-04	NA	NA	NA	NA												
14	Benzo(a)pyrene	1.5E+01	2.4E-04	NA	NA	NA	NA												
15	Benzo(b)fluora	3.9E+01	2.4E-04	NA	NA	NA	NA												
16	Benzo(g,h,i)pe	8.2E+00	2.4E-04	NA	NA	NA	NA												
17	Benzo(k)fluora	2.0E+01	2.4E-04	NA	NA	NA	NA												
18	Beryllium	3.9E+00	2.4E-04	NA	NA	NA	NA												
19	BEHP	2.4E+00	2.4E-04	1.0E-01	5.8E-05	2.0E-02	3E-03												
20	2-Butanone	9.4E-03	2.4E-04	2.5E-01	5.6E-07	5.0E-01	1E-06												
21	Cadmium (food)	0.0E+00	2.4E-04	NA	NA	NA	NA												
22	Cadmium (water	0.0E+00	2.4E-04	NA	NA	NA	NA												
23	Carbon disulfi	4.0E-03	2.4E-04	2.5E-01	2.4E-07	1.0E-01	2E-06												
24	Chloride	2.2E+01	2.4E-04	NA	NA	NA	NA												
25	Chlorobenzene	0.0E+00	2.4E-04	2.5E-01	0.0E+00	2.0E-01	0E+00												
26	Chloroform	1.2E-02	2.4E-04	2.5E-01	7.3E-07	1.0E-02	7E-05												
27	Chromium (VI)	6.5E+01	2.4E-04	NA	NA	NA	NA												
28	Chrysene	4.4E+01	2.4E-04	NA	NA	4.0E-01	NA												
29	Cobalt	1.4E+01	2.4E-04	NA	NA	NA	NA												
30	Copper	9.7E+01	2.4E-04	NA	NA	NA	NA												
31	Cyanide (free)	8.4E+01	2.4E-04	NA	NA	NA	NA												
32	Di-n-butylphth	1.8E+00	2.4E-04	1.0E-01	4.3E-05	1.0E+00	4E-05												
33	Di-n-octylphth	0.0E+00	2.4E-04	1.0E-01	0.0E+00	2.0E-02	0E+00												
34	Dibenz(a,h)ant	2.4E+00	2.4E-04	NA	NA	NA	NA												
35	Dibenzofuran	2.4E+00	2.4E-04	1.0E-01	5.8E-05	NA	NA												
36	2,4-Dimethylph	0.0E+00	2.4E-04	1.0E-01	0.0E+00	2.0E-01	0E+00												
37	Ethyl benzene	0.0E+00	2.4E-04	2.5E-01	0.0E+00	1.0E+00	0E+00												
38	Fluoranthene	3.8E+01	2.4E-04	NA	NA	NA	NA												
39	Fluorene	1.4E+00	2.4E-04	NA	NA	NA	NA												

40	Fluoride	2.3E+02	2.4E-04	NA	NA	NA	NA
41	Indeno(1,2,3-c	8.5E+00	2.4E-04	NA	NA	NA	NA
42	Iron	9.3E+03	2.4E-04	NA	NA	NA	NA
43	Lead	1.4E+02	2.4E-04	NA	NA	NA	NA
44	Manganese	1.7E+02	2.4E-04	NA	NA	NA	NA
45	Mercury	1.6E-01	2.4E-04	NA	NA	NA	NA
46	Methylene chlo	4.3E-02	2.4E-04	2.5E-01	2.6E-06	6.0E-02	4E-05
47	2-Methylnaphth	5.5E-01	2.4E-04	NA	NA	NA	NA
48	4-Methylphenol	0.0E+00	2.4E-04	1.0E-01	0.0E+00	5.0E-01	0E+00
49	Naphthalene	9.3E-01	2.4E-04	NA	NA	NA	NA
50	Nickel(dust)	0.0E+00	2.4E-04	NA	NA	NA	NA
51	Nickel (salts)	4.0E+02	2.4E-04	NA	NA	NA	NA
52	Nitrogen, ammo	2.9E+01	2.4E-04	NA	NA	NA	NA
53	Phenanthrene	1.5E+01	2.4E-04	NA	NA	NA	NA
54	Pyrene	1.9E+01	2.4E-04	NA	NA	NA	NA
55	Silica	3.2E+01	2.4E-04	NA	NA	NA	NA
56	Silver	0.0E+00	2.4E-04	NA	NA	NA	NA
57	Sodium	1.3E+04	2.4E-04	NA	NA	NA	NA
58	Sulfate	1.8E+03	2.4E-04	NA	NA	NA	NA
59	Styrene	2.0E-03	2.4E-04	2.5E-01	1.2E-07	2.0E+00	6E-08
60	1,1,2,2-PCA	0.0E+00	2.4E-04	2.5E-01	0.0E+00	NA	NA
61	PCE	1.1E-02	2.4E-04	2.5E-01	6.6E-07	1.0E-01	7E-06
62	Thallium	0.0E+00	2.4E-04	NA	NA	NA	NA
63	Toluene	2.0E-03	2.4E-04	2.5E-01	1.2E-07	2.0E+00	6E-08
64	1,1,1-TCA	4.0E-03	2.4E-04	2.5E-01	2.4E-07	9.0E-01	3E-07
65	TCE	2.0E-03	2.4E-04	2.5E-01	1.2E-07	NA	NA
66	Vanadium	4.8E+02	2.4E-04	NA	NA	NA	NA

RANGE NAME: SSUM

SITE NAME: ORMET
OPERABLE UNIT: FUTURE RESIDENT CHIL
FILE NAME: POP4
LAST UPDATED: 03/13/91

SUBCHRONIC EXPOSURE SUMMARY

FUTURE
RES. CHILD (1-4)

SUBCHRONIC DAILY INTAKE (mg/kg/day)

		SCENARIO 1	SCENARIO 2	SCENARIO 3	SCENARIO 4	SCENARIO 5	SCENARIO 6
		POND 1-4	POND 1-4	0	0	0	0
		SOIL	SOIL	0	0	0	0
		ORAL	DERMAL	0	0	0	0
	CHEMICAL NAME	(FROM WS1)	(FROM WS2)	(FROM WS3)	(FROM WS4)	(FROM WS5)	(FROM WS6)
1	Acenaphthene	2.7E-05	5.0E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00
2	Acenaphthylene	1.3E-06	NA				
3	Acetone	5.5E-07	2.5E-06				
4	Aluminum	8.8E-01	NA				
5	Anthracene	1.2E-04	NA				
6	Antimony	3.3E-04	NA				
7	Aroclor 1242	0.0E+00	0.0E+00				
8	Aroclor 1248	0.0E+00	0.0E+00				
9	Aroclor 1254	0.0E+00	0.0E+00				
10	Arsenic	9.9E-04	NA				
11	Barium	2.5E-03	NA				
12	Benzene	4.0E-08	1.9E-07				
13	Benzo(a)anthra	3.8E-04	NA				
14	Benzo(a)pyrene	2.0E-04	NA				
15	Benzo(b)fluora	5.1E-04	NA				
16	Benzo(g,h,i)pe	1.1E-04	NA				
17	Benzo(k)fluora	2.6E-04	NA				
18	Beryllium	5.1E-05	NA				
19	BEHP	3.1E-05	5.8E-05				
20	2-Butanone	1.2E-07	5.6E-07				
21	Cadmium (food)	0.0E+00	NA				
22	Cadmium (water	0.0E+00	NA				
23	Carbon disulfi	5.2E-08	2.4E-07				
24	Chloride	2.9E-04	NA				
25	Chlorobenzene	0.0E+00	0.0E+00				
26	Chloroform	1.6E-07	7.3E-07				
27	Chromium (VI)	8.5E-04	NA				
28	Chrysene	5.7E-04	NA				
29	Cobalt	1.8E-04	NA				
30	Copper	1.3E-03	NA				
31	Cyanide (free)	1.1E-03	NA				
32	Di-n-butylphth	2.3E-05	4.3E-05				
33	Di-n-octylphth	0.0E+00	0.0E+00				
34	Dibenz(a,h)ant	3.1E-05	NA				
35	Dibenzofuran	3.1E-05	5.8E-05				
36	2,4-Dimethylph	0.0E+00	0.0E+00				
37	Ethyl benzene	0.0E+00	0.0E+00				
38	Fluoranthene	4.9E-04	NA				
39	Fluorene	1.8E-05	NA				
40	Fluoride	3.0E-03	NA				
41	Indeno(1,2,3-c	1.1E-04	NA				
42	Iron	1.2E-01	NA				

SUBCHRONIC RISK SUMMARY

FUTURE
RES. CHILD (1-4)

SUBCHRONIC HAZARD QUOTIENT

SCENARIO 1	SCENARIO 2	SCENARIO 3	SCENARIO 4	SCENARIO 5	SCENARIO 6
POND 1-4	POND 1-4	0	0	0	0
SOIL	SOIL	0	0	0	0
ORAL	DERMAL	0	0	0	0
(FROM WS1)	(FROM WS2)	(FROM WS3)	(FROM WS4)	(FROM WS5)	(FROM WS6)
5E-05	NA	0E+00	0E+00	0E+00	0E+00
3E-06	NA				
5E-07	3E-06				
NA	NA				
4E-05	NA				
8E-01	NA				
NA	NA				
NA	NA				
NA	NA				
1E+00	NA				
5E-02	NA				
NA	NA				
9E-04	NA				
5E-04	NA				
1E-03	NA				
3E-04	NA				
6E-04	NA				
1E-02	NA				
2E-03	3E-03				
2E-07	1E-06				
NA	NA				
NA	NA				
5E-07	2E-06				
NA	NA				
0E+00	0E+00				
2E-05	7E-05				
4E-02	NA				
1E-03	NA				
NA	NA				
3E-02	NA				
5E-02	NA				
2E-05	4E-05				
0E+00	0E+00				
8E-05	NA				
NA	NA				
0E+00	0E+00				
0E+00	0E+00				
1E-03	NA				
5E-05	NA				
5E-02	NA				
3E-04	NA				
NA	NA				

43	Lead	1.8E-03	NA			NA	NA			
44	Manganese	2.2E-03	NA			2E-02	NA			
45	Mercury	2.1E-06	NA			7E-03	NA			
46	Methylene chlo	5.6E-07	2.6E-06			9E-06	4E-05			
47	2-Methylnaphth	7.2E-06	NA			2E-05	NA			
48	4-Methylphenol	0.0E+00	0.0E+00			0E+00	0E+00			
49	Naphthalene	1.2E-05	NA			3E-05	NA			
50	Nickel(dust)	0.0E+00	NA			NA	NA			
51	Nickel (salts)	5.2E-03	NA			3E-01	NA			
52	Nitrogen, ammo	3.8E-04	NA			NA	NA			
53	Phenanthrene	2.0E-04	NA			5E-04	NA			
54	Pyrene	2.5E-04	NA			8E-04	NA			
55	Silica	4.2E-04	NA			NA	NA			
56	Silver	0.0E+00	NA			0E+00	NA			
57	Sodium	1.7E-01	NA			NA	NA			
58	Sulfate	2.3E-02	NA			NA	NA			
59	Styrene	2.6E-08	1.2E-07			1E-08	6E-08			
60	1,1,2,2-PCA	0.0E+00	0.0E+00			NA	NA			
61	PCE	1.4E-07	6.6E-07			1E-06	7E-06			
62	Thallium	0.0E+00	NA			0E+00	NA			
63	Toluene	2.6E-08	1.2E-07			1E-08	6E-08			
64	1,1,1-TCA	5.2E-08	2.4E-07			6E-08	3E-07			
65	TCE	2.6E-08	1.2E-07			NA	NA			
66	Vanadium	6.2E-03	NA			9E-01	NA			
	PATHWAY SUM (HI)			3E+00	3E-03	0E+00	0E+00	0E+00	0E+00	
	POPULATION TOTAL			3E+00						

RANGE NAME: WS1

SITE NAME: ORMET
OPERABLE UNIT: FUTURE RESIDENT CHILD
FILE NAME: POP5
LAST UPDATED: 03/13/91

EXPOSURE AND RISK CALCULATION WORKSHEET

LAND USE: FUTURE
POPULATION: RES. CHILD (5)

EXPOSURE POINT: POND 5
MEDIUM: SOIL
ROUTE: ORAL

HIFs = 1.3E-05
HIFc = 0.0E+00
HIFl = 0.0E+00

		SUBCHRONIC						CHRONIC						LIFETIME					
	CHEMICAL NAME	Cs	HIFs	1	DIs	RfDS	HQs	Cc	HIFc	1	DIc	RfDC	HQc	Cl	HIFl	1	DIl	SF	RISK
1	Acenaphthene	1.6E+00	1.3E-05	1	2.1E-05	6.0E-01	3E-05		0.0E+00		0.0E+00		ERR		0.0E+00		0.0E+00		0E+00
2	Acenaphthylene	6.7E-01	1.3E-05	1	8.7E-06	4.0E-01	2E-05												
3	Acetone	1.8E-02	1.3E-05	1	2.3E-07	1.0E+00	2E-07												
4	Aluminum	9.8E+04	1.3E-05	1	1.3E+00	NA	NA												
5	Anthracene	2.8E+00	1.3E-05	1	3.6E-05	3.0E+00	1E-05												
6	Antimony	1.5E+01	1.3E-05	1	2.0E-04	4.0E-04	5E-01												
7	Aroclor 1242	0.0E+00	1.3E-05	1	0.0E+00	NA	NA												
8	Aroclor 1248	0.0E+00	1.3E-05	1	0.0E+00	NA	NA												
9	Aroclor 1254	0.0E+00	1.3E-05	1	0.0E+00	NA	NA												
10	Arsenic	3.9E+01	1.3E-05	1	5.1E-04	1.0E-03	5E-01												
11	Barium	1.5E+02	1.3E-05	1	2.0E-03	5.0E-02	4E-02												
12	Benzene	3.2E-03	1.3E-05	1	4.2E-08	NA	NA												
13	Benzo(a)anthra	7.0E+00	1.3E-05	1	9.1E-05	4.0E-01	2E-04												
14	Benzo(a)pyrene	5.3E+00	1.3E-05	1	6.9E-05	4.0E-01	2E-04												
15	Benzo(b)fluora	7.1E+00	1.3E-05	1	9.2E-05	4.0E-01	2E-04												
16	Benzo(g,h,i)pe	2.3E+00	1.3E-05	1	3.0E-05	4.0E-01	7E-05												
17	Benzo(k)fluora	4.8E+00	1.3E-05	1	6.2E-05	4.0E-01	2E-04												
18	Beryllium	9.3E+00	1.3E-05	1	1.2E-04	5.0E-03	2E-02												
19	BEHP	0.0E+00	1.3E-05	1	0.0E+00	2.0E-02	0E+00												
20	2-Butanone	0.0E+00	1.3E-05	1	0.0E+00	5.0E-01	0E+00												
21	Cadmium (food)	0.0E+00	1.3E-05	1	0.0E+00	NA	NA												
22	Cadmium (water	0.0E+00	1.3E-05	1	0.0E+00	NA	NA												
23	Carbon disulfi	2.6E-02	1.3E-05	1	3.4E-07	1.0E-01	3E-06												
24	Chloride	4.5E+01	1.3E-05	1	5.9E-04	NA	NA												
25	Chlorobenzene	2.0E-03	1.3E-05	1	2.6E-08	2.0E-01	1E-07												
26	Chloroform	1.1E-02	1.3E-05	1	1.4E-07	1.0E-02	1E-05												
27	Chromium (VI)	1.6E+01	1.3E-05	1	2.1E-04	2.0E-02	1E-02												
28	Chrysene	7.0E+00	1.3E-05	1	9.1E-05	4.0E-01	2E-04												
29	Cobalt	7.3E+00	1.3E-05	1	9.5E-05	NA	NA												
30	Copper	2.6E+01	1.3E-05	1	3.4E-04	3.7E-02	9E-03												
31	Cyanide (free)	2.1E+02	1.3E-05	1	2.7E-03	2.0E-02	1E-01												
32	Di-n-butylphth	1.3E+00	1.3E-05	1	1.7E-05	1.0E+00	2E-05												
33	Di-n-octylphth	0.0E+00	1.3E-05	1	0.0E+00	2.0E-02	0E+00												
34	Dibenz(a,h)ant	5.4E-01	1.3E-05	1	7.0E-06	4.0E-01	2E-05												
35	Dibenzofuran	8.8E-01	1.3E-05	1	1.1E-05	NA	NA												
36	2,4-Dimethylph	0.0E+00	1.3E-05	1	0.0E+00	2.0E-01	0E+00												
37	Ethyl benzene	0.0E+00	1.3E-05	1	0.0E+00	1.0E+00	0E+00												
38	Fluoranthene	9.9E+00	1.3E-05	1	1.3E-04	4.0E-01	3E-04												
39	Fluorene	8.3E-01	1.3E-05	1	1.1E-05	4.0E-01	3E-05												

40	Fluoride	4.4E+02	1.3E-05	1	5.7E-03	6.0E-02	1.0E-01
41	Indeno(1,2,3-c	2.4E+00	1.3E-05	1	3.1E-05	4.0E-01	8E-05
42	Iron	5.7E+03	1.3E-05	1	7.4E-02	NA	NA
43	Lead	2.9E+01	1.3E-05	1	3.8E-04	NA	NA
44	Manganese	1.5E+02	1.3E-05	1	2.0E-03	1.0E-01	2E-02
45	Mercury	1.1E-01	1.3E-05	1	1.4E-06	3.0E-04	5E-03
46	Methylene chlo	1.1E-01	1.3E-05	1	1.4E-06	6.0E-02	2E-05
47	2-Methylnaphth	4.9E-01	1.3E-05	1	6.4E-06	4.0E-01	2E-05
48	4-Methylphenol	0.0E+00	1.3E-05	1	0.0E+00	5.0E-01	0E+00
49	Naphthalene	9.5E-01	1.3E-05	1	1.2E-05	4.0E-01	3E-05
50	Nickel(dust)	0.0E+00	1.3E-05	1	0.0E+00	NA	NA
51	Nickel (salts)	7.9E+01	1.3E-05	1	1.0E-03	2.0E-02	5E-02
52	Nitrogen, ammo	1.6E+02	1.3E-05	1	2.1E-03	NA	NA
53	Phenanthrene	7.9E+00	1.3E-05	1	1.0E-04	4.0E-01	3E-04
54	Pyrene	8.2E+00	1.3E-05	1	1.1E-04	3.0E-01	4E-04
55	Silica	2.9E+01	1.3E-05	1	3.8E-04	NA	NA
56	Silver	8.7E-01	1.3E-05	1	1.1E-05	3.0E-03	4E-03
57	Sodium	2.3E+04	1.3E-05	1	3.0E-01	NA	NA
58	Sulfate	8.4E+02	1.3E-05	1	1.1E-02	NA	NA
59	Styrene	0.0E+00	1.3E-05	1	0.0E+00	2.0E+00	0E+00
60	1,1,2,2-PCA	0.0E+00	1.3E-05	1	0.0E+00	NA	NA
61	PCE	0.0E+00	1.3E-05	1	0.0E+00	1.0E-01	0E+00
62	Thallium	3.8E-01	1.3E-05	1	4.9E-06	7.0E-04	7E-03
63	Toluene	3.8E-03	1.3E-05	1	4.9E-08	2.0E+00	2E-08
64	1,1,1-TCA	0.0E+00	1.3E-05	1	0.0E+00	9.0E-01	0E+00
65	TCE	0.0E+00	1.3E-05	1	0.0E+00	NA	NA
66	Vanadium	5.2E+01	1.3E-05	1	6.8E-04	7.0E-03	1.0E-01

