MISCELLANEOUS MILITARY/CIVIL HTW PROJECTS
FOR
U. S. ARMY CORPS OF ENGINEERS
OMAHA DISTRICT

FINAL
ENGINEERING EVALUATION/COST ANALYSIS
FOR THE
PESTICIDE PIT REMOVAL
AT
IOWA ARMY AMMUNITION PLANT
MIDDLETOWN, IOWA

CONTRACT NO. DACW45-93-D-0004
Delivery Order No. 012

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ENGINEERING EVALUATION/COST ANALYSIS DOCUMENT
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LIST OF ACRONYMS

ARAR	Applicable Relevant and Appropriate Requirements
BDAT	Best Demonstrated Available Technology
CERCLA	Comprehensive Environmental Response Compensation Liability Act
CFR	Code of Federal Regulations
DERA	Defense Environmental Restoration Account
EE/CA	Engineering Evaluation/Cost Analysis
EPA	Environmental Protection Agencies
IAAP	Iowa Army Ammunition Plant
NCP	National Contingency Plan
OSHA	Occupational Safety and Health Administration
RBC	Risk-Based Concentrations
RCRA	Resource Conservation Recovery Act
USGS	United States Geological Survey
USACE	United States Army Corps of Engineers
VISITT	Vendor Information System for Innovative Treatment Technologies

1.0 SITE CHARACTERIZATION

1.1 INTRODUCTION

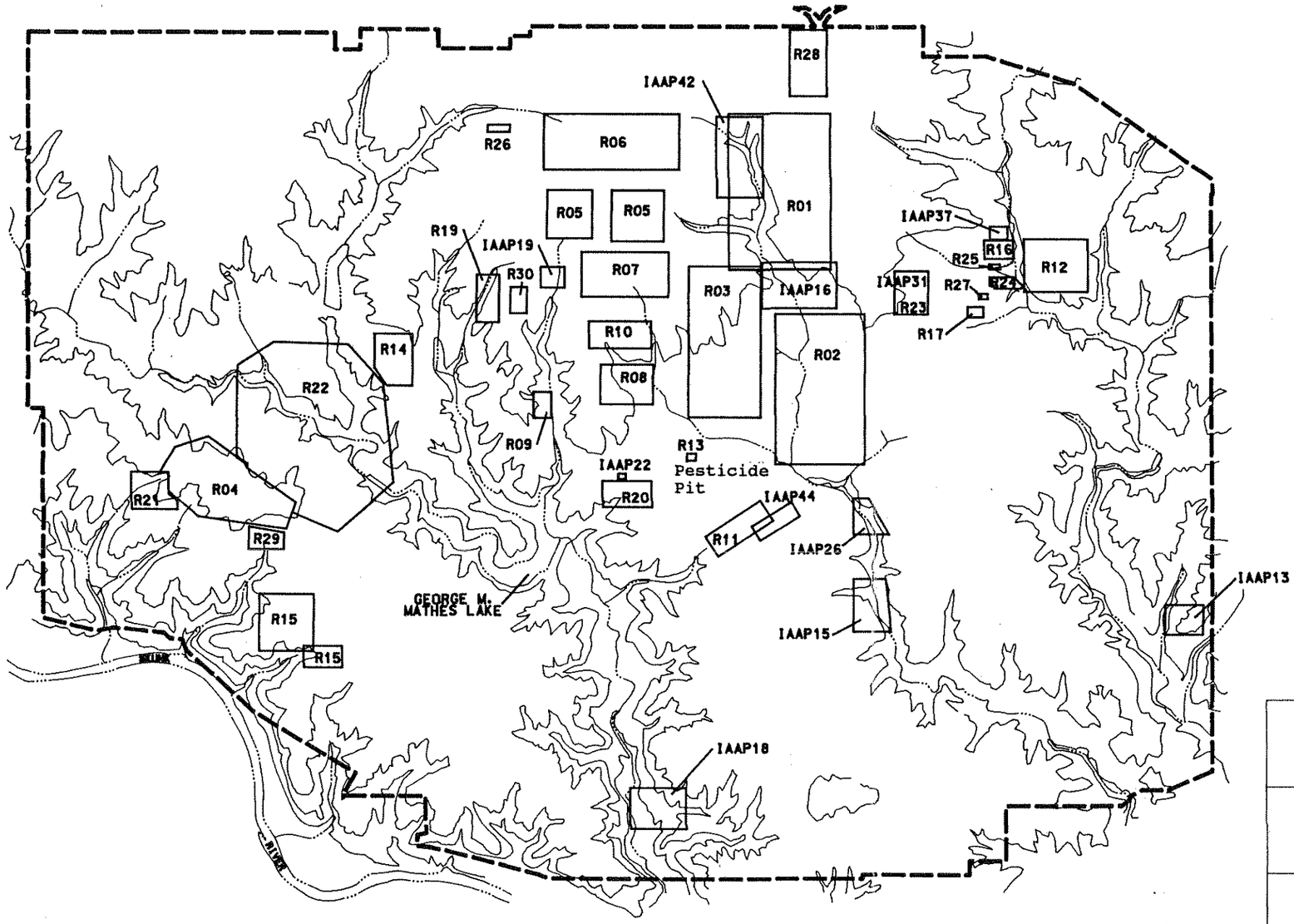
The purpose of this Engineering Evaluation/Cost Analysis (EE/CA) is to document the alternative selection process for the removal action at the pesticide pit. Upon completion of the EE/CA, it is submitted for public comment on the removal action (30 days). Once comments are received and addressed, an Action Memorandum/Decision Document is developed documenting how public comments were addressed and the selected alternative. The removal is initiated after the Action Memorandum/Decision Document is published.

1.2 SITE DESCRIPTION AND BACKGOUND

The Pesticide Pit (R13) is located in the central portion of the Iowa Army Ammunition Plant (Iowa AAP) in Middletown Iowa. The location and topography of the site is shown in Figure 1-1 and 1-2.

The Pesticide Pit was used for the disposal of small amounts of insecticides and herbicides from 1968 to 1974. Rinsate from empty insecticide and herbicide containers and sprayers was poured into the pit. There are no known records available to estimate the quantity of pesticide disposed of in the pit. The pit was capped with clay sometime during the late 1970s to early 1980s. The pit area is presently enclosed with a security fence to restrict access and the site surface is covered with vegetation, including trees. The site was included in both the preliminary site characterization and the remedial investigation assembled for the Iowa AAP.

The pit is an 8-foot by 8-foot by 3-foot deep plywood structure lined with a polyester resin geomembrane and is also lined with limestone. The area is enclosed by a cyclone fence which, from Figure 2 in the R13 section of the RI report (Jaycor Environment 1994), encompasses an area approximately 45′ x 60′. The site is located on an upland terrace surrounded by agricultural fields. The Winnebago School House (building 500-30-6), which is abandoned, is located 25-feet east of the pit. There are no known utilities in the area, however this should be verified prior to any removal action.



LEGEND:

INTERMITTENT STREAM

690 TOPOGRAPHIC CONTOUR
CONTOUR INTERVAL = 50 FEET

N

7000 0 7000 14000

SCALE FEET

CDM FEDERAL PROGRAMS CORPORATION
a subsidiary of Camp Dresser & McKee Inc.

JAYCOR
Environmental

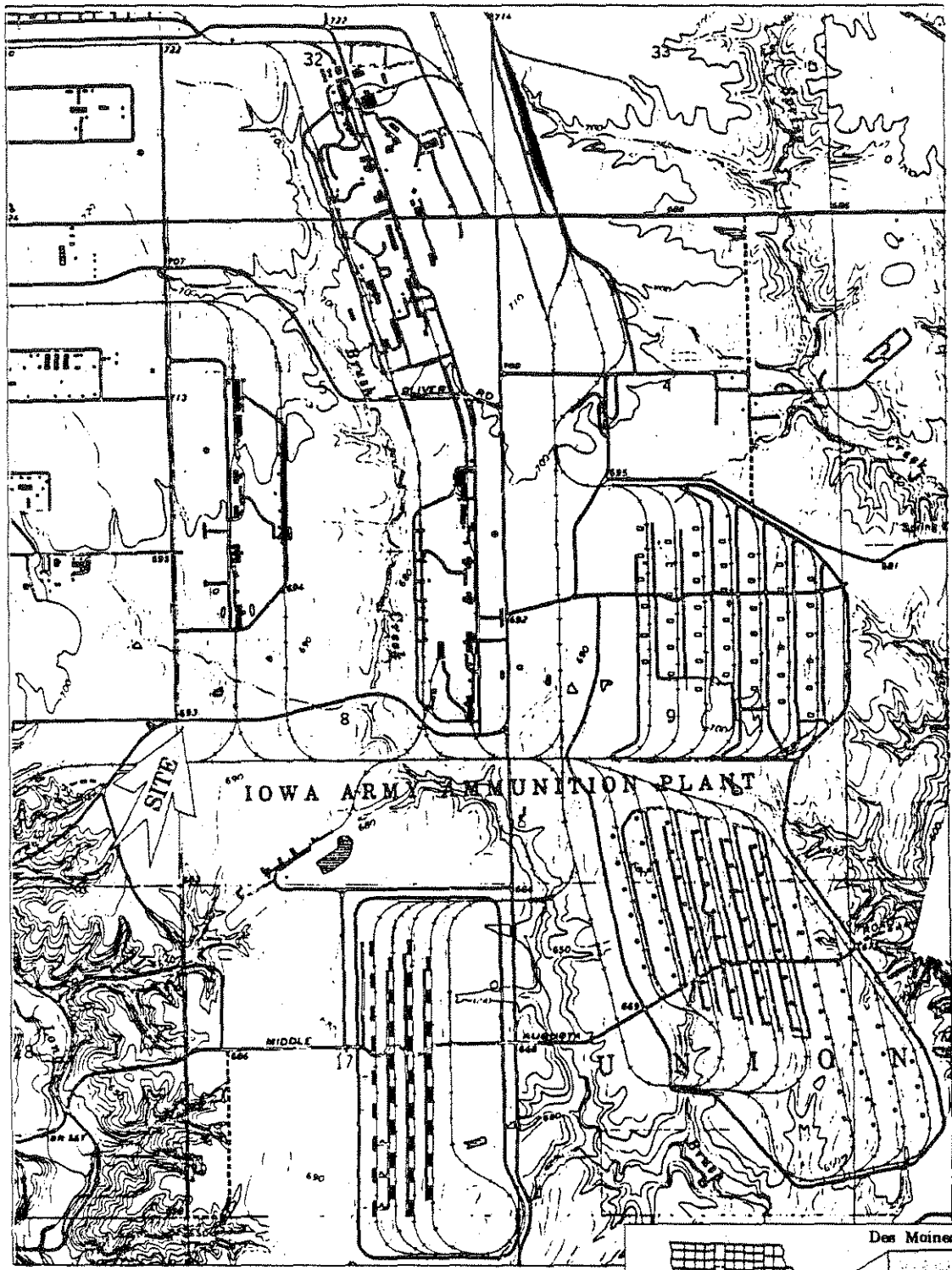
IOWA ARMY AMMUNITION PLANT

MIDDLETOWN, IOWA

IAAP Facility Showing Basewide Site Locations

SOURCE: Mason & Hanger-Silas Mason Co., Inc.

FILE NO. IAAPMSTR	DRWN BY: DDS	PROJECT #: 7150-100	SHT. 1 OF 1
DATE 4/94			FIGURE: 1-1



COREL: IAAP06

Project No. 6102-012	Iowa Army Ammunition Plant Middletown, Iowa CDM FEDERAL PROGRAMS CORPORATION a subsidiary of Camp Dresser & McKee Inc	Site Location Map	Figure No.: 1-2 7/94

Surface water from the site flows in a northeast direction to an intermittent stream which flows approximately one-half mile east to Brush Creek.

The site is immediately underlain by fill material consisting of miscellaneous debris and silty clay. Windblown non-stratified silts and clays (loess) are located beneath the fill material. Underlying the loess is the Kellersville Till member of the Glasford Formation, a glacial till consisting of clay and silt with discontinuous sand and gravel seams. A near-surface groundwater flow exists due to the presence of the relatively permeable loess over the less permeable till units. Shallow groundwater flow at the Pesticide Pit is north/northeast towards a tributary of Brush Creek. Depth to groundwater at the site is approximately 20 - 40 feet bgs. A more in depth description of the geology of the site is in the R13 section of the Remedial Investigation report included as Appendix B.

The site is surrounded by agricultural fields which are currently being cultivated. There are no residential, industrial or commercial land use in the immediate area. Possible pathways of exposure include:

- Ingestion of windblown surface soil, that may be contaminated, by visitors of the site.
- Inhalation of windblown surface soil, that may be contaminated, by visitors of the site.
- Ingestion of water with its origin from Brush Creek, which intercepts surface water or overland flow from the site.
- Eventual leaching of contaminates to groundwater which may eventfully be a source of drinking water.

Iowa AAP is in a rural setting which is sparsely populated.

The school house next to the Pesticide Pit may have historic significance and its preservation may want to be considered during remedial activities (there is a chimney on the pit side of the building that is becoming detached from the school).

1.3 SOURCE, NATURE, AND EXTENT OF CONTAMINATION

The data to be used in this Engineering Evaluation/Cost Analysis (EE/CA) is from sampling programs conducted during the Preliminary Site Characterization and the Remedial Investigation completed in 1989 and 1992, respectively. The description of nature and extent of contamination in those two reports was not adequate for the purposes of this EE/CA. Therefore, interpretation of the data using sampling location descriptions in those reports was completed. The quality of the data was not assessed by CDM Federal. The sections of both reports, including data tables, regarding the Pesticide Pit are included in Appendices A and B.

The data from the two reports was reviewed and compared to Risk-Based Concentration Levels published by EPA Region III for a commercial scenario listed below.

EPA Region III Risk-Based Concentrations	
	Commercial (mg/kg)
DDD	12.0
DDT	8.4
DDE	8.4
Endrin	310.0
Chlordane	2.2
Heptachlor	0.64

The results of the two investigations suggest pesticide contamination (DDD, DDT, DDE, Endrin, Chlordane, and Heptachlor) has been contained in the immediate vicinity of the pit. Results from one sample inside the fenced area adjacent to the pit (5-feet south of the center of the pit) at a depth of 1.5-feet resulted in pesticide contamination above the proposed action levels.

The results of the chemical analysis for pesticides, done on the sample adjacent to the pit (SA-17) taken at a depth of 1.5 feet were reported as follows:

4,4'- DDD	1220.0 µg/g
4,4'- DDE	20500.0 µg/g
4,4'- DDT	78.2 µg/g
Alpha-chlordane	887.0 µg/g
Endrin	1390.0 µg/g
Gamma-chlordane	648.0 µg/g
Heptachlor	283.0 µg/g

Groundwater samples taken from temporary piezometers in the area were analyzed and results suggest that pesticides did not exist above the detection limits used during the two investigations.

The integrity of the pesticide pit is not known. For the purposes of volume estimation pesticide contamination is assumed to extend two feet beyond the boundaries of the pit in any direction. This assumption should account for any pesticide that may have leaked from the pit since these pesticides are not known to migrate in soil readily. The volume of pesticide contaminated soil is therefore estimated to be 12'x12'x5' deep or 720 cubic feet (26.67 cubic yards).

The risk to human health at the site can be evaluated in a streamlined manner when values at the pit are compared to the Risk Based Concentrations (RBC) developed by EPA Region III. RBC value for the pesticides of concern were presented earlier.

2.0 IDENTIFICATION OF REMOVAL ACTION OBJECTIVES

2.1 STATUTORY LIMITS ON REMOVAL ACTIONS

The National Contingency Plan (NCP) section 104 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) places a statutory limit of 2 million dollars and 12-month duration on **fund-financed (Superfund)** removal actions. However, this removal will not be funded by the referenced fund but rather by the Defense Environmental Restoration Account (DERA) which does not have the statutory limit but needs special approval when $2 million dollars will be exceeded.

2.2 DETERMINATION OF REMOVAL SCOPE

The overall goal of the removal action at the Pesticide Pit (R13) is to eliminate the site and its contaminants from further consideration or concern for human health and the environment. To accomplish this goal physical removal of the pesticide pit and associated contamination is necessary. To assure that the goal is met the specific objective of the removal action is to eliminate the possible pathways identified in Section 1.1 of this EE/CA. This will be accomplished by removing soils to the risk-based remediation goals discussed earlier.

To assure protection of human health, contaminated soil shall be removed to a Risk-Based Concentration developed by EPA Region III, listed earlier in the report. Information regarding these numbers is included in Appendix G.

Once the contaminated soil is removed the objective would be to treat and/or dispose of the material in a manner that would achieve the overall goal of the removal. The pesticides of concern at this site are subject to land disposal restrictions thus requiring some form of treatment prior to land disposal. The treatment standards identified in 40 CFR 268.43 for the specific pesticides found at the site include:

DDD (U060)	0.087 mg/kg
DDT (U061, includes DDE)	0.087 mg/kg
Endrin (P051)	0.130 mg/kg
Chlordane (U036, alpha and gamma)	0.130 mg/kg
Heptachlor (P059)	0.066 mg/kg

These treatment standards are for constituent concentrations in wastes (not extracts).

2.3 REMOVAL SCHEDULE

The magnitude of removal at this site should allow completion well within one year. The removal contract is anticipated to be awarded September 30, 1994. The removal should be able to be completed prior to less desirable construction weather (mid-December). The following is a schedule of events necessary prior to start of remediation.

31 August 1994	Start of Public Comment Period
30 September 1994	End of Public Comment Period
31 October 1994	Final Action Memorandum/Decision Document
01 November 1994	Construction Start

3.0 IDENTIFICATION AND ANALYSIS OF REMOVAL ACTION ALTERNATIVES

A no-action alternative was not considered viable as concentrations of contaminants existed above action levels specified earlier. As identified in Section 2.0, removal of contaminated soils and treatment of that soil are necessary to achieve the overall goal of the removal action. Removal can be accomplished using standard excavation methods. There are several treatment technologies available for the treatment of pesticide contaminated soil. The Vendor Information System for Innovative Treatment Technologies (VISITT) data base operated by the Technology Information Office lists the following technologies that have been demonstrated:

- Bioremediation (slurry and solid phase)
- Chemical Treatment (includes dechlorination)
- Soil Washing
- Solvent Extraction
- Thermal Desorption
- Vitrification

All are listed as demonstrated either full or pilot scale. The technologies listed above would all have an associated mobilization cost for onsite treatment. Performance information is not available in the VISITT data base supporting the ability of the technologies to reduce concentrations in contaminated soil to land disposal treatment standards; therefore treatability studies may be necessary prior to full scale operation. The estimated total volume of soil requiring treatment at the site of 34 cubic yards does not justify the expense of either mobilization or treatability studies.

The best demonstrated available technology (BDAT) for the treatment of the pesticides found at this site is incineration. In fact the treatment standards listed in 40 CFR 268.43 were developed based on the operation of an incinerator operated in accordance with the technical requirements of 40 CFR 264 Subpart O or Part 265 Subpart O.

3.1 EFFECTIVENESS

3.1.1 OVERALL PROTECTION OF PUBLIC HEALTH AND THE ENVIRONMENT

The physical removal of pesticide contaminated soil at the site would eliminate the possible exposure pathways mentioned in Section 1. Incineration would reduce concentrations below risk-based levels developed by EPA Region III and discussed earlier in the report. The intent of the removal is to remove all pesticide-contaminated soil below the risk-based remediation goals mentioned in Section 1, thus leaving no residual contamination that would pose a risk to human health and the environment.

3.1.2 COMPLIANCE WITH ARARS AND OTHER CRITERIA, ADVISORIES, AND GUIDANCE

The complete list of ARARs that may be required for any type removals at the Iowa AAP is included in Appendix C. Specific ARARs that need to be considered for this removal action are discussed below.

The Iowa Responsible Parties Cleanup Regulations are applicable to the removal action at R13. The regulations assure that the goals of the state for protection of groundwater are achieved. A physical removal of pesticide contaminated soil at the site would achieve the State goal of groundwater protection.

The waste at the site is considered hazardous under 40 CFR 261 requiring the waste to be handled as such.

Transporting hazardous material offsite makes 40 CFR 262 and 263 applicable to the site. When acquiring the transportation services under the removal contract the contract language shall require the hauler to met the requirements of the two regulations cited.

The requirements of 40 CFR 264 subpart O are applicable when hazardous material is to be treated by incineration by an offsite source. Removal contact language should assure that the facility

selected for incineration meets the requirements of this regulation. The accepting facility shall also dispose of the residual material from the incinerator in a landfill that meets the requirements of 40 CFR 264.

Incineration will assure that the requirements of 40 CFR 268 are met.

The selected facility shall be in compliance with the requirements of the National Ambient Air Quality Standards 40 CFR 50 for emission standards for incinerators.

The selected hauler shall be required to comply with the Iowa Hazardous Substances and Waste regulations. A submittal shall be required of the hauler listing requirements and how they are addressed. The selected hauler will be subject to the Iowa Hazardous Waste Disposal Penalty Law if the above requirements are not met and it is determined that unlawful transportation of hazardous waste is occurring.

The remediation contractor will be required to have construction personnel comply with the requirements of 29 CFR 1910.120 (Health and Safety Training for Hazardous Waste Site Workers) and 29 CFR 1926/1910 (OSHA Safety and Health Standards for the Construction Industry).

Dust suppression shall be a requirement of the removal contract to assure the requirements of the Iowa Air Pollution Control Regulations are met during excavation activities. An air monitoring plan for contaminated particulates will be a required submittal of the removal contractor.

The Winnebago School House will need to be protected during this removal. Its historic significance is not known at this time and requirements of the National Historic Act (36 CFR 800) may need to be considered.

3.1.3 LONG-TERM EFFECTIVENESS AND PERMANENCE

This evaluation assesses the extent and effectiveness of the controls necessary to manage the risk posed by treatment residuals and/or untreated wastes left onsite. The alternative being evaluated

removes the waste from the site. The conservative estimate of volume (excavating 2 feet in any direction beyond the boundaries of the pit) should eliminate any residual contamination that may pose a risk. Controls will not be needed for any residual waste and no waste will be left onsite. The removal will achieve long-term effectiveness with little or no monitoring. Confirmatory sampling (see Appendix E) after removal should support the effectiveness of the remedy. The removal is also a permanent solution and should fit well into to the remedial scheme for the entire site. Containment options (i.e., capping) would not offer a permanent solution at the site. The commercial scenario accepted for this site is based on the foreseeable future land use. The Army will discuss a contingency if the property is excessed and a possible residential scenario may be realized in the FS and ROD to be developed for the installation. The intent of this removal action is not to address the issue of groundwater, which is to be presented in a separate FS.

3.1.4 REDUCTION OF TOXICITY, MOBILITY, OR VOLUME THROUGH TREATMENT

The alternative being evaluated includes incineration to meet land disposal regulations. Incineration should reduce concentrations of pesticides below risk based levels discussed earlier; therefore reducing their toxicity. Physical removal of pesticide contaminated soil at the site will reduce or eliminate mobility of the pesticide assuring that groundwater will not be impacted in the future. The volume of contaminated material will be reduced by incineration. The residual waste will be put in a landfill thus reducing its mobility.

3.1.5 SHORT-TERM EFFECTIVENESS

The nearest community (Middletown, Iowa) is located far enough away that impacts from the removal should be unlikely. Fugitive dust should be controlled if the ARAR cited earlier is to be met. Trucks hired to haul the material will be in compliance with applicable DOT Regulations which are intended to protect the public during transportation of hazardous material.

Construction workers that will be working on the removal should be required to wear the proper protective clothing to reduce the risk of handling the material. The alternative is relatively simple

in that common safety practices employed during any excavation activity should reduce the possibility of harm.

Environmental impacts should be minimal since the site is not located in a environmentally sensitive area (surrounded by agricultural fields).

3.2 IMPLEMENTABILITY

3.2.1 TECHNICAL FEASIBILITY

The excavation portion of the alternative is a relatively simple technology and should not be difficult to implement. Confirmatory sampling if done by the remediation contractor will require trained personnel using USACE validated laboratories for analysis; however, the removal will be accomplished by a USACE Rapid Response contractor experienced at taking environmental samples.

The hauling portion of the alternative will be done by a licensed hazardous waste hauler. The availability of hazardous waste haulers was evaluated by contacting different haulers and determining their availability. There seems to be no difficulty in finding a hauler for hire (Appendix D).

The incineration and disposal portions of the alternative will be done by a licensed facility that handles hazardous waste daily. The personnel employed at these facilities are trained in running incinerators and landfills. The availability of a facility to accept the waste does not seem to be a problem, several were contacted (Appendix D) and were willing to accept the type of waste from R13.

There is no operation and maintenance associated with this alternative.

The removal action will be a long-term remedy.

3.2.2 ADMINISTRATIVE FEASIBILITY

Permits required for offsite transportation (manifest) will be completed by the licensed hauler and signed by installation personnel. The manifest records are relatively straight forward and are readily implementable administratively. The accepting facility will be in compliance with Section 300.400 of the NCP as amended in FR, Vol. 58, No. 182, September 22, 1993.

The accepting facility will be required to submit proof of a current permit to accept the type of waste from R13. The submittal should not be an administrative problem for an up to date facility. The facility will also be required to submit the current permit allowing the operation of a hazardous waste incinerator.

3.2.3 STATE ACCEPTANCE

Reserved for State comment.

3.2.4 COMMUNITY ACCEPTANCE

Public acceptance is expected since the site will be cleaned to action levels.

3.3 COST

The direct and indirect capital costs are shown in Table 3-1. There are no operation and maintenance costs.

As discussed earlier, in-situ or onsite options (previously listed technologies) would not be cost effective nor provide any added protection over the recommended remedy.

TABLE 3-1
Summary of Costs for Pesticide Pit Remedial Action

Destruction at a Hazardous Waste Incinerator in Illinois

Contaminated Soil Handling		
Mobilization Backhoe + 6 yds. Dump	=	$ 300.00
Soil Excavation:		
27 yd^3 @ $4.20/$yd^3$	=	113.40
SUBTOTAL	=	413.40
Add 40% for Hazardous Site Work	=	165.36
SUBTOTAL	=	$ 992.16
Confirmatory Sampling and Backfill of Area		
5 Samples @ $270/Sample	=	$1,350.00
Backfill Area	=	466.30
SUBTOTAL	=	$1,816.30
Transport to TSD Facility		
2 Loads @ $990/Load	=	$ 1,980.00
Incineration and Disposal of Ash		
75,000 lbs. @ $0.65/lb.	=	$ 48,750.00
SUBTOTAL	=	$ 53,538.46
Scope Contingencies (10%)	=	$ 5,353.84
TOTAL	=	$ 58,892.30

4.0 RECOMMENDED REMOVAL ACTION ALTERNATIVE

The alternative recommended for this site after the evaluation in Section 3.0 is Excavation, Confirmatory Sampling, Hauling, Incineration, and Landfill Disposal (preferably at the same facility). Operation and maintenance will not be necessary since the intent is complete removal. It has been determined that this alternative is the simplest, most cost-effective way to address contamination at R13.

5.0 REFERENCES

Chemical Waste Management. July 7, 1994. Telephone Conversation with Rob Barghart.

ENSCO Environmental Services. July 7, 1994. Telephone Conversation with Teresa Wilson.

Jaycor. 1993. Draft Remedial Investigation Report for the Iowa Army Ammunition Plant. Middletown, Iowa. Contract No. DAAAA 15-9U-D-0006. Vienna, Virginia.

Means. 1994. Site Work and Landscape Cost Data.

Risk-Based Concentration Table. U. S. EPA Region III.

Rollins Environmental Services. July 11, 1994. Telephone Conversation with Jesse Glasper.

U. S. Geological Survey. 1962, 1964. West Burlington Quadrangle 7.5 Minute Series Topographic Maps Revised 1976.

VISITT. User Manual. Version 2.0.

APPENDIX A

Site Characterization Report Section for R13 Site

PRELIMINARY SITE CHARACTERIZATION
Pesticide Pit (R13)

SITE DESCRIPTION

- The Pesticide Pit (R13) is situated in the central portion of the Iowa AAP, north of Yard O and 25 feet west of the Winnebago School House (Building 500-30-6). The pit is an 8-foot square, 2 to 3-foot deep plywood structure lined with a polyester resin geomembrane (hypolon), and lined with limestone. The pit once was covered by an open-sided canopy, though this structure was razed when the pit was filled and capped in the late 1970s. The pit area is enclosed with a security fence to restrict access and the site surface is covered with significant vegetation including trees.

- From 1968 to 1974, rinsings from empty pesticide containers and sprayers were poured into the pit. Expendable containers were crushed and placed in the sanitary landfill. Framemounted and manual (carried) sprayers also were rinsed and the rinsings emptied into the pit.

CONTAMINANT SUMMARY

- R13 has been the focus of numerous sampling episodes, notably an AEHA Entomological Study conducted in 1973. During this study, boreholes were emplaced at one location directly north of the pit (BH1); one in the southeast corner of the fenced area (BH4); one 35 feet south/southeast of the pit (BH3); and one 40 feet south/southwest of the pit (BH2). BH5 was placed 250 feet northwest of the site, across Plant Road I to serve as background. Soil and water samples collected from the boreholes were reported to contain low levels of pesticides (<1.0 ppm). A surface soil sample collected from outside the fence, contained 4-4'-DDE at 5.47 ppm and 4,4'-DDT at 3.43 ppm. This study concluded that no substantive contamination, if any, was emanating from the pit. Furthermore, the associated soil study showed that the significant clay content of the parent soil (24 to 35 percent with an extremely low permeability of 1.9 x 10-8) would prevent any downgradient migration, even if a release from the pit had occurred. AEHA did recommend, however, that any disposal at the pit be ceased, and the pit capped with clay. The pit was subsequently capped.

- During a RCRA Facility Assessment (RFA) conducted in 1987, soil samples were collected, and a groundwater sample collected from the abandoned well just north of the Winnebago School House. The compounds 4,4'-DDT and 4,4'-DDE were detected in soil samples downslope of the pit, but also were reported in samples collected upgradient from the site. Therefore, the presence of pesticides in soil downslope from the site could not be attributed to site activities more than 15 years before RFA sampling occurred.

- During the SI, a composite soil sample was collected from the pit perimeter to corroborate historic sampling results. In this sample, only DDT was reported at a level of 0.0007 ug/g. Though the presence of pervasive solid contamination was not confirmed during the SI, EPA requested additional Phase I RI sampling to characterize solid at depth, and determine whether there was a groundwater issue associated with R13.

- Phase I RI activities focused on at-depth soil sampling and point-source groundwater sampling. Additionally, because of the presence of low levels of metals reporting during SI sampling (notably arsenic) soil samples were collected for screening analysis of metals.

- Soil: Eighteen environmental soil samples were collected from depths of 0.5 to 5 feet and analyzed for pesticides/PCBs, herbicides, VOCs, and semiVOCs. Seven of the 18 samples contained pesticides (chlorphyenyl compounds); three samples each contained one VOC compound; and two samples contained semiVOCs (polycyclic aromatic hydrocarbons [PAHs]). Levels of pesticides reported in solid generally were <0.05 ug/g, though samples R13-SS-04 and R13-SS-05 contained pesticides at concentrations from 0.0007 to 6.45 ug/g. These two samples were collected from surface solid north of the Winnebago School House.

- Sample location R13-SA-17 was placed directly south of the center of the south pit boundary: -01 was collected from a depth of 0.5 feet; -02 from 1.5 feet; and -03 from 5 feet. The -01 depth sample contained 4,4'-DDD and 4,4'-DDT at levels of 0.07 ug/g and 0.118 ug/g respectively. The soil sample collected from 1.5 feet (-02) contained high levels of several pesticides at levels noted below in (). Results are reported in ug/g

Pesticide (ug/g)	Evaluation Criteria (ug/g)
4,4'-DDE (20,500)	0.02 COD
4,4'-DDT (78.2)	0.029 COD
4,4'-DDE (1220)	0.0041 COD
Endrin (1390)	0.0033 COD
Heptachlor (283)	0.0013 COD
A-Chlordane (887)	0.0005 COD
G-Chlordane (648)	0.005 COD

- Sample -03, collected from a depth of 5.0 feet, contained no compounds above evaluation levels.

- Soil sample location R13-SA-15 was placed five feet north of the center of the pit north boundary: -01 was collected from a depth of 0.5 feet; -02 from 5.5 feet. Sample -01 contained 4,4'-DDD at 0.022 ug/g; -02 contained 4,4'-DDD at 0.021 ug/g. The COD for this compound is 0.02 ug/g.

- Soil Screening: Twenty-two metals screening samples were collected from depths of 0.05 to 1.0 foot. No significant metals contamination was indicated by this effort. Lead was reported in three of 22 samples at concentrations of 307.02 ug/g, 169.99 ug/g, and 84.2 ug/g. The presence of lead at these levels in so few samples (,20 percent) does not indicate pervasive, widespread metals contamination at this site. Further, all disposal occurred into the pit, which has been capped for almost 20 years; therefore, the presence of metals in surface soil samples cannot be attributed to this past practice.

- Piezometers: Four piezometers were installed at depths of 20 feet at locations around the pit to determine whether pesticides had migrated to groundwater in the immediate site vicinity. R13-PZ-21 was emplaced 13 feet from the northwest corner of the school

house, near the abandoned school house well. PZ-22 was emplaced 23 feet south of the school house and pit. PZ-23 was emplaced 50 feet north/northwest of the pit. PZ-24 was placed at the edge of a farm field, 35 feet south/southwest of the pit. A groundwater sample was collected from each piezometer and analyzed as summarized in Table R13.

- Metals were reported in all piezometer samples at levels above evaluation criteria from groundwater. The attached data table summarizes those results above evaluation criteria; the notable metals constituents detected are detailed blow. Concentrations are in (); results are ug/L

Piezometer	Compound ug/L	Evaluation Level (ug/L)
PZ-21	Arsenic (5.65)	3.84 Maximum Background
	Chromium (692.0)	5.0 HAL
	Lead (17.5)	15.0 MCL
PZ-22	Arsenic (5.45)	3.84 Maximum Background
PZ-23	Chromium (308.0)	5.0 HAL
	Lead (72.5)	15.0 MCL
PZ-24	Chromium (1010.0)	5.0 HAL

- No pesticides/PCBs, herbicides, VOCs or semi VOCs were reported in piezometer samples.

SITE EVALUATION AND RECOMMENDATIONS

- Soil samples collected from immediately south of the pit (SA-17-02) indicated that pesticides are present at the 1.5-foot depth interval. No pesticide contamination was reported in the sample collected from the 5.5-foot depth interval. The presence of DDT and its degradation products DDE and DAD at higher levels indicate that pesticides are degrading. Because the soils at the site are nearly impermeable, the extent of contaminant migration is negligible to nonexistent. The pit has not been used, and has been capped for nearly 20 years; no pesticide dispersal is evident in downgradient surface soil or at-depth samples. No stressed vegetation other overt indication of pesticides in soils is evident at the site. The site is covered with healthy, diverse vegetation, including several large trees.

- Piezometers installed at R13 indicate that metals are present at above-background levels. However, no pesticides were reported in groundwater samples. Because pesticides were disposed in a lined pit which is now capped, no infiltration has apparently occurred. Due to the impermeable nature of the site soils, no percolation to groundwater has apparently occurred. Piezometer data indicate that there is no pesticide in groundwater issue associated with R13.

- No further site characterization is warranted for Phase II. Appropriate remedial alternatives will be addressed in the Feasibility Study.

Attachments: Site Map R13
R13 Phase I RI Sample Summary
R13 All Phase I Results
R13 Results Above Evaluation Levels
R13 Metals Screening Data
R13 Environmental Sample Results for Non-Primary Methods

SITE MAP

SAMPLE KEY

MONITORING WELL
SOIL SAMPLE
SUBSURFACE SOIL SAMPLE
SUBSURFACE & SURFACE SOIL SAMPLE
SURFACE WATER SAMPLE
SEDIMENT SAMPLE
SURFACE WATER & SEDIMENT SAMPLE
SCREENING SAMPLE
GEOPROBE SAMPLE
PIEZOMETER SAMPLE
GEOPROBE & PIEZOMETER SAMPLE

LEGEND

690 TOPOGRAPHIC CONTOUR
CONTOUR INTERVAL = 5 FEET
ROAD
FENCE
500-30-6 BUILDING #

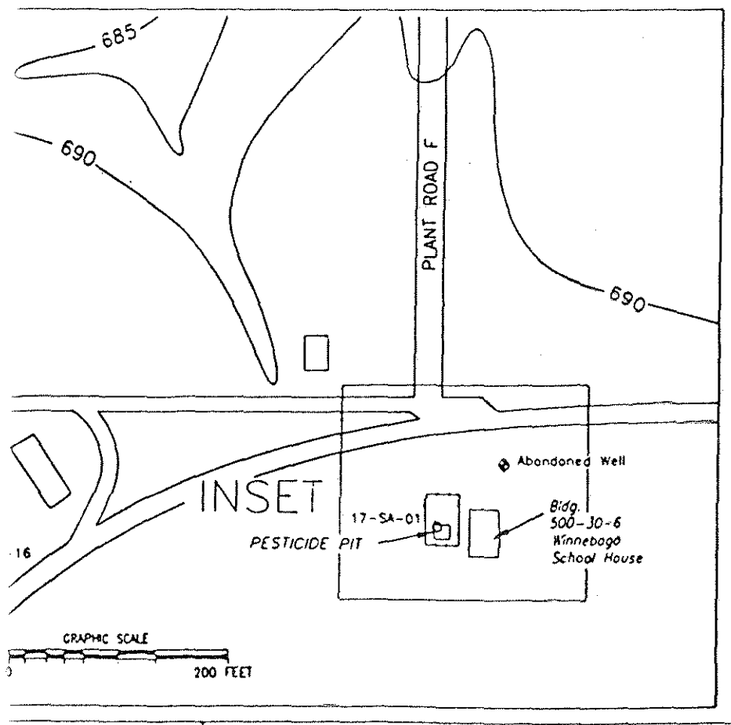
PESTICIDE PIT
Abandoned

R13-PZ-23
R13-SS-01
R13-SS-07
R13-SA-15
17-SA-01
R13-SA-17
R13-SS-08
R13-SS-12
R13-SS-03
R13-SS-06
R13-PZ-21
R13-SS-04
R13-SS-05
R13-SS-11
R13-SA-19
R13-PZ-24
R13-PZ-22
R13-SS-14
17-SA-01
FARM FIELD

R13-011 R13-006 R13-002 R13-010 R13-009 R13-005 R13-001 R13-003 R13-007 R13-004 R13-008

Bldg. 500-30-6 Winnebago School House

GRAPHIC SCALE
0 50 100 150 200 FEET



Prepared by
CDM FEDERAL PROGRAMS CORPORATION
a subsidiary of Camp Dresser & McKee Inc.

JAYCOR

IOWA ARMY AMMUNITION PLANT

MIDDLETOWN, IOWA

Site Map of IAAP R13
Pesticide Pit
(Formerly IAAP 17)

SOURCE: Mason & Hanger-Silas Mason Co., Inc.			
FILE NO. IAAPR13	DRWN BY LR	PROJECT # 7150-100	SHT 1 OF 1
DATE 3/93			FIGURE: 5-13

PHASE I RI SAMPLE SUMMARY TABLE

Table R13
Sample Summary
IAAP-R13 (Pesticide Pit)

RI Sample Number	Analyses	Sample Type	Sample Category	Depth (feet)	Location
R13-SS-01-01	Pesticides PCBs VOCs SemiVOCs	G	A	0.5	Outside protective fence; at NW corner.
R13-SS-02-01	Pesticides PCBs VOCs SemiVOCs	N/A	N/A	N/A	Outside protective fence; center of northern edge, sampling point eliminated due to close proximity of R-13-SS-01 and R13-SS-03.
R13-SA-03-01	Pesticides PCBs VOCs SemiVOCs	G	A	5.0	Outside protective fence; at NE corner.
R13-SS-04-01	Pesticides PCBs VOCs SemiVOCs	G	A	0.5	Twelve feet north of the front door of the school house.
R13-SS-05-01	Pesticides PCBs VOCs SemiVOCs	G	A	0.5	Two feet north of the front door of the school house.
R13-SS-06-01	Pesticides PCBs VOCs SemiVOCs	G	A	0.5	Within the protective fence; along the east run; directly west of R13-SS-05.
R13-SS-07-01	Pesticides PCBs VOCs SemiVOCs	G	A	0.5	Within the protective fence; along the west run; directly west of R13-SS-06.
R13-SS-08-01	Pesticides PCBs VOCs SemiVOCs	G	A	0.5	Outside of the protective fence; along the west run; directly west of the center of the pit.

C = Composit S = Screening Sample G = Grab A = Analytical Sample N/A = Not Applicable

Table R13 (Continued)

RI Sample Number	Analyses	Sample Type	Sample Category	Depth (feet)	Location
R13-SS-09-01	Pesticides PCBs VOCs SemiVOCs	N/A	N/A	N/A	Outside of the protective fence; along the east run; directly east of the center of the pit. Sampling point eliminated due to close proximity of R13-SS-008.
R13-SS-10-01	Pesticides PCBs VOCs SemiVOCs	N/A	N/A	N/A	Outside the protective fence; in the southeast corner. Sampling point eliminated due to close proximity of R13-SS-08 and R13-SS-11.
R13-SS-11-01	Pesticides PCBs VOCs SemiVOCs	G	A	0.5	Outside the protective fence; along the south run; directly south of the center of the pit.
R13-SS-12-01	Pesticides PCBs VOCs SemiVOCs	G	A	0.5	Outside the protective fence; in the southwest corner.
R13-SS-13-01	Pesticides PCBs VOCs SemiVOCs	N/A	N/A	N/A	Background Sample in farm field; 20 feet S.W. of piezometer PZ-05. Sampling point eliminated due to relative locations with R13-SS-14.
R13-SS-14-01	Pesticidess PCBs VOCs SemiVOCs	G	A	0.5	Background sample in farm field; 30 feet S.W. of piezometer PZ-23.
R13-SA-15-01	Pesticides PCBs VOCs SemiVOCs	G	A	0.5	Five feet north of the center of the pit.
R13-SA-15-02	Pesticides PCBs VOCs SemiVOCs	G	A	5.0	Five feet north of the center of the pit.
R13-SA-15-03	Pesticides PCBs VOCs SemiVOCs	N/A	N/A	N/A	Refusal.

C = Composit S = Screening Sample G = Grab A = Analytical Sample N/A = Not Applicable

Table R13 (Continued)

RI Sample Number	Analyses	Sample Type	Sample Category	Depth (feet)	Location
R15-SA-16-01	Pesticidess PCBs VOCs SemiVOCs	N/A	N/A	N/A	Five feet east of the center of the pit. Sample point R13-SA-16 eliminated due to overlapping sampling points.
R13-SS-16-02	Pesticides PCBs VOCs SemiVOCs	N/A	N/A	N/A	Five feet east of the center of the pit. Sample point R13-SA-16 eliminated due to overlapping sampling points.
R13-SA-16-03	Pesticides PCBs VOCs SemiVOCs	N/A	N/A	N/A	Five feet east of the center of the pit. Sample point R13-SA-16 eliminated due to overlapping sampling points.
R13-SA-17-01	Pesticides PCBs VOCs SemiVOCs	G	A	0.5	Five feet south of the center of the pit.
R13-SA-17-02	Pesticides PCBs VOCs SemiVOCs	G	A	1.5	Five feet south of the center of the pit.
R13-SA-17-03	Pesticides PCBs VOCs SemiVOCs	N/A	N/A	N/A	Sample was not collected.
R13-SA-18-01	Pesticides PCBs VOCs SemiVOCs	N/A	N/A	N/A	Five feet west of the center of the pit, sampling point R13-SA-18 eliminated due to overlapping sampling points.
R13-SA-18-02	Pesticides PCBs VOCs SemiVOCs	N/A	N/A	N/A	Five feet west of the center of the pit, sampling point R13-SA-18 eliminated due to overlapping sampling points.
R13-SA-18-03	Pesticides PCBs VOCs SemiVOCs	N/A	N/A	N/A	Five feet west of the center of the pit, sampling point R13-SA-18 eliminated due to overlapping sampling points.

C = Composit S = Screening Sample G = Grab A = Analytical Sample N/A = Not Applicable

Table R13 (Continued)

RI Sample Number	Analyses	Sample Type	Sample Category	Depth (feet)	Location
R13-SA-19-01	Pesticides PCBs VOCs SemiVOCs	G	A	0.5	Background sample in farm field southwest of pit.
R13-SA-19-02	Pesticides PCBs VOCs SemiVOCs	G	A	5.0	Background sample in farm field southwest of pit.
R13-SA-20-01	Metals	G	A	0.5	Metals confirmation for R13-004-M-02.
R13-SA-21-01	Metals	G	A	1.0	Metals confirmation for R13-005-M-02.
R13-PZ-20-01	Pesticides PCBs VOCs SemiVOCs Metals	N/A	N/A	-	Temporary piezometer PZ-20 located in pesticide pit perimeter fence eliminated due to restricted access, temporary piezometer PZ-21 relocated to 13 feet from pit, 2 feet outside of perimeter fence.
R13-PZ-21-01	Pesticides PCBs VOCs Metals	G	A	13.4	Groundwater sample collected from temporary piezometer PZ-21, located 13 feet from northwest corner of school house.
R13-PZ-22-01	Pesticides PCBs VOCs SemiVOCs Metals	G	A	2.9	Groundwater sample collected from temporary piezometer PZ-22, located 23 feet south of the school house and pesticide pit.
R13-PZ-23-01	Pesticides PCBs VOCs SemiVOCs Metals	G	A	7.6	Groundwater sample collected from temporary piezometer PZ-23, 45 feet south southwest of the pesticide pit.
R13-PZ-24-01	Pesticides PCBs VOCs SemiVOCs Metals	G	A	14.7	Groundwater sample collected from temporary piezometer PZ-24 in farm field; 35 feet north northeast from the pesticide pit perimeter fence.

C = Composit S = Screening Sample G = Grab A = Analytical Sample N/A = Not Applicable

PHASE I RI RESULTS ABOVE EVALUATION CRITERIA

IAAP - Environmental Sample Results

R13- Results Above Evaluation Criteria
(ARAR's, or MAX BKGD, or COD)

SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	RESULT VALUE	BOOL METHOD	EVALUATION CRITERIA	UNITS	DATE
R13	R13-SA-03	R13SA0301	5.0	SO	PEST-PCB	2,2-BIS(P-CHLOROPHENYL)-1,1-DI	0.214	=LH10	0.02	UGG	11/20/19
						2,2-BIS(P-CHOLROPHENYL)-1,1-DI	0.011	=LH10	0.0041	UGG	11/20/19
						ENDRIN	0.027	=LH10	0.0033	UGG	11/20/19
						HEPTACHLOR	0.005	=LH10	0.0031	UGG	11/20/19
		R13SA0301	5.0	SO	VOA	1,1,1-TRICHLOROETHANE	0.003	=LM19	0.0022	UGG	11/20/19
	R13-SS-03	R13SS0301	0.5	SO	PEST-PCB	2,2-BIS(P-CHLOROPHENYL)-1,1-DI	0.037	=LH10	0.02	UGG	11/07/19
						2,2-BIS(P-CHLOROPHENYL)-1,1-TR	0.053	=LH10	0.029	UGG	11/07/19
						2,2-BIS(P-CHOLROPHENYL)-1,1-DI	0.009	=LH10	0.0041	UGG	11/07/19
		R13SS0301	0.5	SO	SVOA	FLUORANTHENE	0.2	=LM18	0.034	UGG	11/07/19
						PHENANTHRENE	0.18	=LM18	0.0165	UGG	11/07/19
						PYRENE	0.15	=LM18	0.0165	UGG	11/07/19
	R13-SS-04	R13SS0401	0.5	SO	PEST-PCB	2,2-BIS(P-CHLOROPHENYL)-1,1-DI	1.08	=LH10	0.02	UGG	11/07/19
						2,2-BIS(P-CHLOROPHENYL)-1,1-TR	2.49	=LH10	0.029	UGG	11/07/19
						2,2-BIS(P-CHOLROPHENYL)-1,1-DI	0.227	=LH10	0.0041	UGG	11/07/19
						HEPTACHLOR	0.007	=LH10	0.0031	UGG	11/07/19
	R13-SS-05	R13SS0501	0.5	SO	PEST-PCB	2,2-BIS(P-CHLOROPHENYL)-1,1-DI	1.97	=LH10	0.02	UGG	11/07/19
						2,2-BIS(P-CHLOROPHENYL)-1,1-TR	6.45	=LH10	0.029	UGG	11/07/19
						HEPTACHLOR	0.01	=LH10	0.0031	UGG	11/07/19
	R13-SS-08	R13SS0801	0.5	SO	PEST-PCB	2,2-BIS(P-CHLOROPHENYL)-1,1-DI	0.032	=LH10	0.02	UGG	11/07/19
						2,2-BIS(P-CHLOROPHENYL)-1,1-TR	0.091	=LH10	0.029	UGG	11/07/19
	R13-SA-15	R13SA1501	0.5	SO	PEST-PCB	2,2-BIS(P-CHLOROPHENYL)-1,1-DI	0.022	=LH10	0.02	UGG	11/20/19
		R13SA1502	5.0	SO	PEST-PCB	2,2-BIS(P-CHLOROPHENYL)-1,1-DI	0.021	=LH10	0.02	UGG	11/20/19
	R13-SA-17	R13SA1701	0.5	SO	PEST-PCB	2,2-BIS(P-CHLOROPHENYL)-1,1-DI	0.07	=LH10	0.02	UGG	11/20/19
						2,2-BIS(P-CHLOROPHENYL)-1,1-TR	0.118	=LH10	0.029	UGG	11/20/19
		R13SA1701	0.5	SO	VOA	ACETONE	0.056	=LM19	0.0085	UGG	11/20/19
		R13SA1702	1.5	SO	PEST-PCB	2,2-BIS(P-CHLOROPHENYL)-1,1-DI	20,500.0	=LH10	0.02	UGG	11/20/19
						2,2-BIS(P-CHLOROPHENYL)-1,1-TR	78.2	=LH10	0.029	UGG	11/20/19
						2,2-BIS(P-CHOLROPHENYL)-1,1-DI	1,220.0	=LH10	0.0041	UGG	11/20/19
						ENDRIN	1,390.0	=LH10	0.0033	UGG	11/20/19
						HEPTACHLOR	283.0	=LH10	0.0031	UGG	11/20/19
		R13SA1702	1.5	SO	SVOA	1,4-DICHLOROBENZENE	11.0	=LM18	0.049	UGG	11/20/19
						2-METHYLNAPHTHALENE	190.0	=LM18	0.0245	UGG	11/20/19
						DIBENZOFURAN	31.0	=LM18	0.0175	UGG	11/20/19
						NAPHTHALENE	19.0	=LM18	0.0185	UGG	11/20/19
						PHENANTHRENE	12.0	=LM18	0.0165	UGG	11/20/19
		R13SA1702	1.5	SO	VOA	XYLENES	0.49	=LM19	0.0008	UGG	11/20/19
	R13-SA-20	R13SA2001	1.0	SO	MET	ANTIMONY	12.6	=JS16	3.57	UGG	11/07/19
						CALCIUM	240,000.0	=JS16	64,000.0	UGG	11/07/19
						MAGNESIUM	12,800.0	=JS16	6,260.0	UGG	11/07/19
	R13-SA-21	R13SA2101	1.0	SO	MET	ANTIMONY	25.1	=JS16	3.57	UGG	11/07/19
						BARIUM	482.0	=JS16	363.0	UGG	11/07/19
						CADMIUM	4.16	=JS16	0.899	UGG	11/07/19
						CHROMIUM	62.8	=JS16	48.0	UGG	11/07/19
						COPPER	564.0	=JS16	30.9	UGG	11/07/19
						MERCURY	0.241	=JB01	0.155	UGG	11/07/19
						SILVER	6.4	=JS16	0.294	UGG	11/07/19
						SODIUM	371.0	=JS16	327.0	UGG	11/07/19

METALS AND EXPLOSIVES SCREENING DATA

IAAP Metals Screening Data

R13- Results Above Maximum Background Evaluation Criteria

SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	RESULT VALUE	BOOL METHOD	DETECTION LIMIT	UNITS	DATE
R13	R13-0001	R13-0001M-01	0.5	SO	RIMET	COPPER	22.96	Check	5.13	MGK	11/07/1
						MERCURY	0.04	Check	0.11	MGK	11/07/1
		R13-0001M-02	1.0	SO	RIMET	CADMIUM	2.16	HOT	0.5	MGK	11/07/1
	R13-0002	R13-0002M-01	0.5	SO	RIMET	COPPER	26.3	Check	3.21	MGK	11/07/1
		R13-0002M-02	1.0	SO	RIMET	ANTIMONY	2.4	Check	0.69	MGK	11/07/1
						SELENIUM	0.26	Check	0.35	MGK	11/07/1
	R13-0003	R13-0003M-01	0.5	SO	RIMET	CADMIUM	0.52	Check	0.49	MGK	11/07/1
						MERCURY	0.11	Check	0.05	MGK	11/07/1
		R13-0003M-02	1.0	SO	RIMET	ANTIMONY	2.12	Check	0.68	MGK	11/07/1
						CADMIUM	0.17	Check	0.47	MGK	11/07/1
						MERCURY	0.15	Check	0.05	MGK	11/07/1
	R13-0004	R13-0004M-01	0.5	SO	RIMET	ANTIMONY	2.75	Check	0.64	MGK	11/07/1
						COPPER	25.54	Check	5.79	MGK	11/07/1
						LEAD	307.02	HOT	6.2	MGK	11/07/1
						NICKEL	52.61	Check	9.25	MGK	11/07/1
						SELENIUM	0.57	Check	0.77	MGK	11/07/1
						ZINC	342.64	HOT	8.0	MGK	11/07/1
		R13-0004M-02	1.0	SO	RIMET	LEAD	147.24	HOT	4.58	MGK	11/07/1
						ZINC	169.99	HOT	6.0	MGK	11/07/1
	R13-0005	R13-0005M-01	0.5	SO	RIMET	ANTIMONY	1.19	Check	1.33	MGK	11/07/1
						CALCIUM	201,807.34	HOT	1,232.96	MGK	11/07/1
						CHROMIUM	20.62	Check	14.19	MGK	11/07/1
		R13-0005M-02	1.0	SO	RIMET	CADMIUM	3.64	HOT	1.0	MGK	11/07/1
						CALCIUM	206,869.7	HOT	1,248.37	MGK	11/07/1
						COPPER	15.08	Check	8.4	MGK	11/07/1
						MANGANESE	3,042.2	HOT	84.61	MGK	11/07/1
						SILVER	0.1	Check	0.61	MGK	11/07/1
	R13-0006	R13-0006M-01	0.5	SO	RIMET	COPPER	24.46	Check	4.95	MGK	11/07/1
						SELENIUM	0.5	Check	0.63	MGK	11/07/1
		R13-0006M-02	1.0	SO	RIMET	CADMIUM	0.44	Check	0.57	MGK	11/07/19
						CHROMIUM	31.62	Check	7.18	MGK	11/07/19
						COPPER	26.25	Check	4.81	MGK	11/07/19
						MERCURY	0.11	Check	0.1	MGK	11/07/19
						SELENIUM	0.45	Check	0.62	MGK	11/07/19
						SILVER	0.22	Check	0.32	MGK	11/07/19
						ZINC	855.31	HOT	11.2	MGK	11/07/19
	R13-0007	R13-0007M-01	0.5	SO	RIMET	CADMIUM	0.78	Check	0.52	MGK	11/07/19
						MERCURY	0.0	Check	0.09	MGK	11/07/19
						SILVER	0.11	Check	0.29	MGK	11/07/19
		R13-0007M-02	1.0	SO	RIMET	ANTIMONY	5.12	HOT	0.59	MGK	11/07/19
						CADMIUM	0.14	Check	0.5	MGK	11/07/19
						MERCURY	0.02	Check	0.09	MGK	11/07/19
						SELENIUM	0.28	Check	0.55	MGK	11/07/19
						SILVER	0.18	Check	0.27	MGK	11/07/19
	R13-0008	R13-0008M-01	0.5	SO	RIMET	CADMIUM	0.63	Check	0.54	MGK	11/07/19
						COPPER	24.27	Check	4.74	MGK	11/07/19
						LEAD	84.2	HOT	3.67	MGK	11/07/19
						SELENIUM	0.23	Check	0.59	MGK	11/07/19
		R13-0008M-02	1.0	SO	RIMET	CADMIUM	0.48	Check	0.54	MGK	11/07/19
						LEAD	48.88	Check	3.33	MGK	11/07/19
						SELENIUM	1.99	HOT	0.55	MGK	11/07/19

IAAP Metals Screening Data

R13- Results Above Maximum Background Evaluation Criteria

SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	RESULT VALUE	BOOL METHOD	DETECTION LIMIT	UNITS	DATE
	R13-0009	R13-0009M-01	0.5	SO	RIMET	ANTIMONY	2.36	Check	0.88	MGK	11/07/
						CALCIUM	68,852.21	HOT	758.22	MGK	11/07/
						COPPER	26.09	Check	6.16	MGK	11/07/
						MERCURY	0.53	HOT	0.12	MGK	11/07/
						SELENIUM	0.57	Check	0.74	MGK	11/07/
						ZINC	264.42	HOT	8.39	MGK	11/07/
		R13-0009M-02	1.0	SO	RIMET	ANTIMONY	1.72	Check	0.88	MGK	11/07/
						CHROMIUM	39.74	Check	7.59	MGK	11/07/
	R13-0010	R13-0010M-01	0.5	SO	RIMET	ANTIMONY	1.77	Check	0.86	MGK	11/07/
						CADMIUM	0.52	Check	0.72	MGK	11/07/
						CALCIUM	78,862.24	HOT	810.67	MGK	11/07/
						COPPER	22.76	Check	5.97	MGK	11/07/
						SILVER	1.33	HOT	0.37	MGK	11/07/
		R13-0010M-02	1.0	SO	RIMET	CHROMIUM	32.82	Check	9.27	MGK	11/07/
						COPPER	30.16	Check	6.44	MGK	11/07/
						SELENIUM	0.56	Check	0.82	MGK	11/07/
	R13-0011	R13-0011M-01	0.5	SO	RIMET	CADMIUM	0.28	Check	0.87	MGK	11/07/
						CALCIUM	135,163.61	HOT	1,026.23	MGK	11/07/
						COPPER	15.92	Check	6.96	MGK	11/07/
						MERCURY	0.12	Check	0.15	MGK	11/07/
		R13-0011M-02	1.0	SO	RIMET	ANTIMONY	2.33	Check	0.81	MGK	11/07/
						NICKEL	67.16	Check	13.12	MGK	11/07/
						SILVER	1.21	HOT	0.36	MGK	11/07/

ENVIRONMENTAL SAMPLE RESULTS FOR NON-PRIMARY METHODS

IAAP - Environmental Sample Results for Non-Primary Methods

R13- Results Above Evaluation Criteria
(ARAR's, or MAX BKGD, or COD)

SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	RESULT VALUE	BOOL METHOD	EVALUATION CRITERIA	UNITS	DATE
R13	R13-SS-01	R13SS0101N	0.5	SO	PEST-PCB	2,4,5-TRICHLOROPHENOXYACETIC	0.069	=EC	0.006	UGG	11/07/1992
	R13-SA-03	R13SA0301N	5.0	SO	PEST-PCB	2,4,5-TRICHLOROPHENOXYACETIC	0.189	=EC	0.006	UGG	11/20/1992
						ALPHA-CHLORDANE	0.014	=LH10	0.005	UGG	11/20/1992
						GAMMA-CHLORDANE	0.008	=LH10	0.005	UGG	11/20/1992
	R13-SS-03	R13SS0301N	0.5	SO	PEST-PCB	ALPHA-CHLORDANE	0.006	=LH10	0.005	UGG	11/07/1992
						GAMMA-CHLORDANE	0.006	=LH10	0.005	UGG	11/07/1992
	R13-SS-04	R13SS0401N	0.5	SO	PEST-PCB	ALPHA-CHLORDANE	0.253	=LH10	0.005	UGG	11/07/1992
						GAMMA-CHLORDANE	0.299	=LH10	0.005	UGG	11/07/1992
	R13-SS-05	R13SS0501N	0.5	SO	PEST-PCB	ALPHA-CHLORDANE	0.455	=LH10	0.005	UGG	11/07/1992
						GAMMA-CHLORDANE	0.512	=LH10	0.005	UGG	11/07/1992
	R13-SA-15	R13SA1502N	5.0	SO	PEST-PCB	2,4,5-TRICHLOROPHENOXYACETIC	0.012	=EC	0.006	UGG	11/20/1992
	R13-SA-17	R13SA1701N	0.5	SO	PEST-PCB	2,4,5-TRICHLOROPHENOXYACETIC	0.024	=EC	0.006	UGG	11/20/1992
		R13SA1702N	1.5	SO	PEST-PCB	2,4,5-TRICHLOROPHENOXYACETIC	6,970.0	=EC	0.006	UGG	11/20/1992
						2,4-DICHLOROPHENOXYACETIC ACID	31.9	=LH11	0.0089	UGG	11/20/1992
						4,4'-DDD	600.0	=LM18	0.27	UGG	11/20/1992
						4,4'-DDE	1,900.0	=LM18	0.02	UGG	11/20/1992
						HEPTACHLOR	57.0	=LM18	0.13	UGG	11/20/1992
	R13-PZ-21	R13PZ2101N	13.4	GW	PEST-PCB	2,4-DICHLOROPHENOXYACETIC ACID	1.24	=UH14	0.401	UGL	12/14/1992
	R13-SA-21	R13SA2101N	1.0	SO	MET	LEAD	742.0	=JS16	53.0	UGG	11/07/1992

APPENDIX B

Remedial Investigation Report Section for R13 Site

5.13 PESTICIDE PIT (R13)

5.13.1 Site Background

5.13.1.1 Site Description

5.13.1.1.1 Site Features and Operational History

The Pesticide Pit (R13) is situated in the central portion of IAAP, north of Yard O and 25 feet west of the Winnebago School House (Building 500-30-6). The pit is an 8-foot square, 2 to 3-foot deep plywood structure lined with a polyester resin geomembrane (hypalon), lined with limestone.

The Pesticide Pit was used for disposal of small amounts of pesticides and herbicides from 1968 to 1974. Rinsate from empty pesticide containers and sprayers was poured into the pit. Expendable containers were crushed and placed in the sanitary landfill. The pit was capped with clay sometime during the late 1970s to early 1980s. The pit once was covered by an open-sided canopy, though this structure was razed when the pit was filled and capped. The pit area is presently enclosed with a security fence to restrict access and the site surface is covered with vegetation, including trees.

5.13.1.1.2 Topography and Surface Water

R13 is located in the dissected till plain section of the Central Lowland Province of the Southern Iowa Drift Plain Region. This area of southeast Iowa experienced continental glaciation. Areas of continental glaciation exhibit broad, flat to gentle undulating terrain. The site is situated on an upland terrace surrounded by agricultural fields. Surface water from R13 flows in a northeast direction to an intermittent stream which, in turn, flows approximately one-half mile east to Brush Creek (USGS 1981 and 1964).

The location and topography of R13 is depicted on the USGS West Burlington Quadrangle Map (Figure 1). Site features and surface drainage are shown on a reproduction of aerial photographic analysis conducted at R13 by EMSL for USEPA Region 7, February 1984 (Appendix D). The specific location of the pit boundaries are depicted on the site map.

5.13.1.1.3 Geology

The site is immediately underlain by fill material consisting of miscellaneous debris and silty clay. Wind-blown non-stratified silts and clays (loess) are located beneath the fill material. Underlying the loess is the Kellersville Till member of the Glasford Formation, a glacial till consisting of clay and silt with discontinuous sand and gravel seams. The Kellersville Till is subdivided into a superglaciated and a subglaciated (or basal till) facies based on stratigraphic relations, sedimentological properties, and the consistency-density-consolidation properties of the deposits (Iowa Geologic Survey, May 1990).

The supergalcial facies is composed of a wide variety of sediments and is highly variable in texture and density. The sediments in the superglacial facies include reworked till, sorted fluvial and lacustrine sediments, and peat beds. In some sections these deposits are clearly interbedded, but in others they occur as a contorted melange of sediments.

The subglacial facies is composed of firm, dense, overconsolidated till of rather uniform texture.

The uppermost bedrock unit is associated with the Osage Series of southeastern Iowa, which is composed dominantly of cherty carbonate rocks interstratified with minor amounts of shale. The Osage Series is divided into three members consisting of the Warsaw Formation, Keokuk Limestone, and Burlington Limestone. The Warsaw Formation is divided into upper and lower members from lithologic and faunal evidence and the dominance of geodes in the lower beds. The two members are very similar, consisting primarily of blue-gray calcareous shales and fragmental, fossilferous, dolomitic limestone. In southeast Iowa, the Warsaw Formation averages 50 feet in thickness (S.E. Harris and M. Parker, 1964).

Underlying the Warsaw Formation is the Keokuk Limestone. The upper part of the Keokuk is similar to the Warsaw Formation which is typified by light gray calcarenites and fragmented fossilferous dolomitic limestone. The fine grained matrix is mostly pure calcium carbonate with gray argillaceous material. The boundary between the units is arbitrarily placed for uniformity at the top of the gray calcarenites. In the subsurface of the southeastern district, the thickness of the Keokuk (where overlain by the Warsaw Formation) averages 75 feet (S.E. Harris and M. Parker, 1964).

The Burlington Limestone underlies the Keokuk Limestone and is divided into three members. The Dolbee Creek Member at the base and the Cedar Fork Member at the top are mainly recrystallized crinoidal bioclastic limestone. The third member is Haight Creek Member. Glauconite at the base of the Haight Creek Member and disseminated in Cedar Fork is a persistent horizon marker.

5.13.1.1.4 Hydrogeology

The generalized groundwater flow at the IAAP is to the south and southeast. The drift aquifer consists of shallow, relatively confined sandy silt/silty sand deposits in the glacial till deposits. The direction of groundwater flow in the drift aquifer is topographically controlled and is generally convergent toward drainage areas from the uplands.

A near-surface groundwater flow exists in the drift aquifer due to the presence of relatively permeable loess over the less permeable till units. Typically, groundwater moves horizontally in the sandy silt/silty sand zones due to the higher hydraulic conductivity and vertically in the glacial tills. In addition, the steep hydraulic gradients to local discharge zones contribute to the horizontal flow in the shallow drift aquifer. At the Pesticide Pit site, shallow groundwater flow is north/northeast towards a tributary of Brush Creek.

5.13.1.2 Previous Investigations

R13 has been the focus of numerous sampling episodes, notably an AEHA Entomological Study conducted in 1973. During this study, boreholes were emplaced directly north of the pit (BH1); in the southeast corner of the fenced area (BH4); 35 feet south/southeast of the pit (BH3); and 40 feet south/southwest of the pit (BH2). BH5 was placed 250 feet northwest of the site, across Plant Road I to serve as background. Soil and water

samples collected from the boreholes were reported to contain low levels of pesticides, however, surface soil samples indicated some contamination.

A surface soil sample collected from outside the fence contained 4-4'-DDE at 3.47 µg/g and 4,4'-DDT at 3.43 µg/g. This study concluded that no substantive contamination, if any, was emanating from the pit. Furthermore, the associated soil study showed that the significant clay content of the parent soil (24 to 35 percent with a low permeability of 1.9 x 10^{-8} cm/s) would prevent any downgradient migration, even if a release from the pit had occurred. AEHA did recommend, however, that any disposal at the pit be ceased, and the pit capped with clay. The pit was subsequently capped.

Soil samples were collected during a RCRA Facility Assessment (RFA) conducted in 1987. The compounds 4,4'-DDT and 4,4'-DDE were detected in soil samples downslope of the pit, but also were reported in samples collected upgradient from the site. The RFA sampling occurred 15 years after site operation ceased. The residual pesticides identified in the soils were most likely the result of pesticide use in agricultural fields surrounding the site.

Dames & Moore conducted groundwater sampling near the pesticide pit from September 24 to October 13, 1985. Well G-16 was sampled; G-16 is located approximately 400 feet west, upgradient, of IAAP-17. Only chloroform was found above criteria in well G-16 (5.57 µg/L).

5.13.2 Site Characterization

A PA performed by JAYCOR in 1991 included the Pesticide Pit. A work plan was prepared in June 1991 that detailed an SI which provided for limited sampling to verify conclusions from previous investigations. The SI was initiated in August 1991.

The SI at the Pesticide Pit consisted of collecting one confirmatory sample to verify previous studies. The sample was a composite of four aliquots collected at each corner of the 8 X 8 foot pit, and at a depth of 24-40 inches, adjacent to the bottom of the pit (2-3 feet below ground surface).

DDT was reported in this sample at a level of 0.0007 µg/g. Though the presence of pesticides at this concentration are commonly found near agricultural fields and is a documented state-wide rural well water issue, EPA requested additional Phase I RI sampling to characterize soil at depth, and determine whether there was a groundwater issue associated with R13.