RANGE NAME: WS2

SITE NAME: ORMET
OPERABLE UNIT: FUTURE RESIDENT CHILD
FILE NAME: POP5
LAST UPDATED: 03/13/91

EXPOSURE AND RISK CALCULATION WORKSHEET

LAND USE: FUTURE
POPULATION: RES. CHILD (5)

EXPOSURE POINT: POND 5
MEDIUM: SOIL
ROUTE: DERMAL

HIFs = 2.4E-04
HIFc = 0.0E+00
HIFl = 0.0E+00

		SUBCHRONIC						CHRONIC						LIFETIME					
	CHEMICAL NAME	Cs	HIFs	ABS	DIs	RfDS	HQs	Cc	HIFc	ABS	DIc	RfDC	HQc	Cl	HIFl	ABS	DIl	SF	RISK
1	Acenaphthene	1.6E+00	2.4E-04	1.0E-01	3.8E-05	NA	NA		0.0E+00		0.0E+00		ERR		0.0E+00		0.0E+00		0E+00
2	Acenaphthylene	6.7E-01	2.4E-04	NA	NA	NA	NA												
3	Acetone	1.8E-02	2.4E-04	2.5E-01	1.1E-06	1.0E+00	1E-06												
4	Aluminum	9.8E+04	2.4E-04	NA	NA	NA	NA												
5	Anthracene	2.8E+00	2.4E-04	NA	NA	NA	NA												
6	Antimony	1.5E+01	2.4E-04	NA	NA	NA	NA												
7	Aroclor 1242	0.0E+00	2.4E-04	1.0E-01	0.0E+00	NA	NA												
8	Aroclor 1248	0.0E+00	2.4E-04	1.0E-01	0.0E+00	NA	NA												
9	Aroclor 1254	0.0E+00	2.4E-04	1.0E-01	0.0E+00	NA	NA												
10	Arsenic	3.9E+01	2.4E-04	NA	NA	NA	NA												
11	Barium	1.5E+02	2.4E-04	NA	NA	NA	NA												
12	Benzene	3.2E-03	2.4E-04	2.5E-01	1.9E-07	NA	NA												
13	Benzo(a)anthra	7.0E+00	2.4E-04	NA	NA	NA	NA												
14	Benzo(a)pyrene	5.3E+00	2.4E-04	NA	NA	NA	NA												
15	Benzo(b)fluora	7.1E+00	2.4E-04	NA	NA	NA	NA												
16	Benzo(g,h,i)pe	2.3E+00	2.4E-04	NA	NA	NA	NA												
17	Benzo(k)fluora	4.8E+00	2.4E-04	NA	NA	NA	NA												
18	Beryllium	9.3E+00	2.4E-04	NA	NA	NA	NA												
19	BEHP	0.0E+00	2.4E-04	1.0E-01	0.0E+00	2.0E-02	0E+00												
20	2-Butanone	0.0E+00	2.4E-04	2.5E-01	0.0E+00	5.0E-01	0E+00												
21	Cadmium (food)	0.0E+00	2.4E-04	NA	NA	NA	NA												
22	Cadmium (water	0.0E+00	2.4E-04	NA	NA	NA	NA												
23	Carbon disulfi	2.6E-02	2.4E-04	2.5E-01	1.6E-06	1.0E-01	2E-05												
24	Chloride	4.5E+01	2.4E-04	NA	NA	NA	NA												
25	Chlorobenzene	2.0E-03	2.4E-04	2.5E-01	1.2E-07	2.0E-01	6E-07												
26	Chloroform	1.1E-02	2.4E-04	2.5E-01	6.7E-07	1.0E-02	7E-05												
27	Chromium (VI)	1.6E+01	2.4E-04	NA	NA	NA	NA												
28	Chrysene	7.0E+00	2.4E-04	NA	NA	4.0E-01	NA												
29	Cobalt	7.3E+00	2.4E-04	NA	NA	NA	NA												
30	Copper	2.6E+01	2.4E-04	NA	NA	NA	NA												
31	Cyanide (free)	2.1E+02	2.4E-04	NA	NA	NA	NA												
32	Di-n-butylphth	1.3E+00	2.4E-04	1.0E-01	3.1E-05	1.0E+00	3E-05												
33	Di-n-octylphth	0.0E+00	2.4E-04	1.0E-01	0.0E+00	2.0E-02	0E+00												
34	Dibenz(a,h)ant	5.4E-01	2.4E-04	NA	NA	NA	NA												
35	Dibenzofuran	8.8E-01	2.4E-04	1.0E-01	2.1E-05	NA	NA												
36	2,4-Dimethylph	0.0E+00	2.4E-04	1.0E-01	0.0E+00	2.0E-01	0E+00												
37	Ethyl benzene	0.0E+00	2.4E-04	2.5E-01	0.0E+00	1.0E+00	0E+00												
38	Fluoranthene	9.9E+00	2.4E-04	NA	NA	NA	NA												
39	Fluorene	8.3E-01	2.4E-04	NA	NA	NA	NA												

40	Fluoride	4.4E+02	2.4E-04	NA	NA	NA	NA
41	Indeno(1,2,3-c	2.4E+00	2.4E-04	NA	NA	NA	NA
42	Iron	5.7E+03	2.4E-04	NA	NA	NA	NA
43	Lead	2.9E+01	2.4E-04	NA	NA	NA	NA
44	Manganese	1.5E+02	2.4E-04	NA	NA	NA	NA
45	Mercury	1.1E-01	2.4E-04	NA	NA	NA	NA
46	Methylene chlo	1.1E-01	2.4E-04	2.5E-01	6.6E-06	6.0E-02	1E-04
47	2-Methylnaphth	4.9E-01	2.4E-04	NA	NA	NA	NA
48	4-Methylphenol	0.0E+00	2.4E-04	1.0E-01	0.0E+00	5.0E-01	0E+00
49	Naphthalene	9.5E-01	2.4E-04	NA	NA	NA	NA
50	Nickel(dust)	0.0E+00	2.4E-04	NA	NA	NA	NA
51	Nickel (salts)	7.9E+01	2.4E-04	NA	NA	NA	NA
52	Nitrogen, ammo	1.6E+02	2.4E-04	NA	NA	NA	NA
53	Phenanthrene	7.9E+00	2.4E-04	NA	NA	NA	NA
54	Pyrene	8.2E+00	2.4E-04	NA	NA	NA	NA
55	Silica	2.9E+01	2.4E-04	NA	NA	NA	NA
56	Silver	8.7E-01	2.4E-04	NA	NA	NA	NA
57	Sodium	2.3E+04	2.4E-04	NA	NA	NA	NA
58	Sulfate	8.4E+02	2.4E-04	NA	NA	NA	NA
59	Styrene	0.0E+00	2.4E-04	2.5E-01	0.0E+00	2.0E+00	0E+00
60	1,1,2,2-PCA	0.0E+00	2.4E-04	2.5E-01	0.0E+00	NA	NA
61	PCE	0.0E+00	2.4E-04	2.5E-01	0.0E+00	1.0E-01	0E+00
62	Thallium	3.8E-01	2.4E-04	NA	NA	NA	NA
63	Toluene	3.8E-03	2.4E-04	2.5E-01	2.3E-07	2.0E+00	1E-07
64	1,1,1-TCA	0.0E+00	2.4E-04	2.5E-01	0.0E+00	9.0E-01	0E+00
65	TCE	0.0E+00	2.4E-04	2.5E-01	0.0E+00	NA	NA
66	Vanadium	5.2E+01	2.4E-04	NA	NA	NA	NA

RANGE NAME: SSUM

SITE NAME: ORMET
OPERABLE UNIT: FUTURE RESIDENT CHIL
FILE NAME: POP5
LAST UPDATED: 03/13/91

SUBCHRONIC EXPOSURE SUMMARY

FUTURE
RES. CHILD (5)

SUBCHRONIC DAILY INTAKE (mg/kg/day)

		SCENARIO 1	SCENARIO 2	SCENARIO 3	SCENARIO 4	SCENARIO 5	SCENARIO 6
		POND 5	POND 5	0	0	0	0
		SOIL	SOIL	0	0	0	0
		ORAL	DERMAL	0	0	0	0
	CHEMICAL NAME	(FROM WS1)	(FROM WS2)	(FROM WS3)	(FROM WS4)	(FROM WS5)	(FROM WS6)
1	Acenaphthene	2.1E-05	3.8E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00
2	Acenaphthylene	8.7E-06	NA				
3	Acetone	2.3E-07	1.1E-06				
4	Aluminum	1.3E+00	NA				
5	Anthracene	3.6E-05	NA				
6	Antimony	2.0E-04	NA				
7	Aroclor 1242	0.0E+00	0.0E+00				
8	Aroclor 1248	0.0E+00	0.0E+00				
9	Aroclor 1254	0.0E+00	0.0E+00				
10	Arsenic	5.1E-04	NA				
11	Barium	2.0E-03	NA				
12	Benzene	4.2E-08	1.9E-07				
13	Benzo(a)anthra	9.1E-05	NA				
14	Benzo(a)pyrene	6.9E-05	NA				
15	Benzo(b)fluora	9.2E-05	NA				
16	Benzo(g,h,i)pe	3.0E-05	NA				
17	Benzo(k)fluora	6.2E-05	NA				
18	Beryllium	1.2E-04	NA				
19	BEHP	0.0E+00	0.0E+00				
20	2-Butanone	0.0E+00	0.0E+00				
21	Cadmium (food)	0.0E+00	NA				
22	Cadmium (water	0.0E+00	NA				
23	Carbon disulfi	3.4E-07	1.6E-06				
24	Chloride	5.9E-04	NA				
25	Chlorobenzene	2.6E-08	1.2E-07				
26	Chloroform	1.4E-07	6.7E-07				
27	Chromium (VI)	2.1E-04	NA				
28	Chrysene	9.1E-05	NA				
29	Cobalt	9.5E-05	NA				
30	Copper	3.4E-04	NA				
31	Cyanide (free)	2.7E-03	NA				
32	Di-n-butylphth	1.7E-05	3.1E-05				
33	Di-n-octylphth	0.0E+00	0.0E+00				
34	Dibenz(a,h)ant	7.0E-06	NA				
35	Dibenzofuran	1.1E-05	2.1E-05				
36	2,4-Dimethylph	0.0E+00	0.0E+00				
37	Ethyl benzene	0.0E+00	0.0E+00				
38	Fluoranthene	1.3E-04	NA				
39	Fluorene	1.1E-05	NA				
40	Fluoride	5.7E-03	NA				
41	Indeno(1,2,3-c	3.1E-05	NA				
42	Iron	7.4E-02	NA				

SUBCHRONIC RISK SUMMARY

FUTURE
RES. CHILD (5)

SUBCHRONIC HAZARD QUOTIENT

SCENARIO 1	SCENARIO 2	SCENARIO 3	SCENARIO 4	SCENARIO 5	SCENARIO 6
POND 5	POND 5	0	0	0	0
SOIL	SOIL	0	0	0	0
ORAL	DERMAL	0	0	0	0
(FROM WS1)	(FROM WS2)	(FROM WS3)	(FROM WS4)	(FROM WS5)	(FROM WS6)
3E-05	NA	0E+00	0E+00	0E+00	0E+00
2E-05	NA				
2E-07	1E-06				
NA	NA				
1E-05	NA				
5E-01	NA				
NA	NA				
NA	NA				
NA	NA				
5E-01	NA				
4E-02	NA				
NA	NA				
2E-04	NA				
2E-04	NA				
2E-04	NA				
7E-05	NA				
2E-04	NA				
2E-02	NA				
0E+00	0E+00				
0E+00	0E+00				
NA	NA				
NA	NA				
3E-06	2E-05				
NA	NA				
1E-07	6E-07				
1E-05	7E-05				
1E-02	NA				
2E-04	NA				
NA	NA				
9E-03	NA				
1E-01	NA				
2E-05	3E-05				
0E+00	0E+00				
2E-05	NA				
NA	NA				
0E+00	0E+00				
0E+00	0E+00				
3E-04	NA				
3E-05	NA				
1E-01	NA				
8E-05	NA				
NA	NA				

43	Lead	3.9E-04	NA		NA	NA				
44	Manganese	2.0E-03	NA		2E-02	NA				
45	Mercury	1.4E-06	NA		5E-03	NA				
46	Methylene chlo	1.4E-06	6.6E-06		2E-05	1E-04				
47	2-Methylnaphth	6.4E-06	NA		2E-05	NA				
48	4-Methylphenol	0.0E+00	0.0E+00		0E+00	0E+00				
49	Naphthalene	1.2E-05	NA		3E-05	NA				
50	Nickel(dust)	0.0E+00	NA		NA	NA				
51	Nickel (salts)	1.0E-03	NA		5E-02	NA				
52	Nitrogen, ammo	2.1E-03	NA		NA	NA				
53	Phenanthrene	1.0E-04	NA		3E-04	NA				
54	Pyrene	1.1E-04	NA		4E-04	NA				
55	Silica	3.8E-04	NA		NA	NA				
56	Silver	1.1E-05	NA		4E-03	NA				
57	Sodium	3.0E-01	NA		NA	NA				
58	Sulfate	1.1E-02	NA		NA	NA				
59	Styrene	0.0E+00	0.0E+00		0E+00	0E+00				
60	1,1,2,2-PCA	0.0E+00	0.0E+00		NA	NA				
61	PCE	0.0E+00	0.0E+00		0E+00	0E+00				
62	Thallium	4.9E-06	NA		7E-03	NA				
63	Toluene	4.9E-08	2.3E-07		2E-08	1E-07				
64	1,1,1-TCA	0.0E+00	0.0E+00		0E+00	0E+00				
65	TCE	0.0E+00	0.0E+00		NA	NA				
66	Vanadium	6.8E-04	NA		1E-01	NA				
				PATHWAY SUM (HI)	1E+00	2E-04	0E+00	0E+00	0E+00	0E+00
				POPULATION TOTAL	1E+00					

RANGE NAME: WS1

EXPOSURE AND RISK CALCULATION WORKSHEET

LAND USE: FUTURE
POPULATION: RES. CHILD (RA)

EXPOSURE POINT: REC. AREA
MEDIUM: AIR (PART)
ROUTE: INHALATION

SITE NAME: ORMET
OPERABLE UNIT: FUTURE RESIDENT CHILD
FILE NAME: POP6
LAST UPDATED: 04/30/91

HIFs = 2.2E+00
HIFc = 0.0E+00
HIFl = 0.0E+00

		SUBCHRONIC						CHRONIC						LIFETIME					
	CHEMICAL NAME	Cs	HIFs	1	DIs	RfDS	HQs	Cc	HIFc	1	DIc	RfDC	HQc	Cl	HIFl	1	DIl	SF	RISK
1	Acenaphthene	6.4E-08	2.2E+00	1	1.4E-07	NA	NA		0.0E+00		0.0E+00		ERR		0.0E+00		0.0E+00		0E+00
2	Acenaphthylene	6.7E-08	2.2E+00	1	1.5E-07	NA	NA												
3	Acetone	0.0E+00	2.2E+00	1	0.0E+00	NA	NA												
4	Aluminum	3.8E-03	2.2E+00	1	8.4E-03	NA	NA												
5	Anthracene	2.4E-07	2.2E+00	1	5.3E-07	NA	NA												
6	Antimony	5.9E-07	2.2E+00	1	1.3E-06	NA	NA												
7	Aroclor 1242	0.0E+00	2.2E+00	1	0.0E+00	NA	NA												
8	Aroclor 1248	0.0E+00	2.2E+00	1	0.0E+00	NA	NA												
9	Aroclor 1254	0.0E+00	2.2E+00	1	0.0E+00	NA	NA												
10	Arsenic	1.3E-06	2.2E+00	1	2.9E-06	NA	NA												
11	Barium	7.6E-06	2.2E+00	1	1.7E-05	1.0E-03	2E-02												
12	Benzene	0.0E+00	2.2E+00	1	0.0E+00	NA	NA												
13	Benzo(a)anthra	6.0E-07	2.2E+00	1	1.3E-06	NA	NA												
14	Benzo(a)pyrene	5.1E-07	2.2E+00	1	1.1E-06	NA	NA												
15	Benzo(b)fluora	6.6E-07	2.2E+00	1	1.5E-06	NA	NA												
16	Benzo(g,h,i)pe	2.0E-07	2.2E+00	1	4.4E-07	NA	NA												
17	Benzo(k)fluora	4.6E-07	2.2E+00	1	1.0E-06	NA	NA												
18	Beryllium	5.7E-07	2.2E+00	1	1.3E-06	NA	NA												
19	BEHP	0.0E+00	2.2E+00	1	0.0E+00	NA	NA												
20	2-Butanone	0.0E+00	2.2E+00	1	0.0E+00	9.0E-01	0E+00												
21	Cadmium (food)	0.0E+00	2.2E+00	1	0.0E+00	NA	NA												
22	Cadmium (water	0.0E+00	2.2E+00	1	0.0E+00	NA	NA												
23	Carbon disulfi	0.0E+00	2.2E+00	1	0.0E+00	NA	NA												
24	Chloride	1.1E-06	2.2E+00	1	2.4E-06	NA	NA												
25	Chlorobenzene	0.0E+00	2.2E+00	1	0.0E+00	5.0E-02	0E+00												
26	Chloroform	0.0E+00	2.2E+00	1	0.0E+00	NA	NA												
27	Chromium (VI)	8.9E-07	2.2E+00	1	2.0E-06	5.7E-06	3E-01												
28	Chrysene	6.0E-07	2.2E+00	1	1.3E-06	NA	NA												
29	Cobalt	2.3E-07	2.2E+00	1	5.1E-07	NA	NA												
30	Copper	8.0E-07	2.2E+00	1	1.8E-06	NA	NA												
31	Cyanide (free)	8.2E-06	2.2E+00	1	1.8E-05	NA	NA												
32	Di-n-butylphth	1.5E-07	2.2E+00	1	3.3E-07	NA	NA												
33	Di-n-octylphth	0.0E+00	2.2E+00	1	0.0E+00	NA	NA												
34	Dibenz(a,h)ant	4.5E-08	2.2E+00	1	9.9E-08	NA	NA												
35	Dibenzofuran	6.5E-08	2.2E+00	1	1.4E-07	NA	NA												
36	2,4-Dimethylph	0.0E+00	2.2E+00	1	0.0E+00	NA	NA												
37	Ethyl benzene	0.0E+00	2.2E+00	1	0.0E+00	NA	NA												
38	Fluoranthene	8.4E-07	2.2E+00	1	1.8E-06	NA	NA												
39	Fluorene	7.2E-08	2.2E+00	1	1.6E-07	NA	NA												

40	Fluoride	1.0E-05	2.2E+00	1	2.2E-05	NA	NA
41	Indeno(1,2,3-c	2.1E-07	2.2E+00	1	4.6E-07	NA	NA
42	Iron	2.8E-04	2.2E+00	1	6.2E-04	NA	NA
43	Lead	1.2E-06	2.2E+00	1	2.6E-06	NA	NA
44	Manganese	9.3E-06	2.2E+00	1	2.0E-05	1.1E-04	2E-01
45	Mercury	0.0E+00	2.2E+00	1	0.0E+00	8.6E-05	0E+00
46	Methylene chlo	0.0E+00	2.2E+00	1	0.0E+00	8.6E-01	0E+00
47	2-Methylnaphth	1.3E-08	2.2E+00	1	2.9E-08	NA	NA
48	4-Methylphenol	0.0E+00	2.2E+00	1	0.0E+00	NA	NA
49	Naphthalene	1.8E-08	2.2E+00	1	4.0E-08	NA	NA
50	Nickel(dust)	1.2E-06	2.2E+00	1	2.6E-06	NA	NA
51	Nickel (salts)	0.0E+00	2.2E+00	1	0.0E+00	NA	NA
52	Nitrogen, ammo	1.1E-06	2.2E+00	1	2.4E-06	NA	NA
53	Phenanthrene	6.6E-07	2.2E+00	1	1.5E-06	NA	NA
54	Pyrene	6.5E-07	2.2E+00	1	1.4E-06	NA	NA
55	Silica	4.7E-07	2.2E+00	1	1.0E-06	NA	NA
56	Silver	0.0E+00	2.2E+00	1	0.0E+00	NA	NA
57	Sodium	8.5E-04	2.2E+00	1	1.9E-03	NA	NA
58	Sulfate	5.8E-06	2.2E+00	1	1.3E-05	NA	NA
59	Styrene	0.0E+00	2.2E+00	1	0.0E+00	NA	NA
60	1,1,2,2-PCA	0.0E+00	2.2E+00	1	0.0E+00	NA	NA
61	PCE	0.0E+00	2.2E+00	1	0.0E+00	NA	NA
62	Thallium	2.3E-08	2.2E+00	1	5.1E-08	NA	NA
63	Toluene	0.0E+00	2.2E+00	1	0.0E+00	5.7E-01	0E+00
64	1,1,1-TCA	0.0E+00	2.2E+00	1	0.0E+00	3.0E+00	0E+00
65	TCE	0.0E+00	2.2E+00	1	0.0E+00	NA	NA
66	Vanadium	9.0E-07	2.2E+00	1	2.0E-06	NA	NA

RANGE NAME: SSUM

SITE NAME: ORMET
OPERABLE UNIT: FUTURE RESIDENT CHIL
FILE NAME: POP6
LAST UPDATED: 04/30/91

SUBCHRONIC EXPOSURE SUMMARY

FUTURE
RES. CHILD (RA)

SUBCHRONIC DAILY INTAKE (mg/kg/day)

	CHEMICAL NAME	SCENARIO 1 REC. AREA AIR (PART) INHALATION (FROM WS1)	SCENARIO 2 0 0 0 (FROM WS2)	SCENARIO 3 0 0 0 (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
1	Acenaphthene	1.4E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
2	Acenaphthylene	1.5E-07					
3	Acetone	0.0E+00					
4	Aluminum	8.4E-03					
5	Anthracene	5.3E-07					
6	Antimony	1.3E-06					
7	Aroclor 1242	0.0E+00					
8	Aroclor 1248	0.0E+00					
9	Aroclor 1254	0.0E+00					
10	Arsenic	2.9E-06					
11	Barium	1.7E-05					
12	Benzene	0.0E+00					
13	Benzo(a)anthra	1.3E-06					
14	Benzo(a)pyrene	1.1E-06					
15	Benzo(b)fluora	1.5E-06					
16	Benzo(g,h,i)pe	4.4E-07					
17	Benzo(k)fluora	1.0E-06					
18	Beryllium	1.3E-06					
19	BEHP	0.0E+00					
20	2-Butanone	0.0E+00					
21	Cadmium (food)	0.0E+00					
22	Cadmium (water	0.0E+00					
23	Carbon disulfi	0.0E+00					
24	Chloride	2.4E-06					
25	Chlorobenzene	0.0E+00					
26	Chloroform	0.0E+00					
27	Chromium (VI)	2.0E-06					
28	Chrysene	1.3E-06					
29	Cobalt	5.1E-07					
30	Copper	1.8E-06					
31	Cyanide (free)	1.8E-05					
32	Di-n-butylphth	3.3E-07					
33	Di-n-octylphth	0.0E+00					
34	Dibenz(a,h)ant	9.9E-08					
35	Dibenzofuran	1.4E-07					
36	2,4-Dimethylph	0.0E+00					
37	Ethyl benzene	0.0E+00					
38	Fluoranthene	1.8E-06					
39	Fluorene	1.6E-07					
40	Fluoride	2.2E-05					
41	Indeno(1,2,3-c	4.6E-07					
42	Iron	6.2E-04					

SUBCHRONIC RISK SUMMARY

FUTURE
RES. CHILD (RA)

SUBCHRONIC HAZARD QUOTIENT

SCENARIO 1 REC. AREA AIR (PART) INHALATION (FROM WS1)	SCENARIO 2 0 0 0 (FROM WS2)	SCENARIO 3 0 0 0 (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
NA	0E+00	0E+00	0E+00	0E+00	0E+00
NA					
NA					
NA					
NA					
NA					
NA					
NA					
NA					
2E-02					
NA					
NA					
NA					
NA					
NA					
NA					
NA					
0E+00					
NA					
NA					
NA					
NA					
0E+00					
NA					
3E-01					
NA					
NA					
NA					
NA					
NA					
NA					
NA					
NA					
NA					
NA					
NA					
NA					
NA					
NA					

43	Lead	2.6E-06			NA			
44	Manganese	2.0E-05			2E-01			
45	Mercury	0.0E+00			0E+00			
46	Methylene chlo	0.0E+00			0E+00			
47	2-Methylnaphth	2.9E-08			NA			
48	4-Methylphenol	0.0E+00			NA			
49	Naphthalene	4.0E-08			NA			
50	Nickel(dust)	2.6E-06			NA			
51	Nickel (salts)	0.0E+00			NA			
52	Nitrogen, ammo	2.4E-06			NA			
53	Phenanthrene	1.5E-06			NA			
54	Pyrene	1.4E-06			NA			
55	Silica	1.0E-06			NA			
56	Silver	0.0E+00			NA			
57	Sodium	1.9E-03			NA			
58	Sulfate	1.3E-05			NA			
59	Styrene	0.0E+00			NA			
60	1,1,2,2-PCA	0.0E+00			NA			
61	PCE	0.0E+00			NA			
62	Thallium	5.1E-08			NA			
63	Toluene	0.0E+00			0E+00			
64	1,1,1-TCA	0.0E+00			0E+00			
65	TCE	0.0E+00			NA			
66	Vanadium	2.0E-06			NA			
	PATHWAY SUM (HI)		5E-01	0E+00	0E+00	0E+00	0E+00	0E+00
	POPULATION TOTAL		5E-01					

RANGE NAME: WS1

EXPOSURE AND RISK CALCULATION WORKSHEET

SITE NAME: ORMET
OPERABLE UNIT: FUTURE RESIDENT CHILD
FILE NAME: POP7
LAST UPDATED: 03/13/91

LAND USE: FUTURE
POPULATION: RES. CHILD (OR)

EXPOSURE POINT: OHIO RIVER
MEDIUM: SW
ROUTE: ORAL

HIFs = 2.9E-05
HIFc = 0.0E+00
HIFl = 0.0E+00

		SUBCHRONIC						CHRONIC						LIFETIME					
	CHEMICAL NAME	Cs	HIFs	1	DIs	RfDS	HQs	Cc	HIFc	1	DIc	RfDC	HQc	Cl	HIFl	1	DIl	SF	RISK
1	Acenaphthene	0.0E+00	2.9E-05	1	0.0E+00	6.0E-01	0E+00		0.0E+00		0.0E+00		ERR		0.0E+00		0.0E+00		0E+00
2	Acenaphthylene	0.0E+00	2.9E-05	1	0.0E+00	4.0E-01	0E+00												
3	Acetone	2.2E-02	2.9E-05	1	6.4E-07	1.0E+00	6E-07												
4	Aluminum	4.0E+00	2.9E-05	1	1.2E-04	NA	NA												
5	Anthracene	0.0E+00	2.9E-05	1	0.0E+00	3.0E+00	0E+00												
6	Antimony	5.0E-02	2.9E-05	1	1.5E-06	4.0E-04	4E-03												
7	Aroclor 1242	1.2E-03	2.9E-05	1	3.5E-08	NA	NA												
8	Aroclor 1248	0.0E+00	2.9E-05	1	0.0E+00	NA	NA												
9	Aroclor 1254	0.0E+00	2.9E-05	1	0.0E+00	NA	NA												
10	Arsenic	5.9E-03	2.9E-05	1	1.7E-07	1.0E-03	2E-04												
11	Barium	8.3E-02	2.9E-05	1	2.4E-06	5.0E-02	5E-05												
12	Benzene	0.0E+00	2.9E-05	1	0.0E+00	NA	NA												
13	Benzo(a)anthra	0.0E+00	2.9E-05	1	0.0E+00	4.0E-01	0E+00												
14	Benzo(a)pyrene	0.0E+00	2.9E-05	1	0.0E+00	4.0E-01	0E+00												
15	Benzo(b)fluora	0.0E+00	2.9E-05	1	0.0E+00	4.0E-01	0E+00												
16	Benzo(g,h,i)pe	0.0E+00	2.9E-05	1	0.0E+00	4.0E-01	0E+00												
17	Benzo(k)fluora	0.0E+00	2.9E-05	1	0.0E+00	4.0E-01	0E+00												
18	Beryllium	0.0E+00	2.9E-05	1	0.0E+00	5.0E-03	0E+00												
19	BEHP	0.0E+00	2.9E-05	1	0.0E+00	2.0E-02	0E+00												
20	2-Butanone	0.0E+00	2.9E-05	1	0.0E+00	5.0E-01	0E+00												
21	Cadmium (food)	0.0E+00	2.9E-05	1	0.0E+00	NA	NA												
22	Cadmium (water	2.3E-03	2.9E-05	1	6.7E-08	NA	NA												
23	Carbon disulfi	0.0E+00	2.9E-05	1	0.0E+00	1.0E-01	0E+00												
24	Chloride	2.3E+01	2.9E-05	1	6.7E-04	NA	NA												
25	Chlorobenzene	0.0E+00	2.9E-05	1	0.0E+00	2.0E-01	0E+00												
26	Chloroform	0.0E+00	2.9E-05	1	0.0E+00	1.0E-02	0E+00												
27	Chromium (VI)	1.4E-02	2.9E-05	1	4.1E-07	2.0E-02	2E-05												
28	Chrysene	0.0E+00	2.9E-05	1	0.0E+00	4.0E-01	0E+00												
29	Cobalt	8.1E-03	2.9E-05	1	2.3E-07	NA	NA												
30	Copper	2.1E-02	2.9E-05	1	6.1E-07	3.7E-02	2E-05												
31	Cyanide (free)	5.6E-01	2.9E-05	1	1.6E-05	2.0E-02	8E-04												
32	Di-n-butylphth	0.0E+00	2.9E-05	1	0.0E+00	1.0E+00	0E+00												
33	Di-n-octylphth	0.0E+00	2.9E-05	1	0.0E+00	2.0E-02	0E+00												
34	Dibenz(a,h)ant	0.0E+00	2.9E-05	1	0.0E+00	4.0E-01	0E+00												
35	Dibenzofuran	0.0E+00	2.9E-05	1	0.0E+00	NA	NA												
36	2,4-Dimethylph	0.0E+00	2.9E-05	1	0.0E+00	2.0E-01	0E+00												
37	Ethyl benzene	0.0E+00	2.9E-05	1	0.0E+00	1.0E+00	0E+00												
38	Fluoranthene	0.0E+00	2.9E-05	1	0.0E+00	4.0E-01	0E+00												
39	Fluorene	0.0E+00	2.9E-05	1	0.0E+00	4.0E-01	0E+00												

40	Fluoride	4.3E+00	2.9E-05	1	1.2E-04	6.0E-02	2E-03
41	Indeno(1,2,3-c	0.0E+00	2.9E-05	1	0.0E+00	4.0E-01	0E+00
42	Iron	7.2E+00	2.9E-05	1	2.1E-04	NA	NA
43	Lead	1.1E-02	2.9E-05	1	3.2E-07	NA	NA
44	Manganese	6.9E-01	2.9E-05	1	2.0E-05	1.0E-01	2E-04
45	Mercury	0.0E+00	2.9E-05	1	0.0E+00	3.0E-04	0E+00
46	Methylene chlo	2.6E-03	2.9E-05	1	7.5E-08	6.0E-02	1E-06
47	2-Methylnaphth	0.0E+00	2.9E-05	1	0.0E+00	4.0E-01	0E+00
48	4-Methylphenol	0.0E+00	2.9E-05	1	0.0E+00	5.0E-01	0E+00
49	Naphthalene	0.0E+00	2.9E-05	1	0.0E+00	4.0E-01	0E+00
50	Nickel(dust)	0.0E+00	2.9E-05	1	0.0E+00	NA	NA
51	Nickel (salts)	1.6E-02	2.9E-05	1	4.6E-07	2.0E-02	2E-05
52	Nitrogen, ammo	0.0E+00	2.9E-05	1	0.0E+00	NA	NA
53	Phenanthrene	0.0E+00	2.9E-05	1	0.0E+00	4.0E-01	0E+00
54	Pyrene	0.0E+00	2.9E-05	1	0.0E+00	3.0E-01	0E+00
55	Silica	7.2E+00	2.9E-05	1	2.1E-04	NA	NA
56	Silver	0.0E+00	2.9E-05	1	0.0E+00	3.0E-03	0E+00
57	Sodium	6.5E+01	2.9E-05	1	1.9E-03	NA	NA
58	Sulfate	1.1E+02	2.9E-05	1	3.2E-03	NA	NA
59	Styrene	0.0E+00	2.9E-05	1	0.0E+00	2.0E+00	0E+00
60	1,1,2,2-PCA	0.0E+00	2.9E-05	1	0.0E+00	NA	NA
61	PCE	0.0E+00	2.9E-05	1	0.0E+00	1.0E-01	0E+00
62	Thallium	0.0E+00	2.9E-05	1	0.0E+00	7.0E-04	0E+00
63	Toluene	0.0E+00	2.9E-05	1	0.0E+00	2.0E+00	0E+00
64	1,1,1-TCA	0.0E+00	2.9E-05	1	0.0E+00	9.0E-01	0E+00
65	TCE	0.0E+00	2.9E-05	1	0.0E+00	NA	NA
66	Vanadium	0.0E+00	2.9E-05	1	0.0E+00	7.0E-03	0E+00

RANGE NAME: WS2

SITE NAME: ORMET
OPERABLE UNIT: FUTURE RESIDENT CHILD
FILE NAME: POP7
LAST UPDATED: 03/13/91

EXPOSURE AND RISK CALCULATION WORKSHEET

LAND USE: FUTURE
POPULATION: RES. CHILD (OR)

EXPOSURE POINT: OHIO RIVER
MEDIUM: SW
ROUTE: DERMAL

HIFs = 1.2E-05
HIFc = 0.0E+00
HIFl = 0.0E+00

		SUBCHRONIC						CHRONIC						LIFETIME					
	CHEMICAL NAME	Cs	HIFs	ABS	DIs	RfDS	HQs	Cc	HIFc	ABS	DIc	RfDC	HQc	Cl	HIFl	ABS	DIl	SF	RISK
1	Acenaphthene	0.0E+00	1.2E-05	1.0E-01	0.0E+00	NA	NA		0.0E+00		0.0E+00		ERR		0.0E+00		0.0E+00		0E+00
2	Acenaphthylene	0.0E+00	1.2E-05	NA	NA	NA	NA												
3	Acetone	2.2E-02	1.2E-05	2.5E-01	6.6E-08	1.0E+00	7E-08												
4	Aluminum	4.0E+00	1.2E-05	NA	NA	NA	NA												
5	Anthracene	0.0E+00	1.2E-05	NA	NA	NA	NA												
6	Antimony	5.0E-02	1.2E-05	NA	NA	NA	NA												
7	Aroclor 1242	1.2E-03	1.2E-05	1.0E-01	1.4E-09	NA	NA												
8	Aroclor 1248	0.0E+00	1.2E-05	1.0E-01	0.0E+00	NA	NA												
9	Aroclor 1254	0.0E+00	1.2E-05	1.0E-01	0.0E+00	NA	NA												
10	Arsenic	5.9E-03	1.2E-05	NA	NA	NA	NA												
11	Barium	8.3E-02	1.2E-05	NA	NA	NA	NA												
12	Benzene	0.0E+00	1.2E-05	2.5E-01	0.0E+00	NA	NA												
13	Benzo(a)anthra	0.0E+00	1.2E-05	NA	NA	NA	NA												
14	Benzo(a)pyrene	0.0E+00	1.2E-05	NA	NA	NA	NA												
15	Benzo(b)fluora	0.0E+00	1.2E-05	NA	NA	NA	NA												
16	Benzo(g,h,i)pe	0.0E+00	1.2E-05	NA	NA	NA	NA												
17	Benzo(k)fluora	0.0E+00	1.2E-05	NA	NA	NA	NA												
18	Beryllium	0.0E+00	1.2E-05	NA	NA	NA	NA												
19	BEHP	0.0E+00	1.2E-05	1.0E-01	0.0E+00	2.0E-02	0E+00												
20	2-Butanone	0.0E+00	1.2E-05	2.5E-01	0.0E+00	5.0E-01	0E+00												
21	Cadmium (food)	0.0E+00	1.2E-05	NA	NA	NA	NA												
22	Cadmium (water	2.3E-03	1.2E-05	NA	NA	NA	NA												
23	Carbon disulfi	0.0E+00	1.2E-05	2.5E-01	0.0E+00	1.0E-01	0E+00												
24	Chloride	2.3E+01	1.2E-05	NA	NA	NA	NA												
25	Chlorobenzene	0.0E+00	1.2E-05	2.5E-01	0.0E+00	2.0E-01	0E+00												
26	Chloroform	0.0E+00	1.2E-05	2.5E-01	0.0E+00	1.0E-02	0E+00												
27	Chromium (VI)	1.4E-02	1.2E-05	NA	NA	NA	NA												
28	Chrysene	0.0E+00	1.2E-05	NA	NA	4.0E-01	NA												
29	Cobalt	8.1E-03	1.2E-05	NA	NA	NA	NA												
30	Copper	2.1E-02	1.2E-05	NA	NA	NA	NA												
31	Cyanide (free)	5.6E-01	1.2E-05	NA	NA	NA	NA												
32	Di-n-butylphth	0.0E+00	1.2E-05	1.0E-01	0.0E+00	1.0E+00	0E+00												
33	Di-n-octylphth	0.0E+00	1.2E-05	1.0E-01	0.0E+00	2.0E-02	0E+00												
34	Dibenz(a,h)ant	0.0E+00	1.2E-05	NA	NA	NA	NA												
35	Dibenzofuran	0.0E+00	1.2E-05	1.0E-01	0.0E+00	NA	NA												
36	2,4-Dimethylph	0.0E+00	1.2E-05	1.0E-01	0.0E+00	2.0E-01	0E+00												
37	Ethyl benzene	0.0E+00	1.2E-05	2.5E-01	0.0E+00	1.0E+00	0E+00												
38	Fluoranthene	0.0E+00	1.2E-05	NA	NA	NA	NA												
39	Fluorene	0.0E+00	1.2E-05	NA	NA	NA	NA												