The focus of the RI sampling effort was to determine if pesticides contamination existed at R13, and the extent if applicable. RI activities initiated at R13 included soil screening for metals and environmental sampling. Field activities commenced 5 July 1992 and were completed 23 November 1992. An intermediate study consisting of groundwater sampling from the piezometers was conducted in an effort to determine if further groundwater investigation was necessary. The piezometer sampling was conducted 12 through 19 December 1992.

The following sections detail the results of the RI activities. A site map depicting all sampling locations is provided as Figure 2. All results above data evaluation protocols and all results above detection limits may be found following Table 3.

5.13.2.1 Soils and Vadose Zone

5.13.2.1.1 Sources and Contaminants of Concern

Phase I RI activated focused on extent of contamination in the soil and shallow groundwater. The soil was characterized by collecting and analyzing soil screening samples for metals and environmental samples for pesticides, PCBs, herbicides, VOCs, and SVOCs. Four piezometers were installed around the Pesticide Pit to characterize the groundwater at R13.

Twenty-two metals screening samples were collected at 11 sample points from depths of 0.5 and 1.0 feet bgs. No significant metals contamination was indicated by this effort. Five samples had levels of metals above data evaluation protocols. The sample identification number includes the sample location and depth. A sample collected at 0.5 feet is designated with -01 and a sample collected at 1.0 feet is designated with -02. The locations and metals detected above data evaluation protocols include: R13-004-01 (lead 307.02 µg/g), R13-005-02 (cadmium 3.64 µg/g), R13-006-02 (zinc 855.31 µg/g), R13-007-02 (antimony 5.12 µg/g), and R13-010-02 (antimony 3.83 µg/g). The sample locations with elevated levels were located approximately 15 feet from the Pesticide Pit. Only one sample, R13-004-01 was at a depth of 0.5 feet bgs. The analytical results did not indicate pervasive, widespread metals contamination.

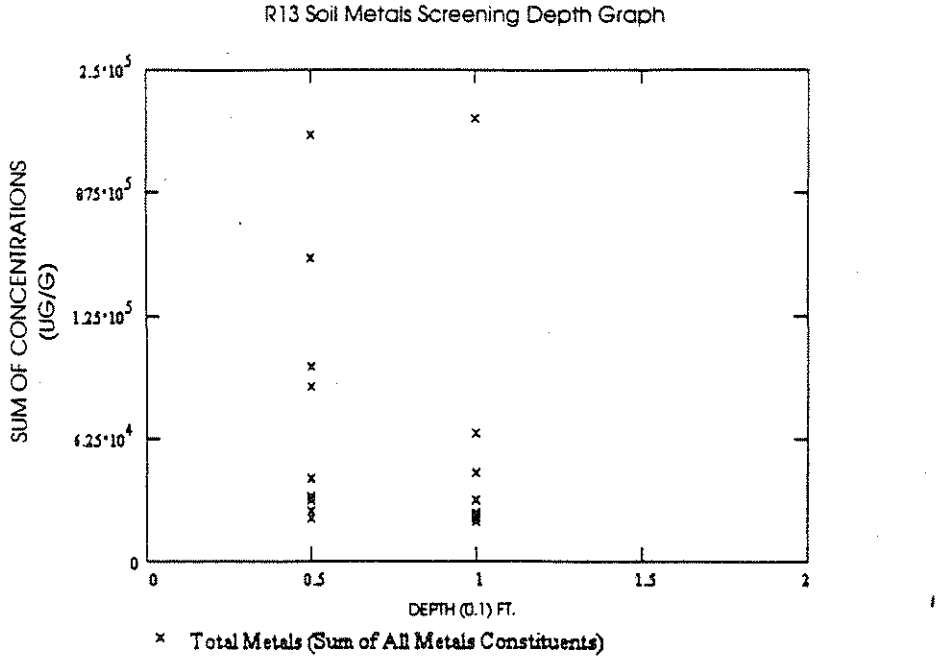
Eighteen environmental soil samples were collected from depths of 0.5 to 5.0 feet and analyzed for pesticides, PCBs, herbicides, VOCs, and SVOCs. Thirteen of 18 samples contained contaminants above data evaluation protocols. Table 1 provides the contaminant and sample location for the results above data evaluation criteria. The most prevalent contamination is 4,4'-DDE and 4,4'-DDT, ranging from 0.013 to 20,500 µg/g. These chemicals were detected in twelve of the samples.

Table 1
Phase I Groundwater Sampling at the Pesticide Pit

Parameter (µg/L)	Data Evaluation Protocols (µg/L)	Criteria BCK, MCL, or COD	Sample Location (feet)												
			R13-SA-03 (5.0)	R13-SA-15 (0.5)	R13-SA-15 (5.0)	R13-SA-17 (0.5)	R13-SA-17 (1.5)	R13-SS-03 (0.5)	R13-SS-04 (0.5)	R13-SS-05 (0.5)	R13-SS-06 (0.5)	R13-SS-07 (0.5)	R13-SS-08 (0.5)	R13-SS-11 (0.5)	R13-SS-14 (0.4)
4,4'-DDD	0.00413						1220	0.09	0.227						
4,4'-DDE	0.003825			0.022	0.021	0.07	20500	0.037	1.08	1.97	0.013	0.011	0.032	0.004	0.005
4,4'-DDT	0.003535			0.009		0.118	78.2	0.053	2.49	6.45	0.01	0.013	0.091	0.007	0.009
Endrin	0.0012		0.027				1390								
Heptachlor	0.00309		0.005						0.007	0.01					
Alpha-Chlordane	N/A						887.0								
Gamma-Chlordane	N/A						648								
Heptachlor	0.00309						283.0								
1,1,1-Trichloethane	0.0022		0.003												
Acetone	0.0085					0.056									
1,4-Dichlorobenzene	0.049						11.0								
2-Methylnapthalene	0.0245						190.0								
Dibenzofuran	0.0175						31.0								
Naphthalene	0.0165						19.0								
Phenanthrene	0.0165						12.0	0.18							
Xylenes	0.00075						0.49								
Floranthrene	0.034							0.2							
Pyrene	0.0165							0.15							

Note: Values below data evaluation protocols.

Based on the graph depicting concentration versus depth, the level of contaminants is reduced as depth increases.



R13 Soil Metals Screening Data			
Depth	# of Analyses	# of Analyses > Evaluation Protocol	# of Analyses > RF
0.0-0.5	165	22	
1.0-1.5	165	28	
Total	**330**	**50**	

5.13.2.1.2 Nature and Extent of Contamination

The extent of contamination surrounding the Pesticide Pit is limited to the area inside the fence. Samples SA-17-02, collected immediately south of the pit, indicated pesticide are concentrated at 1.5 feet bgs. No pesticide contamination was reported in the sample collected for the 5.5 foot depth interval. The soil at the site is of low permeability and migration is minimal, therefore, the concentrations may be localized.

The pit has not been used, and has been capped for nearly 20 years. No stressed vegetation or other indication of pesticides in soils is evident at the site. The site is covered with healthy, diverse vegetation, including several large trees. The presence of pesticides at 1.5 feet bgs is at the interface between loess and less permeable till. Near surface flow occurs at this interface and it is probable that runoff from the agricultural

fields contributes to pesticides identified at this depth. The Iowa State-Wide Rural Well Water Survey (DNR, 1990) documents pesticide contamination prevalent in shallow soils and groundwater due to agricultural use in Iowa.

5.13.2.2 Surface Water/Sediment

The site has no surface water/sediment features.

5.13.2.3 Groundwater

5.13.2.3.1 Sources and Contaminants of Concern

Four piezometers were installed at depths of 20 feet at locations around the pit to determine whether pesticides had migrated to groundwater in the immediate site vicinity. R13-PZ-21 was emplaced 13 feet from the northwest corner of Winnebago School House (Building 500-30-6). PZ-22 was emplaced 23 feet south of the school house and pit. PZ-23 was emplaced 50 feet northwest of the pit. PZ-24 was placed at the edge of a farm field, 35 feet southwest of the pit. A groundwater sample was collected from each piezometer and analyzed for pesticides, PCBs, metals, VOCs, and SVOCs.

Metals were reported in all piezometer samples at levels above evaluation criteria for groundwater. The following data table summarizes notable metals constituents.

Table 2
Phase I Groundwater Sampling at the Pesticide Pit

Parameter (µg/L)	Data Evaluation Protocols (µg/L)	Criteria BCK, MCL, or COD	Sample Location			
			PZ-21	PZ-22	PZ-23	PZ-29
Aluminum	5830	BCK	27,000	15,400	188,000	700,000
Antimony	38	BCK	48.4		78.9	61.7
Arsenic	3.84	BCK	5.65	5.54		
Barium	2000	MCL				5,770
Beryllium	5	BCK			18.0	63.2
Cadmium	5	MCL				7.22
Calcium	102,000	BCK			906,000	1,280,000
Chromium	100	MCL	692		308	1,010
Cobalt	25	BCK			179	464
Copper	11.1	BCK	27.6	24.3	334	847
Iron	7920	BCK	38,200	33,700	369,000	938,000
Lead	15	MCL	175		72.5	239
Magnesium	29800	BCK	41,700		355,000	511,000
Manganese	408	BCK	582		6980	14,000
Nickel	100	MCL			477	7,140
Potassium	2390	BCK	5070	2,950	29,900	36,400
Vanadium	20	HAL	74.2	45.7	503	1,660
Zinc	19.4	BCK			939	2,450
4-Methylphenol	0.260	COD				8.8

☐ Note: Values below data evaluation protocols

No pesticides, PCBs, herbicides, or VOCs were reported in piezometer samples.

5.13.2.3.2 Nature and Extent of Contamination

Groundwater samples from all four piezometers had elevated levels of metals. The presence of metals may be attributed to naturally occurring soil concentrations. The samples were obtained from piezometers which do not have a mechanism (i.e. sandpack) to screen the sediment from groundwater as it flows into the piezometer. The piezometers that detected the most metals and highest concentrations were PZ-23 and PZ-24. Both of the piezometers were located upgradient of the Pesticide Pit. The groundwater sample from piezometer PZ-24 detected 4-methlyphenol at 8.8 µg/g. No pesticides, PCBs, herbicide, or VOCs were detected in any of the groundwater samples. Since no pesticides or herbicides were detected in the piezometers placed near the Pesticide Pit, it appears the groundwater has not been impacted by the use of the Pesticide Pit.

The metals and SVOC identified in the groundwater are most likely the result of surface water and near-surface groundwater transport of metals from the natural soil conditions and agricultural fields. The upgradient piezometers, PZ-23 and PZ-24, were affected more that the downgradient piezometers. Typically, groundwater migrates vertically in glacial tills, however, the more permeable silty sand/sand silt layer over the dense clay zones causes the groundwater to migrate horizontally. The horizontal migration is directed by surface topography and steep hydraulic gradients. Groundwater in the area of the Pesticide Pit will flow towards the north/northeast towards the tributary of Brush Creek, further indicating the elevated levels in the upgradient piezometers is due to the surrounding agricultural activities.

5.13.3 Deviations from the Work Plan

R13-SS-02 was proposed in the Phase I RI Work Plan to be collected from outside of the protective fence, near the center of the northern edge. This sampling point was eliminated due to close proximity to R13-SS-01 and R13-SS-03.

R13-SS-09 was proposed in the Phase I RI Work Plan to be collected outside of the protective fence, along the east run and directly east of the center of the pit. This sampling point was eliminated due to close proximity to R13-SS-08.

R13-SS-10 was proposed in the Phase I RI Work Plan to be collected outside of the protective fence, in the southeast corner. This sampling point was eliminated due to close proximity to R13-SS-08 and R13-SS-11.

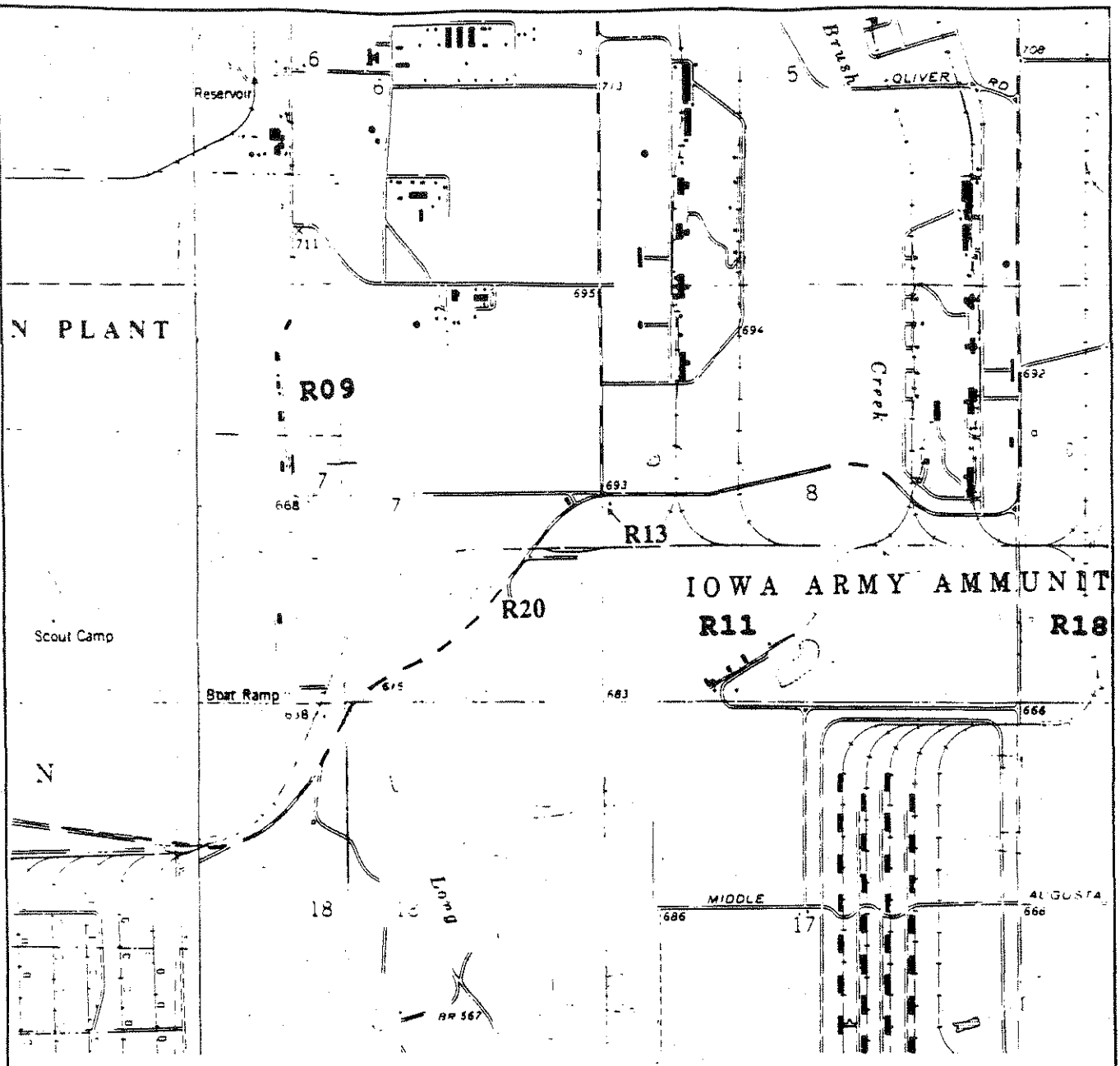
R13-SS-13 was proposed in the Phase I RI Work Plan to be a background sample collected in the farmer's field, south of R13 and 20 feet southwest of piezometer PZ-05. This sampling point was eliminated due to closed proximity with location R13-SS-14.

Sample R13-SA-15-03 was proposed in the Phase I RI Work Plan to be collected at the water table. This sample was eliminated due to auger refusal at 6 feet.

Sample location R13-SS-16 was proposed in the Phase I RI Work Plan to be collected five feet east of the center of the pit. This location was eliminated due to overlapping sampling locations.

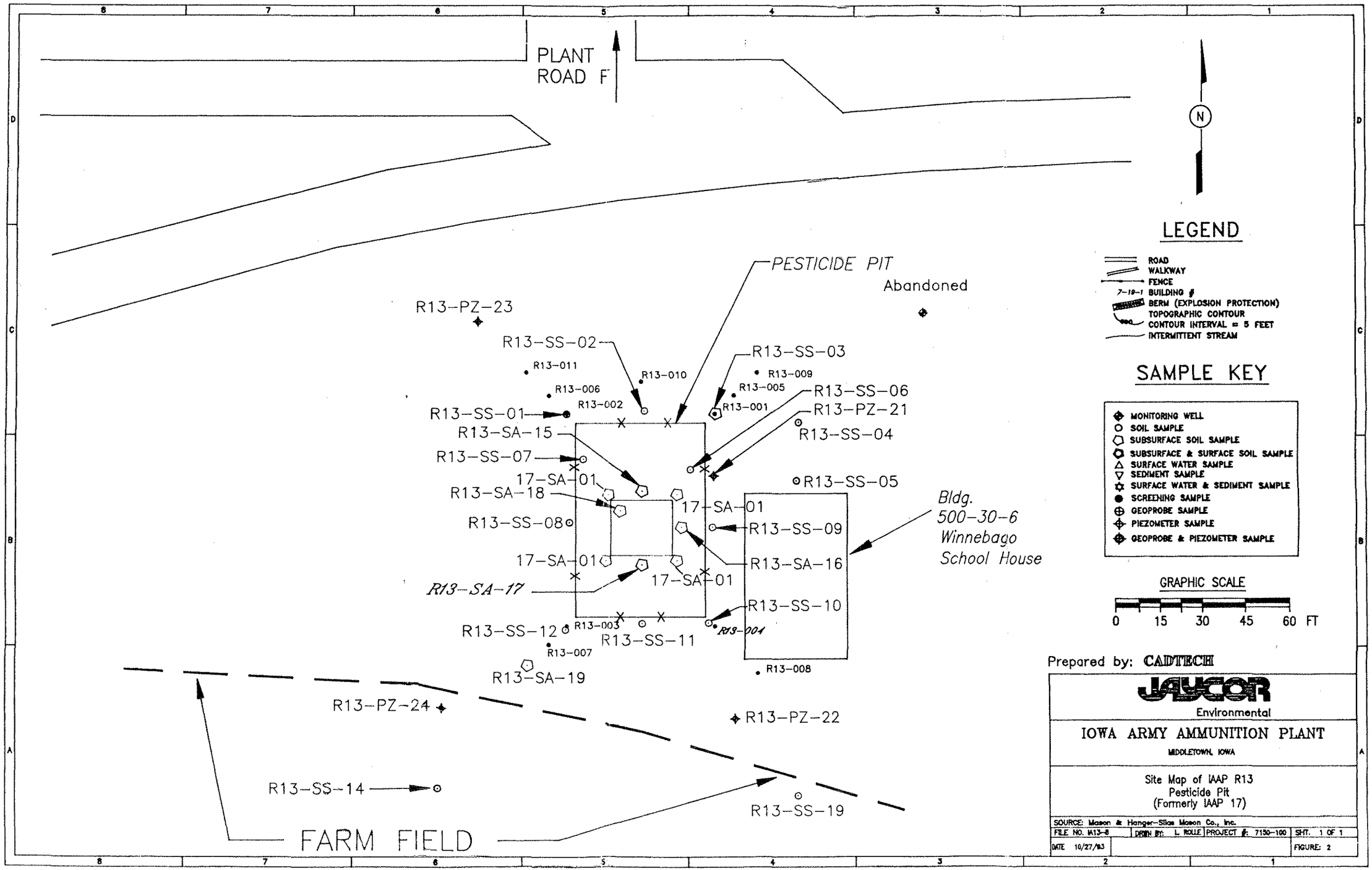
Sample location R13-SS-18 was proposed in the Phase I RI Work Plan to be collected five feet west of the center of the pit. This location was eliminated due to overlapping sampling locations.

R13-PZ-20 was proposed in the Phase I RI Work Plan to be installed in the pesticide pit perimeter fence. This piezometer was eliminated due to restricted access.



JAYCOR *Environmental*

DATE 1964	SCALE 1:24 000	TITLE SITE LOCATION MAP Construction Debris Landfill (R20), Pesticide Pit (R13), Line 800 (R11), Plant STP (R18), Line 8 (R09)	
DRAWN BY U.S.G.S	APPROVED BY B. McG.		
JOB NO. 2659-13	DWG. NO./ REV. NO. 1	CLIENT AEC	FIGURE 1



Prepared by: CADTECH

JAYCOR Environmental

IOWA ARMY AMMUNITION PLANT

MIDDLETOWN, IOWA

Site Map of IAAP R13
Pesticide Pit
(Formerly IAAP 17)

SOURCE: Mason & Hanger-Silas Mason Co., Inc.			
FILE NO. M13-8	DRWN BY: L. ROLLE	PROJECT #: 7150-100	SHT. 1 OF 1
DATE 10/27/83			FIGURE: 2

Table 3
Sample Summary
Pesticide Pit (R13)

RI Sample Number	Phase	Analyses	Sample Type	Sample Category	Depth (feet)	Location
17-SA-01-01	SI	Explosives Metals Pest./PCBs	C	A	3.3	4 aliquots collected at the four corners of the pesticide pit.
R13-SS-01-01	I	Pest./PCBs VOCs SVOCs	G	A	0.5	Outside protective fence; at NW corner.
R13-SS-03-01	I	Pest./PCBs VOCs SVOCs	G	A	0.5	Outside protective fence; at NE corner.
R13-SS-04-01	I	Pest./PCBs VOCs SVOCs	G	A	0.5	Twelve feet north of the front door of the school house.
R13-SS-05-01	I	Pest./PCBs VOCs SVOCs	G	A	0.5	Two feet north of the front door of the school house.
R13-SS-06-01	I	Pest./PCBs VOCs SVOCs	G	A	0.5	Within the protective fence; along the east run; directly west of R13-SS-05.
R13-SS-07-01	I	Pest./PCBs VOCs SVOCs	G	A	0.5	Within the protective fence; along the west run; directly west of R13-SS-06.

C = Composite
II=Phase 2 RI/FS
S = Screening Sample
SI=Site Investigation
G = Grab
NA=Not Applicable
A = Analytical Sample
I=Phase 1 RI/FS

Table 3 (Continued)

RI Sample Number	Phase	Analyses	Sample Type	Sample Category	Depth (feet)	Location
R13-SS-08-01	I	Pest./PCBs VOCs SVOCs	G	A	0.5	Outside of the protective fence; along the west run; directly west of the center of the pit.
R13-SS-11-01	I	Pest./PCBs VOCs SVOCs	G	A	0.5	Outside the protective fence; along the south run; directly south of the center of the pit.
R13-SS-12-01	I	Pest./PCBs VOCs SVOCs	G	A	0.5	Outside the protective fence; in the southwest corner.
R13-SS-14-01	I	Pest./PCBs VOCs SVOCs	G	A	0.5	Background sample in farm field; 30 feet S.W. of piezometer PZ-23.
R13-SA-15-01	I	Pest./PCBs VOCs SVOCs	G	A	0.5	Five feet north of the center of the pit.
R13-SA-15-02	I	Pest./PCBs VOCs SVOCs	G	A	5.0	Five feet north of the center of the pit.
R13-SA-17-01	I	Pest./PCBs VOCs SVOCs	G	A	0.5	Five feet south of the center of the pit.

C = Composite
II=Phase 2 RI/FS

S = Screening Sample
SI=Site Investigation

G = Grab
NA=Not Applicable

A = Analytical Sample

I=Phase 1 RI/FS

Table 3 (Continued)

RI Sample Number	Phase	Analyses	Sample Type	Sample Category	Depth (feet)	Location
R13-SA-17-02	I	Pest./PCBs VOCs SVOCs	G	A	1.5	Five feet south of the center of the pit.
R13-SA-17-03	I	Pest./PCBs VOCs SVOCs	G	A	5.0	Four feet north of the south fence; down the south run.
R13-SA-19-01	I	Pest./PCBs VOCs SVOCs	G	A	0.5	Background sample in farm field southwest of pit.
R13-SA-19-02	I	Pest./PCBs VOCs SVOCs	G	A	5.0	Background sample in farm field southwest of pit.
R13-SA-20-01	I	Metals	G	A	0.5	Metals confirmation for R13-004-M-02.
R13-SA-21-01	I	Metals	G	A	1.0	Metals confirmation for R13-005-M-02.
R13-PZ-21-01	I	Pest./PCBs VOCs Metals	G	A	13.4	Groundwater sample collected from temporary piezometer PZ-21, located 13 feet from northwest corner of school house.
R13-PZ-22-01	I	Pest./PCBs VOCs SVOCs Metals	G	A	2.9	Groundwater sample collected from temporary piezometer PZ-22, located 23 feet south of the school house and pesticide pit.

C = Composite
II=Phase 2 RI/FS

S = Screening Sample
SI=Site Investigation

G = Grab
NA=Not Applicable

A = Analytical Sample

I=Phase 1 RI/FS

Table 3 (Continued)

RI Sample Number	Phase	Analyses	Sample Type	Sample Category	Depth (feet)	Location
R13-PZ-23-01	I	Pest./PCBs VOCs SVOCs Metals	G	A	7.6	Groundwater sample collected from temporary piezometer PZ-23, 45 feet south southwest of the pesticide pit.
R13-PZ-24-01	I	Pest./PCBs VOCs SVOCs	G	A	14.7	Groundwater sample collected from temporary piezometer PZ-24 in farm field; 35 feet north northeast from the pesticide pit perimeter fence.

C = Composite
II=Phase 2 RI/FS

S = Screening Sample
SI=Site Investigation

G = Grab
NA=Not Applicable

A = Analytical Sample

I=Phase 1 RI/FS

IAAP - R13 - All Analytical Results

04/01/94

SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	HIT	RESULT	BOOL/METH	EVALUATION PROTOCOL	CRL	COD	UNITS	SAMPLE DATE
R13	R13-PZ-21	R13PZ2101	13.4	GW	MET	ALUMINUM	HIT	27000.0	=SS10	5830	141.00000	70.50000	UGL	12/14/92
						ANTIMONY	HIT	48.4	=SS10	38	38.00000	19.00000	UGL	12/14/92
						ARSENIC	HIT	5.65	=SD22	3.84	2.54000	1.27000	UGL	12/14/92
						BARIUM		292.0	=SS10	2000	5.00000	2.50000	UGL	12/14/92
						BERYLLIUM		2.7	=SS10	5	5.00000	2.50000	UGL	12/14/92
						CADMIUM		4.01	<SS10	5	4.01000	2.00500	UGL	12/14/92
						CALCIUM		101000.0	=SS10	102000	500.00000	250.00000	UGL	12/14/92
						CHROMIUM	HIT	692.0	=SS10	100	6.02000	3.01000	UGL	12/14/92
						COBALT		25.0	<SS10	25	25.00000	12.50000	UGL	12/14/92
						COPPER	HIT	27.6	=SS10	11.1	8.09000	4.04500	UGL	12/14/92
						IRON	HIT	38200.0	=SS10	7920	38.80000	19.40000	UGL	12/14/92
						LEAD	HIT	17.5	=SD20	15	1.26000	0.63000	UGL	12/14/92
						MAGNESIUM	HIT	41700.0	=SS10	29800	500.00000	250.00000	UGL	12/14/92
						MANGANESE	HIT	582.0	=SS10	408	2.75000	1.37500	UGL	12/14/92
						MERCURY		0.2	<SB01	2	0.24300	0.12150	UGL	12/14/92
						NICKEL		51.3	=SS10	100	34.30000	17.15000	UGL	12/14/92
						POTASSIUM	HIT	5070.0	=SS10	2390	375.00000	187.50000	UGL	12/14/92
						SELENIUM		3.0	<SD21	50	3.02000	1.51000	UGL	12/14/92
						SILVER		4.6	<SS10	100	4.60000	2.30000	UGL	12/14/92
						SODIUM		18200.0	=SS10	29500	500.00000	250.00000	UGL	12/14/92
						THALLIUM		7.0	<SD09	6.99	6.99000	3.49500	UGL	12/14/92
						VANADIUM	HIT	74.2	=SS10	20	11.00000	5.50000	UGL	12/14/92
						ZINC		120.0	=SS10	194	21.10000	10.55000	UGL	12/14/92
					PCB	4,4'-DDD		0.023	<UH13	0.01165	0.02330	0.01165	UGL	12/14/92
						4,4'-DDE		0.027	<UH13	0.0135	0.02700	0.01350	UGL	12/14/92
						4,4'-DDT		0.034	<UH13	0.017	0.03400	0.01700	UGL	12/14/92
						ALDRIN		0.092	<UH13	0.0459	0.09180	0.04590	UGL	12/14/92
						ALPHA-BENZENEHEXACHLORIDE		0.039	<UH13	0.01925	0.03850	0.01925	UGL	12/14/92
						ALPHA-ENDOSULFAN/ENDOSULFAN I		0.023	<UH13	0.0115	0.02300	0.01150	UGL	12/14/92
						BETA-BENZENEHEXACHLORIDE		0.024	<UH13	0.012	0.02400	0.01200	UGL	12/14/92
						BETA-ENDOSULFAN/ENDOSULFAN II		0.023	<UH13	0.0115	0.02300	0.01150	UGL	12/14/92
						DELTA-BENZENEHEXACHLORIDE		0.029	<UH13	0.01465	0.02930	0.01465	UGL	12/14/92
						DIELDRIN		0.024	<UH13	0.012	0.02400	0.01200	UGL	12/14/92
						ENDOSULFAN SULFATE		0.079	<UH13	0.0393	0.07860	0.03930	UGG	12/14/92
						ENDRIN		0.024	<UH13	2	0.02380	0.01190	UGL	12/14/92
						ENDRIN ALDEHYDE		0.029	<UH13	0.01425	0.02850	0.01425	UGL	12/14/92

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SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	HIT	RESULT	BOOL/METH	EVALUATION PROTOCOL	CRL	COD	UNITS	SAMPLE DATE
R13	R13-PZ-21	R13PZ2101	13.4	GW	VOA	XYLENES		0.84	<UM20	10000	0.84000	0.42000	UGL	12/14/92
		R13PZ2101N			PCB	ALPHA-CHLORDANE		0.075	<UH13	0.1325	0.07500	0.03750	UGL	12/14/92
						ENDRIN KETONE		0.029	<UH13	0.0	0.02900	0.01450	UGL	12/14/92
						GAMMA-CHLORDANE		0.075	<UH13	0.0	0.07500	0.03750	UGL	12/14/92
	R13-PZ-22	R13PZ2201	2.9		MET	ALUMINUM	HIT	15400.0	=SS10	5830	141.00000	70.50000	UGL	12/13/92
						ANTIMONY		22.5	=SS10	38	38.00000	19.00000	UGL	12/13/92
						ARSENIC	HIT	5.54	=SD22	3.84	2.54000	1.27000	UGL	12/13/92
						BARIUM		318.0	=SS10	2000	5.00000	2.50000	UGL	12/13/92
						BERYLLIUM		5.0	<SS10	5	5.00000	2.50000	UGL	12/13/92
						CADMIUM		4.01	<SS10	5	4.01000	2.00500	UGL	12/13/92
						CALCIUM		66800.0	=SS10	102000	500.00000	250.00000	UGL	12/13/92
						CHROMIUM		31.7	=SS10	100	6.02000	3.01000	UGL	12/13/92
						COBALT		25.0	<SS10	25	25.00000	12.50000	UGL	12/13/92
						COPPER	HIT	24.3	=SS10	11.1	8.09000	4.04500	UGL	12/13/92
						IRON	HIT	33700.0	=SS10	7920	38.80000	19.40000	UGL	12/13/92
						LEAD		11.3	=SD20	15	1.26000	0.63000	UGL	12/13/92
						MAGNESIUM		23200.0	=SS10	29800	500.00000	250.00000	UGL	12/13/92
						MANGANESE	HIT	1310.0	=SS10	408	2.75000	1.37500	UGL	12/13/92
						MERCURY		0.2	<SB01	2	0.24300	0.12150	UGL	12/13/92
						NICKEL		56.4	=SS10	100	34.30000	17.15000	UGL	12/13/92
						POTASSIUM	HIT	2950.0	=SS10	2390	375.00000	187.50000	UGL	12/13/92
						SELENIUM		3.0	<SD21	50	3.02000	1.51000	UGL	12/13/92
						SILVER		4.6	<SS10	100	4.60000	2.30000	UGL	12/13/92
						SODIUM		19000.0	=SS10	29500	500.00000	250.00000	UGL	12/13/92
						THALLIUM		7.0	<SD09	6.99	6.99000	3.49500	UGL	12/13/92
						VANADIUM	HIT	45.9	=SS10	20	11.00000	5.50000	UGL	12/13/92
						ZINC		76.5	=SS10	194	21.10000	10.55000	UGL	12/13/92
					PCB	4,4'-DDD		0.023	<UH13	0.01165	0.02330	0.01165	UGL	12/13/92
						4,4'-DDE		0.027	<UH13	0.0135	0.02700	0.01350	UGL	12/13/92
						4,4'-DDT		0.034	<UH13	0.017	0.03400	0.01700	UGL	12/13/92
						ALDRIN		0.092	<UH13	0.0459	0.09180	0.04590	UGL	12/13/92
						ALPHA-BENZENEHEXACHLORIDE		0.039	<UH13	0.01925	0.03850	0.01925	UGL	12/13/92
						ALPHA-ENDOSULFAN/ENDOSULFAN I		0.023	<UH13	0.0115	0.02300	0.01150	UGL	12/13/92
						BETA-BENZENEHEXACHLORIDE		0.024	<UH13	0.012	0.02400	0.01200	UGL	12/13/92
						BETA-ENDOSULFAN/ENDOSULFAN II		0.023	<UH13	0.0115	0.02300	0.01150	UGL	12/13/92
						DELTA-BENZENEHEXACHLORIDE		0.029	<UH13	0.01465	0.02930	0.01465	UGL	12/13/92

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R13	R13-PZ-22	R13PZ2201	2.9	GW	SVOA	ACENAPHTHENE		1.7	<UM18	0.850	1.70000	0.85000	UGL	12/13/92
						ACENAPHTHYLENE		0.5	<UM18	0.250	0.50000	0.25000	UGL	12/13/92
						ANTHRACENE		0.5	<UM18	0.25	0.50000	0.25000	UGL	12/13/92
						BENZO(A)ANTHRACENE		1.6	<UM18	0.1	1.60000	0.80000	UGL	12/13/92
						BENZO(A)PYRENE		4.7	<UM18	0.2	4.70000	2.35000	UGL	12/13/92
						BENZO(B)FLUORANTHENE		5.4	<UM18	0.2	5.40000	2.70000	UGL	12/13/92
						BENZO(G,H,I)PERYLENE		6.1	<UM18	3.050	6.10000	3.05000	UGL	12/13/92
						BENZO(K)FLUORANTHENE		0.87	<UM18	0.2	0.87000	0.43500	UGL	12/13/92
						BIS (2-CHLOROETHOXY) METHANE		1.5	<UM18	0.750	1.50000	0.75000	UGL	12/13/92
						BIS (2-CHLOROETHYL) ETHER		1.9	<UM18	300	1.90000	0.95000	UGL	12/13/92
						BIS (2-CHLOROISOPROPYL) ETHER		5.3	<UM18	2.65	5.30000	2.65000	UGL	12/13/92
						BIS (2-ETHYLHEXYL) PHTHALATE		4.8	<UM18	3	4.80000	2.40000	UGL	12/13/92
						BUTYLBENZYL PHTHALATE		3.4	<UM18	100	3.40000	1.70000	UGL	12/13/92
						CHRYSENE		2.4	<UM18	0.2	2.40000	1.20000	UGL	12/13/92
						DI-N-BUTYL PHTHALATE		3.7	<UM18	3	3.70000	1.85000	UGL	12/13/92
						DI-N-OCTYL PHTHALATE		15.0	<UM18	3	15.00000	7.50000	UGL	12/13/92
						DIBENZ(A,H)ANTHRACENE		6.5	<UM18	0.3	6.50000	3.25000	UGL	12/13/92
						DIBENZOFURAN		1.7	<UM18	0.850	1.70000	0.85000	UGL	12/13/92
						DIETHYL PHTHALATE		2.0	<UM18	3	2.00000	1.00000	UGL	12/13/92
						DIMETHYL PHTHALATE		1.5	<UM18	0.750	1.50000	0.75000	UGL	12/13/92
						FLUORANTHENE		3.3	<UM18	1.650	3.30000	1.65000	UGL	12/13/92
						FLUORENE		3.7	<UM18	1.850	3.70000	1.85000	UGL	12/13/92
						HEXACHLOROBENZENE		1.6	<UM18	1	1.60000	0.80000	UGL	12/13/92
						HEXACHLOROBUTADIENE		3.4	<UM18	1	3.40000	1.70000	UGL	12/13/92
						HEXACHLOROCYCLOPENTADIENE		8.6	<UM18	50	8.60000	4.30000	UGL	12/13/92
						HEXACHLOROETHANE		1.5	<UM18	1	1.50000	0.75000	UGL	12/13/92
						INDENO(1,2,3-C,D)PYRENE		8.6	<UM18	0.4	8.60000	4.30000	UGL	12/13/92
						ISOPHORONE		4.8	<UM18	100	4.80000	2.40000	UGL	12/13/92
						N-NITROSODI-N-PROPYLAMINE		4.4	<UM18	2.2	4.40000	2.20000	UGL	12/13/92
						N-NITROSODIPHENYLAMINE		3.0	<UM18	1.5	3.00000	1.50000	UGL	12/13/92
						NAPHTHALENE		0.5	<UM18	20	0.50000	0.25000	UGL	12/13/92
						PENTACHLOROPHENOL		18.0	<UM18	1	18.00000	9.00000	UGL	12/13/92
						PHENANTHRENE		0.5	<UM18	0.250	0.50000	0.25000	UGL	12/13/92
						PHENOL		9.2	<UM18	4	9.20000	4.60000	UGL	12/13/92
						PYRENE		2.8	<UM18	1.400	2.80000	1.40000	UGL	12/13/92
					VOA	1,1,1-TRICHLOROETHANE		0.5	<UM20	200	0.50000	0.25000	UGL	12/13/92

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R13	R13-PZ-22	R13PZ2201N	2.9	GW	PCB	ALPHA-BENZENEHEXACHLORIDE		4.0	<UM18	0.01925	4.00000	2.00000	UGL	12/13/92
						ALPHA-CHLORDANE		0.075	<UH13	0.1325	0.07500	0.03750	UGL	12/13/92
						ALPHA-ENDOSULFAN/ENDOSULFAN I		9.2	<UM18	0.0115	9.20000	4.60000	UGL	12/13/92
						BETA-BENZENEHEXACHLORIDE		4.0	<UM18	0.012	4.00000	2.00000	UGL	12/13/92
						BETA-ENDOSULFAN/ENDOSULFAN II		9.2	<UM18	0.0115	9.20000	4.60000	UGL	12/13/92
						DELTA-BENZENEHEXACHLORIDE		4.0	<UM18	0.01465	4.00000	2.00000	UGL	12/13/92
						DIELDRIN		4.7	<UM18	0.012	4.70000	2.35000	UGL	12/13/92
						ENDOSULFAN SULFATE		9.2	<UM18	0.0393	9.20000	4.60000	UGG	12/13/92
						ENDRIN		7.6	<UM18	2	7.60000	3.80000	UGL	12/13/92
						ENDRIN ALDEHYDE		8.0	<UM18	0.01425	8.00000	4.00000	UGL	12/13/92
						ENDRIN KETONE		0.029	<UH13	0.0	0.02900	0.01450	UGL	12/13/92
						GAMMA-CHLORDANE		0.075	<UH13	0.0	0.07500	0.03750	UGL	12/13/92
						HEPTACHLOR		2.0	<UM18	0.4	2.00000	1.00000	UGL	12/13/92
						HEPTACHLOR EPOXIDE		5.0	<UM18	0.2	5.00000	2.50000	UGL	12/13/92
						LINDANE		4.0	<UM18	0.2	4.00000	2.00000	UGL	12/13/92
						METHOXYCHLOR		5.1	<UM18	40	5.10000	2.55000	UGL	12/13/92
						PCB 1016		21.0	<UM18	0.5	21.00000	10.50000	UGL	12/13/92
						PCB 1221		21.0	<UM18	0.5	21.00000	10.50000	UGL	12/13/92
						PCB 1232		21.0	<UM18	0.5	21.00000	10.50000	UGL	12/13/92
						PCB 1242		30.0	<UM18	0.5	30.00000	15.00000	UGL	12/13/92
						PCB 1248		30.0	<UM18	0.5	30.00000	15.00000	UGL	12/13/92
						PCB 1254		36.0	<UM18	0.5	36.00000	18.00000	UGL	12/13/92
						PCB 1260		36.0	<UM18	0.5	36.00000	18.00000	UGL	12/13/92
						TOXAPHENE		36.0	<UM18	3	36.00000	18.00000	UGL	12/13/92
	R13-PZ-23	R13PZ2301	7.6		MET	ALUMINUM	HIT	188000.0	=SS10	5830	141.00000	70.50000	UGL	12/13/92
						ANTIMONY	HIT	78.9	=SS10	38	38.00000	19.00000	UGL	12/13/92
						ARSENIC		12.7	<SD22	3.84	2.54000	1.27000	UGL	12/13/92
						BARIUM		1600.0	=SS10	2000	5.00000	2.50000	UGL	12/13/92
						BERYLLIUM	HIT	18.0	=SS10	5	5.00000	2.50000	UGL	12/13/92
						CADMIUM		3.71	=SS10	5	4.01000	2.00500	UGL	12/13/92
						CALCIUM	HIT	906000.0	=SS10	102000	500.00000	250.00000	UGL	12/13/92
						CHROMIUM	HIT	308.0	=SS10	100	6.02000	3.01000	UGL	12/13/92
						COBALT	HIT	179.0	=SS10	25	25.00000	12.50000	UGL	12/13/92
						COPPER	HIT	334.0	=SS10	11.1	8.09000	4.04500	UGL	12/13/92
						IRON	HIT	364000.0	=SS10	7920	38.80000	19.40000	UGL	12/13/92
						LEAD	HIT	72.5	=SD20	15	1.26000	0.63000	UGL	12/13/92

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SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	HIT	RESULT	BOOL/METH	EVALUATION PROTOCOL	CRL	COD	UNITS	SAMPLE DATE
R13	R13-PZ-23	R13PZ2301	7.6	GW	SVOA	2,4,6-TRICHLOROPHENOL		4.2	<UM18	2.1	4.20000	2.10000	UGL	12/13/92
						2,4-DICHLOROPHENOL		2.9	<UM18	20	2.90000	1.45000	UGL	12/13/92
						2,4-DIMETHYLPHENOL		5.8	<UM18	2.900	5.80000	2.90000	UGL	12/13/92
						2,4-DINITROPHENOL		21.0	<UM18	10.500	21.00000	10.50000	UGL	12/13/92
						2-CHLORONAPHTHALENE		0.5	<UM18	0.250	0.50000	0.25000	UGL	12/13/92
						2-CHLOROPHENOL		0.99	<UM18	40	0.99000	0.49500	UGL	12/13/92
						2-METHYL-4,6-DINITROPHENOL/4,6		17.0	<UM18	8.50	17.00000	8.50000	UGL	12/13/92
						2-METHYLNAPHTHALENE		1.7	<UM18	0.850	1.70000	0.85000	UGL	12/13/92
						2-METHYLPHENOL/2-CRESOL		3.9	<UM18	1.950	3.90000	1.95000	UGL	12/13/92
						2-NITROANILINE		4.3	<UM18	2.150	4.30000	2.15000	UGL	12/13/92
						2-NITROPHENOL		3.7	<UM18	60	3.70000	1.85000	UGL	12/13/92
						3,3'-DICHLOROBENZIDINE		12.0	<UM18	6.00	12.00000	6.00000	UGL	12/13/92
						3-METHYL-4-CHLOROPHENOL/4-CHLO		4.0	<UM18	2.0	4.00000	2.00000	UGL	12/13/92
						3-NITROANILINE		4.9	<UM18	2.450	4.90000	2.45000	UGL	12/13/92
						4-BROMOPHENYLPHENYL ETHER		4.2	<UM18	2.100	4.20000	2.10000	UGL	12/13/92
						4-CHLOROANILINE		7.3	<UM18	3.650	7.30000	3.65000	UGL	12/13/92
						4-CHLOROPHENYLPHENYL ETHER		5.1	<UM18	2.550	5.10000	2.55000	UGL	12/13/92
						4-METHYLPHENOL/4-CRESOL		0.52	<UM18	0.260	0.52000	0.26000	UGL	12/13/92
						4-NITROANILINE		5.2	<UM18	2.600	5.20000	2.60000	UGL	12/13/92
						4-NITROPHENOL		12.0	<UM18	60	12.00000	6.00000	UGL	12/13/92
						ACENAPHTHENE		1.7	<UM18	0.850	1.70000	0.85000	UGL	12/13/92
						ACENAPHTHYLENE		0.5	<UM18	0.250	0.50000	0.25000	UGL	12/13/92
						ANTHRACENE		0.5	<UM18	0.25	0.50000	0.25000	UGL	12/13/92
						BENZO(A)ANTHRACENE		1.6	<UM18	0.1	1.60000	0.80000	UGL	12/13/92
						BENZO(A)PYRENE		4.7	<UM18	0.2	4.70000	2.35000	UGL	12/13/92
						BENZO(B)FLUORANTHENE		5.4	<UM18	0.2	5.40000	2.70000	UGL	12/13/92
						BENZO(G,H,I)PERYLENE		6.1	<UM18	3.050	6.10000	3.05000	UGL	12/13/92
						BENZO(K)FLUORANTHENE		0.87	<UM18	0.2	0.87000	0.43500	UGL	12/13/92
						BIS (2-CHLOROETHOXY) METHANE		1.5	<UM18	0.750	1.50000	0.75000	UGL	12/13/92
						BIS (2-CHLOROETHYL) ETHER		1.9	<UM18	300	1.90000	0.95000	UGL	12/13/92
						BIS (2-CHLOROISOPROPYL) ETHER		5.3	<UM18	2.65	5.30000	2.65000	UGL	12/13/92
						BIS (2-ETHYLHEXYL) PHTHALATE		4.8	<UM18	3	4.80000	2.40000	UGL	12/13/92
						BUTYLBENZYL PHTHALATE		3.4	<UM18	100	3.40000	1.70000	UGL	12/13/92
						CHRYSENE		2.4	<UM18	0.2	2.40000	1.20000	UGL	12/13/92
						DI-N-BUTYL PHTHALATE		3.7	<UM18	3	3.70000	1.85000	UGL	12/13/92
						DI-N-OCTYL PHTHALATE		15.0	<UM18	3	15.00000	7.50000	UGL	12/13/92

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SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	HIT	RESULT	BOOL/METH	EVALUATION PROTOCOL	CRL	COD	UNITS	SAMPLE DATE
R13	R13-PZ-23	R13PZ2301	7.6	GW	VOA	CHLOROETHANE/VINYL CHLORIDE		2.6	<UM20	2.0	2.60000	1.30000	UGL	12/13/92
						CHLOROMETHANE		3.2	<UM20	3	3.20000	1.60000	UGL	12/13/92
						DIBROMOCHLOROMETHANE		0.67	<UM20	0.335	0.67000	0.33500	UGL	12/13/92
						ETHYLBENZENE		0.5	<UM20	700	0.50000	0.25000	UGL	12/13/92
						METHYLENE CHLORIDE		2.3	<UM20	5	2.30000	1.15000	UGL	12/13/92
						METHYLETHYL PHENOL/METHYLETHYL		6.4	<UM20	200	6.40000	3.20000	UGL	12/13/92
						METHYLISOBUTYL KETONE		3.0	<UM20	1.500	3.00000	1.50000	UGL	12/13/92
						STYRENE		0.5	<UM20	100	0.50000	0.25000	UGL	12/13/92
						TETRACHLOROETHENE		1.6	<UM20	5	1.60000	0.80000	UGL	12/13/92
						TOLUENE		0.5	<UM20	1000	0.50000	0.25000	UGL	12/13/92
						TRANS-1,3-DICHLOROPROPENE		0.7	<UM20	10	0.70000	0.35000	UGL	12/13/92
						TRICHLOROETHENE		0.5	<UM20	5	0.50000	0.25000	UGL	12/13/92
						XYLENES		0.84	<UM20	10000	0.84000	0.42000	UGL	12/13/92
		R13PZ2301N			EXP	2,4-DINITROTOLUENE		4.5	<UM18	0.05	4.50000	2.25000	UGL	12/13/92
						2,6-DINITROTOLUENE		0.79	<UM18	0.05	0.79000	0.39500	UGL	12/13/92
						NITROBENZENE		0.5	<UM18	17.5	0.50000	0.25000	UGL	12/13/92
					PCB	4,4'-DDD		4.0	<UM18	0.01165	4.00000	2.00000	UGL	12/13/92
						4,4'-DDE		4.7	<UM18	0.0135	4.70000	2.35000	UGL	12/13/92
						4,4'-DDT		9.2	<UM18	0.017	9.20000	4.60000	UGL	12/13/92
						ALDRIN		4.7	<UM18	0.0459	4.70000	2.35000	UGL	12/13/92
						ALPHA-BENZENEHEXACHLORIDE		4.0	<UM18	0.01925	4.00000	2.00000	UGL	12/13/92
						ALPHA-CHLORDANE		0.075	<UH13	0.1325	0.07500	0.03750	UGL	12/13/92
						ALPHA-ENDOSULFAN/ENDOSULFAN I		9.2	<UM18	0.0115	9.20000	4.60000	UGL	12/13/92
						BETA-BENZENEHEXACHLORIDE		4.0	<UM18	0.012	4.00000	2.00000	UGL	12/13/92
						BETA-ENDOSULFAN/ENDOSULFAN II		9.2	<UM18	0.0115	9.20000	4.60000	UGL	12/13/92
						DELTA-BENZENEHEXACHLORIDE		4.0	<UM18	0.01465	4.00000	2.00000	UGL	12/13/92
						DIELDRIN		4.7	<UM18	0.012	4.70000	2.35000	UGL	12/13/92
						ENDOSULFAN SULFATE		9.2	<UM18	0.0393	9.20000	4.60000	UGG	12/13/92
						ENDRIN		7.6	<UM18	2	7.60000	3.80000	UGL	12/13/92
						ENDRIN ALDEHYDE		8.0	<UM18	0.01425	8.00000	4.00000	UGL	12/13/92
						ENDRIN KETONE		0.029	<UH13	0.0	0.02900	0.01450	UGL	12/13/92
						GAMMA-CHLORDANE		0.075	<UH13	0.0	0.07500	0.03750	UGL	12/13/92
						HEPTACHLOR		2.0	<UM18	0.4	2.00000	1.00000	UGL	12/13/92
						HEPTACHLOR EPOXIDE		5.0	<UM18	0.2	5.00000	2.50000	UGL	12/13/92
						LINDANE		4.0	<UM18	0.2	4.00000	2.00000	UGL	12/13/92
						METHOXYCHLOR		5.1	<UM18	40	5.10000	2.55000	UGL	12/13/92

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04/01/94

SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	HIT	RESULT	BOOL/METH	EVALUATION PROTOCOL	CRL	COD	UNITS	SAMPLE DATE
R13	R13-PZ-24	R13PZ2401A	14.7	GW	PCB	ALPHA-ENDOSULFAN/ENDOSULFAN I		0.023	<UH13	0.0115	0.02300	0.01150	UGL	12/14/92
						BETA-BENZENEHEXACHLORIDE		0.024	<UH13	0.012	0.02400	0.01200	UGL	12/14/92
						BETA-ENDOSULFAN/ENDOSULFAN II		0.023	<UH13	0.0115	0.02300	0.01150	UGL	12/14/92
						DELTA-BENZENEHEXACHLORIDE		0.029	<UH13	0.01465	0.02930	0.01465	UGL	12/14/92
						DIELDRIN		0.024	<UH13	0.012	0.02400	0.01200	UGL	12/14/92
						ENDOSULFAN SULFATE		0.079	<UH13	0.0393	0.07860	0.03930	UGG	12/14/92
						ENDRIN		0.024	<UH13	2	0.02380	0.01190	UGL	12/14/92
						ENDRIN ALDEHYDE		0.029	<UH13	0.01425	0.02850	0.01425	UGL	12/14/92
						HEPTACHLOR		0.042	<UH13	0.4	0.04230	0.02115	UGL	12/14/92
						HEPTACHLOR EPOXIDE		0.025	<UH13	0.2	0.02450	0.01225	UGL	12/14/92
						LINDANE		0.051	<UH13	0.2	0.05070	0.02535	UGL	12/14/92
						METHOXYCHLOR		0.057	<UH13	40	0.05700	0.02850	UGL	12/14/92
						PCB 1016		0.16	<UH02	0.5	0.16000	0.08000	UGL	12/14/92
						PCB 1260		0.19	<UH02	0.5	0.19000	0.09500	UGL	12/14/92
						TOXAPHENE		1.35	<UH13	3	1.35000	0.67500	UGL	12/14/92
					VOA	1,1,1-TRICHLOROETHANE		0.5	<UM20	200	0.50000	0.25000	UGL	12/14/92
						1,1,2,2-TETRACHLOROETHANE		0.51	<UM20	0.255	0.51000	0.25500	UGL	12/14/92
						1,1,2-TRICHLOROETHANE		1.2	<UM20	5	1.20000	0.60000	UGL	12/14/92
						1,1-DICHLOROETHANE		0.68	<UM20	0.34	0.68000	0.34000	UGL	12/14/92
						1,1-DICHLOROETHENE		0.5	<UM20	7	0.50000	0.25000	UGL	12/14/92
						1,2-DICHLOROETHANE		0.5	<UM20	5	0.50000	0.25000	UGL	12/14/92
						1,2-DICHLOROETHENE		0.5	<UM20	100	0.50000	0.25000	UGL	12/14/92
						1,2-DICHLOROPROPANE		0.5	<UM20	5	0.50000	0.25000	UGL	12/14/92
						ACETONE		13.0	<UM20	6.50	13.00000	6.50000	UGL	12/14/92
						BENZENE		0.5	<UM20	5	0.50000	0.25000	UGL	12/14/92
						BROMODICHLOROMETHANE		0.59	<UM20	100	0.59000	0.29500	UGL	12/14/92
						BROMOFORM		2.6	<UM20	100	2.60000	1.30000	UGL	12/14/92
						BROMOMETHANE		5.8	<UM20	90	5.80000	2.90000	UGL	12/14/92
						CARBON TETRACHLORIDE		0.58	<UM20	5	0.58000	0.29000	UGL	12/14/92
						CHLORFORM		0.5	<UM20	100	0.50000	0.25000	UGL	12/14/92
						CHLOROBENZENE		0.5	<UM20	0.25	0.50000	0.25000	UGL	12/14/92
						CHLOROETHANE		1.9	<UM20	0.95	1.90000	0.95000	UGL	12/14/92
						CHLOROETHANE/VINYL CHLORIDE		2.6	<UM20	2.0	2.60000	1.30000	UGL	12/14/92
						CHLOROMETHANE		3.2	<UM20	3	3.20000	1.60000	UGL	12/14/92
						DIBROMOCHLOROMETHANE		0.67	<UM20	0.335	0.67000	0.33500	UGL	12/14/92
						ETHYLBENZENE		0.5	<UM20	700	0.50000	0.25000	UGL	12/14/92

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SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	HIT	RESULT	BOOL/METH	EVALUATION PROTOCOL	CRL	COD	UNITS	SAMPLE DATE
R13	R13-PZ-24	R13PZ24018	14.7	GW	SVOA	ANTHRACENE		0.5	<UM18	0.25	0.50000	0.25000	UGL	12/15/92
						BENZO(A)ANTHRACENE		1.6	<UM18	0.1	1.60000	0.80000	UGL	12/15/92
						BENZO(A)PYRENE		4.7	<UM18	0.2	4.70000	2.35000	UGL	12/15/92
						BENZO(B)FLUORANTHENE		5.4	<UM18	0.2	5.40000	2.70000	UGL	12/15/92
						BENZO(G,H,I)PERYLENE		6.1	<UM18	3.050	6.10000	3.05000	UGL	12/15/92
						BENZO(K)FLUORANTHENE		0.87	<UM18	0.2	0.87000	0.43500	UGL	12/15/92
						BIS (2-CHLOROETHOXY) METHANE		1.5	<UM18	0.750	1.50000	0.75000	UGL	12/15/92
						BIS (2-CHLOROETHYL) ETHER		1.9	<UM18	300	1.90000	0.95000	UGL	12/15/92
						BIS (2-CHLOROISOPROPYL) ETHER		5.3	<UM18	2.65	5.30000	2.65000	UGL	12/15/92
						BIS (2-ETHYLHEXYL) PHTHALATE		4.8	<UM18	3	4.80000	2.40000	UGL	12/15/92
						BUTYLBENZYL PHTHALATE		3.4	<UM18	100	3.40000	1.70000	UGL	12/15/92
						CHRYSENE		2.4	<UM18	0.2	2.40000	1.20000	UGL	12/15/92
						DI-N-BUTYL PHTHALATE		3.7	<UM18	3	3.70000	1.85000	UGL	12/15/92
						DI-N-OCTYL PHTHALATE		15.0	<UM18	3	15.00000	7.50000	UGL	12/15/92
						DIBENZ(A,H)ANTHRACENE		6.5	<UM18	0.3	6.50000	3.25000	UGL	12/15/92
						DIBENZOFURAN		1.7	<UM18	0.850	1.70000	0.85000	UGL	12/15/92
						DIETHYL PHTHALATE		2.0	<UM18	3	2.00000	1.00000	UGL	12/15/92
						DIMETHYL PHTHALATE		1.5	<UM18	0.750	1.50000	0.75000	UGL	12/15/92
						FLUORANTHENE		3.3	<UM18	1.650	3.30000	1.65000	UGL	12/15/92
						FLUORENE		3.7	<UM18	1.850	3.70000	1.85000	UGL	12/15/92
						HEXACHLOROBENZENE		1.6	<UM18	1	1.60000	0.80000	UGL	12/15/92
						HEXACHLOROBUTADIENE		3.4	<UM18	1	3.40000	1.70000	UGL	12/15/92
						HEXACHLOROCYCLOPENTADIENE		8.6	<UM18	50	8.60000	4.30000	UGL	12/15/92
						HEXACHLOROETHANE		1.5	<UM18	1	1.50000	0.75000	UGL	12/15/92
						INDENO(1,2,3-C,D)PYRENE		8.6	<UM18	0.4	8.60000	4.30000	UGL	12/15/92
						ISOPHORONE		4.8	<UM18	100	4.80000	2.40000	UGL	12/15/92
						N-NITROSODI-N-PROPYLAMINE		4.4	<UM18	2.2	4.40000	2.20000	UGL	12/15/92
						N-NITROSODIPHENYLAMINE		3.0	<UM18	1.5	3.00000	1.50000	UGL	12/15/92
						NAPHTHALENE		0.5	<UM18	20	0.50000	0.25000	UGL	12/15/92
						PENTACHLOROPHENOL		18.0	<UM18	1	18.00000	9.00000	UGL	12/15/92
						PHENANTHRENE		0.5	<UM18	0.250	0.50000	0.25000	UGL	12/15/92
						PHENOL		9.2	<UM18	4	9.20000	4.60000	UGL	12/15/92
						PYRENE		2.8	<UM18	1.400	2.80000	1.40000	UGL	12/15/92
		R13PZ2401NA			PCB	ALPHA-CHLORDANE		0.075	<UH13	0.1325	0.07500	0.03750	UGL	12/14/92
						ENDRIN KETONE		0.029	<UH13	0.0	0.02900	0.01450	UGL	12/14/92
						GAMMA-CHLORDANE		0.075	<UH13	0.0	0.07500	0.03750	UGL	12/14/92

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SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	HIT	RESULT	BOOL/METH	EVALUATION PROTOCOL	CRL	COD	UNITS	SAMPLE DATE
R13	R13-SA-03	R13SA0301	5.0	SO	PCB	ALPHA-ENDOSULFAN/ENDOSULFAN I		0.006	<LH10	0.003010	0.00602	0.00301	UGL	11/20/92
						BETA-BENZENEHEXACHLORIDE		0.003	<LH10	0.001285	0.00257	0.00129	UGL	11/20/92
						BETA-ENDOSULFAN/ENDOSULFAN II		0.007	<LH10	0.003315	0.00663	0.00332	UGL	11/20/92
						DELTA-BENZENEHEXACHLORIDE		0.006	<LH10	0.002775	0.00555	0.00278	UGL	11/20/92
						DIELDRIN		0.006	<LH10	0.003145	0.00629	0.00315	UGL	11/20/92
						ENDOSULFAN SULFATE		0.008	<LH10	0.003815	0.00763	0.00382	UGG	11/20/92
						ENDRIN	HIT	0.027	=LH10	0.0012	0.00240	0.00120	UGL	11/20/92
						ENDRIN ALDEHYDE		0.024	<LH10	0.012	0.02400	0.01200	UGL	11/20/92
						HEPTACHLOR	HIT	0.005	=LH10	0.00309	0.00618	0.00309	UGL	11/20/92
						HEPTACHLOR EPOXIDE		0.006	<LH10	0.0031	0.00620	0.00310	UGL	11/20/92
						LINDANE		0.006	<LH10	0.00319	0.00638	0.00319	UGL	11/20/92
						METHOXYCHLOR		0.071	<LH10	0.03555	0.07110	0.03555	UGL	11/20/92
						PCB 1016		0.067	<LH16	0.0333	0.06660	0.03330	UGL	11/20/92
						PCB 1260		0.082	<LH16	0.0402	0.08040	0.04020	UGL	11/20/92
						TOXAPHENE		0.444	<LH10		0.44400	0.22200	UGL	11/20/92
					SVOA	1,2,4-TRICHLOROBENZENE		0.04	<LM18	0.02	0.04000	0.02000	UGL	11/20/92
						1,2-DICHLOROBENZENE		0.11	<LM18	0.055	0.11000	0.05500	UGL	11/20/92
						1,3-DICHLOROBENZENE		0.13	<LM18	0.065	0.13000	0.06500	UGL	11/20/92
						1,4-DICHLOROBENZENE		0.1	<LM18	0.049	0.09800	0.04900	UGL	11/20/92
						2,4,5-TRICHLOROPHENOL		0.1	<LM18	0.05	0.10000	0.05000	UGL	11/20/92
						2,4,6-TRICHLOROPHENOL		0.17	<LM18	0.085	0.17000	0.08500	UGL	11/20/92
						2,4-DICHLOROPHENOL		0.18	<LM18	0.09	0.18000	0.09000	UGL	11/20/92
						2,4-DIMETHYLPHENOL		0.69	<LM18	0.345	0.69000	0.34500	UGL	11/20/92
						2,4-DINITROPHENOL		1.2	<LM18	0.6	1.20000	0.60000	UGL	11/20/92
						2-CHLORONAPHTHALENE		0.04	<LM18	0.018	0.03600	0.01800	UGL	11/20/92
						2-CHLOROPHENOL		0.06	<LM18	0.03	0.06000	0.03000	UGL	11/20/92
						2-METHYL-4,6-DINITROPHENOL/4,6		0.55	<LM18	0.275	0.55000	0.27500	UGL	11/20/92
						2-METHYLNAPHTHALENE		0.05	<LM18	0.0245	0.04900	0.02450	UGL	11/20/92
						2-METHYLPHENOL/2-CRESOL		0.29	<LM18	0.0145	0.02900	0.01450	UGL	11/20/92
						2-NITROANILINE		0.06	<LM18	0.031	0.06200	0.03100	UGL	11/20/92
						2-NITROPHENOL		0.14	<LM18	0.07	0.14000	0.07000	UGL	11/20/92
						3,3'-DICHLOROBENZIDINE		6.3	<LM18	3.15	6.30000	3.15000	UGL	11/20/92
						3-METHYL-4-CHLOROPHENOL/4-CHLO		0.1	<LM18	0.0475	0.09500	0.04750	UGL	11/20/92
						3-NITROANILINE		0.45	<LM18	0.225	0.45000	0.22500	UGL	11/20/92
						4-BROMOPHENYLPHENYL ETHER		0.03	<LM18	0.0165	0.03300	0.01650	UGL	11/20/92
						4-CHLOROANILINE		0.81	<LM18	0.405	0.81000	0.40500	UGL	11/20/92

SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	HIT	RESULT	BOOL/METH	EVALUATION PROTOCOL	CRL	COD	UNITS	SAMPLE DATE
R13	R13-SA-03	R13SA0301	5.0	SO	SVOA	PHENANTHRENE		0.03	<LM18	0.0165	0.03300	0.01650	UGL	11/20/92
						PHENOL		0.11	<LM18	0.055	0.11000	0.05500	UGL	11/20/92
						PYRENE		0.03	<LM18	0.0165	0.03300	0.01650	UGL	11/20/92
					VOA	1,1,1-TRICHLOROETHANE	HIT	0.003	=LM19	0.0022	0.00440	0.00220	UGL	11/20/92
						1,1,2,2-TETRACHLOROETHANE		0.002	<LM19	0.0012	0.00240	0.00120	UGL	11/20/92
						1,1,2-TRICHLOROETHANE		0.005	<LM19	0.0027	0.00540	0.00270	UGL	11/20/92
						1,1-DICHLOROETHANE		0.002	<LM19	0.0015	0.00230	0.00115	UGL	11/20/92
						1,1-DICHLOROETHENE		0.004	<LM19	0.00195	0.00390	0.00195	UGL	11/20/92
						1,2-DICHLOROETHANE		0.002	<LM19	0.00085	0.00170	0.00085	UGL	11/20/92
						1,2-DICHLOROPROPANE		0.003	<LM19	0.00145	0.00290	0.00145	UGL	11/20/92
						ACETONE		0.017	<LM19	0.0085	0.01700	0.00850	UGL	11/20/92
						BENZENE		0.002	<LM19	0.00075	0.00150	0.00075	UGL	11/20/92
						BROMODICHLOROMETHANE		0.003	<LM19	0.00145	0.00290	0.00145	UGL	11/20/92
						BROMOFORM		0.007	<LM19	0.00345	0.00690	0.00345	UGL	11/20/92
						BROMOMETHANE		0.006	<LM19	0.00285	0.00570	0.00285	UGL	11/20/92
						CARBON TETRACHLORIDE		0.007	<LM19	0.0035	0.00700	0.00350	UGL	11/20/92
						CHLORFORM		0.0009	<LM19	0.000435	0.00087	0.00044	UGL	11/20/92
						CHLOROBENZENE		0.0009	<LM19	0.000430	0.00086	0.00043	UGL	11/20/92
						CHLOROETHANE		0.012	<LM19	0.006	0.01200	0.00600	UGL	11/20/92
						CHLOROMETHANE		0.009	<LM19	0.0044	0.00880	0.00440	UGL	11/20/92
						DIBROMOCHLOROMETHANE		0.003	<LM19	0.00155	0.00310	0.00155	UGL	11/20/92
						ETHYLBENZENE		0.002	<LM19	0.00085	0.00170	0.00085	UGL	11/20/92
						METHYLENE CHLORIDE		0.012	<LM19	0.006	0.01200	0.00600	UGL	11/20/92
						METHYLETHYL PHENOL/METHYLETHYL		0.07	<LM19	0.035	0.07000	0.03500	UGL	11/20/92
						METHYLISOBUTYL KETONE		0.027	<LM19	0.0135	0.02700	0.01350	UGL	11/20/92
						STYRENE		0.003	<LM19	0.0013	0.00260	0.00130	UGL	11/20/92
						TETRACHLOROETHENE		0.0008	<LM19	0.000405	0.00081	0.00041	UGL	11/20/92
						TOLUENE		0.0008	<LM19	0.00039	0.00078	0.00039	UGL	11/20/92
						TRANS-1,3-DICHLOROPROPENE		0.003	<LM19	0.0014	0.00280	0.00140	UGL	11/20/92
						TRICHLOROETHENE		0.003	<LM19	0.0014	0.00280	0.00140	UGL	11/20/92
						TRICHLOROFLUOROMETHANE		0.006	<LM19	0.00295	0.00590	0.00295	UGG	11/20/92
						XYLENES		0.002	<LM19	0.00075	0.00150	0.00075	UGL	11/20/92
		R13SA0301N			EXP	2,4-DINITROTOLUENE		0.14	<LM18	0.212	0.14000	0.07000	UGL	11/20/92
						2,6-DINITROTOLUENE		0.09	<LM18	0.262	0.08500	0.04250	UGL	11/20/92
						NITROBENZENE		0.05	<LM18	1.205	0.04500	0.02250	UGL	11/20/92
					PCB	4,4'-DDD		0.3	<LM18	0.004130	0.30000	0.15000	UGL	11/20/92