40	Fluoride	4.3E+00	1.2E-05	NA	NA	NA	NA
41	Indeno(1,2,3-c	0.0E+00	1.2E-05	NA	NA	NA	NA
42	Iron	7.2E+00	1.2E-05	NA	NA	NA	NA
43	Lead	1.1E-02	1.2E-05	NA	NA	NA	NA
44	Manganese	6.9E-01	1.2E-05	NA	NA	NA	NA
45	Mercury	0.0E+00	1.2E-05	NA	NA	NA	NA
46	Methylene chlo	2.6E-03	1.2E-05	2.5E-01	7.8E-09	6.0E-02	1E-07
47	2-Methylnaphth	0.0E+00	1.2E-05	NA	NA	NA	NA
48	4-Methylphenol	0.0E+00	1.2E-05	1.0E-01	0.0E+00	5.0E-01	0E+00
49	Naphthalene	0.0E+00	1.2E-05	NA	NA	NA	NA
50	Nickel(dust)	0.0E+00	1.2E-05	NA	NA	NA	NA
51	Nickel (salts)	1.6E-02	1.2E-05	NA	NA	NA	NA
52	Nitrogen, ammo	0.0E+00	1.2E-05	NA	NA	NA	NA
53	Phenanthrene	0.0E+00	1.2E-05	NA	NA	NA	NA
54	Pyrene	0.0E+00	1.2E-05	NA	NA	NA	NA
55	Silica	7.2E+00	1.2E-05	NA	NA	NA	NA
56	Silver	0.0E+00	1.2E-05	NA	NA	NA	NA
57	Sodium	6.5E+01	1.2E-05	NA	NA	NA	NA
58	Sulfate	1.1E+02	1.2E-05	NA	NA	NA	NA
59	Styrene	0.0E+00	1.2E-05	2.5E-01	0.0E+00	2.0E+00	0E+00
60	1,1,2,2-PCA	0.0E+00	1.2E-05	2.5E-01	0.0E+00	NA	NA
61	PCE	0.0E+00	1.2E-05	2.5E-01	0.0E+00	1.0E-01	0E+00
62	Thallium	0.0E+00	1.2E-05	NA	NA	NA	NA
63	Toluene	0.0E+00	1.2E-05	2.5E-01	0.0E+00	2.0E+00	0E+00
64	1,1,1-TCA	0.0E+00	1.2E-05	2.5E-01	0.0E+00	9.0E-01	0E+00
65	TCE	0.0E+00	1.2E-05	2.5E-01	0.0E+00	NA	NA
66	Vanadium	0.0E+00	1.2E-05	NA	NA	NA	NA

RANGE NAME: WS3

SITE NAME: ORMET
OPERABLE UNIT: FUTURE RESIDENT CHILD
FILE NAME: POP7
LAST UPDATED: 03/13/91

EXPOSURE AND RISK CALCULATION WORKSHEET

LAND USE: FUTURE
POPULATION: RES. CHILD (OR)

EXPOSURE POINT: OHIO RIVER
MEDIUM: SEDIMENT
ROUTE: ORAL

HIFs = 2.9E-08
HIFc = 0.0E+00
HIFl = 0.0E+00

		SUBCHRONIC						CHRONIC						LIFETIME					
	CHEMICAL NAME	Cs	HIFs	1	DIs	RfDS	HQs	Cc	HIFc	1	DIc	RfDC	HQc	Cl	HIFl	1	DIl	SF	RISK
1	Acenaphthene	1.7E+00	2.9E-08	1	4.9E-08	6.0E-01	8E-08		0.0E+00		0.0E+00		ERR		0.0E+00		0.0E+00		0E+00
2	Acenaphthylene	1.8E-01	2.9E-08	1	5.2E-09	4.0E-01	1E-08												
3	Acetone	0.0E+00	2.9E-08	1	0.0E+00	1.0E+00	0E+00												
4	Aluminum	1.4E+04	2.9E-08	1	4.1E-04	NA	NA												
5	Anthracene	7.5E-01	2.9E-08	1	2.2E-08	3.0E+00	7E-09												
6	Antimony	0.0E+00	2.9E-08	1	0.0E+00	4.0E-04	0E+00												
7	Aroclor 1242	0.0E+00	2.9E-08	1	0.0E+00	NA	NA												
8	Aroclor 1248	2.0E+00	2.9E-08	1	5.8E-08	NA	NA												
9	Aroclor 1254	0.0E+00	2.9E-08	1	0.0E+00	NA	NA												
10	Arsenic	1.1E+01	2.9E-08	1	3.2E-07	1.0E-03	3E-04												
11	Barium	1.8E+02	2.9E-08	1	5.2E-06	5.0E-02	1E-04												
12	Benzene	2.1E-02	2.9E-08	1	6.1E-10	NA	NA												
13	Benzo(a)anthra	3.1E+00	2.9E-08	1	9.0E-08	4.0E-01	2E-07												
14	Benzo(a)pyrene	3.2E+00	2.9E-08	1	9.3E-08	4.0E-01	2E-07												
15	Benzo(b)fluora	4.5E+00	2.9E-08	1	1.3E-07	4.0E-01	3E-07												
16	Benzo(g,h,i)pe	2.7E+00	2.9E-08	1	7.8E-08	4.0E-01	2E-07												
17	Benzo(k)fluora	2.5E+00	2.9E-08	1	7.3E-08	4.0E-01	2E-07												
18	Beryllium	2.1E+00	2.9E-08	1	6.1E-08	5.0E-03	1E-05												
19	BEHP	3.3E-01	2.9E-08	1	9.6E-09	2.0E-02	5E-07												
20	2-Butanone	1.0E-01	2.9E-08	1	2.9E-09	5.0E-01	6E-09												
21	Cadmium (food)	2.1E+00	2.9E-08	1	6.1E-08	NA	NA												
22	Cadmium (water	0.0E+00	2.9E-08	1	0.0E+00	NA	NA												
23	Carbon disulfi	0.0E+00	2.9E-08	1	0.0E+00	1.0E-01	0E+00												
24	Chloride	2.8E+02	2.9E-08	1	8.1E-06	NA	NA												
25	Chlorobenzene	0.0E+00	2.9E-08	1	0.0E+00	2.0E-01	0E+00												
26	Chloroform	7.0E-03	2.9E-08	1	2.0E-10	1.0E-02	2E-08												
27	Chromium (VI)	6.0E+01	2.9E-08	1	1.7E-06	2.0E-02	9E-05												
28	Chrysene	3.9E+00	2.9E-08	1	1.1E-07	4.0E-01	3E-07												
29	Cobalt	3.5E+01	2.9E-08	1	1.0E-06	NA	NA												
30	Copper	7.1E+01	2.9E-08	1	2.1E-06	3.7E-02	6E-05												
31	Cyanide (free)	1.9E+00	2.9E-08	1	5.5E-08	2.0E-02	3E-06												
32	Di-n-butylphth	5.8E-02	2.9E-08	1	1.7E-09	1.0E+00	2E-09												
33	Di-n-octylphth	0.0E+00	2.9E-08	1	0.0E+00	2.0E-02	0E+00												
34	Dibenz(a,h)ant	7.3E-01	2.9E-08	1	2.1E-08	4.0E-01	5E-08												
35	Dibenzofuran	2.2E-01	2.9E-08	1	6.4E-09	NA	NA												
36	2,4-Dimethylph	0.0E+00	2.9E-08	1	0.0E+00	2.0E-01	0E+00												
37	Ethyl benzene	0.0E+00	2.9E-08	1	0.0E+00	1.0E+00	0E+00												
38	Fluoranthene	4.4E+00	2.9E-08	1	1.3E-07	4.0E-01	3E-07												
39	Fluorene	2.9E-01	2.9E-08	1	8.4E-09	4.0E-01	2E-08												

40	Fluoride	1.6E+01	2.9E-08	1	4.6E-07	6.0E-02	8E-06
41	Indeno(1,2,3-c	1.4E+00	2.9E-08	1	4.1E-08	4.0E-01	1E-07
42	Iron	4.8E+04	2.9E-08	1	1.4E-03	NA	NA
43	Lead	1.1E+02	2.9E-08	1	3.2E-06	NA	NA
44	Manganese	1.6E+03	2.9E-08	1	4.6E-05	1.0E-01	5E-04
45	Mercury	4.2E-01	2.9E-08	1	1.2E-08	3.0E-04	4E-05
46	Methylene chlo	3.8E-02	2.9E-08	1	1.1E-09	6.0E-02	2E-08
47	2-Methylnaphth	2.5E-01	2.9E-08	1	7.3E-09	4.0E-01	2E-08
48	4-Methylphenol	0.0E+00	2.9E-08	1	0.0E+00	5.0E-01	0E+00
49	Naphthalene	3.3E-01	2.9E-08	1	9.6E-09	4.0E-01	2E-08
50	Nickel(dust)	0.0E+00	2.9E-08	1	0.0E+00	NA	NA
51	Nickel (salts)	7.7E+01	2.9E-08	1	2.2E-06	2.0E-02	1E-04
52	Nitrogen, ammo	9.1E+01	2.9E-08	1	2.6E-06	NA	NA
53	Phenanthrene	2.0E+00	2.9E-08	1	5.8E-08	4.0E-01	1E-07
54	Pyrene	4.3E+00	2.9E-08	1	1.2E-07	3.0E-01	4E-07
55	Silica	3.5E+01	2.9E-08	1	1.0E-06	NA	NA
56	Silver	0.0E+00	2.9E-08	1	0.0E+00	3.0E-03	0E+00
57	Sodium	4.6E+02	2.9E-08	1	1.3E-05	NA	NA
58	Sulfate	4.5E+01	2.9E-08	1	1.3E-06	NA	NA
59	Styrene	0.0E+00	2.9E-08	1	0.0E+00	2.0E+00	0E+00
60	1,1,2,2-PCA	0.0E+00	2.9E-08	1	0.0E+00	NA	NA
61	PCE	0.0E+00	2.9E-08	1	0.0E+00	1.0E-01	0E+00
62	Thallium	0.0E+00	2.9E-08	1	0.0E+00	7.0E-04	0E+00
63	Toluene	0.0E+00	2.9E-08	1	0.0E+00	2.0E+00	0E+00
64	1,1,1-TCA	0.0E+00	2.9E-08	1	0.0E+00	9.0E-01	0E+00
65	TCE	0.0E+00	2.9E-08	1	0.0E+00	NA	NA
66	Vanadium	1.8E+01	2.9E-08	1	5.2E-07	7.0E-03	7E-05

RANGE NAME: WS4

SITE NAME: ORMET
OPERABLE UNIT: FUTURE RESIDENT CHILD
FILE NAME: POP7
LAST UPDATED: 03/13/91

EXPOSURE AND RISK CALCULATION WORKSHEET

LAND USE: FUTURE
POPULATION: RES. CHILD (OR)

EXPOSURE POINT: OHIO RIVER
MEDIUM: SEDIMENT
ROUTE: DERMAL

HIFs = 3.0E-05
HIFc = 0.0E+00
HIFl = 0.0E+00

		SUBCHRONIC						CHRONIC						LIFETIME					
	CHEMICAL NAME	Cs	HIFs	ABS	DIs	RfDS	HQs	Cc	HIFc	ABS	DIc	RfDC	HQc	Cl	HIFl	ABS	DIl	SF	RISK
1	Acenaphthene	1.7E+00	3.0E-05	1.0E-01	5.1E-06	NA	NA		0.0E+00		0.0E+00		ERR		0.0E+00		0.0E+00		0E+00
2	Acenaphthylene	1.8E-01	3.0E-05	NA	NA	NA	NA												
3	Acetone	0.0E+00	3.0E-05	2.5E-01	0.0E+00	1.0E+00	0E+00												
4	Aluminum	1.4E+04	3.0E-05	NA	NA	NA	NA												
5	Anthracene	7.5E-01	3.0E-05	NA	NA	NA	NA												
6	Antimony	0.0E+00	3.0E-05	NA	NA	NA	NA												
7	Aroclor 1242	0.0E+00	3.0E-05	1.0E-01	0.0E+00	NA	NA												
8	Aroclor 1248	2.0E+00	3.0E-05	1.0E-01	6.0E-06	NA	NA												
9	Aroclor 1254	0.0E+00	3.0E-05	1.0E-01	0.0E+00	NA	NA												
10	Arsenic	1.1E+01	3.0E-05	NA	NA	NA	NA												
11	Barium	1.8E+02	3.0E-05	NA	NA	NA	NA												
12	Benzene	2.1E-02	3.0E-05	2.5E-01	1.6E-07	NA	NA												
13	Benzo(a)anthra	3.1E+00	3.0E-05	NA	NA	NA	NA												
14	Benzo(a)pyrene	3.2E+00	3.0E-05	NA	NA	NA	NA												
15	Benzo(b)fluora	4.5E+00	3.0E-05	NA	NA	NA	NA												
16	Benzo(g,h,i)pe	2.7E+00	3.0E-05	NA	NA	NA	NA												
17	Benzo(k)fluora	2.5E+00	3.0E-05	NA	NA	NA	NA												
18	Beryllium	2.1E+00	3.0E-05	NA	NA	NA	NA												
19	BEHP	3.3E-01	3.0E-05	1.0E-01	9.9E-07	2.0E-02	5E-05												
20	2-Butanone	1.0E-01	3.0E-05	2.5E-01	7.5E-07	5.0E-01	2E-06												
21	Cadmium (food)	2.1E+00	3.0E-05	NA	NA	NA	NA												
22	Cadmium (water	0.0E+00	3.0E-05	NA	NA	NA	NA												
23	Carbon disulfi	0.0E+00	3.0E-05	2.5E-01	0.0E+00	1.0E-01	0E+00												
24	Chloride	2.8E+02	3.0E-05	NA	NA	NA	NA												
25	Chlorobenzene	0.0E+00	3.0E-05	2.5E-01	0.0E+00	2.0E-01	0E+00												
26	Chloroform	7.0E-03	3.0E-05	2.5E-01	5.3E-08	1.0E-02	5E-06												
27	Chromium (VI)	6.0E+01	3.0E-05	NA	NA	NA	NA												
28	Chrysene	3.9E+00	3.0E-05	NA	NA	4.0E-01	NA												
29	Cobalt	3.5E+01	3.0E-05	NA	NA	NA	NA												
30	Copper	7.1E+01	3.0E-05	NA	NA	NA	NA												
31	Cyanide (free)	1.9E+00	3.0E-05	NA	NA	NA	NA												
32	Di-n-butylphth	5.8E-02	3.0E-05	1.0E-01	1.7E-07	1.0E+00	2E-07												
33	Di-n-octylphth	0.0E+00	3.0E-05	1.0E-01	0.0E+00	2.0E-02	0E+00												
34	Dibenz(a,h)ant	7.3E-01	3.0E-05	NA	NA	NA	NA												
35	Dibenzofuran	2.2E-01	3.0E-05	1.0E-01	6.6E-07	NA	NA												
36	2,4-Dimethylph	0.0E+00	3.0E-05	1.0E-01	0.0E+00	2.0E-01	0E+00												
37	Ethyl benzene	0.0E+00	3.0E-05	2.5E-01	0.0E+00	1.0E+00	0E+00												
38	Fluoranthene	4.4E+00	3.0E-05	NA	NA	NA	NA												
39	Fluorene	2.9E-01	3.0E-05	NA	NA	NA	NA												