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SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	HIT	RESULT	BOOL/METH	EVALUATION PROTOCOL	CRL	COD	UNITS	SAMPLE DATE
R13	R13-SA-15	R13SA1501	0.5	SO	PCB	DIELDRIN		0.006	<LH10	0.003145	0.00629	0.00315	UGL	11/20/92
						ENDOSULFAN SULFATE		0.008	<LH10	0.003815	0.00763	0.00382	UGG	11/20/92
						ENDRIN		0.007	<LH10	0.0012	0.00240	0.00120	UGL	11/20/92
						ENDRIN ALDEHYDE		0.024	<LH10	0.012	0.02400	0.01200	UGL	11/20/92
						HEPTACHLOR		0.006	<LH10	0.00309	0.00618	0.00309	UGL	11/20/92
						HEPTACHLOR EPOXIDE		0.006	<LH10	0.0031	0.00620	0.00310	UGL	11/20/92
						LINDANE		0.006	<LH10	0.00319	0.00638	0.00319	UGL	11/20/92
						METHOXYCHLOR		0.071	<LH10	0.03555	0.07110	0.03555	UGL	11/20/92
						PCB 1016		0.067	<LH16	0.0333	0.06660	0.03330	UGL	11/20/92
						PCB 1260		0.082	<LH16	0.0402	0.08040	0.04020	UGL	11/20/92
						TOXAPHENE		0.444	<LH10		0.44400	0.22200	UGL	11/20/92
					SVOA	1,2,4-TRICHLOROBENZENE		0.04	<LM18	0.02	0.04000	0.02000	UGL	11/20/92
						1,2-DICHLOROBENZENE		0.11	<LM18	0.055	0.11000	0.05500	UGL	11/20/92
						1,3-DICHLOROBENZENE		0.13	<LM18	0.065	0.13000	0.06500	UGL	11/20/92
						1,4-DICHLOROBENZENE		0.1	<LM18	0.049	0.09800	0.04900	UGL	11/20/92
						2,4,5-TRICHLOROPHENOL		0.1	<LM18	0.05	0.10000	0.05000	UGL	11/20/92
						2,4,6-TRICHLOROPHENOL		0.17	<LM18	0.085	0.17000	0.08500	UGL	11/20/92
						2,4-DICHLOROPHENOL		0.18	<LM18	0.09	0.18000	0.09000	UGL	11/20/92
						2,4-DIMETHYLPHENOL		0.69	<LM18	0.345	0.69000	0.34500	UGL	11/20/92
						2,4-DINITROPHENOL		1.2	<LM18	0.6	1.20000	0.60000	UGL	11/20/92
						2-CHLORONAPHTHALENE		0.04	<LM18	0.018	0.03600	0.01800	UGL	11/20/92
						2-CHLOROPHENOL		0.06	<LM18	0.03	0.06000	0.03000	UGL	11/20/92
						2-METHYL-4,6-DINITROPHENOL/4,6		0.55	<LM18	0.275	0.55000	0.27500	UGL	11/20/92
						2-METHYLNAPHTHALENE		0.05	<LM18	0.0245	0.04900	0.02450	UGL	11/20/92
						2-METHYLPHENOL/2-CRESOL		0.29	<LM18	0.0145	0.02900	0.01450	UGL	11/20/92
						2-NITROANILINE		0.06	<LM18	0.031	0.06200	0.03100	UGL	11/20/92
						2-NITROPHENOL		0.14	<LM18	0.07	0.14000	0.07000	UGL	11/20/92
						3,3'-DICHLOROBENZIDINE		6.3	<LM18	3.15	6.30000	3.15000	UGL	11/20/92
						3-METHYL-4-CHLOROPHENOL/4-CHLO		0.1	<LM18	0.0475	0.09500	0.04750	UGL	11/20/92
						3-NITROANILINE		0.45	<LM18	0.225	0.45000	0.22500	UGL	11/20/92
						4-BROMOPHENYLPHENYL ETHER		0.03	<LM18	0.0165	0.03300	0.01650	UGL	11/20/92
						4-CHLOROANILINE		0.81	<LM18	0.405	0.81000	0.40500	UGL	11/20/92
						4-CHLOROPHENYLPHENYL ETHER		0.03	<LM18	0.0165	0.03300	0.01650	UGL	11/20/92
						4-METHYLPHENOL/4-CRESOL		0.24	<LM18	0.12	0.24000	0.12000	UGL	11/20/92
						4-NITROANILINE		0.41	<LM18	0.205	0.41000	0.20500	UGL	11/20/92
						4-NITROPHENOL		1.4	<LM18	0.7	1.40000	0.70000	UGL	11/20/92

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SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	HIT	RESULT	BOOL/METH	EVALUATION PROTOCOL	CRL	COD	UNITS	SAMPLE DATE
R13	R13-SA-15	R13SA1501	0.5	SO	VOA	1,1,2,2-TETRACHLOROETHANE		0.002	<LM19	0.0012	0.00240	0.00120	UGL	11/20/92
						1,1,2-TRICHLOROETHANE		0.005	<LM19	0.0027	0.00540	0.00270	UGL	11/20/92
						1,1-DICHLOROETHANE		0.002	<LM19	0.0015	0.00230	0.00115	UGL	11/20/92
						1,1-DICHLOROETHENE		0.004	<LM19	0.00195	0.00390	0.00195	UGL	11/20/92
						1,2-DICHLOROETHANE		0.002	<LM19	0.00085	0.00170	0.00085	UGL	11/20/92
						1,2-DICHLOROPROPANE		0.003	<LM19	0.00145	0.00290	0.00145	UGL	11/20/92
						ACETONE		0.017	<LM19	0.0085	0.01700	0.00850	UGL	11/20/92
						BENZENE		0.002	<LM19	0.00075	0.00150	0.00075	UGL	11/20/92
						BROMODICHLOROMETHANE		0.003	<LM19	0.00145	0.00290	0.00145	UGL	11/20/92
						BROMOFORM		0.007	<LM19	0.00345	0.00690	0.00345	UGL	11/20/92
						BROMOMETHANE		0.006	<LM19	0.00285	0.00570	0.00285	UGL	11/20/92
						CARBON TETRACHLORIDE		0.007	<LM19	0.0035	0.00700	0.00350	UGL	11/20/92
						CHLORFORM		0.0009	<LM19	0.000435	0.00087	0.00044	UGL	11/20/92
						CHLOROBENZENE		0.0009	<LM19	0.000430	0.00086	0.00043	UGL	11/20/92
						CHLOROETHANE		0.012	<LM19	0.006	0.01200	0.00600	UGL	11/20/92
						CHLOROMETHANE		0.009	<LM19	0.0044	0.00880	0.00440	UGL	11/20/92
						DIBROMOCHLOROMETHANE		0.003	<LM19	0.00155	0.00310	0.00155	UGL	11/20/92
						ETHYLBENZENE		0.002	<LM19	0.00085	0.00170	0.00085	UGL	11/20/92
						METHYLENE CHLORIDE		0.012	<LM19	0.006	0.01200	0.00600	UGL	11/20/92
						METHYLETHYL PHENOL/METHYLETHYL		0.07	<LM19	0.035	0.07000	0.03500	UGL	11/20/92
						METHYLISOBUTYL KETONE		0.027	<LM19	0.0135	0.02700	0.01350	UGL	11/20/92
						STYRENE		0.003	<LM19	0.0013	0.00260	0.00130	UGL	11/20/92
						TETRACHLOROETHENE		0.0008	<LM19	0.000405	0.00081	0.00041	UGL	11/20/92
						TOLUENE		0.0008	<LM19	0.00039	0.00078	0.00039	UGL	11/20/92
						TRANS-1,3-DICHLOROPROPENE		0.003	<LM19	0.0014	0.00280	0.00140	UGL	11/20/92
						TRICHLOROETHENE		0.003	<LM19	0.0014	0.00280	0.00140	UGL	11/20/92
						TRICHLOROFLUOROMETHANE		0.006	<LM19	0.00295	0.00590	0.00295	UGG	11/20/92
						XYLENES		0.002	<LM19	0.00075	0.00150	0.00075	UGL	11/20/92
		R13SA1501N			EXP	2,4-DINITROTOLUENE		0.14	<LM18	0.212	0.14000	0.07000	UGL	11/20/92
						2,6-DINITROTOLUENE		0.09	<LM18	0.262	0.08500	0.04250	UGL	11/20/92
						NITROBENZENE		0.05	<LM18	1.205	0.04500	0.02250	UGL	11/20/92
					PCB	4,4'-DDD		0.3	<LM18	0.004130	0.30000	0.15000	UGL	11/20/92
						4,4'-DDE		0.31	<LM18	0.003825	0.31000	0.15500	UGL	11/20/92
						4,4'-DDT		0.31	<LM18	0.003535	0.31000	0.15500	UGL	11/20/92
						ALDRIN		0.33	<LM18	0.003645	0.33000	0.16500	UGL	11/20/92
						ALPHA-BENZENEHEXACHLORIDE		0.27	<LM18	0.004535	0.27000	0.13500	UGL	11/20/92

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SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	HIT	RESULT	BOOL/METH	EVALUATION PROTOCOL	CRL	COD	UNITS	SAMPLE DATE
R13	R13-SA-15	R13SA1502	5.0	SO	PCB	HEPTACHLOR		0.006	<LH10	0.00309	0.00618	0.00309	UGL	11/20/92
						HEPTACHLOR EPOXIDE		0.006	<LH10	0.0031	0.00620	0.00310	UGL	11/20/92
						LINDANE		0.006	<LH10	0.00319	0.00638	0.00319	UGL	11/20/92
						METHOXYCHLOR		0.071	<LH10	0.03555	0.07110	0.03555	UGL	11/20/92
						PCB 1016		0.067	<LH16	0.0333	0.06660	0.03330	UGL	11/20/92
						PCB 1260		0.082	<LH16	0.0402	0.08040	0.04020	UGL	11/20/92
						TOXAPHENE		0.444	<LH10		0.44400	0.22200	UGL	11/20/92
					SVOA	1,2,4-TRICHLOROBENZENE		0.04	<LM18	0.02	0.04000	0.02000	UGL	11/20/92
						1,2-DICHLOROBENZENE		0.11	<LM18	0.055	0.11000	0.05500	UGL	11/20/92
						1,3-DICHLOROBENZENE		0.13	<LM18	0.065	0.13000	0.06500	UGL	11/20/92
						1,4-DICHLOROBENZENE		0.1	<LM18	0.049	0.09800	0.04900	UGL	11/20/92
						2,4,5-TRICHLOROPHENOL		0.1	<LM18	0.05	0.10000	0.05000	UGL	11/20/92
						2,4,6-TRICHLOROPHENOL		0.17	<LM18	0.085	0.17000	0.08500	UGL	11/20/92
						2,4-DICHLOROPHENOL		0.18	<LM18	0.09	0.18000	0.09000	UGL	11/20/92
						2,4-DIMETHYLPHENOL		0.69	<LM18	0.345	0.69000	0.34500	UGL	11/20/92
						2,4-DINITROPHENOL		1.2	<LM18	0.6	1.20000	0.60000	UGL	11/20/92
						2-CHLORONAPHTHALENE		0.04	<LM18	0.018	0.03600	0.01800	UGL	11/20/92
						2-CHLOROPHENOL		0.06	<LM18	0.03	0.06000	0.03000	UGL	11/20/92
						2-METHYL-4,6-DINITROPHENOL/4,6		0.55	<LM18	0.275	0.55000	0.27500	UGL	11/20/92
						2-METHYLNAPHTHALENE		0.05	<LM18	0.0245	0.04900	0.02450	UGL	11/20/92
						2-METHYLPHENOL/2-CRESOL		0.29	<LM18	0.0145	0.02900	0.01450	UGL	11/20/92
						2-NITROANILINE		0.06	<LM18	0.031	0.06200	0.03100	UGL	11/20/92
						2-NITROPHENOL		0.14	<LM18	0.07	0.14000	0.07000	UGL	11/20/92
						3,3'-DICHLOROBENZIDINE		6.3	<LM18	3.15	6.30000	3.15000	UGL	11/20/92
						3-METHYL-4-CHLOROPHENOL/4-CHLO		0.1	<LM18	0.0475	0.09500	0.04750	UGL	11/20/92
						3-NITROANILINE		0.45	<LM18	0.225	0.45000	0.22500	UGL	11/20/92
						4-BROMOPHENYLPHENYL ETHER		0.03	<LM18	0.0165	0.03300	0.01650	UGL	11/20/92
						4-CHLOROANILINE		0.81	<LM18	0.405	0.81000	0.40500	UGL	11/20/92
						4-CHLOROPHENYLPHENYL ETHER		0.03	<LM18	0.0165	0.03300	0.01650	UGL	11/20/92
						4-METHYLPHENOL/4-CRESOL		0.24	<LM18	0.12	0.24000	0.12000	UGL	11/20/92
						4-NITROANILINE		0.41	<LM18	0.205	0.41000	0.20500	UGL	11/20/92
						4-NITROPHENOL		1.4	<LM18	0.7	1.40000	0.70000	UGL	11/20/92
						ACENAPHTHENE		0.04	<LM18	0.018	0.03600	0.01800	UGL	11/20/92
						ACENAPHTHYLENE		0.03	<LM18	0.0165	0.03300	0.01650	UGL	11/20/92
						ANTHRACENE		0.03	<LM18	0.0165	0.03300	0.01650	UGL	11/20/92
						BENZO(A)ANTHRACENE		0.17	<LM18	0.085	0.17000	0.08500	UGL	11/20/92

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SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	HIT	RESULT	BOOL/METH	EVALUATION PROTOCOL	CRL	COD	UNITS	SAMPLE DATE
R13	R13-SA-15	R13SA1502	5.0	SO	VOA	1,2-DICHLOROETHANE		0.002	<LM19	0.00085	0.00170	0.00085	UGL	11/20/92
						1,2-DICHLOROPROPANE		0.003	<LM19	0.00145	0.00290	0.00145	UGL	11/20/92
						ACETONE		0.017	<LM19	0.0085	0.01700	0.00850	UGL	11/20/92
						BENZENE		0.002	<LM19	0.00075	0.00150	0.00075	UGL	11/20/92
						BROMODICHLOROMETHANE		0.003	<LM19	0.00145	0.00290	0.00145	UGL	11/20/92
						BROMOFORM		0.007	<LM19	0.00345	0.00690	0.00345	UGL	11/20/92
						BROMOMETHANE		0.006	<LM19	0.00285	0.00570	0.00285	UGL	11/20/92
						CARBON TETRACHLORIDE		0.007	<LM19	0.0035	0.00700	0.00350	UGL	11/20/92
						CHLORFORM		0.0009	<LM19	0.000435	0.00087	0.00044	UGL	11/20/92
						CHLOROBENZENE		0.0009	<LM19	0.000430	0.00086	0.00043	UGL	11/20/92
						CHLOROETHANE		0.012	<LM19	0.006	0.01200	0.00600	UGL	11/20/92
						CHLOROMETHANE		0.009	<LM19	0.0044	0.00880	0.00440	UGL	11/20/92
						DIBROMOCHLOROMETHANE		0.003	<LM19	0.00155	0.00310	0.00155	UGL	11/20/92
						ETHYLBENZENE		0.002	<LM19	0.00085	0.00170	0.00085	UGL	11/20/92
						METHYLENE CHLORIDE		0.012	<LM19	0.006	0.01200	0.00600	UGL	11/20/92
						METHYLETHYL PHENOL/METHYLETHYL		0.07	<LM19	0.035	0.07000	0.03500	UGL	11/20/92
						METHYLISOBUTYL KETONE		0.027	<LM19	0.0135	0.02700	0.01350	UGL	11/20/92
						STYRENE		0.003	<LM19	0.0013	0.00260	0.00130	UGL	11/20/92
						TETRACHLOROETHENE		0.0008	<LM19	0.000405	0.00081	0.00041	UGL	11/20/92
						TOLUENE		0.0008	<LM19	0.00039	0.00078	0.00039	UGL	11/20/92
						TRANS-1,3-DICHLOROPROPENE		0.003	<LM19	0.0014	0.00280	0.00140	UGL	11/20/92
						TRICHLOROETHENE		0.003	<LM19	0.0014	0.00280	0.00140	UGL	11/20/92
						TRICHLOROFLUOROMETHANE		0.006	<LM19	0.00295	0.00590	0.00295	UGG	11/20/92
						XYLENES		0.002	<LM19	0.00075	0.00150	0.00075	UGL	11/20/92
		R13SA1502N			EXP	2,4-DINITROTOLUENE		0.14	<LM18	0.212	0.14000	0.07000	UGL	11/20/92
						2,6-DINITROTOLUENE		0.09	<LM18	0.262	0.08500	0.04250	UGL	11/20/92
						NITROBENZENE		0.05	<LM18	1.205	0.04500	0.02250	UGL	11/20/92
					PCB	4,4'-DDD		0.3	<LM18	0.004130	0.30000	0.15000	UGL	11/20/92
						4,4'-DDE		0.31	<LM18	0.003825	0.31000	0.15500	UGL	11/20/92
						4,4'-DDT		0.31	<LM18	0.003535	0.31000	0.15500	UGL	11/20/92
						ALDRIN		0.33	<LM18	0.003645	0.33000	0.16500	UGL	11/20/92
						ALPHA-BENZENEHEXACHLORIDE		0.27	<LM18	0.004535	0.27000	0.13500	UGL	11/20/92
						ALPHA-CHLORDANE		0.005	<LH10		0.00500	0.00250	UGL	11/20/92
						ALPHA-ENDOSULFAN/ENDOSULFAN I		0.62	<LM18	0.003010	0.62000	0.31000	UGL	11/20/92
						BETA-BENZENEHEXACHLORIDE		0.27	<LM18	0.001285	0.27000	0.13500	UGL	11/20/92
						BETA-ENDOSULFAN/ENDOSULFAN II		0.62	<LM18	0.003315	0.62000	0.31000	UGL	11/20/92

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SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	HIT	RESULT	BOOL/METH	EVALUATION PROTOCOL	CRL	COD	UNITS	SAMPLE DATE
R13	R13-SA-17	R13SA1701	0.5	SO	PCB	PCB 1016		0.067	<LH16	0.0333	0.06660	0.03330	UGL	11/20/92
						PCB 1260		0.082	<LH16	0.0402	0.08040	0.04020	UGL	11/20/92
						TOXAPHENE		0.444	<LH10		0.44400	0.22200	UGL	11/20/92
					SVOA	1,2,4-TRICHLOROBENZENE		0.04	<LM18	0.02	0.04000	0.02000	UGL	11/20/92
						1,2-DICHLOROBENZENE		0.11	<LM18	0.055	0.11000	0.05500	UGL	11/20/92
						1,3-DICHLOROBENZENE		0.13	<LM18	0.065	0.13000	0.06500	UGL	11/20/92
						1,4-DICHLOROBENZENE		0.1	<LM18	0.049	0.09800	0.04900	UGL	11/20/92
						2,4,5-TRICHLOROPHENOL		0.1	<LM18	0.05	0.10000	0.05000	UGL	11/20/92
						2,4,6-TRICHLOROPHENOL		0.17	<LM18	0.085	0.17000	0.08500	UGL	11/20/92
						2,4-DICHLOROPHENOL		0.18	<LM18	0.09	0.18000	0.09000	UGL	11/20/92
						2,4-DIMETHYLPHENOL		0.69	<LM18	0.345	0.69000	0.34500	UGL	11/20/92
						2,4-DINITROPHENOL		1.2	<LM18	0.6	1.20000	0.60000	UGL	11/20/92
						2-CHLORONAPHTHALENE		0.04	<LM18	0.018	0.03600	0.01800	UGL	11/20/92
						2-CHLOROPHENOL		0.06	<LM18	0.03	0.06000	0.03000	UGL	11/20/92
						2-METHYL-4,6-DINITROPHENOL/4,6		0.55	<LM18	0.275	0.55000	0.27500	UGL	11/20/92
						2-METHYLNAPHTHALENE		0.05	<LM18	0.0245	0.04900	0.02450	UGL	11/20/92
						2-METHYLPHENOL/2-CRESOL		0.29	<LM18	0.0145	0.02900	0.01450	UGL	11/20/92
						2-NITROANILINE		0.06	<LM18	0.031	0.06200	0.03100	UGL	11/20/92
						2-NITROPHENOL		0.14	<LM18	0.07	0.14000	0.07000	UGL	11/20/92
						3,3'-DICHLOROBENZIDINE		6.3	<LM18	3.15	6.30000	3.15000	UGL	11/20/92
						3-METHYL-4-CHLOROPHENOL/4-CHLO		0.1	<LM18	0.0475	0.09500	0.04750	UGL	11/20/92
						3-NITROANILINE		0.45	<LM18	0.225	0.45000	0.22500	UGL	11/20/92
						4-BROMOPHENYLPHENYL ETHER		0.03	<LM18	0.0165	0.03300	0.01650	UGL	11/20/92
						4-CHLOROANILINE		0.81	<LM18	0.405	0.81000	0.40500	UGL	11/20/92
						4-CHLOROPHENYLPHENYL ETHER		0.03	<LM18	0.0165	0.03300	0.01650	UGL	11/20/92
						4-METHYLPHENOL/4-CRESOL		0.24	<LM18	0.12	0.24000	0.12000	UGL	11/20/92
						4-NITROANILINE		0.41	<LM18	0.205	0.41000	0.20500	UGL	11/20/92
						4-NITROPHENOL		1.4	<LM18	0.7	1.40000	0.70000	UGL	11/20/92
						ACENAPHTHENE		0.04	<LM18	0.018	0.03600	0.01800	UGL	11/20/92
						ACENAPHTHYLENE		0.03	<LM18	0.0165	0.03300	0.01650	UGL	11/20/92
						ANTHRACENE		0.03	<LM18	0.0165	0.03300	0.01650	UGL	11/20/92
						BENZO(A)ANTHRACENE		0.17	<LM18	0.085	0.17000	0.08500	UGL	11/20/92
						BENZO(A)PYRENE		0.25	<LM18	0.125	0.25000	0.12500	UGL	11/20/92
						BENZO(B)FLUORANTHENE		0.21	<LM18	0.105	0.21000	0.10500	UGL	11/20/92
						BENZO(G,H,I)PERYLENE		0.25	<LM18	0.125	0.25000	0.12500	UGL	11/20/92
						BENZO(K)FLUORANTHENE		0.07	<LM18	0.033	0.06600	0.03300	UGL	11/20/92

IAAP - R13 - All Analytical Results

04/01/94

SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	HIT	RESULT	BOOL/METH	EVALUATION PROTOCOL	CRL	COD	UNITS	SAMPLE DATE
R13	R13-SA-17	R13SA1701	0.5	SO	VOA	BROMODICHLOROMETHANE		0.003	<LM19	0.00145	0.00290	0.00145	UGL	11/20/92
						BROMOFORM		0.007	<LM19	0.00345	0.00690	0.00345	UGL	11/20/92
						BROMOMETHANE		0.006	<LM19	0.00285	0.00570	0.00285	UGL	11/20/92
						CARBON TETRACHLORIDE		0.007	<LM19	0.0035	0.00700	0.00350	UGL	11/20/92
						CHLORFORM		0.0009	<LM19	0.000435	0.00087	0.00044	UGL	11/20/92
						CHLOROBENZENE		0.0009	<LM19	0.000430	0.00086	0.00043	UGL	11/20/92
						CHLOROETHANE		0.012	<LM19	0.006	0.01200	0.00600	UGL	11/20/92
						CHLOROMETHANE		0.009	<LM19	0.0044	0.00880	0.00440	UGL	11/20/92
						DIBROMOCHLOROMETHANE		0.003	<LM19	0.00155	0.00310	0.00155	UGL	11/20/92
						ETHYLBENZENE		0.002	<LM19	0.00085	0.00170	0.00085	UGL	11/20/92
						METHYLENE CHLORIDE		0.012	<LM19	0.006	0.01200	0.00600	UGL	11/20/92
						METHYLETHYL PHENOL/METHYLETHYL		0.07	<LM19	0.035	0.07000	0.03500	UGL	11/20/92
						METHYLISOBUTYL KETONE		0.027	<LM19	0.0135	0.02700	0.01350	UGL	11/20/92
						STYRENE		0.003	<LM19	0.0013	0.00260	0.00130	UGL	11/20/92
						TETRACHLOROETHENE		0.0008	<LM19	0.000405	0.00081	0.00041	UGL	11/20/92
						TOLUENE		0.0008	<LM19	0.00039	0.00078	0.00039	UGL	11/20/92
						TRANS-1,3-DICHLOROPROPENE		0.003	<LM19	0.0014	0.00280	0.00140	UGL	11/20/92
						TRICHLOROETHENE		0.003	<LM19	0.0014	0.00280	0.00140	UGL	11/20/92
						TRICHLOROFLUOROMETHANE		0.006	<LM19	0.00295	0.00590	0.00295	UGG	11/20/92
						XYLENES		0.002	<LM19	0.00075	0.00150	0.00075	UGL	11/20/92
		R13SA1701N			EXP	2,4-DINITROTOLUENE		0.14	<LM18	0.212	0.14000	0.07000	UGL	11/20/92
						2,6-DINITROTOLUENE		0.09	<LM18	0.262	0.08500	0.04250	UGL	11/20/92
						NITROBENZENE		0.05	<LM18	1.205	0.04500	0.02250	UGL	11/20/92
					PCB	4,4'-DDD		0.3	<LM18	0.004130	0.30000	0.15000	UGL	11/20/92
						4,4'-DDE		0.31	<LM18	0.003825	0.31000	0.15500	UGL	11/20/92
						4,4'-DDT		0.31	<LM18	0.003535	0.31000	0.15500	UGL	11/20/92
						ALDRIN		0.33	<LM18	0.003645	0.33000	0.16500	UGL	11/20/92
						ALPHA-BENZENEHEXACHLORIDE		0.27	<LM18	0.004535	0.27000	0.13500	UGL	11/20/92
						ALPHA-CHLORDANE		0.005	<LH10		0.00500	0.00250	UGL	11/20/92
						ALPHA-ENDOSULFAN/ENDOSULFAN I		0.62	<LM18	0.003010	0.62000	0.31000	UGL	11/20/92
						BETA-BENZENEHEXACHLORIDE		0.27	<LM18	0.001285	0.27000	0.13500	UGL	11/20/92
						BETA-ENDOSULFAN/ENDOSULFAN II		0.62	<LM18	0.003315	0.62000	0.31000	UGL	11/20/92
						DELTA-BENZENEHEXACHLORIDE		0.27	<LM18	0.002775	0.27000	0.13500	UGL	11/20/92
						DIELDRIN		0.31	<LM18	0.003145	0.31000	0.15500	UGL	11/20/92
						ENDOSULFAN SULFATE		0.62	<LM18	0.003815	0.62000	0.31000	UGG	11/20/92
						ENDRIN		0.45	<LM18	0.0012	0.45000	0.22500	UGL	11/20/92

SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	HIT	RESULT	BOOL/METH	EVALUATION PROTOCOL	CRL	COD	UNITS	SAMPLE DATE
R13	R13-SA-17	R13SA1702	1.5	SO	PCB	TOXAPHENE		44.4	<LH10		0.44400	0.22200	UGL	11/20/92
					SVOA	1,2,4-TRICHLOROBENZENE		0.4	<LM18	0.02	0.04000	0.02000	UGL	11/20/92
						1,2-DICHLOROBENZENE		1.1	<LM18	0.055	0.11000	0.05500	UGL	11/20/92
						1,3-DICHLOROBENZENE		1.3	<LM18	0.065	0.13000	0.06500	UGL	11/20/92
						1,4-DICHLOROBENZENE	HIT	11.0	=LM18	0.049	0.09800	0.04900	UGL	11/20/92
						2,4,5-TRICHLOROPHENOL		1.0	<LM18	0.05	0.10000	0.05000	UGL	11/20/92
						2,4,6-TRICHLOROPHENOL		1.7	<LM18	0.085	0.17000	0.08500	UGL	11/20/92
						2,4-DICHLOROPHENOL		1.8	<LM18	0.09	0.18000	0.09000	UGL	11/20/92
						2,4-DIMETHYLPHENOL		6.9	<LM18	0.345	0.69000	0.34500	UGL	11/20/92
						2,4-DINITROPHENOL		12.0	<LM18	0.6	1.20000	0.60000	UGL	11/20/92
						2-CHLORONAPHTHALENE		0.36	<LM18	0.018	0.03600	0.01800	UGL	11/20/92
						2-CHLOROPHENOL		0.6	<LM18	0.03	0.06000	0.03000	UGL	11/20/92
						2-METHYL-4,6-DINITROPHENOL/4,6		5.5	<LM18	0.275	0.55000	0.27500	UGL	11/20/92
						2-METHYLNAPHTHALENE	HIT	190.0	=LM18	0.0245	0.04900	0.02450	UGL	11/20/92
						2-METHYLPHENOL/2-CRESOL		2.9	<LM18	0.0145	0.02900	0.01450	UGL	11/20/92
						2-NITROANILINE		0.62	<LM18	0.031	0.06200	0.03100	UGL	11/20/92
						2-NITROPHENOL		1.4	<LM18	0.07	0.14000	0.07000	UGL	11/20/92
						3,3'-DICHLOROBENZIDINE		63.0	<LM18	3.15	6.30000	3.15000	UGL	11/20/92
						3-METHYL-4-CHLOROPHENOL/4-CHLO		0.95	<LM18	0.0475	0.09500	0.04750	UGL	11/20/92
						3-NITROANILINE		4.5	<LM18	0.225	0.45000	0.22500	UGL	11/20/92
						4-BROMOPHENYLPHENYL ETHER		0.33	<LM18	0.0165	0.03300	0.01650	UGL	11/20/92
						4-CHLOROANILINE		8.1	<LM18	0.405	0.81000	0.40500	UGL	11/20/92
						4-CHLOROPHENYLPHENYL ETHER		0.33	<LM18	0.0165	0.03300	0.01650	UGL	11/20/92
						4-METHYLPHENOL/4-CRESOL		2.4	<LM18	0.12	0.24000	0.12000	UGL	11/20/92
						4-NITROANILINE		4.1	<LM18	0.205	0.41000	0.20500	UGL	11/20/92
						4-NITROPHENOL		14.0	<LM18	0.7	1.40000	0.70000	UGL	11/20/92
						ACENAPHTHENE		0.36	<LM18	0.018	0.03600	0.01800	UGL	11/20/92
						ACENAPHTHYLENE		0.33	<LM18	0.0165	0.03300	0.01650	UGL	11/20/92
						ANTHRACENE		0.33	<LM18	0.0165	0.03300	0.01650	UGL	11/20/92
						BENZO(A)ANTHRACENE		1.7	<LM18	0.085	0.17000	0.08500	UGL	11/20/92
						BENZO(A)PYRENE		2.5	<LM18	0.125	0.25000	0.12500	UGL	11/20/92
						BENZO(B)FLUORANTHENE		2.1	<LM18	0.105	0.21000	0.10500	UGL	11/20/92
						BENZO(G,H,I)PERYLENE		2.5	<LM18	0.125	0.25000	0.12500	UGL	11/20/92
						BENZO(K)FLUORANTHENE		0.66	<LM18	0.033	0.06600	0.03300	UGL	11/20/92
						BIS (2-CHLOROETHOXY) METHANE		0.59	<LM18	0.0295	0.05900	0.02950	UGL	11/20/92
						BIS (2-CHLOROETHYL) ETHER		0.33	<LM18	0.0165	0.03300	0.01650	UGL	11/20/92

IAAP - R13 - All Analytical Results

SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	HIT	RESULT	BOOL/METH	EVALUATION PROTOCOL	CRL	COD	UNITS	SAMPLE DATE
R13	R13-SA-17	R13SA1702	1.5	SO	VOA	BROMOMETHANE		0.029	<LM19	0.00285	0.00570	0.00285	UGL	11/20/92
						CARBON TETRACHLORIDE		0.035	<LM19	0.0035	0.00700	0.00350	UGL	11/20/92
						CHLORFORM		0.004	<LM19	0.000435	0.00087	0.00044	UGL	11/20/92
						CHLOROBENZENE		0.004	<LM19	0.000430	0.00086	0.00043	UGL	11/20/92
						CHLOROETHANE		0.06	<LM19	0.006	0.01200	0.00600	UGL	11/20/92
						CHLOROMETHANE		0.044	<LM19	0.0044	0.00880	0.00440	UGL	11/20/92
						DIBROMOCHLOROMETHANE		0.016	<LM19	0.00155	0.00310	0.00155	UGL	11/20/92
						ETHYLBENZENE		0.009	<LM19	0.00085	0.00170	0.00085	UGL	11/20/92
						METHYLENE CHLORIDE		0.06	<LM19	0.006	0.01200	0.00600	UGL	11/20/92
						METHYLETHYL PHENOL/METHYLETHYL		0.35	<LM19	0.035	0.07000	0.03500	UGL	11/20/92
						METHYLISOBUTYL KETONE		0.14	<LM19	0.0135	0.02700	0.01350	UGL	11/20/92
						STYRENE		0.013	<LM19	0.0013	0.00260	0.00130	UGL	11/20/92
						TETRACHLOROETHENE		0.004	<LM19	0.000405	0.00081	0.00041	UGL	11/20/92
						TOLUENE		0.004	<LM19	0.00039	0.00078	0.00039	UGL	11/20/92
						TRANS-1,3-DICHLOROPROPENE		0.014	<LM19	0.0014	0.00280	0.00140	UGL	11/20/92
						TRICHLOROETHENE		0.014	<LM19	0.0014	0.00280	0.00140	UGL	11/20/92
						TRICHLOROFLUOROMETHANE		0.03	<LM19	0.00295	0.00590	0.00295	UGG	11/20/92
						XYLENES	HIT	0.49	=LM19	0.00075	0.00150	0.00075	UGL	11/20/92
		R13SA1702N			EXP	2,4-DINITROTOLUENE		1.4	<LM18	0.212	0.14000	0.07000	UGL	11/20/92
						2,6-DINITROTOLUENE		0.85	<LM18	0.262	0.08500	0.04250	UGL	11/20/92
						NITROBENZENE		0.45	<LM18	1.205	0.04500	0.02250	UGL	11/20/92
					PCB	4,4'-DDD	HIT	600.0	=LM18	0.004130	0.30000	0.15000	UGL	11/20/92
						4,4'-DDE	HIT	1900.0	=LM18	0.003825	0.31000	0.15500	UGL	11/20/92
						4,4'-DDT		3.1	<LM18	0.003535	0.31000	0.15500	UGL	11/20/92
						ALDRIN		3.3	<LM18	0.003645	0.33000	0.16500	UGL	11/20/92
						ALPHA-BENZENEHEXACHLORIDE		2.7	<LM18	0.004535	0.27000	0.13500	UGL	11/20/92
						ALPHA-ENDOSULFAN/ENDOSULFAN I		6.2	<LM18	0.003010	0.62000	0.31000	UGL	11/20/92
						BETA-BENZENEHEXACHLORIDE		2.7	<LM18	0.001285	0.27000	0.13500	UGL	11/20/92
						BETA-ENDOSULFAN/ENDOSULFAN II		6.2	<LM18	0.003315	0.62000	0.31000	UGL	11/20/92
						DELTA-BENZENEHEXACHLORIDE		2.7	<LM18	0.002775	0.27000	0.13500	UGL	11/20/92
						DIELDRIN		3.1	<LM18	0.003145	0.31000	0.15500	UGL	11/20/92
						ENDOSULFAN SULFATE		6.2	<LM18	0.003815	0.62000	0.31000	UGG	11/20/92
						ENDRIN		4.5	<LM18	0.0012	0.45000	0.22500	UGL	11/20/92
						ENDRIN ALDEHYDE		5.3	<LM18	0.012	0.53000	0.26500	UGL	11/20/92
						HEPTACHLOR	HIT	57.0	=LM18	0.00309	0.13000	0.06500	UGL	11/20/92
						HEPTACHLOR EPOXIDE		3.3	<LM18	0.0031	0.33000	0.16500	UGL	11/20/92