40	Fluoride	1.6E+01	3.0E-05	NA	NA	NA	NA
41	Indeno(1,2,3-c	1.4E+00	3.0E-05	NA	NA	NA	NA
42	Iron	4.8E+04	3.0E-05	NA	NA	NA	NA
43	Lead	1.1E+02	3.0E-05	NA	NA	NA	NA
44	Manganese	1.6E+03	3.0E-05	NA	NA	NA	NA
45	Mercury	4.2E-01	3.0E-05	NA	NA	NA	NA
46	Methylene chlo	3.8E-02	3.0E-05	2.5E-01	2.9E-07	6.0E-02	5E-06
47	2-Methylnaphth	2.5E-01	3.0E-05	NA	NA	NA	NA
48	4-Methylphenol	0.0E+00	3.0E-05	1.0E-01	0.0E+00	5.0E-01	0E+00
49	Naphthalene	3.3E-01	3.0E-05	NA	NA	NA	NA
50	Nickel(dust)	0.0E+00	3.0E-05	NA	NA	NA	NA
51	Nickel (salts)	7.7E+01	3.0E-05	NA	NA	NA	NA
52	Nitrogen, ammo	9.1E+01	3.0E-05	NA	NA	NA	NA
53	Phenanthrene	2.0E+00	3.0E-05	NA	NA	NA	NA
54	Pyrene	4.3E+00	3.0E-05	NA	NA	NA	NA
55	Silica	3.5E+01	3.0E-05	NA	NA	NA	NA
56	Silver	0.0E+00	3.0E-05	NA	NA	NA	NA
57	Sodium	4.6E+02	3.0E-05	NA	NA	NA	NA
58	Sulfate	4.5E+01	3.0E-05	NA	NA	NA	NA
59	Styrene	0.0E+00	3.0E-05	2.5E-01	0.0E+00	2.0E+00	0E+00
60	1,1,2,2-PCA	0.0E+00	3.0E-05	2.5E-01	0.0E+00	NA	NA
61	PCE	0.0E+00	3.0E-05	2.5E-01	0.0E+00	1.0E-01	0E+00
62	Thallium	0.0E+00	3.0E-05	NA	NA	NA	NA
63	Toluene	0.0E+00	3.0E-05	2.5E-01	0.0E+00	2.0E+00	0E+00
64	1,1,1-TCA	0.0E+00	3.0E-05	2.5E-01	0.0E+00	9.0E-01	0E+00
65	TCE	0.0E+00	3.0E-05	2.5E-01	0.0E+00	NA	NA
66	Vanadium	1.8E+01	3.0E-05	NA	NA	NA	NA

RANGE NAME: WS5

EXPOSURE AND RISK CALCULATION WORKSHEET

SITE NAME: ORMET
OPERABLE UNIT: FUTURE RESIDENT CHILD
FILE NAME: POP7
LAST UPDATED: 03/13/91

LAND USE: FUTURE
POPULATION: RES. CHILD (OR)

EXPOSURE POINT: OHIO RIVER
MEDIUM: FISH
ROUTE: ORAL

HIFs = 1.7E-03
HIFc = 0.0E+00
HIFl = 0.0E+00

		SUBCHRONIC						CHRONIC						LIFETIME					
	CHEMICAL NAME	Cs	HIFs	1	DIs	RfDS	HQs	Cc	HIFc	1	DIc	RfDC	HQc	Cl	HIFl	1	DIl	SF	RISK
1	Acenaphthene	0.0E+00	1.7E-03	1	0.0E+00	6.0E-01	0E+00		0.0E+00		0.0E+00		ERR		0.0E+00		0.0E+00		0E+00
2	Acenaphthylene	0.0E+00	1.7E-03	1	0.0E+00	4.0E-01	0E+00												
3	Acetone	0.0E+00	1.7E-03	1	0.0E+00	1.0E+00	0E+00												
4	Aluminum	0.0E+00	1.7E-03	1	0.0E+00	NA	NA												
5	Anthracene	0.0E+00	1.7E-03	1	0.0E+00	3.0E+00	0E+00												
6	Antimony	5.0E-02	1.7E-03	1	8.5E-05	4.0E-04	2E-01												
7	Aroclor 1242	1.2E+02	1.7E-03	1	2.0E-01	NA	NA												
8	Aroclor 1248	0.0E+00	1.7E-03	1	0.0E+00	NA	NA												
9	Aroclor 1254	0.0E+00	1.7E-03	1	0.0E+00	NA	NA												
10	Arsenic	2.6E-01	1.7E-03	1	4.4E-04	1.0E-03	4E-01												
11	Barium	0.0E+00	1.7E-03	1	0.0E+00	5.0E-02	0E+00												
12	Benzene	0.0E+00	1.7E-03	1	0.0E+00	NA	NA												
13	Benzo(a)anthra	0.0E+00	1.7E-03	1	0.0E+00	4.0E-01	0E+00												
14	Benzo(a)pyrene	0.0E+00	1.7E-03	1	0.0E+00	4.0E-01	0E+00												
15	Benzo(b)fluora	0.0E+00	1.7E-03	1	0.0E+00	4.0E-01	0E+00												
16	Benzo(g,h,i)pe	0.0E+00	1.7E-03	1	0.0E+00	4.0E-01	0E+00												
17	Benzo(k)fluora	0.0E+00	1.7E-03	1	0.0E+00	4.0E-01	0E+00												
18	Beryllium	0.0E+00	1.7E-03	1	0.0E+00	5.0E-03	0E+00												
19	BEHP	0.0E+00	1.7E-03	1	0.0E+00	2.0E-02	0E+00												
20	2-Butanone	0.0E+00	1.7E-03	1	0.0E+00	5.0E-01	0E+00												
21	Cadmium (food)	1.9E-01	1.7E-03	1	3.2E-04	NA	NA												
22	Cadmium (water	0.0E+00	1.7E-03	1	0.0E+00	NA	NA												
23	Carbon disulfi	0.0E+00	1.7E-03	1	0.0E+00	1.0E-01	0E+00												
24	Chloride	0.0E+00	1.7E-03	1	0.0E+00	NA	NA												
25	Chlorobenzene	0.0E+00	1.7E-03	1	0.0E+00	2.0E-01	0E+00												
26	Chloroform	0.0E+00	1.7E-03	1	0.0E+00	1.0E-02	0E+00												
27	Chromium (VI)	2.2E-01	1.7E-03	1	3.7E-04	2.0E-02	2E-02												
28	Chrysene	0.0E+00	1.7E-03	1	0.0E+00	4.0E-01	0E+00												
29	Cobalt	0.0E+00	1.7E-03	1	0.0E+00	NA	NA												
30	Copper	4.2E+00	1.7E-03	1	7.1E-03	3.7E-02	2E-01												
31	Cyanide (free)	0.0E+00	1.7E-03	1	0.0E+00	2.0E-02	0E+00												
32	Di-n-butylphth	0.0E+00	1.7E-03	1	0.0E+00	1.0E+00	0E+00												
33	Di-n-octylphth	0.0E+00	1.7E-03	1	0.0E+00	2.0E-02	0E+00												
34	Dibenz(a,h)ant	0.0E+00	1.7E-03	1	0.0E+00	4.0E-01	0E+00												
35	Dibenzofuran	0.0E+00	1.7E-03	1	0.0E+00	NA	NA												
36	2,4-Dimethylph	0.0E+00	1.7E-03	1	0.0E+00	2.0E-01	0E+00												
37	Ethyl benzene	0.0E+00	1.7E-03	1	0.0E+00	1.0E+00	0E+00												
38	Fluoranthene	0.0E+00	1.7E-03	1	0.0E+00	4.0E-01	0E+00												
39	Fluorene	0.0E+00	1.7E-03	1	0.0E+00	4.0E-01	0E+00												

40	Fluoride	0.0E+00	1.7E-03	1	0.0E+00	6.0E-02	0E+00
41	Indeno(1,2,3-c	0.0E+00	1.7E-03	1	0.0E+00	4.0E-01	0E+00
42	Iron	0.0E+00	1.7E-03	1	0.0E+00	NA	NA
43	Lead	5.6E-01	1.7E-03	1	9.5E-04	NA	NA
44	Manganese	0.0E+00	1.7E-03	1	0.0E+00	1.0E-01	0E+00
45	Mercury	0.0E+00	1.7E-03	1	0.0E+00	3.0E-04	0E+00
46	Methylene chlo	1.3E-02	1.7E-03	1	2.2E-05	6.0E-02	4E-04
47	2-Methylnaphth	0.0E+00	1.7E-03	1	0.0E+00	4.0E-01	0E+00
48	4-Methylphenol	0.0E+00	1.7E-03	1	0.0E+00	5.0E-01	0E+00
49	Naphthalene	0.0E+00	1.7E-03	1	0.0E+00	4.0E-01	0E+00
50	Nickel(dust)	0.0E+00	1.7E-03	1	0.0E+00	NA	NA
51	Nickel (salts)	7.5E-01	1.7E-03	1	1.3E-03	2.0E-02	6E-02
52	Nitrogen, ammo	0.0E+00	1.7E-03	1	0.0E+00	NA	NA
53	Phenanthrene	0.0E+00	1.7E-03	1	0.0E+00	4.0E-01	0E+00
54	Pyrene	0.0E+00	1.7E-03	1	0.0E+00	3.0E-01	0E+00
55	Silica	0.0E+00	1.7E-03	1	0.0E+00	NA	NA
56	Silver	0.0E+00	1.7E-03	1	0.0E+00	3.0E-03	0E+00
57	Sodium	0.0E+00	1.7E-03	1	0.0E+00	NA	NA
58	Sulfate	0.0E+00	1.7E-03	1	0.0E+00	NA	NA
59	Styrene	0.0E+00	1.7E-03	1	0.0E+00	2.0E+00	0E+00
60	1,1,2,2-PCA	0.0E+00	1.7E-03	1	0.0E+00	NA	NA
61	PCE	0.0E+00	1.7E-03	1	0.0E+00	1.0E-01	0E+00
62	Thallium	0.0E+00	1.7E-03	1	0.0E+00	7.0E-04	0E+00
63	Toluene	0.0E+00	1.7E-03	1	0.0E+00	2.0E+00	0E+00
64	1,1,1-TCA	0.0E+00	1.7E-03	1	0.0E+00	9.0E-01	0E+00
65	TCE	0.0E+00	1.7E-03	1	0.0E+00	NA	NA
66	Vanadium	0.0E+00	1.7E-03	1	0.0E+00	7.0E-03	0E+00

RANGE NAME: SSUM

SITE NAME: ORMET
OPERABLE UNIT: FUTURE RESIDENT CHIL
FILE NAME: POP7
LAST UPDATED: 03/13/91

SUBCHRONIC EXPOSURE SUMMARY

FUTURE
RES. CHILD (OR)

SUBCHRONIC DAILY INTAKE (mg/kg/day)

	CHEMICAL NAME	SCENARIO 1 OHIO RIVER SW ORAL (FROM WS1)	SCENARIO 2 OHIO RIVER SW DERMAL (FROM WS2)	SCENARIO 3 OHIO RIVER SEDIMENT ORAL (FROM WS3)	SCENARIO 4 OHIO RIVER SEDIMENT DERMAL (FROM WS4)	SCENARIO 5 OHIO RIVER FISH ORAL (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
1	Acenaphthene	0.0E+00	0.0E+00	4.9E-08	5.1E-06	0.0E+00	0.0E+00
2	Acenaphthylene	0.0E+00	NA	5.2E-09	NA	0.0E+00	
3	Acetone	6.4E-07	6.6E-08	0.0E+00	0.0E+00	0.0E+00	
4	Aluminum	1.2E-04	NA	4.1E-04	NA	0.0E+00	
5	Anthracene	0.0E+00	NA	2.2E-08	NA	0.0E+00	
6	Antimony	1.5E-06	NA	0.0E+00	NA	8.5E-05	
7	Aroclor 1242	3.5E-08	1.4E-09	0.0E+00	0.0E+00	2.0E-01	
8	Aroclor 1248	0.0E+00	0.0E+00	5.8E-08	6.0E-06	0.0E+00	
9	Aroclor 1254	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	
10	Arsenic	1.7E-07	NA	3.2E-07	NA	4.4E-04	
11	Barium	2.4E-06	NA	5.2E-06	NA	0.0E+00	
12	Benzene	0.0E+00	0.0E+00	6.1E-10	1.6E-07	0.0E+00	
13	Benzo(a)anthra	0.0E+00	NA	9.0E-08	NA	0.0E+00	
14	Benzo(a)pyrene	0.0E+00	NA	9.3E-08	NA	0.0E+00	
15	Benzo(b)fluora	0.0E+00	NA	1.3E-07	NA	0.0E+00	
16	Benzo(g,h,i)pe	0.0E+00	NA	7.8E-08	NA	0.0E+00	
17	Benzo(k)fluora	0.0E+00	NA	7.3E-08	NA	0.0E+00	
18	Beryllium	0.0E+00	NA	6.1E-08	NA	0.0E+00	
19	BEHP	0.0E+00	0.0E+00	9.6E-09	9.9E-07	0.0E+00	
20	2-Butanone	0.0E+00	0.0E+00	2.9E-09	7.5E-07	0.0E+00	
21	Cadmium (food)	0.0E+00	NA	6.1E-08	NA	3.2E-04	
22	Cadmium (water	6.7E-08	NA	0.0E+00	NA	0.0E+00	
23	Carbon disulfi	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	
24	Chloride	6.7E-04	NA	8.1E-06	NA	0.0E+00	
25	Chlorobenzene	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	
26	Chloroform	0.0E+00	0.0E+00	2.0E-10	5.3E-08	0.0E+00	
27	Chromium (VI)	4.1E-07	NA	1.7E-06	NA	3.7E-04	
28	Chrysene	0.0E+00	NA	1.1E-07	NA	0.0E+00	
29	Cobalt	2.3E-07	NA	1.0E-06	NA	0.0E+00	
30	Copper	6.1E-07	NA	2.1E-06	NA	7.1E-03	
31	Cyanide (free)	1.6E-05	NA	5.5E-08	NA	0.0E+00	
32	Di-n-butylphth	0.0E+00	0.0E+00	1.7E-09	1.7E-07	0.0E+00	
33	Di-n-octylphth	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	
34	Dibenz(a,h)ant	0.0E+00	NA	2.1E-08	NA	0.0E+00	
35	Dibenzofuran	0.0E+00	0.0E+00	6.4E-09	6.6E-07	0.0E+00	
36	2,4-Dimethylph	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	
37	Ethyl benzene	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	
38	Fluoranthene	0.0E+00	NA	1.3E-07	NA	0.0E+00	
39	Fluorene	0.0E+00	NA	8.4E-09	NA	0.0E+00	
40	Fluoride	1.2E-04	NA	4.6E-07	NA	0.0E+00	
41	Indeno(1,2,3-c	0.0E+00	NA	4.1E-08	NA	0.0E+00	
42	Iron	2.1E-04	NA	1.4E-03	NA	0.0E+00	

SUBCHRONIC RISK SUMMARY

FUTURE
RES. CHILD (OR)

SUBCHRONIC HAZARD QUOTIENT

	CHEMICAL NAME	SCENARIO 1 OHIO RIVER SW ORAL (FROM WS1)	SCENARIO 2 OHIO RIVER SW DERMAL (FROM WS2)	SCENARIO 3 OHIO RIVER SEDIMENT ORAL (FROM WS3)	SCENARIO 4 OHIO RIVER SEDIMENT DERMAL (FROM WS4)	SCENARIO 5 OHIO RIVER FISH ORAL (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
1	Acenaphthene	0E+00	NA	8E-08	NA	0E+00	0E+00
2	Acenaphthylene	0E+00	NA	1E-08	NA	0E+00	
3	Acetone	6E-07	7E-08	0E+00	0E+00	0E+00	
4	Aluminum	NA	NA	NA	NA	NA	
5	Anthracene	0E+00	NA	7E-09	NA	0E+00	
6	Antimony	4E-03	NA	0E+00	NA	2E-01	
7	Aroclor 1242	NA	NA	NA	NA	NA	
8	Aroclor 1248	NA	NA	NA	NA	NA	
9	Aroclor 1254	NA	NA	NA	NA	NA	
10	Arsenic	2E-04	NA	3E-04	NA	4E-01	
11	Barium	5E-05	NA	1E-04	NA	0E+00	
12	Benzene	NA	NA	NA	NA	NA	
13	Benzo(a)anthra	0E+00	NA	2E-07	NA	0E+00	
14	Benzo(a)pyrene	0E+00	NA	2E-07	NA	0E+00	
15	Benzo(b)fluora	0E+00	NA	3E-07	NA	0E+00	
16	Benzo(g,h,i)pe	0E+00	NA	2E-07	NA	0E+00	
17	Benzo(k)fluora	0E+00	NA	2E-07	NA	0E+00	
18	Beryllium	0E+00	NA	1E-05	NA	0E+00	
19	BEHP	0E+00	0E+00	5E-07	5E-05	0E+00	
20	2-Butanone	0E+00	0E+00	6E-09	2E-06	0E+00	
21	Cadmium (food)	NA	NA	NA	NA	NA	
22	Cadmium (water	NA	NA	NA	NA	NA	
23	Carbon disulfi	0E+00	0E+00	0E+00	0E+00	0E+00	
24	Chloride	NA	NA	NA	NA	NA	
25	Chlorobenzene	0E+00	0E+00	0E+00	0E+00	0E+00	
26	Chloroform	0E+00	0E+00	2E-08	5E-06	0E+00	
27	Chromium (VI)	2E-05	NA	9E-05	NA	2E-02	
28	Chrysene	0E+00	NA	3E-07	NA	0E+00	
29	Cobalt	NA	NA	NA	NA	NA	
30	Copper	2E-05	NA	6E-05	NA	2E-01	
31	Cyanide (free)	8E-04	NA	3E-06	NA	0E+00	
32	Di-n-butylphth	0E+00	0E+00	2E-09	2E-07	0E+00	
33	Di-n-octylphth	0E+00	0E+00	0E+00	0E+00	0E+00	
34	Dibenz(a,h)ant	0E+00	NA	5E-08	NA	0E+00	
35	Dibenzofuran	NA	NA	NA	NA	NA	
36	2,4-Dimethylph	0E+00	0E+00	0E+00	0E+00	0E+00	
37	Ethyl benzene	0E+00	0E+00	0E+00	0E+00	0E+00	
38	Fluoranthene	0E+00	NA	3E-07	NA	0E+00	
39	Fluorene	0E+00	NA	2E-08	NA	0E+00	
40	Fluoride	2E-03	NA	8E-06	NA	0E+00	
41	Indeno(1,2,3-c	0E+00	NA	1E-07	NA	0E+00	
42	Iron	NA	NA	NA	NA	NA	

43	Lead	3.2E-07	NA	3.2E-06	NA	9.5E-04	NA	NA	NA	NA	NA
44	Manganese	2.0E-05	NA	4.6E-05	NA	0.0E+00	2E-04	NA	5E-04	NA	0E+00
45	Mercury	0.0E+00	NA	1.2E-08	NA	0.0E+00	0E+00	NA	4E-05	NA	0E+00
46	Methylene chlo	7.5E-08	7.8E-09	1.1E-09	2.9E-07	2.2E-05	1E-06	1E-07	2E-08	5E-06	4E-04
47	2-Methylnaphth	0.0E+00	NA	7.3E-09	NA	0.0E+00	0E+00	NA	2E-08	NA	0E+00
48	4-Methylphenol	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0E+00	0E+00	0E+00	0E+00	0E+00
49	Naphthalene	0.0E+00	NA	9.6E-09	NA	0.0E+00	0E+00	NA	2E-08	NA	0E+00
50	Nickel(dust)	0.0E+00	NA	0.0E+00	NA	0.0E+00	NA	NA	NA	NA	NA
51	Nickel (salts)	4.6E-07	NA	2.2E-06	NA	1.3E-03	2E-05	NA	1E-04	NA	6E-02
52	Nitrogen, ammo	0.0E+00	NA	2.6E-06	NA	0.0E+00	NA	NA	NA	NA	NA
53	Phenanthrene	0.0E+00	NA	5.8E-08	NA	0.0E+00	0E+00	NA	1E-07	NA	0E+00
54	Pyrene	0.0E+00	NA	1.2E-07	NA	0.0E+00	0E+00	NA	4E-07	NA	0E+00
55	Silica	2.1E-04	NA	1.0E-06	NA	0.0E+00	NA	NA	NA	NA	NA
56	Silver	0.0E+00	NA	0.0E+00	NA	0.0E+00	0E+00	NA	0E+00	NA	0E+00
57	Sodium	1.9E-03	NA	1.3E-05	NA	0.0E+00	NA	NA	NA	NA	NA
58	Sulfate	3.2E-03	NA	1.3E-06	NA	0.0E+00	NA	NA	NA	NA	NA
59	Styrene	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0E+00	0E+00	0E+00	0E+00	0E+00
60	1,1,2,2-PCA	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	NA	NA	NA	NA	NA
61	PCE	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0E+00	0E+00	0E+00	0E+00	0E+00
62	Thallium	0.0E+00	NA	0.0E+00	NA	0.0E+00	0E+00	NA	0E+00	NA	0E+00
63	Toluene	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0E+00	0E+00	0E+00	0E+00	0E+00
64	1,1,1-TCA	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0E+00	0E+00	0E+00	0E+00	0E+00
65	TCE	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	NA	NA	NA	NA	NA
66	Vanadium	0.0E+00	NA	5.2E-07	NA	0.0E+00	0E+00	NA	7E-05	NA	0E+00

PATHWAY SUM (HI)	7E-03	2E-07	1E-03	6E-05	9E-01	0E+00
POPULATION TOTAL	9E-01					

RANGE NAME: WS1

SITE NAME: ORMET
OPERABLE UNIT: FUTURE RESIDENT CHILD
FILE NAME: POP8
LAST UPDATED: 03/13/91

EXPOSURE AND RISK CALCULATION WORKSHEET

LAND USE: FUTURE
POPULATION: RES. CHILD (GW)

EXPOSURE POINT: PLUME
MEDIUM: GW
ROUTE: ORAL

HIFs = 1.3E-01
HIFc = 0.0E+00
HIFl = 0.0E+00

		SUBCHRONIC						CHRONIC						LIFETIME					
	CHEMICAL NAME	Cs	HIFs	1	DIs	RfDS	HQs	Cc	HIFc	1	DIc	RfDC	HQc	Cl	HIFl	1	DIl	SF	RISK
1	Acenaphthene	0.0E+00	1.3E-01	1	0.0E+00	6.0E-01	0E+00		0.0E+00		0.0E+00		ERR		0.0E+00		0.0E+00		0E+00
2	Acenaphthylene	0.0E+00	1.3E-01	1	0.0E+00	4.0E-01	0E+00												
3	Acetone	1.1E-02	1.3E-01	1	1.4E-03	1.0E+00	1E-03												
4	Aluminum	3.6E+01	1.3E-01	1	4.7E+00	NA	NA												
5	Anthracene	0.0E+00	1.3E-01	1	0.0E+00	3.0E+00	0E+00												
6	Antimony	0.0E+00	1.3E-01	1	0.0E+00	4.0E-04	0E+00												
7	Aroclor 1242	0.0E+00	1.3E-01	1	0.0E+00	NA	NA												
8	Aroclor 1248	0.0E+00	1.3E-01	1	0.0E+00	NA	NA												
9	Aroclor 1254	0.0E+00	1.3E-01	1	0.0E+00	NA	NA												
10	Arsenic	8.0E-02	1.3E-01	1	1.0E-02	1.0E-03	1E+01												
11	Barium	7.2E-01	1.3E-01	1	9.4E-02	5.0E-02	2E+00												
12	Benzene	3.9E-03	1.3E-01	1	5.1E-04	NA	NA												
13	Benzo(a)anthra	0.0E+00	1.3E-01	1	0.0E+00	4.0E-01	0E+00												
14	Benzo(a)pyrene	0.0E+00	1.3E-01	1	0.0E+00	4.0E-01	0E+00												
15	Benzo(b)fluora	0.0E+00	1.3E-01	1	0.0E+00	4.0E-01	0E+00												
16	Benzo(g,h,i)pe	0.0E+00	1.3E-01	1	0.0E+00	4.0E-01	0E+00												
17	Benzo(k)fluora	0.0E+00	1.3E-01	1	0.0E+00	4.0E-01	0E+00												
18	Beryllium	5.0E-03	1.3E-01	1	6.5E-04	5.0E-03	1E-01												
19	BEHP	9.4E-03	1.3E-01	1	1.2E-03	2.0E-02	6E-02												
20	2-Butanone	0.0E+00	1.3E-01	1	0.0E+00	5.0E-01	0E+00												
21	Cadmium (food)	0.0E+00	1.3E-01	1	0.0E+00	NA	NA												
22	Cadmium (water	3.2E-03	1.3E-01	1	4.2E-04	NA	NA												
23	Carbon disulfi	3.7E-03	1.3E-01	1	4.8E-04	1.0E-01	5E-03												
24	Chloride	1.0E+02	1.3E-01	1	1.3E+01	NA	NA												
25	Chlorobenzene	0.0E+00	1.3E-01	1	0.0E+00	2.0E-01	0E+00												
26	Chloroform	2.6E-03	1.3E-01	1	3.4E-04	1.0E-02	3E-02												
27	Chromium (VI)	5.8E-02	1.3E-01	1	7.5E-03	2.0E-02	4E-01												
28	Chrysene	0.0E+00	1.3E-01	1	0.0E+00	4.0E-01	0E+00												
29	Cobalt	1.6E-01	1.3E-01	1	2.1E-02	NA	NA												
30	Copper	2.1E-01	1.3E-01	1	2.7E-02	3.7E-02	7E-01												
31	Cyanide (free)	5.8E+00	1.3E-01	1	7.5E-01	2.0E-02	4E+01												
32	Di-n-butylphth	3.0E-03	1.3E-01	1	3.9E-04	1.0E+00	4E-04												
33	Di-n-octylphth	0.0E+00	1.3E-01	1	0.0E+00	2.0E-02	0E+00												
34	Dibenz(a,h)ant	0.0E+00	1.3E-01	1	0.0E+00	4.0E-01	0E+00												
35	Dibenzofuran	0.0E+00	1.3E-01	1	0.0E+00	NA	NA												
36	2,4-Dimethylph	0.0E+00	1.3E-01	1	0.0E+00	2.0E-01	0E+00												
37	Ethyl benzene	0.0E+00	1.3E-01	1	0.0E+00	1.0E+00	0E+00												
38	Fluoranthene	5.4E-03	1.3E-01	1	7.0E-04	4.0E-01	2E-03												
39	Fluorene	0.0E+00	1.3E-01	1	0.0E+00	4.0E-01	0E+00												

40	Fluoride	2.1E+02	1.3E-01	1	2.7E+01	6.0E-02	5E+02
41	Indeno(1,2,3-c	0.0E+00	1.3E-01	1	0.0E+00	4.0E-01	0E+00
42	Iron	3.4E+01	1.3E-01	1	4.4E+00	NA	NA
43	Lead	2.8E-02	1.3E-01	1	3.6E-03	NA	NA
44	Manganese	2.4E+00	1.3E-01	1	3.1E-01	1.0E-01	3E+00
45	Mercury	5.3E-04	1.3E-01	1	6.9E-05	3.0E-04	2E-01
46	Methylene chlo	4.4E-03	1.3E-01	1	5.7E-04	6.0E-02	1.0E-02
47	2-Methylnaphth	0.0E+00	1.3E-01	1	0.0E+00	4.0E-01	0E+00
48	4-Methylphenol	0.0E+00	1.3E-01	1	0.0E+00	5.0E-01	0E+00
49	Naphthalene	0.0E+00	1.3E-01	1	0.0E+00	4.0E-01	0E+00
50	Nickel(dust)	0.0E+00	1.3E-01	1	0.0E+00	NA	NA
51	Nickel (salts)	1.2E-01	1.3E-01	1	1.6E-02	2.0E-02	8E-01
52	Nitrogen, ammo	2.9E+01	1.3E-01	1	3.8E+00	NA	NA
53	Phenanthrene	4.0E-03	1.3E-01	1	5.2E-04	4.0E-01	1E-03
54	Pyrene	3.0E-03	1.3E-01	1	3.9E-04	3.0E-01	1E-03
55	Silica	3.8E+02	1.3E-01	1	4.9E+01	NA	NA
56	Silver	0.0E+00	1.3E-01	1	0.0E+00	3.0E-03	0E+00
57	Sodium	7.2E+02	1.3E-01	1	9.4E+01	NA	NA
58	Sulfate	1.9E+02	1.3E-01	1	2.5E+01	NA	NA
59	Styrene	0.0E+00	1.3E-01	1	0.0E+00	2.0E+00	0E+00
60	1,1,2,2-PCA	0.0E+00	1.3E-01	1	0.0E+00	NA	NA
61	PCE	9.0E-03	1.3E-01	1	1.2E-03	1.0E-01	1E-02
62	Thallium	0.0E+00	1.3E-01	1	0.0E+00	7.0E-04	0E+00
63	Toluene	1.0E-03	1.3E-01	1	1.3E-04	2.0E+00	7E-05
64	1,1,1-TCA	2.5E-03	1.3E-01	1	3.3E-04	9.0E-01	4E-04
65	TCE	2.5E-03	1.3E-01	1	3.3E-04	NA	NA
66	Vanadium	8.6E-02	1.3E-01	1	1.1E-02	7.0E-03	2E+00

RANGE NAME: SSUM

SITE NAME: ORMET
OPERABLE UNIT: FUTURE RESIDENT CHIL
FILE NAME: POP8
LAST UPDATED: 03/13/91

SUBCHRONIC EXPOSURE SUMMARY

FUTURE
RES. CHILD (GW)

SUBCHRONIC DAILY INTAKE (mg/kg/day)

		SCENARIO 1	SCENARIO 2	SCENARIO 3	SCENARIO 4	SCENARIO 5	SCENARIO 6
		PLUME	0	0	0	0	0
		GW	0	0	0	0	0
		ORAL	0	0	0	0	0
	CHEMICAL NAME	(FROM WS1)	(FROM WS2)	(FROM WS3)	(FROM WS4)	(FROM WS5)	(FROM WS6)
1	Acenaphthene	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
2	Acenaphthylene	0.0E+00					
3	Acetone	1.4E-03					
4	Aluminum	4.7E+00					
5	Anthracene	0.0E+00					
6	Antimony	0.0E+00					
7	Aroclor 1242	0.0E+00					
8	Aroclor 1248	0.0E+00					
9	Aroclor 1254	0.0E+00					
10	Arsenic	1.0E-02					
11	Barium	9.4E-02					
12	Benzene	5.1E-04					
13	Benzo(a)anthra	0.0E+00					
14	Benzo(a)pyrene	0.0E+00					
15	Benzo(b)fluora	0.0E+00					
16	Benzo(g,h,i)pe	0.0E+00					
17	Benzo(k)fluora	0.0E+00					
18	Beryllium	6.5E-04					
19	BEHP	1.2E-03					
20	2-Butanone	0.0E+00					
21	Cadmium (food)	0.0E+00					
22	Cadmium (water	4.2E-04					
23	Carbon disulfi	4.8E-04					
24	Chloride	1.3E+01					
25	Chlorobenzene	0.0E+00					
26	Chloroform	3.4E-04					
27	Chromium (VI)	7.5E-03					
28	Chrysene	0.0E+00					
29	Cobalt	2.1E-02					
30	Copper	2.7E-02					
31	Cyanide (free)	7.5E-01					
32	Di-n-butylphth	3.9E-04					
33	Di-n-octylphth	0.0E+00					
34	Dibenz(a,h)ant	0.0E+00					
35	Dibenzofuran	0.0E+00					
36	2,4-Dimethylph	0.0E+00					
37	Ethyl benzene	0.0E+00					
38	Fluoranthene	7.0E-04					
39	Fluorene	0.0E+00					
40	Fluoride	2.7E+01					
41	Indeno(1,2,3-c	0.0E+00					
42	Iron	4.4E+00					

SUBCHRONIC RISK SUMMARY

FUTURE
RES. CHILD (GW)

SUBCHRONIC HAZARD QUOTIENT

SCENARIO 1	SCENARIO 2	SCENARIO 3	SCENARIO 4	SCENARIO 5	SCENARIO 6
PLUME 0	0	0	0	0	0
GW 0	0	0	0	0	0
ORAL 0	0	0	0	0	0
(FROM WS1)	(FROM WS2)	(FROM WS3)	(FROM WS4)	(FROM WS5)	(FROM WS6)
0E+00	0E+00	0E+00	0E+00	0E+00	0E+00
0E+00					
1E-03					
NA					
0E+00					
0E+00					
NA					
NA					
NA					
1E+01					
2E+00					
NA					
0E+00					
0E+00					
0E+00					
0E+00					
0E+00					
1E-01					
6E-02					
0E+00					
NA					
NA					
5E-03					
NA					
0E+00					
3E-02					
4E-01					
0E+00					
NA					
7E-01					
4E+01					
4E-04					
0E+00					
0E+00					
NA					
0E+00					
0E+00					
2E-03					
0E+00					
5E+02					
0E+00					
NA					

43	Lead	3.6E-03		NA				
44	Manganese	3.1E-01		3E+00				
45	Mercury	6.9E-05		2E-01				
46	Methylene chlo	5.7E-04		1E-02				
47	2-Methylnaphth	0.0E+00		0E+00				
48	4-Methylphenol	0.0E+00		0E+00				
49	Naphthalene	0.0E+00		0E+00				
50	Nickel(dust)	0.0E+00		NA				
51	Nickel (salts)	1.6E-02		8E-01				
52	Nitrogen, ammo	3.8E+00		NA				
53	Phenanthrene	5.2E-04		1E-03				
54	Pyrene	3.9E-04		1E-03				
55	Silica	4.9E+01		NA				
56	Silver	0.0E+00		0E+00				
57	Sodium	9.4E+01		NA				
58	Sulfate	2.5E+01		NA				
59	Styrene	0.0E+00		0E+00				
60	1,1,2,2-PCA	0.0E+00		NA				
61	PCE	1.2E-03		1E-02				
62	Thallium	0.0E+00		0E+00				
63	Toluene	1.3E-04		7E-05				
64	1,1,1-TCA	3.3E-04		4E-04				
65	TCE	3.3E-04		NA				
66	Vanadium	1.1E-02		2E+00				
	PATHWAY SUM (HI)			6E+02	0E+00	0E+00	0E+00	0E+00	0E+00
	POPULATION TOTAL			6E+02					

RANGE NAME: WS1

SITE NAME: ORMET
OPERABLE UNIT: FUTURE RESIDENT CHILD
FILE NAME: POP9
LAST UPDATED: 03/13/91

EXPOSURE AND RISK CALCULATION WORKSHEET

LAND USE: FUTURE
POPULATION: RES. CHILD (BW)

EXPOSURE POINT: BACKWATER
MEDIUM: SW
ROUTE: ORAL

HIFs = 2.9E-05
HIFc = 0.0E+00
HIFl = 0.0E+00

		SUBCHRONIC						CHRONIC						LIFETIME					
	CHEMICAL NAME	Cs	HIFs	1	DIs	RfDS	HQs	Cc	HIFc	1	DIc	RfDC	HQc	Cl	HIFl	1	DIl	SF	RISK
1	Acenaphthene	0.0E+00	2.9E-05	1	0.0E+00	6.0E-01	0E+00		0.0E+00		0.0E+00		ERR		0.0E+00		0.0E+00		0E+00
2	Acenaphthylene	0.0E+00	2.9E-05	1	0.0E+00	4.0E-01	0E+00												
3	Acetone	1.1E-02	2.9E-05	1	3.2E-07	1.0E+00	3E-07												
4	Aluminum	1.3E+00	2.9E-05	1	3.8E-05	NA	NA												
5	Anthracene	0.0E+00	2.9E-05	1	0.0E+00	3.0E+00	0E+00												
6	Antimony	0.0E+00	2.9E-05	1	0.0E+00	4.0E-04	0E+00												
7	Aroclor 1242	1.5E-03	2.9E-05	1	4.4E-08	NA	NA												
8	Aroclor 1248	0.0E+00	2.9E-05	1	0.0E+00	NA	NA												
9	Aroclor 1254	0.0E+00	2.9E-05	1	0.0E+00	NA	NA												
10	Arsenic	1.1E-02	2.9E-05	1	3.2E-07	1.0E-03	3E-04												
11	Barium	7.8E-02	2.9E-05	1	2.3E-06	5.0E-02	5E-05												
12	Benzene	0.0E+00	2.9E-05	1	0.0E+00	NA	NA												
13	Benzo(a)anthra	0.0E+00	2.9E-05	1	0.0E+00	4.0E-01	0E+00												
14	Benzo(a)pyrene	0.0E+00	2.9E-05	1	0.0E+00	4.0E-01	0E+00												
15	Benzo(b)fluora	0.0E+00	2.9E-05	1	0.0E+00	4.0E-01	0E+00												
16	Benzo(g,h,i)pe	0.0E+00	2.9E-05	1	0.0E+00	4.0E-01	0E+00												
17	Benzo(k)fluora	0.0E+00	2.9E-05	1	0.0E+00	4.0E-01	0E+00												
18	Beryllium	0.0E+00	2.9E-05	1	0.0E+00	5.0E-03	0E+00												
19	BEHP	0.0E+00	2.9E-05	1	0.0E+00	2.0E-02	0E+00												
20	2-Butanone	0.0E+00	2.9E-05	1	0.0E+00	5.0E-01	0E+00												
21	Cadmium (food)	0.0E+00	2.9E-05	1	0.0E+00	NA	NA												
22	Cadmium (water	0.0E+00	2.9E-05	1	0.0E+00	NA	NA												
23	Carbon disulfi	0.0E+00	2.9E-05	1	0.0E+00	1.0E-01	0E+00												
24	Chloride	4.1E+01	2.9E-05	1	1.2E-03	NA	NA												
25	Chlorobenzene	0.0E+00	2.9E-05	1	0.0E+00	2.0E-01	0E+00												
26	Chloroform	0.0E+00	2.9E-05	1	0.0E+00	1.0E-02	0E+00												
27	Chromium (VI)	1.2E-02	2.9E-05	1	3.5E-07	2.0E-02	2E-05												
28	Chrysene	3.0E-03	2.9E-05	1	8.7E-08	4.0E-01	2E-07												
29	Cobalt	0.0E+00	2.9E-05	1	0.0E+00	NA	NA												
30	Copper	2.6E-02	2.9E-05	1	7.5E-07	3.7E-02	2E-05												
31	Cyanide (free)	1.3E-01	2.9E-05	1	3.8E-06	2.0E-02	2E-04												
32	Di-n-butylphth	0.0E+00	2.9E-05	1	0.0E+00	1.0E+00	0E+00												
33	Di-n-octylphth	0.0E+00	2.9E-05	1	0.0E+00	2.0E-02	0E+00												
34	Dibenz(a,h)ant	0.0E+00	2.9E-05	1	0.0E+00	4.0E-01	0E+00												
35	Dibenzofuran	0.0E+00	2.9E-05	1	0.0E+00	NA	NA												
36	2,4-Dimethylph	0.0E+00	2.9E-05	1	0.0E+00	2.0E-01	0E+00												
37	Ethyl benzene	0.0E+00	2.9E-05	1	0.0E+00	1.0E+00	0E+00												
38	Fluoranthene	3.0E-03	2.9E-05	1	8.7E-08	4.0E-01	2E-07												
39	Fluorene	0.0E+00	2.9E-05	1	0.0E+00	4.0E-01	0E+00												