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SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	HIT	RESULT	BOOL/METH	EVALUATION PROTOCOL	CRL	COD	UNITS	SAMPLE DATE
R13	R13-SA-19	R13SA1901	0.5	SO	SVOA	2,4,6-TRICHLOROPHENOL		0.17	<LM18	0.085	0.17000	0.08500	UGL	11/07/92
						2,4-DICHLOROPHENOL		0.18	<LM18	0.09	0.18000	0.09000	UGL	11/07/92
						2,4-DIMETHYLPHENOL		0.69	<LM18	0.345	0.69000	0.34500	UGL	11/07/92
						2,4-DINITROPHENOL		1.2	<LM18	0.6	1.20000	0.60000	UGL	11/07/92
						2-CHLORONAPHTHALENE		0.04	<LM18	0.018	0.03600	0.01800	UGL	11/07/92
						2-CHLOROPHENOL		0.06	<LM18	0.03	0.06000	0.03000	UGL	11/07/92
						2-METHYL-4,6-DINITROPHENOL/4,6		0.55	<LM18	0.275	0.55000	0.27500	UGL	11/07/92
						2-METHYLNAPHTHALENE		0.05	<LM18	0.0245	0.04900	0.02450	UGL	11/07/92
						2-METHYLPHENOL/2-CRESOL		0.29	<LM18	0.0145	0.02900	0.01450	UGL	11/07/92
						2-NITROANILINE		0.06	<LM18	0.031	0.06200	0.03100	UGL	11/07/92
						2-NITROPHENOL		0.14	<LM18	0.07	0.14000	0.07000	UGL	11/07/92
						3,3'-DICHLOROBENZIDINE		6.3	<LM18	3.15	6.30000	3.15000	UGL	11/07/92
						3-METHYL-4-CHLOROPHENOL/4-CHLO		0.1	<LM18	0.0475	0.09500	0.04750	UGL	11/07/92
						3-NITROANILINE		0.45	<LM18	0.225	0.45000	0.22500	UGL	11/07/92
						4-BROMOPHENYLPHENYL ETHER		0.03	<LM18	0.0165	0.03300	0.01650	UGL	11/07/92
						4-CHLOROANILINE		0.81	<LM18	0.405	0.81000	0.40500	UGL	11/07/92
						4-CHLOROPHENYLPHENYL ETHER		0.03	<LM18	0.0165	0.03300	0.01650	UGL	11/07/92
						4-METHYLPHENOL/4-CRESOL		0.24	<LM18	0.12	0.24000	0.12000	UGL	11/07/92
						4-NITROANILINE		0.41	<LM18	0.205	0.41000	0.20500	UGL	11/07/92
						4-NITROPHENOL		1.4	<LM18	0.7	1.40000	0.70000	UGL	11/07/92
						ACENAPHTHENE		0.04	<LM18	0.018	0.03600	0.01800	UGL	11/07/92
						ACENAPHTHYLENE		0.03	<LM18	0.0165	0.03300	0.01650	UGL	11/07/92
						ANTHRACENE		0.03	<LM18	0.0165	0.03300	0.01650	UGL	11/07/92
						BENZO(A)ANTHRACENE		0.17	<LM18	0.085	0.17000	0.08500	UGL	11/07/92
						BENZO(A)PYRENE		0.25	<LM18	0.125	0.25000	0.12500	UGL	11/07/92
						BENZO(B)FLUORANTHENE		0.21	<LM18	0.105	0.21000	0.10500	UGL	11/07/92
						BENZO(G,H,I)PERYLENE		0.25	<LM18	0.125	0.25000	0.12500	UGL	11/07/92
						BENZO(K)FLUORANTHENE		0.07	<LM18	0.033	0.06600	0.03300	UGL	11/07/92
						BIS (2-CHLOROETHOXY) METHANE		0.06	<LM18	0.0295	0.05900	0.02950	UGL	11/07/92
						BIS (2-CHLOROETHYL) ETHER		0.03	<LM18	0.0165	0.03300	0.01650	UGL	11/07/92
						BIS (2-CHLOROISOPROPYL) ETHER		0.2	<LM18	0.1	0.20000	0.10000	UGL	11/07/92
						BIS (2-ETHYLHEXYL) PHTHALATE		0.62	<LM18	0.31	0.62000	0.31000	UGL	11/07/92
						BUTYLBENZYL PHTHALATE		0.17	<LM18	0.085	0.17000	0.08500	UGL	11/07/92
						CHRYSENE		0.12	<LM18	0.060	0.12000	0.06000	UGL	11/07/92
						DI-N-BUTYL PHTHALATE		0.06	<LM18	0.0305	0.06100	0.03050	UGL	11/07/92
						DI-N-OCTYL PHTHALATE		0.19	<LM18	0.095	0.19000	0.09500	UGL	11/07/92

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SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	HIT	RESULT	BOOL/METH	EVALUATION PROTOCOL	CRL	COD	UNITS	SAMPLE DATE
R13	R13-SA-19	R13SA1901	0.5	SO	VOA	DIBROMOCHLOROMETHANE		0.003	<LM19	0.00155	0.00310	0.00155	UGL	11/07/92
						ETHYLBENZENE		0.002	<LM19	0.00085	0.00170	0.00085	UGL	11/07/92
						METHYLENE CHLORIDE		0.012	<LM19	0.006	0.01200	0.00600	UGL	11/07/92
						METHYLETHYL PHENOL/METHYLETHYL		0.07	<LM19	0.035	0.07000	0.03500	UGL	11/07/92
						METHYLISOBUTYL KETONE		0.027	<LM19	0.0135	0.02700	0.01350	UGL	11/07/92
						STYRENE		0.003	<LM19	0.0013	0.00260	0.00130	UGL	11/07/92
						TETRACHLOROETHENE		0.0008	<LM19	0.000405	0.00081	0.00041	UGL	11/07/92
						TOLUENE		0.0008	<LM19	0.00039	0.00078	0.00039	UGL	11/07/92
						TRANS-1,3-DICHLOROPROPENE		0.003	<LM19	0.0014	0.00280	0.00140	UGL	11/07/92
						TRICHLOROETHENE		0.003	<LM19	0.0014	0.00280	0.00140	UGL	11/07/92
						TRICHLOROFLUOROMETHANE		0.006	<LM19	0.00295	0.00590	0.00295	UGG	11/07/92
						XYLENES		0.002	<LM19	0.00075	0.00150	0.00075	UGL	11/07/92
		R13SA1901N			EXP	2,4-DINITROTOLUENE		0.14	<LM18	0.212	0.14000	0.07000	UGL	11/07/92
						2,6-DINITROTOLUENE		0.09	<LM18	0.262	0.08500	0.04250	UGL	11/07/92
						NITROBENZENE		0.05	<LM18	1.205	0.04500	0.02250	UGL	11/07/92
					PCB	4,4'-DDD		0.3	<LM18	0.004130	0.30000	0.15000	UGL	11/07/92
						4,4'-DDE		0.31	<LM18	0.003825	0.31000	0.15500	UGL	11/07/92
						4,4'-DDT		0.31	<LM18	0.003535	0.31000	0.15500	UGL	11/07/92
						ALDRIN		0.33	<LM18	0.003645	0.33000	0.16500	UGL	11/07/92
						ALPHA-BENZENEHEXACHLORIDE		0.27	<LM18	0.004535	0.27000	0.13500	UGL	11/07/92
						ALPHA-CHLORDANE		0.005	<LH10		0.00500	0.00250	UGL	11/07/92
						ALPHA-ENDOSULFAN/ENDOSULFAN I		0.62	<LM18	0.003010	0.62000	0.31000	UGL	11/07/92
						BETA-BENZENEHEXACHLORIDE		0.27	<LM18	0.001285	0.27000	0.13500	UGL	11/07/92
						BETA-ENDOSULFAN/ENDOSULFAN II		0.62	<LM18	0.003315	0.62000	0.31000	UGL	11/07/92
						DELTA-BENZENEHEXACHLORIDE		0.27	<LM18	0.002775	0.27000	0.13500	UGL	11/07/92
						DIELDRIN		0.31	<LM18	0.003145	0.31000	0.15500	UGL	11/07/92
						ENDOSULFAN SULFATE		0.62	<LM18	0.003815	0.62000	0.31000	UGG	11/07/92
						ENDRIN		0.45	<LM18	0.0012	0.45000	0.22500	UGL	11/07/92
						ENDRIN ALDEHYDE		0.53	<LM18	0.012	0.53000	0.26500	UGL	11/07/92
						GAMMA-CHLORDANE		0.005	<LH10		0.00500	0.00250	UGL	11/07/92
						HEPTACHLOR		0.13	<LM18	0.00309	0.13000	0.06500	UGL	11/07/92
						HEPTACHLOR EPOXIDE		0.33	<LM18	0.0031	0.33000	0.16500	UGL	11/07/92
						LINDANE		0.27	<LM18	0.00319	0.27000	0.13500	UGL	11/07/92
						METHOXYCHLOR		0.33	<LM18	0.03555	0.33000	0.16500	UGL	11/07/92
						PCB 1016		1.4	<LM18	0.0333	1.40000	0.70000	UGL	11/07/92
						PCB 1221		0.082	<LH16		0.08200	0.04100	UGL	11/07/92

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SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	HIT	RESULT	BOOL/METH	EVALUATION PROTOCOL	CRL	COD	UNITS	SAMPLE DATE
R13	R13-SA-19	R13SA1902	5.0	SO	SVOA	2-CHLORONAPHTHALENE		0.04	<LM18	0.018	0.03600	0.01800	UGL	11/07/92
						2-CHLOROPHENOL		0.06	<LM18	0.03	0.06000	0.03000	UGL	11/07/92
						2-METHYL-4,6-DINITROPHENOL/4,6		0.55	<LM18	0.275	0.55000	0.27500	UGL	11/07/92
						2-METHYLNAPHTHALENE		0.05	<LM18	0.0245	0.04900	0.02450	UGL	11/07/92
						2-METHYLPHENOL/2-CRESOL		0.29	<LM18	0.0145	0.02900	0.01450	UGL	11/07/92
						2-NITROANILINE		0.06	<LM18	0.031	0.06200	0.03100	UGL	11/07/92
						2-NITROPHENOL		0.14	<LM18	0.07	0.14000	0.07000	UGL	11/07/92
						3,3'-DICHLOROBENZIDINE		6.3	<LM18	3.15	6.30000	3.15000	UGL	11/07/92
						3-METHYL-4-CHLOROPHENOL/4-CHLO		0.1	<LM18	0.0475	0.09500	0.04750	UGL	11/07/92
						3-NITROANILINE		0.45	<LM18	0.225	0.45000	0.22500	UGL	11/07/92
						4-BROMOPHENYLPHENYL ETHER		0.03	<LM18	0.0165	0.03300	0.01650	UGL	11/07/92
						4-CHLOROANILINE		0.81	<LM18	0.405	0.81000	0.40500	UGL	11/07/92
						4-CHLOROPHENYLPHENYL ETHER		0.03	<LM18	0.0165	0.03300	0.01650	UGL	11/07/92
						4-METHYLPHENOL/4-CRESOL		0.24	<LM18	0.12	0.24000	0.12000	UGL	11/07/92
						4-NITROANILINE		0.41	<LM18	0.205	0.41000	0.20500	UGL	11/07/92
						4-NITROPHENOL		1.4	<LM18	0.7	1.40000	0.70000	UGL	11/07/92
						ACENAPHTHENE		0.04	<LM18	0.018	0.03600	0.01800	UGL	11/07/92
						ACENAPHTHYLENE		0.03	<LM18	0.0165	0.03300	0.01650	UGL	11/07/92
						ANTHRACENE		0.03	<LM18	0.0165	0.03300	0.01650	UGL	11/07/92
						BENZO(A)ANTHRACENE		0.17	<LM18	0.085	0.17000	0.08500	UGL	11/07/92
						BENZO(A)PYRENE		0.25	<LM18	0.125	0.25000	0.12500	UGL	11/07/92
						BENZO(B)FLUORANTHENE		0.21	<LM18	0.105	0.21000	0.10500	UGL	11/07/92
						BENZO(G,H,I)PERYLENE		0.25	<LM18	0.125	0.25000	0.12500	UGL	11/07/92
						BENZO(K)FLUORANTHENE		0.07	<LM18	0.033	0.06600	0.03300	UGL	11/07/92
						BIS (2-CHLOROETHOXY) METHANE		0.06	<LM18	0.0295	0.05900	0.02950	UGL	11/07/92
						BIS (2-CHLOROETHYL) ETHER		0.03	<LM18	0.0165	0.03300	0.01650	UGL	11/07/92
						BIS (2-CHLOROISOPROPYL) ETHER		0.2	<LM18	0.1	0.20000	0.10000	UGL	11/07/92
						BIS (2-ETHYLHEXYL) PHTHALATE		0.62	<LM18	0.31	0.62000	0.31000	UGL	11/07/92
						BUTYLBENZYL PHTHALATE		0.17	<LM18	0.085	0.17000	0.08500	UGL	11/07/92
						CHRYSENE		0.12	<LM18	0.060	0.12000	0.06000	UGL	11/07/92
						DI-N-BUTYL PHTHALATE		0.06	<LM18	0.0305	0.06100	0.03050	UGL	11/07/92
						DI-N-OCTYL PHTHALATE		0.19	<LM18	0.095	0.19000	0.09500	UGL	11/07/92
						DIBENZ(A,H)ANTHRACENE		0.21	<LM18	0.105	0.21000	0.10500	UGL	11/07/92
						DIBENZOFURAN		0.04	<LM18	0.0175	0.03500	0.01750	UGL	11/07/92
						DIETHYL PHTHALATE		0.24	<LM18	0.120	0.24000	0.12000	UGL	11/07/92
						DIMETHYL PHTHALATE		0.17	<LM18	0.085	0.17000	0.08500	UGL	11/07/92

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SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	HIT	RESULT	BOOL/METH	EVALUATION PROTOCOL	CRL	COD	UNITS	SAMPLE DATE
R13	R13-SA-19	R13SA1902	5.0	SO	VOA	METHYLISOBUTYL KETONE		0.027	<LM19	0.0135	0.02700	0.01350	UGL	11/07/92
						STYRENE		0.003	<LM19	0.0013	0.00260	0.00130	UGL	11/07/92
						TETRACHLOROETHENE		0.0008	<LM19	0.000405	0.00081	0.00041	UGL	11/07/92
						TOLUENE		0.0008	<LM19	0.00039	0.00078	0.00039	UGL	11/07/92
						TRANS-1,3-DICHLOROPROPENE		0.003	<LM19	0.0014	0.00280	0.00140	UGL	11/07/92
						TRICHLOROETHENE		0.003	<LM19	0.0014	0.00280	0.00140	UGL	11/07/92
						TRICHLOROFLUOROMETHANE		0.006	<LM19	0.00295	0.00590	0.00295	UGG	11/07/92
						XYLENES		0.002	<LM19	0.00075	0.00150	0.00075	UGL	11/07/92
		R13SA1902N			EXP	2,4-DINITROTOLUENE		0.14	<LM18	0.212	0.14000	0.07000	UGL	11/07/92
						2,6-DINITROTOLUENE		0.09	<LM18	0.262	0.08500	0.04250	UGL	11/07/92
						NITROBENZENE		0.05	<LM18	1.205	0.04500	0.02250	UGL	11/07/92
					PCB	4,4'-DDD		0.3	<LM18	0.004130	0.30000	0.15000	UGL	11/07/92
						4,4'-DDE		0.31	<LM18	0.003825	0.31000	0.15500	UGL	11/07/92
						4,4'-DDT		0.31	<LM18	0.003535	0.31000	0.15500	UGL	11/07/92
						ALDRIN		0.33	<LM18	0.003645	0.33000	0.16500	UGL	11/07/92
						ALPHA-BENZENEHEXACHLORIDE		0.27	<LM18	0.004535	0.27000	0.13500	UGL	11/07/92
						ALPHA-CHLORDANE		0.005	<LH10		0.00500	0.00250	UGL	11/07/92
						ALPHA-ENDOSULFAN/ENDOSULFAN I		0.62	<LM18	0.003010	0.62000	0.31000	UGL	11/07/92
						BETA-BENZENEHEXACHLORIDE		0.27	<LM18	0.001285	0.27000	0.13500	UGL	11/07/92
						BETA-ENDOSULFAN/ENDOSULFAN II		0.62	<LM18	0.003315	0.62000	0.31000	UGL	11/07/92
						DELTA-BENZENEHEXACHLORIDE		0.27	<LM18	0.002775	0.27000	0.13500	UGL	11/07/92
						DIELDRIN		0.31	<LM18	0.003145	0.31000	0.15500	UGL	11/07/92
						ENDOSULFAN SULFATE		0.62	<LM18	0.003815	0.62000	0.31000	UGG	11/07/92
						ENDRIN		0.45	<LM18	0.0012	0.45000	0.22500	UGL	11/07/92
						ENDRIN ALDEHYDE		0.53	<LM18	0.012	0.53000	0.26500	UGL	11/07/92
						GAMMA-CHLORDANE		0.005	<LH10		0.00500	0.00250	UGL	11/07/92
						HEPTACHLOR		0.13	<LM18	0.00309	0.13000	0.06500	UGL	11/07/92
						HEPTACHLOR EPOXIDE		0.33	<LM18	0.0031	0.33000	0.16500	UGL	11/07/92
						LINDANE		0.27	<LM18	0.00319	0.27000	0.13500	UGL	11/07/92
						METHOXYCHLOR		0.33	<LM18	0.03555	0.33000	0.16500	UGL	11/07/92
						PCB 1016		1.4	<LM18	0.0333	1.40000	0.70000	UGL	11/07/92
						PCB 1221		0.082	<LH16		0.08200	0.04100	UGL	11/07/92
						PCB 1232		0.082	<LH16		0.08200	0.04100	UGL	11/07/92
						PCB 1242		0.082	<LH16		0.08200	0.04100	UGL	11/07/92
						PCB 1248		0.08	<LH16		0.08000	0.04000	UGL	11/07/92
						PCB 1254		0.082	<LH16		0.08200	0.04100	UGL	11/07/92

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SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	HIT	RESULT	BOOL/METH	EVALUATION PROTOCOL	CRL	COD	UNITS	SAMPLE DATE
R13	R13-SA-21	R13SA2101	1.0	SO	MET	MAGNESIUM		4940.0	=JS16	6260	100.00000	50.00000	UGL	11/07/92
						MANGANESE		1080.0	=JS16	2790	2.05000	1.02000	UGL	11/07/92
						MERCURY	HIT	0.241	=JB01	0.155	0.05000	0.02500	UGL	11/07/92
						NICKEL		43.8	=JS16	67.9	1.71000	0.85300	UGL	11/07/92
						POTASSIUM		929.0	=JS16	2750	100.00000	50.00000	UGL	11/07/92
						SELENIUM		0.25	<JD15	0.612	0.25000	0.12500	UGL	11/07/92
						SILVER	HIT	6.4	=JS16	0.294	0.58900	0.29400	UGL	11/07/92
						SODIUM	HIT	371.0	=JS16	327	100.00000	50.00000	UGL	11/07/92
						THALLIUM		6.62	<JS16	18.2	6.62000	3.31000	UGL	11/07/92
						VANADIUM		42.8	=JS16	74	3.39000	1.69000	UGL	11/07/92
		R13SA2101N				LEAD	HIT	742.0	=JS16	53	10.50000	5.23000	UGL	11/07/92
	R13-SS-01	R13SS0101	0.5		PCB	4,4'-DDD		0.008	<LH10	0.004130	0.00826	0.00413	UGL	11/07/92
						4,4'-DDE		0.008	<LH10	0.003825	0.00765	0.00383	UGL	11/07/92
						4,4'-DDT		0.007	<LH10	0.003535	0.00707	0.00354	UGL	11/07/92
						ALDRIN		0.007	<LH10	0.003645	0.00729	0.00365	UGL	11/07/92
						ALPHA-BENZENEHEXACHLORIDE		0.009	<LH10	0.004535	0.00907	0.00454	UGL	11/07/92
						ALPHA-ENDOSULFAN/ENDOSULFAN I		0.006	<LH10	0.003010	0.00602	0.00301	UGL	11/07/92
						BETA-BENZENEHEXACHLORIDE		0.003	<LH10	0.001285	0.00257	0.00129	UGL	11/07/92
						BETA-ENDOSULFAN/ENDOSULFAN II		0.007	<LH10	0.003315	0.00663	0.00332	UGL	11/07/92
						DELTA-BENZENEHEXACHLORIDE		0.006	<LH10	0.002775	0.00555	0.00278	UGL	11/07/92
						DIELDRIN		0.006	<LH10	0.003145	0.00629	0.00315	UGL	11/07/92
						ENDOSULFAN SULFATE		0.008	<LH10	0.003815	0.00763	0.00382	UGG	11/07/92
						ENDRIN		0.007	<LH10	0.0012	0.00240	0.00120	UGL	11/07/92
						ENDRIN ALDEHYDE		0.024	<LH10	0.012	0.02400	0.01200	UGL	11/07/92
						HEPTACHLOR		0.006	<LH10	0.00309	0.00618	0.00309	UGL	11/07/92
						HEPTACHLOR EPOXIDE		0.006	<LH10	0.0031	0.00620	0.00310	UGL	11/07/92
						LINDANE		0.006	<LH10	0.00319	0.00638	0.00319	UGL	11/07/92
						METHOXYCHLOR		0.071	<LH10	0.03555	0.07110	0.03555	UGL	11/07/92
						PCB 1016		0.067	<LH16	0.0333	0.06660	0.03330	UGL	11/07/92
						PCB 1260		0.082	<LH16	0.0402	0.08040	0.04020	UGL	11/07/92
						TOXAPHENE		0.444	<LH10		0.44400	0.22200	UGL	11/07/92
					SVOA	1,2,4-TRICHLOROBENZENE		0.04	<LM18	0.02	0.04000	0.02000	UGL	11/07/92
						1,2-DICHLOROBENZENE		0.11	<LM18	0.055	0.11000	0.05500	UGL	11/07/92
						1,3-DICHLOROBENZENE		0.13	<LM18	0.065	0.13000	0.06500	UGL	11/07/92
						1,4-DICHLOROBENZENE		0.1	<LM18	0.049	0.09800	0.04900	UGL	11/07/92
						2,4,5-TRICHLOROPHENOL		0.1	<LM18	0.05	0.10000	0.05000	UGL	11/07/92

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SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	HIT	RESULT	BOOL/METH	EVALUATION PROTOCOL	CRL	COD	UNITS	SAMPLE DATE
R13	R13-SS-01	R13SS0101	0.5	SO	SVOA	DIBENZ(A,H)ANTHRACENE		0.21	<LM18	0.105	0.21000	0.10500	UGL	11/07/92
						DIBENZOFURAN		0.04	<LM18	0.0175	0.03500	0.01750	UGL	11/07/92
						DIETHYL PHTHALATE		0.24	<LM18	0.120	0.24000	0.12000	UGL	11/07/92
						DIMETHYL PHTHALATE		0.17	<LM18	0.085	0.17000	0.08500	UGL	11/07/92
						FLUORANTHENE		0.07	<LM18	0.034	0.06800	0.03400	UGL	11/07/92
						FLUORENE		0.03	<LM18	0.0165	0.03300	0.01650	UGL	11/07/92
						HEXACHLOROBENZENE		0.03	<LM18	0.0165	0.03300	0.01650	UGL	11/07/92
						HEXACHLOROBUTADIENE		0.23	<LM18	0.115	0.23000	0.11500	UGL	11/07/92
						HEXACHLOROCYCLOPENTADIENE		6.2	<LM18	3.100	6.20000	3.10000	UGL	11/07/92
						HEXACHLOROETHANE		0.15	<LM18	0.075	0.15000	0.07500	UGL	11/07/92
						INDENO(1,2,3-C,D)PYRENE		0.29	<LM18	0.145	0.29000	0.14500	UGL	11/07/92
						ISOPHORONE		0.03	<LM18	0.0165	0.03300	0.01650	UGL	11/07/92
						N-NITROSODI-N-PROPYLAMINE		0.2	<LM18	0.1	0.20000	0.10000	UGL	11/07/92
						N-NITROSODIPHENYLAMINE		0.19	<LM18	0.095	0.19000	0.09500	UGL	11/07/92
						NAPHTHALENE		0.04	<LM18	0.0185	0.03700	0.01850	UGL	11/07/92
						PENTACHLOROPHENOL		1.3	<LM18	0.650	1.30000	0.65000	UGL	11/07/92
						PHENANTHRENE		0.03	<LM18	0.0165	0.03300	0.01650	UGL	11/07/92
						PHENOL		0.11	<LM18	0.055	0.11000	0.05500	UGL	11/07/92
						PYRENE		0.03	<LM18	0.0165	0.03300	0.01650	UGL	11/07/92
					VOA	1,1,1-TRICHLOROETHANE		0.004	<LM19	0.0022	0.00440	0.00220	UGL	11/07/92
						1,1,2,2-TETRACHLOROETHANE		0.002	<LM19	0.0012	0.00240	0.00120	UGL	11/07/92
						1,1,2-TRICHLOROETHANE		0.005	<LM19	0.0027	0.00540	0.00270	UGL	11/07/92
						1,1-DICHLOROETHANE		0.002	<LM19	0.0015	0.00230	0.00115	UGL	11/07/92
						1,1-DICHLOROETHENE		0.004	<LM19	0.00195	0.00390	0.00195	UGL	11/07/92
						1,2-DICHLOROETHANE		0.002	<LM19	0.00085	0.00170	0.00085	UGL	11/07/92
						1,2-DICHLOROPROPANE		0.003	<LM19	0.00145	0.00290	0.00145	UGL	11/07/92
						ACETONE		0.017	<LM19	0.0085	0.01700	0.00850	UGL	11/07/92
						BENZENE		0.002	<LM19	0.00075	0.00150	0.00075	UGL	11/07/92
						BROMODICHLOROMETHANE		0.003	<LM19	0.00145	0.00290	0.00145	UGL	11/07/92
						BROMOFORM		0.007	<LM19	0.00345	0.00690	0.00345	UGL	11/07/92
						BROMOMETHANE		0.006	<LM19	0.00285	0.00570	0.00285	UGL	11/07/92
						CARBON TETRACHLORIDE		0.007	<LM19	0.0035	0.00700	0.00350	UGL	11/07/92
						CHLORFORM		0.0009	<LM19	0.000435	0.00087	0.00044	UGL	11/07/92
						CHLOROBENZENE		0.0009	<LM19	0.000430	0.00086	0.00043	UGL	11/07/92
						CHLOROETHANE		0.012	<LM19	0.006	0.01200	0.00600	UGL	11/07/92
						CHLOROMETHANE		0.009	<LM19	0.0044	0.00880	0.00440	UGL	11/07/92

IAAP - R13 - All Analytical Results

SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	HIT	RESULT	BOOL/METH	EVALUATION PROTOCOL	CRL	COD	UNITS	SAMPLE DATE
R13	R13-SS-01	R13SS0101N	0.5	SO	PCB	PCB 1232		0.082	<LH16		0.08200	0.04100	UGL	11/07/92
						PCB 1242		0.082	<LH16		0.08200	0.04100	UGL	11/07/92
						PCB 1248		0.08	<LH16		0.08000	0.04000	UGL	11/07/92
						PCB 1254		0.082	<LH16		0.08200	0.04100	UGL	11/07/92
						PCB 1260		2.6	<LM18	0.0402	2.60000	1.30000	UGL	11/07/92
						TOXAPHENE		2.6	<LM18		2.60000	1.30000	UGL	11/07/92
					VOA	1,2-DIPHENYLHYDRAZINE		0.14	<LM18		0.14000	0.07000		11/07/92
	R13-SS-03	R13SS0301			PCB	4,4'-DDD	HIT	0.009	=LH10	0.004130	0.00826	0.00413	UGL	11/07/92
						4,4'-DDE	HIT	0.037	=LH10	0.003825	0.00765	0.00383	UGL	11/07/92
						4,4'-DDT	HIT	0.053	=LH10	0.003535	0.00707	0.00354	UGL	11/07/92
						ALDRIN		0.007	<LH10	0.003645	0.00729	0.00365	UGL	11/07/92
						ALPHA-BENZENEHEXACHLORIDE		0.009	<LH10	0.004535	0.00907	0.00454	UGL	11/07/92
						ALPHA-ENDOSULFAN/ENDOSULFAN I		0.006	<LH10	0.003010	0.00602	0.00301	UGL	11/07/92
						BETA-BENZENEHEXACHLORIDE		0.003	<LH10	0.001285	0.00257	0.00129	UGL	11/07/92
						BETA-ENDOSULFAN/ENDOSULFAN II		0.007	<LH10	0.003315	0.00663	0.00332	UGL	11/07/92
						DELTA-BENZENEHEXACHLORIDE		0.006	<LH10	0.002775	0.00555	0.00278	UGL	11/07/92
						DIELDRIN		0.006	<LH10	0.003145	0.00629	0.00315	UGL	11/07/92
						ENDOSULFAN SULFATE		0.008	<LH10	0.003815	0.00763	0.00382	UGG	11/07/92
						ENDRIN		0.007	<LH10	0.0012	0.00240	0.00120	UGL	11/07/92
						ENDRIN ALDEHYDE		0.024	<LH10	0.012	0.02400	0.01200	UGL	11/07/92
						HEPTACHLOR		0.006	<LH10	0.00309	0.00618	0.00309	UGL	11/07/92
						HEPTACHLOR EPOXIDE		0.006	<LH10	0.0031	0.00620	0.00310	UGL	11/07/92
						LINDANE		0.006	<LH10	0.00319	0.00638	0.00319	UGL	11/07/92
						METHOXYCHLOR		0.071	<LH10	0.03555	0.07110	0.03555	UGL	11/07/92
						PCB 1016		0.067	<LH16	0.0333	0.06660	0.03330	UGL	11/07/92
						PCB 1260		0.082	<LH16	0.0402	0.08040	0.04020	UGL	11/07/92
						TOXAPHENE		0.444	<LH10		0.44400	0.22200	UGL	11/07/92
					SVOA	1,2,4-TRICHLOROBENZENE		0.04	<LM18	0.02	0.04000	0.02000	UGL	11/07/92
						1,2-DICHLOROBENZENE		0.11	<LM18	0.055	0.11000	0.05500	UGL	11/07/92
						1,3-DICHLOROBENZENE		0.13	<LM18	0.065	0.13000	0.06500	UGL	11/07/92
						1,4-DICHLOROBENZENE		0.1	<LM18	0.049	0.09800	0.04900	UGL	11/07/92
						2,4,5-TRICHLOROPHENOL		0.1	<LM18	0.05	0.10000	0.05000	UGL	11/07/92
						2,4,6-TRICHLOROPHENOL		0.17	<LM18	0.085	0.17000	0.08500	UGL	11/07/92
						2,4-DICHLOROPHENOL		0.18	<LM18	0.09	0.18000	0.09000	UGL	11/07/92
						2,4-DIMETHYLPHENOL		0.69	<LM18	0.345	0.69000	0.34500	UGL	11/07/92
						2,4-DINITROPHENOL		1.2	<LM18	0.6	1.20000	0.60000	UGL	11/07/92

IAAP - R13 - All Analytical Results

SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	HIT	RESULT	BOOL/METH	EVALUATION PROTOCOL	CRL	COD	UNITS	SAMPLE DATE
R13	R13-SS-03	R13SS0301	0.5	SO	SVOA	FLUORANTHENE	HIT	0.2	=LM18	0.034	0.06800	0.03400	UGL	11/07/92
						FLUORENE		0.03	<LM18	0.0165	0.03300	0.01650	UGL	11/07/92
						HEXACHLOROBENZENE		0.03	<LM18	0.0165	0.03300	0.01650	UGL	11/07/92
						HEXACHLOROBUTADIENE		0.23	<LM18	0.115	0.23000	0.11500	UGL	11/07/92
						HEXACHLOROCYCLOPENTADIENE		6.2	<LM18	3.100	6.20000	3.10000	UGL	11/07/92
						HEXACHLOROETHANE		0.15	<LM18	0.075	0.15000	0.07500	UGL	11/07/92
						INDENO(1,2,3-C,D)PYRENE		0.29	<LM18	0.145	0.29000	0.14500	UGL	11/07/92
						ISOPHORONE		0.03	<LM18	0.0165	0.03300	0.01650	UGL	11/07/92
						N-NITROSODI-N-PROPYLAMINE		0.2	<LM18	0.1	0.20000	0.10000	UGL	11/07/92
						N-NITROSODIPHENYLAMINE		0.19	<LM18	0.095	0.19000	0.09500	UGL	11/07/92
						NAPHTHALENE		0.04	<LM18	0.0185	0.03700	0.01850	UGL	11/07/92
						PENTACHLOROPHENOL		1.3	<LM18	0.650	1.30000	0.65000	UGL	11/07/92
						PHENANTHRENE	HIT	0.18	=LM18	0.0165	0.03300	0.01650	UGL	11/07/92
						PHENOL		0.11	<LM18	0.055	0.11000	0.05500	UGL	11/07/92
						PYRENE	HIT	0.15	=LM18	0.0165	0.03300	0.01650	UGL	11/07/92
					VOA	1,1,1-TRICHLOROETHANE		0.004	<LM19	0.0022	0.00440	0.00220	UGL	11/07/92
						1,1,2,2-TETRACHLOROETHANE		0.002	<LM19	0.0012	0.00240	0.00120	UGL	11/07/92
						1,1,2-TRICHLOROETHANE		0.005	<LM19	0.0027	0.00540	0.00270	UGL	11/07/92
						1,1-DICHLOROETHANE		0.002	<LM19	0.0015	0.00230	0.00115	UGL	11/07/92
						1,1-DICHLOROETHENE		0.004	<LM19	0.00195	0.00390	0.00195	UGL	11/07/92
						1,2-DICHLOROETHANE		0.002	<LM19	0.00085	0.00170	0.00085	UGL	11/07/92
						1,2-DICHLOROPROPANE		0.003	<LM19	0.00145	0.00290	0.00145	UGL	11/07/92
						ACETONE		0.017	<LM19	0.0085	0.01700	0.00850	UGL	11/07/92
						BENZENE		0.002	<LM19	0.00075	0.00150	0.00075	UGL	11/07/92
						BROMODICHLOROMETHANE		0.003	<LM19	0.00145	0.00290	0.00145	UGL	11/07/92
						BROMOFORM		0.007	<LM19	0.00345	0.00690	0.00345	UGL	11/07/92
						BROMOMETHANE		0.006	<LM19	0.00285	0.00570	0.00285	UGL	11/07/92
						CARBON TETRACHLORIDE		0.007	<LM19	0.0035	0.00700	0.00350	UGL	11/07/92
						CHLORFORM		0.0009	<LM19	0.000435	0.00087	0.00044	UGL	11/07/92
						CHLOROBENZENE		0.0009	<LM19	0.000430	0.00086	0.00043	UGL	11/07/92
						CHLOROETHANE		0.012	<LM19	0.006	0.01200	0.00600	UGL	11/07/92
						CHLOROMETHANE		0.009	<LM19	0.0044	0.00880	0.00440	UGL	11/07/92
						DIBROMOCHLOROMETHANE		0.003	<LM19	0.00155	0.00310	0.00155	UGL	11/07/92
						ETHYLBENZENE		0.002	<LM19	0.00085	0.00170	0.00085	UGL	11/07/92
						METHYLENE CHLORIDE		0.012	<LM19	0.006	0.01200	0.00600	UGL	11/07/92
						METHYLETHYL PHENOL/METHYLETHYL		0.07	<LM19	0.035	0.07000	0.03500	UGL	11/07/92