40	Fluoride	1.2E+01	2.9E-05	1	3.5E-04	6.0E-02	6E-03
41	Indeno(1,2,3-c	0.0E+00	2.9E-05	1	0.0E+00	4.0E-01	0E+00
42	Iron	2.2E+00	2.9E-05	1	6.4E-05	NA	NA
43	Lead	3.0E-03	2.9E-05	1	8.7E-08	NA	NA
44	Manganese	7.7E-01	2.9E-05	1	2.2E-05	1.0E-01	2E-04
45	Mercury	0.0E+00	2.9E-05	1	0.0E+00	3.0E-04	0E+00
46	Methylene chlo	2.0E-03	2.9E-05	1	5.8E-08	6.0E-02	1.0E-06
47	2-Methylnaphth	0.0E+00	2.9E-05	1	0.0E+00	4.0E-01	0E+00
48	4-Methylphenol	0.0E+00	2.9E-05	1	0.0E+00	5.0E-01	0E+00
49	Naphthalene	0.0E+00	2.9E-05	1	0.0E+00	4.0E-01	0E+00
50	Nickel(dust)	0.0E+00	2.9E-05	1	0.0E+00	NA	NA
51	Nickel (salts)	0.0E+00	2.9E-05	1	0.0E+00	2.0E-02	0E+00
52	Nitrogen, ammo	0.0E+00	2.9E-05	1	0.0E+00	NA	NA
53	Phenanthrene	0.0E+00	2.9E-05	1	0.0E+00	4.0E-01	0E+00
54	Pyrene	3.0E-03	2.9E-05	1	8.7E-08	3.0E-01	3E-07
55	Silica	0.0E+00	2.9E-05	1	0.0E+00	NA	NA
56	Silver	0.0E+00	2.9E-05	1	0.0E+00	3.0E-03	0E+00
57	Sodium	1.5E+02	2.9E-05	1	4.4E-03	NA	NA
58	Sulfate	1.1E+02	2.9E-05	1	3.2E-03	NA	NA
59	Styrene	0.0E+00	2.9E-05	1	0.0E+00	2.0E+00	0E+00
60	1,1,2,2-PCA	0.0E+00	2.9E-05	1	0.0E+00	NA	NA
61	PCE	0.0E+00	2.9E-05	1	0.0E+00	1.0E-01	0E+00
62	Thallium	0.0E+00	2.9E-05	1	0.0E+00	7.0E-04	0E+00
63	Toluene	0.0E+00	2.9E-05	1	0.0E+00	2.0E+00	0E+00
64	1,1,1-TCA	0.0E+00	2.9E-05	1	0.0E+00	9.0E-01	0E+00
65	TCE	0.0E+00	2.9E-05	1	0.0E+00	NA	NA
66	Vanadium	0.0E+00	2.9E-05	1	0.0E+00	7.0E-03	0E+00

RANGE NAME: WS2

EXPOSURE AND RISK CALCULATION WORKSHEET

SITE NAME: ORMET
OPERABLE UNIT: FUTURE RESIDENT CHILD
FILE NAME: POP9
LAST UPDATED: 03/13/91

LAND USE: FUTURE
POPULATION: RES. CHILD (BW)

EXPOSURE POINT: BACKWATER
MEDIUM: SW
ROUTE: DERMAL

HIFs = 1.2E-05
HIFc = 0.0E+00
HIFl = 0.0E+00

		SUBCHRONIC						CHRONIC						LIFETIME					
	CHEMICAL NAME	Cs	HIFs	ABS	DIs	RfDS	HQs	Cc	HIFc	ABS	DIc	RfDC	HQc	Cl	HIFl	ABS	DIl	SF	RISK
1	Acenaphthene	0.0E+00	1.2E-05	1.0E-01	0.0E+00	NA	NA		0.0E+00		0.0E+00		ERR		0.0E+00		0.0E+00		0E+00
2	Acenaphthylene	0.0E+00	1.2E-05	NA	NA	NA	NA												
3	Acetone	1.1E-02	1.2E-05	2.5E-01	3.3E-08	1.0E+00	3E-08												
4	Aluminum	1.3E+00	1.2E-05	NA	NA	NA	NA												
5	Anthracene	0.0E+00	1.2E-05	NA	NA	NA	NA												
6	Antimony	0.0E+00	1.2E-05	NA	NA	NA	NA												
7	Aroclor 1242	1.5E-03	1.2E-05	1.0E-01	1.8E-09	NA	NA												
8	Aroclor 1248	0.0E+00	1.2E-05	1.0E-01	0.0E+00	NA	NA												
9	Aroclor 1254	0.0E+00	1.2E-05	1.0E-01	0.0E+00	NA	NA												
10	Arsenic	1.1E-02	1.2E-05	NA	NA	NA	NA												
11	Barium	7.8E-02	1.2E-05	NA	NA	NA	NA												
12	Benzene	0.0E+00	1.2E-05	2.5E-01	0.0E+00	NA	NA												
13	Benzo(a)anthra	0.0E+00	1.2E-05	NA	NA	NA	NA												
14	Benzo(a)pyrene	0.0E+00	1.2E-05	NA	NA	NA	NA												
15	Benzo(b)fluora	0.0E+00	1.2E-05	NA	NA	NA	NA												
16	Benzo(g,h,i)pe	0.0E+00	1.2E-05	NA	NA	NA	NA												
17	Benzo(k)fluora	0.0E+00	1.2E-05	NA	NA	NA	NA												
18	Beryllium	0.0E+00	1.2E-05	NA	NA	NA	NA												
19	BEHP	0.0E+00	1.2E-05	1.0E-01	0.0E+00	2.0E-02	0E+00												
20	2-Butanone	0.0E+00	1.2E-05	2.5E-01	0.0E+00	5.0E-01	0E+00												
21	Cadmium (food)	0.0E+00	1.2E-05	NA	NA	NA	NA												
22	Cadmium (water	0.0E+00	1.2E-05	NA	NA	NA	NA												
23	Carbon disulfi	0.0E+00	1.2E-05	2.5E-01	0.0E+00	1.0E-01	0E+00												
24	Chloride	4.1E+01	1.2E-05	NA	NA	NA	NA												
25	Chlorobenzene	0.0E+00	1.2E-05	2.5E-01	0.0E+00	2.0E-01	0E+00												
26	Chloroform	0.0E+00	1.2E-05	2.5E-01	0.0E+00	1.0E-02	0E+00												
27	Chromium (VI)	1.2E-02	1.2E-05	NA	NA	NA	NA												
28	Chrysene	3.0E-03	1.2E-05	NA	NA	4.0E-01	NA												
29	Cobalt	0.0E+00	1.2E-05	NA	NA	NA	NA												
30	Copper	2.6E-02	1.2E-05	NA	NA	NA	NA												
31	Cyanide (free)	1.3E-01	1.2E-05	NA	NA	NA	NA												
32	Di-n-butylphth	0.0E+00	1.2E-05	1.0E-01	0.0E+00	1.0E+00	0E+00												
33	Di-n-octylphth	0.0E+00	1.2E-05	1.0E-01	0.0E+00	2.0E-02	0E+00												
34	Dibenz(a,h)ant	0.0E+00	1.2E-05	NA	NA	NA	NA												
35	Dibenzofuran	0.0E+00	1.2E-05	1.0E-01	0.0E+00	NA	NA												
36	2,4-Dimethylph	0.0E+00	1.2E-05	1.0E-01	0.0E+00	2.0E-01	0E+00												
37	Ethyl benzene	0.0E+00	1.2E-05	2.5E-01	0.0E+00	1.0E+00	0E+00												
38	Fluoranthene	3.0E-03	1.2E-05	NA	NA	NA	NA												
39	Fluorene	0.0E+00	1.2E-05	NA	NA	NA	NA												

40	Fluoride	1.2E+01	1.2E-05	NA	NA	NA	NA
41	Indeno(1,2,3-c	0.0E+00	1.2E-05	NA	NA	NA	NA
42	Iron	2.2E+00	1.2E-05	NA	NA	NA	NA
43	Lead	3.0E-03	1.2E-05	NA	NA	NA	NA
44	Manganese	7.7E-01	1.2E-05	NA	NA	NA	NA
45	Mercury	0.0E+00	1.2E-05	NA	NA	NA	NA
46	Methylene chlo	2.0E-03	1.2E-05	2.5E-01	6.0E-09	6.0E-02	1E-07
47	2-Methylnaphth	0.0E+00	1.2E-05	NA	NA	NA	NA
48	4-Methylphenol	0.0E+00	1.2E-05	1.0E-01	0.0E+00	5.0E-01	0E+00
49	Naphthalene	0.0E+00	1.2E-05	NA	NA	NA	NA
50	Nickel(dust)	0.0E+00	1.2E-05	NA	NA	NA	NA
51	Nickel (salts)	0.0E+00	1.2E-05	NA	NA	NA	NA
52	Nitrogen, ammo	0.0E+00	1.2E-05	NA	NA	NA	NA
53	Phenanthrene	0.0E+00	1.2E-05	NA	NA	NA	NA
54	Pyrene	3.0E-03	1.2E-05	NA	NA	NA	NA
55	Silica	0.0E+00	1.2E-05	NA	NA	NA	NA
56	Silver	0.0E+00	1.2E-05	NA	NA	NA	NA
57	Sodium	1.5E+02	1.2E-05	NA	NA	NA	NA
58	Sulfate	1.1E+02	1.2E-05	NA	NA	NA	NA
59	Styrene	0.0E+00	1.2E-05	2.5E-01	0.0E+00	2.0E+00	0E+00
60	1,1,2,2-PCA	0.0E+00	1.2E-05	2.5E-01	0.0E+00	NA	NA
61	PCE	0.0E+00	1.2E-05	2.5E-01	0.0E+00	1.0E-01	0E+00
62	Thallium	0.0E+00	1.2E-05	NA	NA	NA	NA
63	Toluene	0.0E+00	1.2E-05	2.5E-01	0.0E+00	2.0E+00	0E+00
64	1,1,1-TCA	0.0E+00	1.2E-05	2.5E-01	0.0E+00	9.0E-01	0E+00
65	TCE	0.0E+00	1.2E-05	2.5E-01	0.0E+00	NA	NA
66	Vanadium	0.0E+00	1.2E-05	NA	NA	NA	NA

RANGE NAME: WS3

SITE NAME: ORMET
OPERABLE UNIT: FUTURE RESIDENT CHILD
FILE NAME: POP9
LAST UPDATED: 03/13/91

EXPOSURE AND RISK CALCULATION WORKSHEET

LAND USE: FUTURE
POPULATION: RES. CHILD (BW)

EXPOSURE POINT: BACKWATER
MEDIUM: SEDIMENT
ROUTE: ORAL

HIFs = 2.9E-08
HIFc = 0.0E+00
HIFl = 0.0E+00

		SUBCHRONIC						CHRONIC						LIFETIME					
	CHEMICAL NAME	Cs	HIFs	1	DIs	RfDS	HQs	Cc	HIFc	1	DIc	RfDC	HQc	Cl	HIFl	1	DIl	SF	RISK
1	Acenaphthene	1.5E+01	2.9E-08	1	4.4E-07	6.0E-01	7E-07		0.0E+00		0.0E+00		ERR		0.0E+00		0.0E+00		0E+00
2	Acenaphthylene	2.5E-01	2.9E-08	1	7.3E-09	4.0E-01	2E-08												
3	Acetone	0.0E+00	2.9E-08	1	0.0E+00	1.0E+00	0E+00												
4	Aluminum	1.0E+04	2.9E-08	1	2.9E-04	NA	NA												
5	Anthracene	2.5E+01	2.9E-08	1	7.3E-07	3.0E+00	2E-07												
6	Antimony	0.0E+00	2.9E-08	1	0.0E+00	4.0E-04	0E+00												
7	Aroclor 1242	0.0E+00	2.9E-08	1	0.0E+00	NA	NA												
8	Aroclor 1248	9.8E+01	2.9E-08	1	2.8E-06	NA	NA												
9	Aroclor 1254	0.0E+00	2.9E-08	1	0.0E+00	NA	NA												
10	Arsenic	5.3E+00	2.9E-08	1	1.5E-07	1.0E-03	2E-04												
11	Barium	7.3E+01	2.9E-08	1	2.1E-06	5.0E-02	4E-05												
12	Benzene	0.0E+00	2.9E-08	1	0.0E+00	NA	NA												
13	Benzo(a)anthra	1.2E+02	2.9E-08	1	3.5E-06	4.0E-01	9E-06												
14	Benzo(a)pyrene	1.8E+02	2.9E-08	1	5.2E-06	4.0E-01	1E-05												
15	Benzo(b)fluora	3.9E+02	2.9E-08	1	1.1E-05	4.0E-01	3E-05												
16	Benzo(g,h,i)pe	8.8E+01	2.9E-08	1	2.6E-06	4.0E-01	6E-06												
17	Benzo(k)fluora	1.7E+02	2.9E-08	1	4.9E-06	4.0E-01	1E-05												
18	Beryllium	1.1E+00	2.9E-08	1	3.2E-08	5.0E-03	6E-06												
19	BEHP	5.7E-01	2.9E-08	1	1.7E-08	2.0E-02	8E-07												
20	2-Butanone	0.0E+00	2.9E-08	1	0.0E+00	5.0E-01	0E+00												
21	Cadmium (food)	0.0E+00	2.9E-08	1	0.0E+00	NA	NA												
22	Cadmium (water	0.0E+00	2.9E-08	1	0.0E+00	NA	NA												
23	Carbon disulfi	0.0E+00	2.9E-08	1	0.0E+00	1.0E-01	0E+00												
24	Chloride	9.6E+01	2.9E-08	1	2.8E-06	NA	NA												
25	Chlorobenzene	0.0E+00	2.9E-08	1	0.0E+00	2.0E-01	0E+00												
26	Chloroform	0.0E+00	2.9E-08	1	0.0E+00	1.0E-02	0E+00												
27	Chromium (VI)	1.3E+01	2.9E-08	1	3.8E-07	2.0E-02	2E-05												
28	Chrysene	1.2E+02	2.9E-08	1	3.5E-06	4.0E-01	9E-06												
29	Cobalt	2.7E+00	2.9E-08	1	7.8E-08	NA	NA												
30	Copper	1.2E+02	2.9E-08	1	3.5E-06	3.7E-02	9E-05												
31	Cyanide (free)	4.2E+01	2.9E-08	1	1.2E-06	2.0E-02	6E-05												
32	Di-n-butylphth	0.0E+00	2.9E-08	1	0.0E+00	1.0E+00	0E+00												
33	Di-n-octylphth	0.0E+00	2.9E-08	1	0.0E+00	2.0E-02	0E+00												
34	Dibenz(a,h)ant	2.2E+01	2.9E-08	1	6.4E-07	4.0E-01	2E-06												
35	Dibenzofuran	3.3E+00	2.9E-08	1	9.6E-08	NA	NA												
36	2,4-Dimethylph	0.0E+00	2.9E-08	1	0.0E+00	2.0E-01	0E+00												
37	Ethyl benzene	0.0E+00	2.9E-08	1	0.0E+00	1.0E+00	0E+00												
38	Fluoranthene	1.2E+02	2.9E-08	1	3.5E-06	4.0E-01	9E-06												
39	Fluorene	7.8E+00	2.9E-08	1	2.3E-07	4.0E-01	6E-07												

40	Fluoride	8.3E+01	2.9E-08	1	2.4E-06	6.0E-02	4E-05
41	Indeno(1,2,3-c	8.9E+01	2.9E-08	1	2.6E-06	4.0E-01	6E-06
42	Iron	1.3E+04	2.9E-08	1	3.8E-04	NA	NA
43	Lead	2.0E+01	2.9E-08	1	5.8E-07	NA	NA
44	Manganese	6.5E+02	2.9E-08	1	1.9E-05	1.0E-01	2E-04
45	Mercury	0.0E+00	2.9E-08	1	0.0E+00	3.0E-04	0E+00
46	Methylene chlo	3.2E-02	2.9E-08	1	9.3E-10	6.0E-02	2E-08
47	2-Methylnaphth	7.4E-01	2.9E-08	1	2.1E-08	4.0E-01	5E-08
48	4-Methylphenol	0.0E+00	2.9E-08	1	0.0E+00	5.0E-01	0E+00
49	Naphthalene	1.6E+00	2.9E-08	1	4.6E-08	4.0E-01	1E-07
50	Nickel(dust)	0.0E+00	2.9E-08	1	0.0E+00	NA	NA
51	Nickel (salts)	1.0E+01	2.9E-08	1	2.9E-07	2.0E-02	1E-05
52	Nitrogen, ammo	0.0E+00	2.9E-08	1	0.0E+00	NA	NA
53	Phenanthrene	4.7E+01	2.9E-08	1	1.4E-06	4.0E-01	3E-06
54	Pyrene	1.2E+02	2.9E-08	1	3.5E-06	3.0E-01	1E-05
55	Silica	1.1E+01	2.9E-08	1	3.2E-07	NA	NA
56	Silver	0.0E+00	2.9E-08	1	0.0E+00	3.0E-03	0E+00
57	Sodium	2.1E+03	2.9E-08	1	6.1E-05	NA	NA
58	Sulfate	6.0E+01	2.9E-08	1	1.7E-06	NA	NA
59	Styrene	0.0E+00	2.9E-08	1	0.0E+00	2.0E+00	0E+00
60	1,1,2,2-PCA	0.0E+00	2.9E-08	1	0.0E+00	NA	NA
61	PCE	0.0E+00	2.9E-08	1	0.0E+00	1.0E-01	0E+00
62	Thallium	0.0E+00	2.9E-08	1	0.0E+00	7.0E-04	0E+00
63	Toluene	0.0E+00	2.9E-08	1	0.0E+00	2.0E+00	0E+00
64	1,1,1-TCA	0.0E+00	2.9E-08	1	0.0E+00	9.0E-01	0E+00
65	TCE	0.0E+00	2.9E-08	1	0.0E+00	NA	NA
66	Vanadium	1.0E+01	2.9E-08	1	2.9E-07	7.0E-03	4E-05