IAAP - R13 - All Analytical Results

SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	HIT	RESULT	BOOL/METH	EVALUATION PROTOCOL	CRL	COD	UNITS	SAMPLE DATE
R13	R13-SS-03	R13SS0301N	0.5	SO	PCB	PCB 1260		2.6	<LM18	0.0402	2.60000	1.30000	UGL	11/07/92
						TOXAPHENE		2.6	<LM18		2.60000	1.30000	UGL	11/07/92
					VOA	1,2-DIPHENYLHYDRAZINE		0.14	<LM18		0.14000	0.07000		11/07/92
	R13-SS-04	R13SS0401			PCB	4,4'-DDD	HIT	0.227	=LH10	0.004130	0.00826	0.00413	UGL	11/07/92
						4,4'-DDE	HIT	1.08	=LH10	0.003825	0.00765	0.00383	UGL	11/07/92
						4,4'-DDT	HIT	2.49	=LH10	0.003535	0.00707	0.00354	UGL	11/07/92
						ALDRIN		0.007	<LH10	0.003645	0.00729	0.00365	UGL	11/07/92
						ALPHA-BENZENEHEXACHLORIDE		0.009	<LH10	0.004535	0.00907	0.00454	UGL	11/07/92
						ALPHA-ENDOSULFAN/ENDOSULFAN I		0.006	<LH10	0.003010	0.00602	0.00301	UGL	11/07/92
						BETA-BENZENEHEXACHLORIDE		0.003	<LH10	0.001285	0.00257	0.00129	UGL	11/07/92
						BETA-ENDOSULFAN/ENDOSULFAN II		0.007	<LH10	0.003315	0.00663	0.00332	UGL	11/07/92
						DELTA-BENZENEHEXACHLORIDE		0.006	<LH10	0.002775	0.00555	0.00278	UGL	11/07/92
						DIELDRIN		0.006	<LH10	0.003145	0.00629	0.00315	UGL	11/07/92
						ENDOSULFAN SULFATE		0.008	<LH10	0.003815	0.00763	0.00382	UGG	11/07/92
						ENDRIN		0.007	<LH10	0.0012	0.00240	0.00120	UGL	11/07/92
						ENDRIN ALDEHYDE		0.024	<LH10	0.012	0.02400	0.01200	UGL	11/07/92
						HEPTACHLOR	HIT	0.007	=LH10	0.00309	0.00618	0.00309	UGL	11/07/92
						HEPTACHLOR EPOXIDE		0.006	<LH10	0.0031	0.00620	0.00310	UGL	11/07/92
						LINDANE		0.006	<LH10	0.00319	0.00638	0.00319	UGL	11/07/92
						METHOXYCHLOR		0.071	<LH10	0.03555	0.07110	0.03555	UGL	11/07/92
						PCB 1016		0.067	<LH16	0.0333	0.06660	0.03330	UGL	11/07/92
						PCB 1260		0.082	<LH16	0.0402	0.08040	0.04020	UGL	11/07/92
						TOXAPHENE		0.444	<LH10		0.44400	0.22200	UGL	11/07/92
					SVOA	1,2,4-TRICHLOROBENZENE		0.4	<LM18	0.02	0.04000	0.02000	UGL	11/07/92
						1,2-DICHLOROBENZENE		1.1	<LM18	0.055	0.11000	0.05500	UGL	11/07/92
						1,3-DICHLOROBENZENE		1.3	<LM18	0.065	0.13000	0.06500	UGL	11/07/92
						1,4-DICHLOROBENZENE		0.98	<LM18	0.049	0.09800	0.04900	UGL	11/07/92
						2,4,5-TRICHLOROPHENOL		1.0	<LM18	0.05	0.10000	0.05000	UGL	11/07/92
						2,4,6-TRICHLOROPHENOL		1.7	<LM18	0.085	0.17000	0.08500	UGL	11/07/92
						2,4-DICHLOROPHENOL		1.8	<LM18	0.09	0.18000	0.09000	UGL	11/07/92
						2,4-DIMETHYLPHENOL		6.9	<LM18	0.345	0.69000	0.34500	UGL	11/07/92
						2,4-DINITROPHENOL		12.0	<LM18	0.6	1.20000	0.60000	UGL	11/07/92
						2-CHLORONAPHTHALENE		0.36	<LM18	0.018	0.03600	0.01800	UGL	11/07/92
						2-CHLOROPHENOL		0.6	<LM18	0.03	0.06000	0.03000	UGL	11/07/92
						2-METHYL-4,6-DINITROPHENOL/4,6		5.5	<LM18	0.275	0.55000	0.27500	UGL	11/07/92
						2-METHYLNAPHTHALENE		0.49	<LM18	0.0245	0.04900	0.02450	UGL	11/07/92

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SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	HIT	RESULT	BOOL/METH	EVALUATION PROTOCOL	CRL	COD	UNITS	SAMPLE DATE
R13	R13-SS-04	R13SS0401	0.5	SO	SVOA	HEXACHLOROCYCLOPENTADIENE		62.0	<LM18	3.100	6.20000	3.10000	UGL	11/07/92
						HEXACHLOROETHANE		1.5	<LM18	0.075	0.15000	0.07500	UGL	11/07/92
						INDENO(1,2,3-C,D)PYRENE		2.9	<LM18	0.145	0.29000	0.14500	UGL	11/07/92
						ISOPHORONE		0.33	<LM18	0.0165	0.03300	0.01650	UGL	11/07/92
						N-NITROSODI-N-PROPYLAMINE		2.0	<LM18	0.1	0.20000	0.10000	UGL	11/07/92
						N-NITROSODIPHENYLAMINE		1.9	<LM18	0.095	0.19000	0.09500	UGL	11/07/92
						NAPHTHALENE		0.37	<LM18	0.0185	0.03700	0.01850	UGL	11/07/92
						PENTACHLOROPHENOL		13.0	<LM18	0.650	1.30000	0.65000	UGL	11/07/92
						PHENANTHRENE		0.33	<LM18	0.0165	0.03300	0.01650	UGL	11/07/92
						PHENOL		1.1	<LM18	0.055	0.11000	0.05500	UGL	11/07/92
						PYRENE		0.33	<LM18	0.0165	0.03300	0.01650	UGL	11/07/92
					VOA	1,1,1-TRICHLOROETHANE		0.004	<LM19	0.0022	0.00440	0.00220	UGL	11/07/92
						1,1,2,2-TETRACHLOROETHANE		0.002	<LM19	0.0012	0.00240	0.00120	UGL	11/07/92
						1,1,2-TRICHLOROETHANE		0.005	<LM19	0.0027	0.00540	0.00270	UGL	11/07/92
						1,1-DICHLOROETHANE		0.002	<LM19	0.0015	0.00230	0.00115	UGL	11/07/92
						1,1-DICHLOROETHENE		0.004	<LM19	0.00195	0.00390	0.00195	UGL	11/07/92
						1,2-DICHLOROETHANE		0.002	<LM19	0.00085	0.00170	0.00085	UGL	11/07/92
						1,2-DICHLOROPROPANE		0.003	<LM19	0.00145	0.00290	0.00145	UGL	11/07/92
						ACETONE		0.017	<LM19	0.0085	0.01700	0.00850	UGL	11/07/92
						BENZENE		0.002	<LM19	0.00075	0.00150	0.00075	UGL	11/07/92
						BROMODICHLOROMETHANE		0.003	<LM19	0.00145	0.00290	0.00145	UGL	11/07/92
						BROMOFORM		0.007	<LM19	0.00345	0.00690	0.00345	UGL	11/07/92
						BROMOMETHANE		0.006	<LM19	0.00285	0.00570	0.00285	UGL	11/07/92
						CARBON TETRACHLORIDE		0.007	<LM19	0.0035	0.00700	0.00350	UGL	11/07/92
						CHLORFORM		0.0009	<LM19	0.000435	0.00087	0.00044	UGL	11/07/92
						CHLOROBENZENE		0.0009	<LM19	0.000430	0.00086	0.00043	UGL	11/07/92
						CHLOROETHANE		0.012	<LM19	0.006	0.01200	0.00600	UGL	11/07/92
						CHLOROMETHANE		0.009	<LM19	0.0044	0.00880	0.00440	UGL	11/07/92
						DIBROMOCHLOROMETHANE		0.003	<LM19	0.00155	0.00310	0.00155	UGL	11/07/92
						ETHYLBENZENE		0.002	<LM19	0.00085	0.00170	0.00085	UGL	11/07/92
						METHYLENE CHLORIDE		0.012	<LM19	0.006	0.01200	0.00600	UGL	11/07/92
						METHYLETHYL PHENOL/METHYLETHYL		0.07	<LM19	0.035	0.07000	0.03500	UGL	11/07/92
						METHYLISOBUTYL KETONE		0.027	<LM19	0.0135	0.02700	0.01350	UGL	11/07/92
						STYRENE		0.003	<LM19	0.0013	0.00260	0.00130	UGL	11/07/92
						TETRACHLOROETHENE		0.0008	<LM19	0.000405	0.00081	0.00041	UGL	11/07/92
						TOLUENE		0.0008	<LM19	0.00039	0.00078	0.00039	UGL	11/07/92

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SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	HIT	RESULT	BOOL/METH	EVALUATION PROTOCOL	CRL	COD	UNITS	SAMPLE DATE
R13	R13-SS-05	R13SS0501	0.5	SO	PCB	4,4'-DDE	HIT	1.97	=LH10	0.003825	0.00765	0.00383	UGL	11/07/92
						4,4'-DDT	HIT	6.45	=LH10	0.003535	0.00707	0.00354	UGL	11/07/92
						ALDRIN		0.007	<LH10	0.003645	0.00729	0.00365	UGL	11/07/92
						ALPHA-BENZENEHEXACHLORIDE		0.009	<LH10	0.004535	0.00907	0.00454	UGL	11/07/92
						ALPHA-ENDOSULFAN/ENDOSULFAN I		0.006	<LH10	0.003010	0.00602	0.00301	UGL	11/07/92
						BETA-BENZENEHEXACHLORIDE		0.003	<LH10	0.001285	0.00257	0.00129	UGL	11/07/92
						BETA-ENDOSULFAN/ENDOSULFAN II		0.007	<LH10	0.003315	0.00663	0.00332	UGL	11/07/92
						DELTA-BENZENEHEXACHLORIDE		0.006	<LH10	0.002775	0.00555	0.00278	UGL	11/07/92
						DIELDRIN		0.006	<LH10	0.003145	0.00629	0.00315	UGL	11/07/92
						ENDOSULFAN SULFATE		0.008	<LH10	0.003815	0.00763	0.00382	UGG	11/07/92
						ENDRIN		0.007	<LH10	0.0012	0.00240	0.00120	UGL	11/07/92
						ENDRIN ALDEHYDE		0.024	<LH10	0.012	0.02400	0.01200	UGL	11/07/92
						HEPTACHLOR	HIT	0.01	=LH10	0.00309	0.00618	0.00309	UGL	11/07/92
						HEPTACHLOR EPOXIDE		0.006	<LH10	0.0031	0.00620	0.00310	UGL	11/07/92
						LINDANE		0.006	<LH10	0.00319	0.00638	0.00319	UGL	11/07/92
						METHOXYCHLOR		0.071	<LH10	0.03555	0.07110	0.03555	UGL	11/07/92
						PCB 1016		0.067	<LH16	0.0333	0.06660	0.03330	UGL	11/07/92
						PCB 1260		0.082	<LH16	0.0402	0.08040	0.04020	UGL	11/07/92
						TOXAPHENE		0.444	<LH10		0.44400	0.22200	UGL	11/07/92
					SVOA	1,2,4-TRICHLOROBENZENE		0.4	<LM18	0.02	0.04000	0.02000	UGL	11/07/92
						1,2-DICHLOROBENZENE		1.1	<LM18	0.055	0.11000	0.05500	UGL	11/07/92
						1,3-DICHLOROBENZENE		1.3	<LM18	0.065	0.13000	0.06500	UGL	11/07/92
						1,4-DICHLOROBENZENE		0.98	<LM18	0.049	0.09800	0.04900	UGL	11/07/92
						2,4,5-TRICHLOROPHENOL		1.0	<LM18	0.05	0.10000	0.05000	UGL	11/07/92
						2,4,6-TRICHLOROPHENOL		1.7	<LM18	0.085	0.17000	0.08500	UGL	11/07/92
						2,4-DICHLOROPHENOL		1.8	<LM18	0.09	0.18000	0.09000	UGL	11/07/92
						2,4-DIMETHYLPHENOL		6.9	<LM18	0.345	0.69000	0.34500	UGL	11/07/92
						2,4-DINITROPHENOL		12.0	<LM18	0.6	1.20000	0.60000	UGL	11/07/92
						2-CHLORONAPHTHALENE		0.36	<LM18	0.018	0.03600	0.01800	UGL	11/07/92
						2-CHLOROPHENOL		0.6	<LM18	0.03	0.06000	0.03000	UGL	11/07/92
						2-METHYL-4,6-DINITROPHENOL/4,6		5.5	<LM18	0.275	0.55000	0.27500	UGL	11/07/92
						2-METHYLNAPHTHALENE		0.49	<LM18	0.0245	0.04900	0.02450	UGL	11/07/92
						2-METHYLPHENOL/2-CRESOL		2.9	<LM18	0.0145	0.02900	0.01450	UGL	11/07/92
						2-NITROANILINE		0.62	<LM18	0.031	0.06200	0.03100	UGL	11/07/92
						2-NITROPHENOL		1.4	<LM18	0.07	0.14000	0.07000	UGL	11/07/92
						3,3'-DICHLOROBENZIDINE		63.0	<LM18	3.15	6.30000	3.15000	UGL	11/07/92

IAAP - R13 - All Analytical Results

SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	HIT	RESULT	BOOL/METH	EVALUATION PROTOCOL	CRL	COD	UNITS	SAMPLE DATE
R13	R13-SS-05	R13SS0501	0.5	SO	SVOA	N-NITROSODI-N-PROPYLAMINE		2.0	<LM18	0.1	0.20000	0.10000	UGL	11/07/92
						N-NITROSODIPHENYLAMINE		1.9	<LM18	0.095	0.19000	0.09500	UGL	11/07/92
						NAPHTHALENE		0.37	<LM18	0.0185	0.03700	0.01850	UGL	11/07/92
						PENTACHLOROPHENOL		13.0	<LM18	0.650	1.30000	0.65000	UGL	11/07/92
						PHENANTHRENE		0.33	<LM18	0.0165	0.03300	0.01650	UGL	11/07/92
						PHENOL		1.1	<LM18	0.055	0.11000	0.05500	UGL	11/07/92
						PYRENE		0.33	<LM18	0.0165	0.03300	0.01650	UGL	11/07/92
					VOA	1,1,1-TRICHLOROETHANE		0.004	<LM19	0.0022	0.00440	0.00220	UGL	11/07/92
						1,1,2,2-TETRACHLOROETHANE		0.002	<LM19	0.0012	0.00240	0.00120	UGL	11/07/92
						1,1,2-TRICHLOROETHANE		0.005	<LM19	0.0027	0.00540	0.00270	UGL	11/07/92
						1,1-DICHLOROETHANE		0.002	<LM19	0.0015	0.00230	0.00115	UGL	11/07/92
						1,1-DICHLOROETHENE		0.004	<LM19	0.00195	0.00390	0.00195	UGL	11/07/92
						1,2-DICHLOROETHANE		0.002	<LM19	0.00085	0.00170	0.00085	UGL	11/07/92
						1,2-DICHLOROPROPANE		0.003	<LM19	0.00145	0.00290	0.00145	UGL	11/07/92
						ACETONE		0.017	<LM19	0.0085	0.01700	0.00850	UGL	11/07/92
						BENZENE		0.002	<LM19	0.00075	0.00150	0.00075	UGL	11/07/92
						BROMODICHLOROMETHANE		0.003	<LM19	0.00145	0.00290	0.00145	UGL	11/07/92
						BROMOFORM		0.007	<LM19	0.00345	0.00690	0.00345	UGL	11/07/92
						BROMOMETHANE		0.006	<LM19	0.00285	0.00570	0.00285	UGL	11/07/92
						CARBON TETRACHLORIDE		0.007	<LM19	0.0035	0.00700	0.00350	UGL	11/07/92
						CHLORFORM		0.0009	<LM19	0.000435	0.00087	0.00044	UGL	11/07/92
						CHLOROBENZENE		0.0009	<LM19	0.000430	0.00086	0.00043	UGL	11/07/92
						CHLOROETHANE		0.012	<LM19	0.006	0.01200	0.00600	UGL	11/07/92
						CHLOROMETHANE		0.009	<LM19	0.0044	0.00880	0.00440	UGL	11/07/92
						DIBROMOCHLOROMETHANE		0.003	<LM19	0.00155	0.00310	0.00155	UGL	11/07/92
						ETHYLBENZENE		0.002	<LM19	0.00085	0.00170	0.00085	UGL	11/07/92
						METHYLENE CHLORIDE		0.012	<LM19	0.006	0.01200	0.00600	UGL	11/07/92
						METHYLETHYL PHENOL/METHYLETHYL		0.07	<LM19	0.035	0.07000	0.03500	UGL	11/07/92
						METHYLISOBUTYL KETONE		0.027	<LM19	0.0135	0.02700	0.01350	UGL	11/07/92
						STYRENE		0.003	<LM19	0.0013	0.00260	0.00130	UGL	11/07/92
						TETRACHLOROETHENE		0.0008	<LM19	0.000405	0.00081	0.00041	UGL	11/07/92
						TOLUENE		0.0008	<LM19	0.00039	0.00078	0.00039	UGL	11/07/92
						TRANS-1,3-DICHLOROPROPENE		0.003	<LM19	0.0014	0.00280	0.00140	UGL	11/07/92
						TRICHLOROETHENE		0.003	<LM19	0.0014	0.00280	0.00140	UGL	11/07/92
						TRICHLOROFLUOROMETHANE		0.006	<LM19	0.00295	0.00590	0.00295	UGG	11/07/92
						XYLENES		0.002	<LM19	0.00075	0.00150	0.00075	UGL	11/07/92

IAAP - R13 - All Analytical Results

SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	HIT	RESULT	BOOL/METH	EVALUATION PROTOCOL	CRL	COD	UNITS	SAMPLE DATE
R13	R13-SS-06	R13SS0601	0.5	SO	PCB	ALPHA-ENDOSULFAN/ENDOSULFAN I		0.006	<LH10	0.003010	0.00602	0.00301	UGL	11/20/92
						BETA-BENZENEHEXACHLORIDE		0.003	<LH10	0.001285	0.00257	0.00129	UGL	11/20/92
						BETA-ENDOSULFAN/ENDOSULFAN II		0.007	<LH10	0.003315	0.00663	0.00332	UGL	11/20/92
						DELTA-BENZENEHEXACHLORIDE		0.006	<LH10	0.002775	0.00555	0.00278	UGL	11/20/92
						DIELDRIN		0.006	<LH10	0.003145	0.00629	0.00315	UGL	11/20/92
						ENDOSULFAN SULFATE		0.008	<LH10	0.003815	0.00763	0.00382	UGG	11/20/92
						ENDRIN		0.007	<LH10	0.0012	0.00240	0.00120	UGL	11/20/92
						ENDRIN ALDEHYDE		0.024	<LH10	0.012	0.02400	0.01200	UGL	11/20/92
						HEPTACHLOR		0.006	<LH10	0.00309	0.00618	0.00309	UGL	11/20/92
						HEPTACHLOR EPOXIDE		0.006	<LH10	0.0031	0.00620	0.00310	UGL	11/20/92
						LINDANE		0.006	<LH10	0.00319	0.00638	0.00319	UGL	11/20/92
						METHOXYCHLOR		0.071	<LH10	0.03555	0.07110	0.03555	UGL	11/20/92
						PCB 1016		0.067	<LH16	0.0333	0.06660	0.03330	UGL	11/20/92
						PCB 1260		0.082	<LH16	0.0402	0.08040	0.04020	UGL	11/20/92
						TOXAPHENE		0.444	<LH10		0.44400	0.22200	UGL	11/20/92
					SVOA	1,2,4-TRICHLOROBENZENE		0.04	<LM18	0.02	0.04000	0.02000	UGL	11/20/92
						1,2-DICHLOROBENZENE		0.11	<LM18	0.055	0.11000	0.05500	UGL	11/20/92
						1,3-DICHLOROBENZENE		0.13	<LM18	0.065	0.13000	0.06500	UGL	11/20/92
						1,4-DICHLOROBENZENE		0.1	<LM18	0.049	0.09800	0.04900	UGL	11/20/92
						2,4,5-TRICHLOROPHENOL		0.1	<LM18	0.05	0.10000	0.05000	UGL	11/20/92
						2,4,6-TRICHLOROPHENOL		0.17	<LM18	0.085	0.17000	0.08500	UGL	11/20/92
						2,4-DICHLOROPHENOL		0.18	<LM18	0.09	0.18000	0.09000	UGL	11/20/92
						2,4-DIMETHYLPHENOL		0.69	<LM18	0.345	0.69000	0.34500	UGL	11/20/92
						2,4-DINITROPHENOL		1.2	<LM18	0.6	1.20000	0.60000	UGL	11/20/92
						2-CHLORONAPHTHALENE		0.04	<LM18	0.018	0.03600	0.01800	UGL	11/20/92
						2-CHLOROPHENOL		0.06	<LM18	0.03	0.06000	0.03000	UGL	11/20/92
						2-METHYL-4,6-DINITROPHENOL/4,6		0.55	<LM18	0.275	0.55000	0.27500	UGL	11/20/92
						2-METHYLNAPHTHALENE		0.05	<LM18	0.0245	0.04900	0.02450	UGL	11/20/92
						2-METHYLPHENOL/2-CRESOL		0.29	<LM18	0.0145	0.02900	0.01450	UGL	11/20/92
						2-NITROANILINE		0.06	<LM18	0.031	0.06200	0.03100	UGL	11/20/92
						2-NITROPHENOL		0.14	<LM18	0.07	0.14000	0.07000	UGL	11/20/92
						3,3'-DICHLOROBENZIDINE		6.3	<LM18	3.15	6.30000	3.15000	UGL	11/20/92
						3-METHYL-4-CHLOROPHENOL/4-CHLO		0.1	<LM18	0.0475	0.09500	0.04750	UGL	11/20/92
						3-NITROANILINE		0.45	<LM18	0.225	0.45000	0.22500	UGL	11/20/92
						4-BROMOPHENYLPHENYL ETHER		0.03	<LM18	0.0165	0.03300	0.01650	UGL	11/20/92
						4-CHLOROANILINE		0.81	<LM18	0.405	0.81000	0.40500	UGL	11/20/92

IAAP - R13 - All Analytical Results

SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	HIT	RESULT	BOOL/METH	EVALUATION PROTOCOL	CRL	COD	UNITS	SAMPLE DATE
R13	R13-SS-06	R13SS0601	0.5	SO	SVOA	PHENANTHRENE		0.03	<LM18	0.0165	0.03300	0.01650	UGL	11/20/92
						PHENOL		0.11	<LM18	0.055	0.11000	0.05500	UGL	11/20/92
						PYRENE		0.03	<LM18	0.0165	0.03300	0.01650	UGL	11/20/92
					VOA	1,1,1-TRICHLOROETHANE		0.004	<LM19	0.0022	0.00440	0.00220	UGL	11/20/92
						1,1,2,2-TETRACHLOROETHANE		0.002	<LM19	0.0012	0.00240	0.00120	UGL	11/20/92
						1,1,2-TRICHLOROETHANE		0.005	<LM19	0.0027	0.00540	0.00270	UGL	11/20/92
						1,1-DICHLOROETHANE		0.002	<LM19	0.0015	0.00230	0.00115	UGL	11/20/92
						1,1-DICHLOROETHENE		0.004	<LM19	0.00195	0.00390	0.00195	UGL	11/20/92
						1,2-DICHLOROETHANE		0.002	<LM19	0.00085	0.00170	0.00085	UGL	11/20/92
						1,2-DICHLOROPROPANE		0.003	<LM19	0.00145	0.00290	0.00145	UGL	11/20/92
						ACETONE		0.017	<LM19	0.0085	0.01700	0.00850	UGL	11/20/92
						BENZENE		0.002	<LM19	0.00075	0.00150	0.00075	UGL	11/20/92
						BROMODICHLOROMETHANE		0.003	<LM19	0.00145	0.00290	0.00145	UGL	11/20/92
						BROMOFORM		0.007	<LM19	0.00345	0.00690	0.00345	UGL	11/20/92
						BROMOMETHANE		0.006	<LM19	0.00285	0.00570	0.00285	UGL	11/20/92
						CARBON TETRACHLORIDE		0.007	<LM19	0.0035	0.00700	0.00350	UGL	11/20/92
						CHLORFORM		0.0009	<LM19	0.000435	0.00087	0.00044	UGL	11/20/92
						CHLOROBENZENE		0.0009	<LM19	0.000430	0.00086	0.00043	UGL	11/20/92
						CHLOROETHANE		0.012	<LM19	0.006	0.01200	0.00600	UGL	11/20/92
						CHLOROMETHANE		0.009	<LM19	0.0044	0.00880	0.00440	UGL	11/20/92
						DIBROMOCHLOROMETHANE		0.003	<LM19	0.00155	0.00310	0.00155	UGL	11/20/92
						ETHYLBENZENE		0.002	<LM19	0.00085	0.00170	0.00085	UGL	11/20/92
						METHYLENE CHLORIDE		0.012	<LM19	0.006	0.01200	0.00600	UGL	11/20/92
						METHYLETHYL PHENOL/METHYLETHYL		0.07	<LM19	0.035	0.07000	0.03500	UGL	11/20/92
						METHYLISOBUTYL KETONE		0.027	<LM19	0.0135	0.02700	0.01350	UGL	11/20/92
						STYRENE		0.003	<LM19	0.0013	0.00260	0.00130	UGL	11/20/92
						TETRACHLOROETHENE		0.0008	<LM19	0.000405	0.00081	0.00041	UGL	11/20/92
						TOLUENE		0.0008	<LM19	0.00039	0.00078	0.00039	UGL	11/20/92
						TRANS-1,3-DICHLOROPROPENE		0.003	<LM19	0.0014	0.00280	0.00140	UGL	11/20/92
						TRICHLOROETHENE		0.003	<LM19	0.0014	0.00280	0.00140	UGL	11/20/92
						TRICHLOROFLUOROMETHANE		0.006	<LM19	0.00295	0.00590	0.00295	UGG	11/20/92
						XYLENES		0.002	<LM19	0.00075	0.00150	0.00075	UGL	11/20/92
		R13SS0601N			EXP	2,4-DINITROTOLUENE		0.14	<LM18	0.212	0.14000	0.07000	UGL	11/20/92
						2,6-DINITROTOLUENE		0.09	<LM18	0.262	0.08500	0.04250	UGL	11/20/92
						NITROBENZENE		0.05	<LM18	1.205	0.04500	0.02250	UGL	11/20/92
					PCB	4,4'-DDD		0.3	<LM18	0.004130	0.30000	0.15000	UGL	11/20/92

IAAP - R13 - All Analytical Results

SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	HIT	RESULT	BOOL/METH	EVALUATION PROTOCOL	CRL	COD	UNITS	SAMPLE DATE
R13	R13-SS-07	R13SS0701	0.5	SO	PCB	DIELDRIN		0.006	<LH10	0.003145	0.00629	0.00315	UGL	11/20/92
						ENDOSULFAN SULFATE		0.008	<LH10	0.003815	0.00763	0.00382	UGG	11/20/92
						ENDRIN		0.007	<LH10	0.0012	0.00240	0.00120	UGL	11/20/92
						ENDRIN ALDEHYDE		0.024	<LH10	0.012	0.02400	0.01200	UGL	11/20/92
						HEPTACHLOR		0.006	<LH10	0.00309	0.00618	0.00309	UGL	11/20/92
						HEPTACHLOR EPOXIDE		0.006	<LH10	0.0031	0.00620	0.00310	UGL	11/20/92
						LINDANE		0.006	<LH10	0.00319	0.00638	0.00319	UGL	11/20/92
						METHOXYCHLOR		0.071	<LH10	0.03555	0.07110	0.03555	UGL	11/20/92
						PCB 1016		0.067	<LH16	0.0333	0.06660	0.03330	UGL	11/20/92
						PCB 1260		0.082	<LH16	0.0402	0.08040	0.04020	UGL	11/20/92
						TOXAPHENE		0.444	<LH10		0.44400	0.22200	UGL	11/20/92
					SVOA	1,2,4-TRICHLOROBENZENE		0.04	<LM18	0.02	0.04000	0.02000	UGL	11/20/92
						1,2-DICHLOROBENZENE		0.11	<LM18	0.055	0.11000	0.05500	UGL	11/20/92
						1,3-DICHLOROBENZENE		0.13	<LM18	0.065	0.13000	0.06500	UGL	11/20/92
						1,4-DICHLOROBENZENE		0.1	<LM18	0.049	0.09800	0.04900	UGL	11/20/92
						2,4,5-TRICHLOROPHENOL		0.1	<LM18	0.05	0.10000	0.05000	UGL	11/20/92
						2,4,6-TRICHLOROPHENOL		0.17	<LM18	0.085	0.17000	0.08500	UGL	11/20/92
						2,4-DICHLOROPHENOL		0.18	<LM18	0.09	0.18000	0.09000	UGL	11/20/92
						2,4-DIMETHYLPHENOL		0.69	<LM18	0.345	0.69000	0.34500	UGL	11/20/92
						2,4-DINITROPHENOL		1.2	<LM18	0.6	1.20000	0.60000	UGL	11/20/92
						2-CHLORONAPHTHALENE		0.04	<LM18	0.018	0.03600	0.01800	UGL	11/20/92
						2-CHLOROPHENOL		0.06	<LM18	0.03	0.06000	0.03000	UGL	11/20/92
						2-METHYL-4,6-DINITROPHENOL/4,6		0.55	<LM18	0.275	0.55000	0.27500	UGL	11/20/92
						2-METHYLNAPHTHALENE		0.05	<LM18	0.0245	0.04900	0.02450	UGL	11/20/92
						2-METHYLPHENOL/2-CRESOL		0.29	<LM18	0.0145	0.02900	0.01450	UGL	11/20/92
						2-NITROANILINE		0.06	<LM18	0.031	0.06200	0.03100	UGL	11/20/92
						2-NITROPHENOL		0.14	<LM18	0.07	0.14000	0.07000	UGL	11/20/92
						3,3'-DICHLOROBENZIDINE		6.3	<LM18	3.15	6.30000	3.15000	UGL	11/20/92
						3-METHYL-4-CHLOROPHENOL, CHLO		0.1	<LM18	0.0475	0.09500	0.04750	UGL	11/20/92
						3-NITROANILINE		0.45	<LM18	0.225	0.45000	0.22500	UGL	11/20/92
						4-BROMOPHENYLPHENYL ETHER		0.03	<LM18	0.0165	0.03300	0.01650	UGL	11/20/92
						4-CHLOROANILINE		0.81	<LM18	0.405	0.81000	0.40500	UGL	11/20/92
						4-CHLOROPHENYLPHENYL ETHER		0.03	<LM18	0.0165	0.03300	0.01650	UGL	11/20/92
						4-METHYLPHENOL/4-CRESOL		0.24	<LM18	0.12	0.24000	0.12000	UGL	11/20/92
						4-NITROANILINE		0.41	<LM18	0.205	0.41000	0.20500	UGL	11/20/92
						4-NITROPHENOL		1.4	<LM18	0.7	1.40000	0.70000	UGL	11/20/92