RANGE NAME: WS4

EXPOSURE AND RISK CALCULATION WORKSHEET

SITE NAME: ORMET
OPERABLE UNIT: FUTURE RESIDENT CHILD
FILE NAME: POP9
LAST UPDATED: 03/13/91

LAND USE: FUTURE
POPULATION: RES. CHILD (BW)

EXPOSURE POINT: BACKWATER
MEDIUM: SEDIMENT
ROUTE: DERMAL

HIFs = 3.0E-05
HIFc = 0.0E+00
HIFl = 0.0E+00

		SUBCHRONIC						CHRONIC						LIFETIME					
	CHEMICAL NAME	Cs	HIFs	ABS	DIs	RfDS	HQs	Cc	HIFc	ABS	DIc	RfDC	HQc	Cl	HIFl	ABS	DIl	SF	RISK
1	Acenaphthene	1.5E+01	3.0E-05	1.0E-01	4.5E-05	NA	NA		0.0E+00		0.0E+00		ERR		0.0E+00		0.0E+00		0E+00
2	Acenaphthylene	2.5E-01	3.0E-05	NA	NA	NA	NA												
3	Acetone	0.0E+00	3.0E-05	2.5E-01	0.0E+00	1.0E+00	0E+00												
4	Aluminum	1.0E+04	3.0E-05	NA	NA	NA	NA												
5	Anthracene	2.5E+01	3.0E-05	NA	NA	NA	NA												
6	Antimony	0.0E+00	3.0E-05	NA	NA	NA	NA												
7	Aroclor 1242	0.0E+00	3.0E-05	1.0E-01	0.0E+00	NA	NA												
8	Aroclor 1248	9.8E+01	3.0E-05	1.0E-01	2.9E-04	NA	NA												
9	Aroclor 1254	0.0E+00	3.0E-05	1.0E-01	0.0E+00	NA	NA												
10	Arsenic	5.3E+00	3.0E-05	NA	NA	NA	NA												
11	Barium	7.3E+01	3.0E-05	NA	NA	NA	NA												
12	Benzene	0.0E+00	3.0E-05	2.5E-01	0.0E+00	NA	NA												
13	Benzo(a)anthra	1.2E+02	3.0E-05	NA	NA	NA	NA												
14	Benzo(a)pyrene	1.8E+02	3.0E-05	NA	NA	NA	NA												
15	Benzo(b)fluora	3.9E+02	3.0E-05	NA	NA	NA	NA												
16	Benzo(g,h,i)pe	8.8E+01	3.0E-05	NA	NA	NA	NA												
17	Benzo(k)fluora	1.7E+02	3.0E-05	NA	NA	NA	NA												
18	Beryllium	1.1E+00	3.0E-05	NA	NA	NA	NA												
19	BEHP	5.7E-01	3.0E-05	1.0E-01	1.7E-06	2.0E-02	9E-05												
20	2-Butanone	0.0E+00	3.0E-05	2.5E-01	0.0E+00	5.0E-01	0E+00												
21	Cadmium (food)	0.0E+00	3.0E-05	NA	NA	NA	NA												
22	Cadmium (water	0.0E+00	3.0E-05	NA	NA	NA	NA												
23	Carbon disulfi	0.0E+00	3.0E-05	2.5E-01	0.0E+00	1.0E-01	0E+00												
24	Chloride	9.6E+01	3.0E-05	NA	NA	NA	NA												
25	Chlorobenzene	0.0E+00	3.0E-05	2.5E-01	0.0E+00	2.0E-01	0E+00												
26	Chloroform	0.0E+00	3.0E-05	2.5E-01	0.0E+00	1.0E-02	0E+00												
27	Chromium (VI)	1.3E+01	3.0E-05	NA	NA	NA	NA												
28	Chrysene	1.2E+02	3.0E-05	NA	NA	4.0E-01	NA												
29	Cobalt	2.7E+00	3.0E-05	NA	NA	NA	NA												
30	Copper	1.2E+02	3.0E-05	NA	NA	NA	NA												
31	Cyanide (free)	4.2E+01	3.0E-05	NA	NA	NA	NA												
32	Di-n-butylphth	0.0E+00	3.0E-05	1.0E-01	0.0E+00	1.0E+00	0E+00												
33	Di-n-octylphth	0.0E+00	3.0E-05	1.0E-01	0.0E+00	2.0E-02	0E+00												
34	Dibenz(a,h)ant	2.2E+01	3.0E-05	NA	NA	NA	NA												
35	Dibenzofuran	3.3E+00	3.0E-05	1.0E-01	9.9E-06	NA	NA												
36	2,4-Dimethylph	0.0E+00	3.0E-05	1.0E-01	0.0E+00	2.0E-01	0E+00												
37	Ethyl benzene	0.0E+00	3.0E-05	2.5E-01	0.0E+00	1.0E+00	0E+00												
38	Fluoranthene	1.2E+02	3.0E-05	NA	NA	NA	NA												
39	Fluorene	7.8E+00	3.0E-05	NA	NA	NA	NA												

40	Fluoride	8.3E+01	3.0E-05	NA	NA	NA	NA
41	Indeno(1,2,3-c	8.9E+01	3.0E-05	NA	NA	NA	NA
42	Iron	1.3E+04	3.0E-05	NA	NA	NA	NA
43	Lead	2.0E+01	3.0E-05	NA	NA	NA	NA
44	Manganese	6.5E+02	3.0E-05	NA	NA	NA	NA
45	Mercury	0.0E+00	3.0E-05	NA	NA	NA	NA
46	Methylene chlo	3.2E-02	3.0E-05	2.5E-01	2.4E-07	6.0E-02	4E-06
47	2-Methylnaphth	7.4E-01	3.0E-05	NA	NA	NA	NA
48	4-Methylphenol	0.0E+00	3.0E-05	1.0E-01	0.0E+00	5.0E-01	0E+00
49	Naphthalene	1.6E+00	3.0E-05	NA	NA	NA	NA
50	Nickel(dust)	0.0E+00	3.0E-05	NA	NA	NA	NA
51	Nickel (salts)	1.0E+01	3.0E-05	NA	NA	NA	NA
52	Nitrogen, ammo	0.0E+00	3.0E-05	NA	NA	NA	NA
53	Phenanthrene	4.7E+01	3.0E-05	NA	NA	NA	NA
54	Pyrene	1.2E+02	3.0E-05	NA	NA	NA	NA
55	Silica	1.1E+01	3.0E-05	NA	NA	NA	NA
56	Silver	0.0E+00	3.0E-05	NA	NA	NA	NA
57	Sodium	2.1E+03	3.0E-05	NA	NA	NA	NA
58	Sulfate	6.0E+01	3.0E-05	NA	NA	NA	NA
59	Styrene	0.0E+00	3.0E-05	2.5E-01	0.0E+00	2.0E+00	0E+00
60	1,1,2,2-PCA	0.0E+00	3.0E-05	2.5E-01	0.0E+00	NA	NA
61	PCE	0.0E+00	3.0E-05	2.5E-01	0.0E+00	1.0E-01	0E+00
62	Thallium	0.0E+00	3.0E-05	NA	NA	NA	NA
63	Toluene	0.0E+00	3.0E-05	2.5E-01	0.0E+00	2.0E+00	0E+00
64	1,1,1-TCA	0.0E+00	3.0E-05	2.5E-01	0.0E+00	9.0E-01	0E+00
65	TCE	0.0E+00	3.0E-05	2.5E-01	0.0E+00	NA	NA
66	Vanadium	1.0E+01	3.0E-05	NA	NA	NA	NA

RANGE NAME: SSUM

SITE NAME: ORMET
OPERABLE UNIT: FUTURE RESIDENT CHIL
FILE NAME: POP9
LAST UPDATED: 03/13/91

SUBCHRONIC EXPOSURE SUMMARY

FUTURE
RES. CHILD (BW)

SUBCHRONIC DAILY INTAKE (mg/kg/day)

	CHEMICAL NAME	SCENARIO 1 BACKWATER SW ORAL (FROM WS1)	SCENARIO 2 BACKWATER SW DERMAL (FROM WS2)	SCENARIO 3 BACKWATER SEDIMENT ORAL (FROM WS3)	SCENARIO 4 BACKWATER SEDIMENT DERMAL (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
1	Acenaphthene	0.0E+00	0.0E+00	4.4E-07	4.5E-05	0.0E+00	0.0E+00
2	Acenaphthylene	0.0E+00	NA	7.3E-09	NA		
3	Acetone	3.2E-07	3.3E-08	0.0E+00	0.0E+00		
4	Aluminum	3.8E-05	NA	2.9E-04	NA		
5	Anthracene	0.0E+00	NA	7.3E-07	NA		
6	Antimony	0.0E+00	NA	0.0E+00	NA		
7	Aroclor 1242	4.4E-08	1.8E-09	0.0E+00	0.0E+00		
8	Aroclor 1248	0.0E+00	0.0E+00	2.8E-06	2.9E-04		
9	Aroclor 1254	0.0E+00	0.0E+00	0.0E+00	0.0E+00		
10	Arsenic	3.2E-07	NA	1.5E-07	NA		
11	Barium	2.3E-06	NA	2.1E-06	NA		
12	Benzene	0.0E+00	0.0E+00	0.0E+00	0.0E+00		
13	Benzo(a)anthra	0.0E+00	NA	3.5E-06	NA		
14	Benzo(a)pyrene	0.0E+00	NA	5.2E-06	NA		
15	Benzo(b)fluora	0.0E+00	NA	1.1E-05	NA		
16	Benzo(g,h,i)pe	0.0E+00	NA	2.6E-06	NA		
17	Benzo(k)fluora	0.0E+00	NA	4.9E-06	NA		
18	Beryllium	0.0E+00	NA	3.2E-08	NA		
19	BEHP	0.0E+00	0.0E+00	1.7E-08	1.7E-06		
20	2-Butanone	0.0E+00	0.0E+00	0.0E+00	0.0E+00		
21	Cadmium (food)	0.0E+00	NA	0.0E+00	NA		
22	Cadmium (water	0.0E+00	NA	0.0E+00	NA		
23	Carbon disulfi	0.0E+00	0.0E+00	0.0E+00	0.0E+00		
24	Chloride	1.2E-03	NA	2.8E-06	NA		
25	Chlorobenzene	0.0E+00	0.0E+00	0.0E+00	0.0E+00		
26	Chloroform	0.0E+00	0.0E+00	0.0E+00	0.0E+00		
27	Chromium (VI)	3.5E-07	NA	3.8E-07	NA		
28	Chrysene	8.7E-08	NA	3.5E-06	NA		
29	Cobalt	0.0E+00	NA	7.8E-08	NA		
30	Copper	7.5E-07	NA	3.5E-06	NA		
31	Cyanide (free)	3.8E-06	NA	1.2E-06	NA		
32	Di-n-butylphth	0.0E+00	0.0E+00	0.0E+00	0.0E+00		
33	Di-n-octylphth	0.0E+00	0.0E+00	0.0E+00	0.0E+00		
34	Dibenz(a,h)ant	0.0E+00	NA	6.4E-07	NA		
35	Dibenzofuran	0.0E+00	0.0E+00	9.6E-08	9.9E-06		
36	2,4-Dimethylph	0.0E+00	0.0E+00	0.0E+00	0.0E+00		
37	Ethyl benzene	0.0E+00	0.0E+00	0.0E+00	0.0E+00		
38	Fluoranthene	8.7E-08	NA	3.5E-06	NA		
39	Fluorene	0.0E+00	NA	2.3E-07	NA		
40	Fluoride	3.5E-04	NA	2.4E-06	NA		
41	Indeno(1,2,3-c	0.0E+00	NA	2.6E-06	NA		
42	Iron	6.4E-05	NA	3.8E-04	NA		

SUBCHRONIC RISK SUMMARY

FUTURE
RES. CHILD (BW)

SUBCHRONIC HAZARD QUOTIENT

	CHEMICAL NAME	SCENARIO 1 BACKWATER SW ORAL (FROM WS1)	SCENARIO 2 BACKWATER SW DERMAL (FROM WS2)	SCENARIO 3 BACKWATER SEDIMENT ORAL (FROM WS3)	SCENARIO 4 BACKWATER SEDIMENT DERMAL (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
1	Acenaphthene	0E+00	NA	7E-07	NA	0E+00	0E+00
2	Acenaphthylene	0E+00	NA	2E-08	NA		
3	Acetone	3E-07	3E-08	0E+00	0E+00		
4	Aluminum	NA	NA	NA	NA		
5	Anthracene	0E+00	NA	2E-07	NA		
6	Antimony	0E+00	NA	0E+00	NA		
7	Aroclor 1242	NA	NA	NA	NA		
8	Aroclor 1248	NA	NA	NA	NA		
9	Aroclor 1254	NA	NA	NA	NA		
10	Arsenic	3E-04	NA	2E-04	NA		
11	Barium	5E-05	NA	4E-05	NA		
12	Benzene	NA	NA	NA	NA		
13	Benzo(a)anthra	0E+00	NA	9E-06	NA		
14	Benzo(a)pyrene	0E+00	NA	1E-05	NA		
15	Benzo(b)fluora	0E+00	NA	3E-05	NA		
16	Benzo(g,h,i)pe	0E+00	NA	6E-06	NA		
17	Benzo(k)fluora	0E+00	NA	1E-05	NA		
18	Beryllium	0E+00	NA	6E-06	NA		
19	BEHP	0E+00	0E+00	8E-07	9E-05		
20	2-Butanone	0E+00	0E+00	0E+00	0E+00		
21	Cadmium (food)	NA	NA	NA	NA		
22	Cadmium (water	NA	NA	NA	NA		
23	Carbon disulfi	0E+00	0E+00	0E+00	0E+00		
24	Chloride	NA	NA	NA	NA		
25	Chlorobenzene	0E+00	0E+00	0E+00	0E+00		
26	Chloroform	0E+00	0E+00	0E+00	0E+00		
27	Chromium (VI)	2E-05	NA	2E-05	NA		
28	Chrysene	2E-07	NA	9E-06	NA		
29	Cobalt	NA	NA	NA	NA		
30	Copper	2E-05	NA	9E-05	NA		
31	Cyanide (free)	2E-04	NA	6E-05	NA		
32	Di-n-butylphth	0E+00	0E+00	0E+00	0E+00		
33	Di-n-octylphth	0E+00	0E+00	0E+00	0E+00		
34	Dibenz(a,h)ant	0E+00	NA	2E-06	NA		
35	Dibenzofuran	NA	NA	NA	NA		
36	2,4-Dimethylph	0E+00	0E+00	0E+00	0E+00		
37	Ethyl benzene	0E+00	0E+00	0E+00	0E+00		
38	Fluoranthene	2E-07	NA	9E-06	NA		
39	Fluorene	0E+00	NA	6E-07	NA		
40	Fluoride	6E-03	NA	4E-05	NA		
41	Indeno(1,2,3-c	0E+00	NA	6E-06	NA		
42	Iron	NA	NA	NA	NA		

43	Lead	8.7E-08	NA	5.8E-07	NA		NA	NA	NA	NA		
44	Manganese	2.2E-05	NA	1.9E-05	NA		2E-04	NA	2E-04	NA		
45	Mercury	0.0E+00	NA	0.0E+00	NA		0E+00	NA	0E+00	NA		
46	Methylene chlo	5.8E-08	6.0E-09	9.3E-10	2.4E-07		1E-06	1E-07	2E-08	4E-06		
47	2-Methylnaphth	0.0E+00	NA	2.1E-08	NA		0E+00	NA	5E-08	NA		
48	4-Methylphenol	0.0E+00	0.0E+00	0.0E+00	0.0E+00		0E+00	0E+00	0E+00	0E+00		
49	Naphthalene	0.0E+00	NA	4.6E-08	NA		0E+00	NA	1E-07	NA		
50	Nickel(dust)	0.0E+00	NA	0.0E+00	NA		NA	NA	NA	NA		
51	Nickel (salts)	0.0E+00	NA	2.9E-07	NA		0E+00	NA	1E-05	NA		
52	Nitrogen, ammo	0.0E+00	NA	0.0E+00	NA		NA	NA	NA	NA		
53	Phenanthrene	0.0E+00	NA	1.4E-06	NA		0E+00	NA	3E-06	NA		
54	Pyrene	8.7E-08	NA	3.5E-06	NA		3E-07	NA	1E-05	NA		
55	Silica	0.0E+00	NA	3.2E-07	NA		NA	NA	NA	NA		
56	Silver	0.0E+00	NA	0.0E+00	NA		0E+00	NA	0E+00	NA		
57	Sodium	4.4E-03	NA	6.1E-05	NA		NA	NA	NA	NA		
58	Sulfate	3.2E-03	NA	1.7E-06	NA		NA	NA	NA	NA		
59	Styrene	0.0E+00	0.0E+00	0.0E+00	0.0E+00		0E+00	0E+00	0E+00	0E+00		
60	1,1,2,2-PCA	0.0E+00	0.0E+00	0.0E+00	0.0E+00		NA	NA	NA	NA		
61	PCE	0.0E+00	0.0E+00	0.0E+00	0.0E+00		0E+00	0E+00	0E+00	0E+00		
62	Thallium	0.0E+00	NA	0.0E+00	NA		0E+00	NA	0E+00	NA		
63	Toluene	0.0E+00	0.0E+00	0.0E+00	0.0E+00		0E+00	0E+00	0E+00	0E+00		
64	1,1,1-TCA	0.0E+00	0.0E+00	0.0E+00	0.0E+00		0E+00	0E+00	0E+00	0E+00		
65	TCE	0.0E+00	0.0E+00	0.0E+00	0.0E+00		NA	NA	NA	NA		
66	Vanadium	0.0E+00	NA	2.9E-07	NA		0E+00	NA	4E-05	NA		
						PATHWAY SUM (HI)	7E-03	1E-07	8E-04	9E-05	0E+00	0E+00
						POPULATION TOTAL	8E-03					