IAAP - R13 - All Analytical Results

SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	HIT	RESULT	BOOL/METH	EVALUATION PROTOCOL	CRL	COD	UNITS	SAMPLE DATE
R13	R13-SS-07	R13SS0701	0.5	SO	VOA	1,1,2,2-TETRACHLOROETHANE		0.002	<LM19	0.0012	0.00240	0.00120	UGL	11/20/92
						1,1,2-TRICHLOROETHANE		0.005	<LM19	0.0027	0.00540	0.00270	UGL	11/20/92
						1,1-DICHLOROETHANE		0.002	<LM19	0.0015	0.00230	0.00115	UGL	11/20/92
						1,1-DICHLOROETHENE		0.004	<LM19	0.00195	0.00390	0.00195	UGL	11/20/92
						1,2-DICHLOROETHANE		0.002	<LM19	0.00085	0.00170	0.00085	UGL	11/20/92
						1,2-DICHLOROPROPANE		0.003	<LM19	0.00145	0.00290	0.00145	UGL	11/20/92
						ACETONE		0.017	<LM19	0.0085	0.01700	0.00850	UGL	11/20/92
						BENZENE		0.002	<LM19	0.00075	0.00150	0.00075	UGL	11/20/92
						BROMODICHLOROMETHANE		0.003	<LM19	0.00145	0.00290	0.00145	UGL	11/20/92
						BROMOFORM		0.007	<LM19	0.00345	0.00690	0.00345	UGL	11/20/92
						BROMOMETHANE		0.006	<LM19	0.00285	0.00570	0.00285	UGL	11/20/92
						CARBON TETRACHLORIDE		0.007	<LM19	0.0035	0.00700	0.00350	UGL	11/20/92
						CHLORFORM		0.0009	<LM19	0.000435	0.00087	0.00044	UGL	11/20/92
						CHLOROBENZENE		0.0009	<LM19	0.000430	0.00086	0.00043	UGL	11/20/92
						CHLOROETHANE		0.012	<LM19	0.006	0.01200	0.00600	UGL	11/20/92
						CHLOROMETHANE		0.009	<LM19	0.0044	0.00880	0.00440	UGL	11/20/92
						DIBROMOCHLOROMETHANE		0.003	<LM19	0.00155	0.00310	0.00155	UGL	11/20/92
						ETHYLBENZENE		0.002	<LM19	0.00085	0.00170	0.00085	UGL	11/20/92
						METHYLENE CHLORIDE		0.012	<LM19	0.006	0.01200	0.00600	UGL	11/20/92
						METHYLETHYL PHENOL/METHYLETHYL		0.07	<LM19	0.035	0.07000	0.03500	UGL	11/20/92
						METHYLISOBUTYL KETONE		0.027	<LM19	0.0135	0.02700	0.01350	UGL	11/20/92
						STYRENE		0.003	<LM19	0.0013	0.00260	0.00130	UGL	11/20/92
						TETRACHLOROETHENE		0.0008	<LM19	0.000405	0.00081	0.00041	UGL	11/20/92
						TOLUENE		0.0008	<LM19	0.00039	0.00078	0.00039	UGL	11/20/92
						TRANS-1,3-DICHLOROPROPENE		0.003	<LM19	0.0014	0.00280	0.00140	UGL	11/20/92
						TRICHLOROETHENE		0.003	<LM19	0.0014	0.00280	0.00140	UGL	11/20/92
						TRICHLOROFLUOROMETHANE		0.006	<LM19	0.00295	0.00590	0.00295	UGG	11/20/92
						XYLENES		0.002	<LM19	0.00075	0.00150	0.00075	UGL	11/20/92
		R13SS0701N			EXP	2,4-DINITROTOLUENE		0.14	<LM18	0.212	0.14000	0.07000	UGL	11/20/92
						2,6-DINITROTOLUENE		0.09	<LM18	0.262	0.08500	0.04250	UGL	11/20/92
						NITROBENZENE		0.05	<LM18	1.205	0.04500	0.02250	UGL	11/20/92
					PCB	4,4'-DDD		0.3	<LM18	0.004130	0.30000	0.15000	UGL	11/20/92
						4,4'-DDE		0.31	<LM18	0.003825	0.31000	0.15500	UGL	11/20/92
						4,4'-DDT		0.31	<LM18	0.003535	0.31000	0.15500	UGL	11/20/92
						ALDRIN		0.33	<LM18	0.003645	0.33000	0.16500	UGL	11/20/92
						ALPHA-BENZENEHEXACHLORIDE		0.27	<LM18	0.004535	0.27000	0.13500	UGL	11/20/92

IAAP - R13 - All Analytical Results

SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	HIT	RESULT	BOOL/METH	EVALUATION PROTOCOL	CRL	COD	UNITS	SAMPLE DATE
R13	R13-SS-08	R13SS0801	0.5	SO	PCB	HEPTACHLOR		0.006	<LH10	0.00309	0.00618	0.00309	UGL	11/07/92
						HEPTACHLOR EPOXIDE		0.006	<LH10	0.0031	0.00620	0.00310	UGL	11/07/92
						LINDANE		0.006	<LH10	0.00319	0.00638	0.00319	UGL	11/07/92
						METHOXYCHLOR		0.071	<LH10	0.03555	0.07110	0.03555	UGL	11/07/92
						PCB 1016		0.067	<LH16	0.0333	0.06660	0.03330	UGL	11/07/92
						PCB 1260		0.082	<LH16	0.0402	0.08040	0.04020	UGL	11/07/92
						TOXAPHENE		0.444	<LH10		0.44400	0.22200	UGL	11/07/92
					SVOA	1,2,4-TRICHLOROBENZENE		0.04	<LM18	0.02	0.04000	0.02000	UGL	11/07/92
						1,2-DICHLOROBENZENE		0.11	<LM18	0.055	0.11000	0.05500	UGL	11/07/92
						1,3-DICHLOROBENZENE		0.13	<LM18	0.065	0.13000	0.06500	UGL	11/07/92
						1,4-DICHLOROBENZENE		0.1	<LM18	0.049	0.09800	0.04900	UGL	11/07/92
						2,4,5-TRICHLOROPHENOL		0.1	<LM18	0.05	0.10000	0.05000	UGL	11/07/92
						2,4,6-TRICHLOROPHENOL		0.17	<LM18	0.085	0.17000	0.08500	UGL	11/07/92
						2,4-DICHLOROPHENOL		0.18	<LM18	0.09	0.18000	0.09000	UGL	11/07/92
						2,4-DIMETHYLPHENOL		0.69	<LM18	0.345	0.69000	0.34500	UGL	11/07/92
						2,4-DINITROPHENOL		1.2	<LM18	0.6	1.20000	0.60000	UGL	11/07/92
						2-CHLORONAPHTHALENE		0.04	<LM18	0.018	0.03600	0.01800	UGL	11/07/92
						2-CHLOROPHENOL		0.06	<LM18	0.03	0.06000	0.03000	UGL	11/07/92
						2-METHYL-4,6-DINITROPHENOL/4,6		0.55	<LM18	0.275	0.55000	0.27500	UGL	11/07/92
						2-METHYLNAPHTHALENE		0.05	<LM18	0.0245	0.04900	0.02450	UGL	11/07/92
						2-METHYLPHENOL/2-CRESOL		0.29	<LM18	0.0145	0.02900	0.01450	UGL	11/07/92
						2-NITROANILINE		0.06	<LM18	0.031	0.06200	0.03100	UGL	11/07/92
						2-NITROPHENOL		0.14	<LM18	0.07	0.14000	0.07000	UGL	11/07/92
						3,3'-DICHLOROBENZIDINE		6.3	<LM18	3.15	6.30000	3.15000	UGL	11/07/92
						3-METHYL-4-CHLOROPHENOL/4-CHLO		0.1	<LM18	0.0475	0.09500	0.04750	UGL	11/07/92
						3-NITROANILINE		0.45	<LM18	0.225	0.45000	0.22500	UGL	11/07/92
						4-BROMOPHENYLPHENYL ETHER		0.03	<LM18	0.0165	0.03300	0.01650	UGL	11/07/92
						4-CHLOROANILINE		0.81	<LM18	0.405	0.81000	0.40500	UGL	11/07/92
						4-CHLOROPHENYLPHENYL ETHER		0.03	<LM18	0.0165	0.03300	0.01650	UGL	11/07/92
						4-METHYLPHENOL/4-CRESOL		0.24	<LM18	0.12	0.24000	0.12000	UGL	11/07/92
						4-NITROANILINE		0.41	<LM18	0.205	0.41000	0.20500	UGL	11/07/92
						4-NITROPHENOL		1.4	<LM18	0.7	1.40000	0.70000	UGL	11/07/92
						ACENAPHTHENE		0.04	<LM18	0.018	0.03600	0.01800	UGL	11/07/92
						ACENAPHTHYLENE		0.03	<LM18	0.0165	0.03300	0.01650	UGL	11/07/92
						ANTHRACENE		0.03	<LM18	0.0165	0.03300	0.01650	UGL	11/07/92
						BENZO(A)ANTHRACENE		0.17	<LM18	0.085	0.17000	0.08500	UGL	11/07/92

IAAP - R13 - All Analytical Results

SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	HIT	RESULT	BOOL/METH	EVALUATION PROTOCOL	CRL	COD	UNITS	SAMPLE DATE
R13	R13-SS-08	R13SS0801	0.5	SO	VOA	1,2-DICHLOROETHANE		0.002	<LM19	0.00085	0.00170	0.00085	UGL	11/07/92
						1,2-DICHLOROPROPANE		0.003	<LM19	0.00145	0.00290	0.00145	UGL	11/07/92
						ACETONE		0.017	<LM19	0.0085	0.01700	0.00850	UGL	11/07/92
						BENZENE		0.002	<LM19	0.00075	0.00150	0.00075	UGL	11/07/92
						BROMODICHLOROMETHANE		0.003	<LM19	0.00145	0.00290	0.00145	UGL	11/07/92
						BROMOFORM		0.007	<LM19	0.00345	0.00690	0.00345	UGL	11/07/92
						BROMOMETHANE		0.006	<LM19	0.00285	0.00570	0.00285	UGL	11/07/92
						CARBON TETRACHLORIDE		0.007	<LM19	0.0035	0.00700	0.00350	UGL	11/07/92
						CHLORFORM		0.0009	<LM19	0.000435	0.00087	0.00044	UGL	11/07/92
						CHLOROBENZENE		0.0009	<LM19	0.000430	0.00086	0.00043	UGL	11/07/92
						CHLOROETHANE		0.012	<LM19	0.006	0.01200	0.00600	UGL	11/07/92
						CHLOROMETHANE		0.009	<LM19	0.0044	0.00880	0.00440	UGL	11/07/92
						DIBROMOCHLOROMETHANE		0.003	<LM19	0.00155	0.00310	0.00155	UGL	11/07/92
						ETHYLBENZENE		0.002	<LM19	0.00085	0.00170	0.00085	UGL	11/07/92
						METHYLENE CHLORIDE		0.012	<LM19	0.006	0.01200	0.00600	UGL	11/07/92
						METHYLETHYL PHENOL/METHYLETHYL		0.07	<LM19	0.035	0.07000	0.03500	UGL	11/07/92
						METHYLISOBUTYL KETONE		0.027	<LM19	0.0135	0.02700	0.01350	UGL	11/07/92
						STYRENE		0.003	<LM19	0.0013	0.00260	0.00130	UGL	11/07/92
						TETRACHLOROETHENE		0.0008	<LM19	0.000405	0.00081	0.00041	UGL	11/07/92
						TOLUENE		0.0008	<LM19	0.00039	0.00078	0.00039	UGL	11/07/92
						TRANS-1,3-DICHLOROPROPENE		0.003	<LM19	0.0014	0.00280	0.00140	UGL	11/07/92
						TRICHLOROETHENE		0.003	<LM19	0.0014	0.00280	0.00140	UGL	11/07/92
						TRICHLOROFLUOROMETHANE		0.006	<LM19	0.00295	0.00590	0.00295	UGG	11/07/92
						XYLENES		0.002	<LM19	0.00075	0.00150	0.00075	UGL	11/07/92
		R13SS0801N			EXP	2,4-DINITROTOLUENE		0.14	<LM18	0.212	0.14000	0.07000	UGL	11/07/92
						2,6-DINITROTOLUENE		0.09	<LM18	0.262	0.08500	0.04250	UGL	11/07/92
						NITROBENZENE		0.05	<LM18	1.205	0.04500	0.02250	UGL	11/07/92
					PCB	4,4'-DDD		0.3	<LM18	0.004130	0.30000	0.15000	UGL	11/07/92
						4,4'-DDE		0.31	<LM18	0.003825	0.31000	0.15500	UGL	11/07/92
						4,4'-DDT		0.31	<LM18	0.003535	0.31000	0.15500	UGL	11/07/92
						ALDRIN		0.33	<LM18	0.003645	0.33000	0.16500	UGL	11/07/92
						ALPHA-BENZENEHEXACHLORIDE		0.27	<LM18	0.004535	0.27000	0.13500	UGL	11/07/92
						ALPHA-CHLORDANE		0.005	<LH10		0.00500	0.00250	UGL	11/07/92
						ALPHA-ENDOSULFAN/ENDOSULFAN I		0.62	<LM18	0.003010	0.62000	0.31000	UGL	11/07/92
						BETA-BENZENEHEXACHLORIDE		0.27	<LM18	0.001285	0.27000	0.13500	UGL	11/07/92
						BETA-ENDOSULFAN/ENDOSULFAN II		0.62	<LM18	0.003315	0.62000	0.31000	UGL	11/07/92

SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	HIT	RESULT	BOOL/METH	EVALUATION PROTOCOL	CRL	COD	UNITS	SAMPLE DATE
R13	R13-SS-11	R13SS1101	0.5	SO	PCB	PCB 1016		0.067	<LH16	0.0333	0.06660	0.03330	UGL	11/07/92
						PCB 1260		0.082	<LH16	0.0402	0.08040	0.04020	UGL	11/07/92
						TOXAPHENE		0.444	<LH10		0.44400	0.22200	UGL	11/07/92
					SVOA	1,2,4-TRICHLOROBENZENE		0.04	<LM18	0.02	0.04000	0.02000	UGL	11/07/92
						1,2-DICHLOROBENZENE		0.11	<LM18	0.055	0.11000	0.05500	UGL	11/07/92
						1,3-DICHLOROBENZENE		0.13	<LM18	0.065	0.13000	0.06500	UGL	11/07/92
						1,4-DICHLOROBENZENE		0.1	<LM18	0.049	0.09800	0.04900	UGL	11/07/92
						2,4,5-TRICHLOROPHENOL		0.1	<LM18	0.05	0.10000	0.05000	UGL	11/07/92
						2,4,6-TRICHLOROPHENOL		0.17	<LM18	0.085	0.17000	0.08500	UGL	11/07/92
						2,4-DICHLOROPHENOL		0.18	<LM18	0.09	0.18000	0.09000	UGL	11/07/92
						2,4-DIMETHYLPHENOL		0.69	<LM18	0.345	0.69000	0.34500	UGL	11/07/92
						2,4-DINITROPHENOL		1.2	<LM18	0.6	1.20000	0.60000	UGL	11/07/92
						2-CHLORONAPHTHALENE		0.04	<LM18	0.018	0.03600	0.01800	UGL	11/07/92
						2-CHLOROPHENOL		0.06	<LM18	0.03	0.06000	0.03000	UGL	11/07/92
						2-METHYL-4,6-DINITROPHENOL/4,6		0.55	<LM18	0.275	0.55000	0.27500	UGL	11/07/92
						2-METHYLNAPHTHALENE		0.05	<LM18	0.0245	0.04900	0.02450	UGL	11/07/92
						2-METHYLPHENOL/2-CRESOL		0.29	<LM18	0.0145	0.02900	0.01450	UGL	11/07/92
						2-NITROANILINE		0.06	<LM18	0.031	0.06200	0.03100	UGL	11/07/92
						2-NITROPHENOL		0.14	<LM18	0.07	0.14000	0.07000	UGL	11/07/92
						3,3'-DICHLOROBENZIDINE		6.3	<LM18	3.15	6.30000	3.15000	UGL	11/07/92
						3-METHYL-4-CHLOROPHENOL/4-CHLO		0.1	<LM18	0.0475	0.09500	0.04750	UGL	11/07/92
						3-NITROANILINE		0.45	<LM18	0.225	0.45000	0.22500	UGL	11/07/92
						4-BROMOPHENYLPHENYL ETHER		0.03	<LM18	0.0165	0.03300	0.01650	UGL	11/07/92
						4-CHLOROANILINE		0.81	<LM18	0.405	0.81000	0.40500	UGL	11/07/92
						4-CHLOROPHENYLPHENYL ETHER		0.03	<LM18	0.0165	0.03300	0.01650	UGL	11/07/92
						4-METHYLPHENOL/4-CRESOL		0.24	<LM18	0.12	0.24000	0.12000	UGL	11/07/92
						4-NITROANILINE		0.41	<LM18	0.205	0.41000	0.20500	UGL	11/07/92
						4-NITROPHENOL		1.4	<LM18	0.7	1.40000	0.70000	UGL	11/07/92
						ACENAPHTHENE		0.04	<LM18	0.018	0.03600	0.01800	UGL	11/07/92
						ACENAPHTHYLENE		0.03	<LM18	0.0165	0.03300	0.01650	UGL	11/07/92
						ANTHRACENE		0.03	<LM18	0.0165	0.03300	0.01650	UGL	11/07/92
						BENZO(A)ANTHRACENE		0.17	<LM18	0.085	0.17000	0.08500	UGL	11/07/92
						BENZO(A)PYRENE		0.25	<LM18	0.125	0.25000	0.12500	UGL	11/07/92
						BENZO(B)FLUORANTHENE		0.21	<LM18	0.105	0.21000	0.10500	UGL	11/07/92
						BENZO(G,H,I)PERYLENE		0.25	<LM18	0.125	0.25000	0.12500	UGL	11/07/92
						BENZO(K)FLUORANTHENE		0.07	<LM18	0.033	0.06600	0.03300	UGL	11/07/92

IAAP - R13 - All Analytical Results

04/01/94

SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	HIT	RESULT	BOOL/METH	EVALUATION PROTOCOL	CRL	COD	UNITS	SAMPLE DATE
R13	R13-SS-11	R13SS1101	0.5	SO	VOA	BROMODICHLOROMETHANE		0.003	<LM19	0.00145	0.00290	0.00145	UGL	11/07/92
						BROMOFORM		0.007	<LM19	0.00345	0.00690	0.00345	UGL	11/07/92
						BROMOMETHANE		0.006	<LM19	0.00285	0.00570	0.00285	UGL	11/07/92
						CARBON TETRACHLORIDE		0.007	<LM19	0.0035	0.00700	0.00350	UGL	11/07/92
						CHLORFORM		0.0009	<LM19	0.000435	0.00087	0.00044	UGL	11/07/92
						CHLOROBENZENE		0.0009	<LM19	0.000430	0.00086	0.00043	UGL	11/07/92
						CHLOROETHANE		0.012	<LM19	0.006	0.01200	0.00600	UGL	11/07/92
						CHLOROMETHANE		0.009	<LM19	0.0044	0.00880	0.00440	UGL	11/07/92
						DIBROMOCHLOROMETHANE		0.003	<LM19	0.00155	0.00310	0.00155	UGL	11/07/92
						ETHYLBENZENE		0.002	<LM19	0.00085	0.00170	0.00085	UGL	11/07/92
						METHYLENE CHLORIDE		0.012	<LM19	0.006	0.01200	0.00600	UGL	11/07/92
						METHYLETHYL PHENOL/METHYLETHYL		0.07	<LM19	0.035	0.07000	0.03500	UGL	11/07/92
						METHYLISOBUTYL KETONE		0.027	<LM19	0.0135	0.02700	0.01350	UGL	11/07/92
						STYRENE		0.003	<LM19	0.0013	0.00260	0.00130	UGL	11/07/92
						TETRACHLOROETHENE		0.0008	<LM19	0.000405	0.00081	0.00041	UGL	11/07/92
						TOLUENE		0.0008	<LM19	0.00039	0.00078	0.00039	UGL	11/07/92
						TRANS-1,3-DICHLOROPROPENE		0.003	<LM19	0.0014	0.00280	0.00140	UGL	11/07/92
						TRICHLOROETHENE		0.003	<LM19	0.0014	0.00280	0.00140	UGL	11/07/92
						TRICHLOROFLUOROMETHANE		0.006	<LM19	0.00295	0.00590	0.00295	UGG	11/07/92
						XYLENES		0.002	<LM19	0.00075	0.00150	0.00075	UGL	11/07/92
		R13SS1101N			EXP	2,4-DINITROTOLUENE		0.14	<LM18	0.212	0.14000	0.07000	UGL	11/07/92
						2,6-DINITROTOLUENE		0.09	<LM18	0.262	0.08500	0.04250	UGL	11/07/92
						NITROBENZENE		0.05	<LM18	1.205	0.04500	0.02250	UGL	11/07/92
					PCB	4,4'-DDD		0.3	<LM18	0.004130	0.30000	0.15000	UGL	11/07/92
						4,4'-DDE		0.31	<LM18	0.003825	0.31000	0.15500	UGL	11/07/92
						4,4'-DDT		0.31	<LM18	0.003535	0.31000	0.15500	UGL	11/07/92
						ALDRIN		0.33	<LM18	0.003645	0.33000	0.16500	UGL	11/07/92
						ALPHA-BENZENEHEXACHLORIDE		0.27	<LM18	0.004535	0.27000	0.13500	UGL	11/07/92
						ALPHA-CHLORDANE		0.005	<LM10		0.00500	0.00250	UGL	11/07/92
						ALPHA-ENDOSULFAN/ENDOSULFAN I		0.62	<LM18	0.003010	0.62000	0.31000	UGL	11/07/92
						BETA-BENZENEHEXACHLORIDE		0.27	<LM18	0.001285	0.27000	0.13500	UGL	11/07/92
						BETA-ENDOSULFAN/ENDOSULFAN II		0.62	<LM18	0.003315	0.62000	0.31000	UGL	11/07/92
						DELTA-BENZENEHEXACHLORIDE		0.27	<LM18	0.002775	0.27000	0.13500	UGL	11/07/92
						DIELDRIN		0.31	<LM18	0.003145	0.31000	0.15500	UGL	11/07/92
						ENDOSULFAN SULFATE		0.62	<LM18	0.003815	0.62000	0.31000	UGG	11/07/92
						ENDRIN		0.45	<LM18	0.0012	0.45000	0.22500	UGL	11/07/92

IAAP - R13 - All Analytical Results

04/01/94

SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	HIT	RESULT	BOOL/METH	EVALUATION PROTOCOL	CRL	COD	UNITS	SAMPLE DATE
R13	R13-SS-12	R13SS1201	0.5	SO	SVOA	1,2-DICHLOROBENZENE		0.11	<LM18	0.055	0.11000	0.05500	UGL	11/07/92
						1,3-DICHLOROBENZENE		0.13	<LM18	0.065	0.13000	0.06500	UGL	11/07/92
						1,4-DICHLOROBENZENE		0.1	<LM18	0.049	0.09800	0.04900	UGL	11/07/92
						2,4,5-TRICHLOROPHENOL		0.1	<LM18	0.05	0.10000	0.05000	UGL	11/07/92
						2,4,6-TRICHLOROPHENOL		0.17	<LM18	0.085	0.17000	0.08500	UGL	11/07/92
						2,4-DICHLOROPHENOL		0.18	<LM18	0.09	0.18000	0.09000	UGL	11/07/92
						2,4-DIMETHYLPHENOL		0.69	<LM18	0.345	0.69000	0.34500	UGL	11/07/92
						2,4-DINITROPHENOL		1.2	<LM18	0.6	1.20000	0.60000	UGL	11/07/92
						2-CHLORONAPHTHALENE		0.04	<LM18	0.018	0.03600	0.01800	UGL	11/07/92
						2-CHLOROPHENOL		0.06	<LM18	0.03	0.06000	0.03000	UGL	11/07/92
						2-METHYL-4,6-DINITROPHENOL/4,6		0.55	<LM18	0.275	0.55000	0.27500	UGL	11/07/92
						2-METHYLNAPHTHALENE		0.05	<LM18	0.0245	0.04900	0.02450	UGL	11/07/92
						2-METHYLPHENOL/2-CRESOL		0.29	<LM18	0.0145	0.02900	0.01450	UGL	11/07/92
						2-NITROANILINE		0.06	<LM18	0.031	0.06200	0.03100	UGL	11/07/92
						2-NITROPHENOL		0.14	<LM18	0.07	0.14000	0.07000	UGL	11/07/92
						3,3'-DICHLOROBENZIDINE		6.3	<LM18	3.15	6.30000	3.15000	UGL	11/07/92
						3-METHYL-4-CHLOROPHENOL/4-CHLO		0.1	<LM18	0.0475	0.09500	0.04750	UGL	11/07/92
						3-NITROANILINE		0.45	<LM18	0.225	0.45000	0.22500	UGL	11/07/92
						4-BROMOPHENYLPHENYL ETHER		0.03	<LM18	0.0165	0.03300	0.01650	UGL	11/07/92
						4-CHLOROANILINE		0.81	<LM18	0.405	0.81000	0.40500	UGL	11/07/92
						4-CHLOROPHENYLPHENYL ETHER		0.03	<LM18	0.0165	0.03300	0.01650	UGL	11/07/92
						4-METHYLPHENOL/4-CRESOL		0.24	<LM18	0.12	0.24000	0.12000	UGL	11/07/92
						4-NITROANILINE		0.41	<LM18	0.205	0.41000	0.20500	UGL	11/07/92
						4-NITROPHENOL		1.4	<LM18	0.7	1.40000	0.70000	UGL	11/07/92
						ACENAPHTHENE		0.04	<LM18	0.018	0.03600	0.01800	UGL	11/07/92
						ACENAPHTHYLENE		0.03	<LM18	0.0165	0.03300	0.01650	UGL	11/07/92
						ANTHRACENE		0.03	<LM18	0.0165	0.03300	0.01650	UGL	11/07/92
						BENZO(A)ANTHRACENE		0.17	<LM18	0.085	0.17000	0.08500	UGL	11/07/92
						BENZO(A)PYRENE		0.25	<LM18	0.125	0.25000	0.12500	UGL	11/07/92
						BENZO(B)FLUORANTHENE		0.21	<LM18	0.105	0.21000	0.10500	UGL	11/07/92
						BENZO(G,H,I)PERYLENE		0.25	<LM18	0.125	0.25000	0.12500	UGL	11/07/92
						BENZO(K)FLUORANTHENE		0.07	<LM18	0.033	0.06600	0.03300	UGL	11/07/92
						BIS (2-CHLOROETHOXY) METHANE		0.06	<LM18	0.0295	0.05900	0.02950	UGL	11/07/92
						BIS (2-CHLOROETHYL) ETHER		0.03	<LM18	0.0165	0.03300	0.01650	UGL	11/07/92
						BIS (2-CHLOROISOPROPYL) ETHER		0.2	<LM18	0.1	0.20000	0.10000	UGL	11/07/92
						BIS (2-ETHYLHEXYL) PHTHALATE		0.62	<LM18	0.31	0.62000	0.31000	UGL	11/07/92

IAAP - R13 - All Analytical Results

SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	HIT	RESULT	BOOL/METH	EVALUATION PROTOCOL	CRL	COD	UNITS	SAMPLE DATE
R13	R13-SS-12	R13SS1201	0.5	SO	VOA	CHLORFORM		0.0009	<LM19	0.000435	0.00087	0.00044	UGL	11/07/92
						CHLOROBENZENE		0.0009	<LM19	0.000430	0.00086	0.00043	UGL	11/07/92
						CHLOROETHANE		0.012	<LM19	0.006	0.01200	0.00600	UGL	11/07/92
						CHLOROMETHANE		0.009	<LM19	0.0044	0.00880	0.00440	UGL	11/07/92
						DIBROMOCHLOROMETHANE		0.003	<LM19	0.00155	0.00310	0.00155	UGL	11/07/92
						ETHYLBENZENE		0.002	<LM19	0.00085	0.00170	0.00085	UGL	11/07/92
						METHYLENE CHLORIDE		0.012	<LM19	0.006	0.01200	0.00600	UGL	11/07/92
						METHYLETHYL PHENOL/METHYLETHYL		0.07	<LM19	0.035	0.07000	0.03500	UGL	11/07/92
						METHYLISOBUTYL KETONE		0.027	<LM19	0.0135	0.02700	0.01350	UGL	11/07/92
						STYRENE		0.003	<LM19	0.0013	0.00260	0.00130	UGL	11/07/92
						TETRACHLOROETHENE		0.0008	<LM19	0.000405	0.00081	0.00041	UGL	11/07/92
						TOLUENE		0.0008	<LM19	0.00039	0.00078	0.00039	UGL	11/07/92
						TRANS-1,3-DICHLOROPROPENE		0.003	<LM19	0.0014	0.00280	0.00140	UGL	11/07/92
						TRICHLOROETHENE		0.003	<LM19	0.0014	0.00280	0.00140	UGL	11/07/92
						TRICHLOROFLUOROMETHANE		0.006	<LM19	0.00295	0.00590	0.00295	UGG	11/07/92
						XYLENES		0.002	<LM19	0.00075	0.00150	0.00075	UGL	11/07/92
		R13SS1201N			EXP	2,4-DINITROTOLUENE		0.14	<LM18	0.212	0.14000	0.07000	UGL	11/07/92
						2,6-DINITROTOLUENE		0.09	<LM18	0.262	0.08500	0.04250	UGL	11/07/92
						NITROBENZENE		0.05	<LM18	1.205	0.04500	0.02250	UGL	11/07/92
					PCB	4,4'-DDD		0.3	<LM18	0.004130	0.30000	0.15000	UGL	11/07/92
						4,4'-DDE		0.31	<LM18	0.003825	0.31000	0.15500	UGL	11/07/92
						4,4'-DDT		0.31	<LM18	0.003535	0.31000	0.15500	UGL	11/07/92
						ALDRIN		0.33	<LM18	0.003645	0.33000	0.16500	UGL	11/07/92
						ALPHA-BENZENEHEXACHLORIDE		0.27	<LM18	0.004535	0.27000	0.13500	UGL	11/07/92
						ALPHA-CHLORDANE		0.005	<LH10		0.00500	0.00250	UGL	11/07/92
						ALPHA-ENDOSULFAN/ENDOSULFAN I		0.62	<LM18	0.003010	0.62000	0.31000	UGL	11/07/92
						BETA-BENZENEHEXACHLORIDE		0.27	<LM18	0.001285	0.27000	0.13500	UGL	11/07/92
						BETA-ENDOSULFAN/ENDOSULFAN II		0.62	<LM18	0.003315	0.62000	0.31000	UGL	11/07/92
						DELTA-BENZENEHEXACHLORIDE		0.27	<LM18	0.002775	0.27000	0.13500	UGL	11/07/92
						DIELDRIN		0.31	<LM18	0.003145	0.31000	0.15500	UGL	11/07/92
						ENDOSULFAN SULFATE		0.62	<LM18	0.003815	0.62000	0.31000	UGG	11/07/92
						ENDRIN		0.45	<LM18	0.0012	0.45000	0.22500	UGL	11/07/92
						ENDRIN ALDEHYDE		0.53	<LM18	0.012	0.53000	0.26500	UGL	11/07/92
						GAMMA-CHLORDANE		0.005	<LH10		0.00500	0.00250	UGL	11/07/92
						HEPTACHLOR		0.13	<LM18	0.00309	0.13000	0.06500	UGL	11/07/92
						HEPTACHLOR EPOXIDE		0.33	<LM18	0.0031	0.33000	0.16500	UGL	11/07/92

IAAP - R13 - All Analytical Results

SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	HIT	RESULT	BOOL/METH	EVALUATION PROTOCOL	CRL	COD	UNITS	SAMPLE DATE
R13	R13-SS-14	R13SS1401	0.5	SO	SVOA	2,4,6-TRICHLOROPHENOL		0.17	<LM18	0.085	0.17000	0.08500	UGL	11/07/92
						2,4-DICHLOROPHENOL		0.18	<LM18	0.09	0.18000	0.09000	UGL	11/07/92
						2,4-DIMETHYLPHENOL		0.69	<LM18	0.345	0.69000	0.34500	UGL	11/07/92
						2,4-DINITROPHENOL		1.2	<LM18	0.6	1.20000	0.60000	UGL	11/07/92
						2-CHLORONAPHTHALENE		0.04	<LM18	0.018	0.03600	0.01800	UGL	11/07/92
						2-CHLOROPHENOL		0.06	<LM18	0.03	0.06000	0.03000	UGL	11/07/92
						2-METHYL-4,6-DINITROPHENOL/4,6		0.55	<LM18	0.275	0.55000	0.27500	UGL	11/07/92
						2-METHYLNAPHTHALENE		0.05	<LM18	0.0245	0.04900	0.02450	UGL	11/07/92
						2-METHYLPHENOL/2-CRESOL		0.29	<LM18	0.0145	0.02900	0.01450	UGL	11/07/92
						2-NITROANILINE		0.06	<LM18	0.031	0.06200	0.03100	UGL	11/07/92
						2-NITROPHENOL		0.14	<LM18	0.07	0.14000	0.07000	UGL	11/07/92
						3,3'-DICHLOROBENZIDINE		6.3	<LM18	3.15	6.30000	3.15000	UGL	11/07/92
						3-METHYL-4-CHLOROPHENOL/4-CHLO		0.1	<LM18	0.0475	0.09500	0.04750	UGL	11/07/92
						3-NITROANILINE		0.45	<LM18	0.225	0.45000	0.22500	UGL	11/07/92
						4-BROMOPHENYLPHENYL ETHER		0.03	<LM18	0.0165	0.03300	0.01650	UGL	11/07/92
						4-CHLOROANILINE		0.81	<LM18	0.405	0.81000	0.40500	UGL	11/07/92
						4-CHLOROPHENYLPHENYL ETHER		0.03	<LM18	0.0165	0.03300	0.01650	UGL	11/07/92
						4-METHYLPHENOL/4-CRESOL		0.24	<LM18	0.12	0.24000	0.12000	UGL	11/07/92
						4-NITROANILINE		0.41	<LM18	0.205	0.41000	0.20500	UGL	11/07/92
						4-NITROPHENOL		1.4	<LM18	0.7	1.40000	0.70000	UGL	11/07/92
						ACENAPHTHENE		0.04	<LM18	0.018	0.03600	0.01800	UGL	11/07/92
						ACENAPHTHYLENE		0.03	<LM18	0.0165	0.03300	0.01650	UGL	11/07/92
						ANTHRACENE		0.03	<LM18	0.0165	0.03300	0.01650	UGL	11/07/92
						BENZO(A)ANTHRACENE		0.17	<LM18	0.085	0.17000	0.08500	UGL	11/07/92
						BENZO(A)PYRENE		0.25	<LM18	0.125	0.25000	0.12500	UGL	11/07/92
						BENZO(B)FLUORANTHENE		0.21	<LM18	0.105	0.21000	0.10500	UGL	11/07/92
						BENZO(G,H,I)PERYLENE		0.25	<LM18	0.125	0.25000	0.12500	UGL	11/07/92
						BENZO(K)FLUORANTHENE		0.07	<LM18	0.033	0.06600	0.03300	UGL	11/07/92
						BIS (2-CHLOROETHOXY) METHANE		0.06	<LM18	0.0295	0.05900	0.02950	UGL	11/07/92
						BIS (2-CHLOROETHYL) ETHER		0.03	<LM18	0.0165	0.03300	0.01650	UGL	11/07/92
						BIS (2-CHLOROISOPROPYL) ETHER		0.2	<LM18	0.1	0.20000	0.10000	UGL	11/07/92
						BIS (2-ETHYLHEXYL) PHTHALATE		0.62	<LM18	0.31	0.62000	0.31000	UGL	11/07/92
						BUTYLBENZYL PHTHALATE		0.17	<LM18	0.085	0.17000	0.08500	UGL	11/07/92
						CHRYSENE		0.12	<LM18	0.060	0.12000	0.06000	UGL	11/07/92
						DI-N-BUTYL PHTHALATE		0.06	<LM18	0.0305	0.06100	0.03050	UGL	11/07/92
						DI-N-OCTYL PHTHALATE		0.19	<LM18	0.095	0.19000	0.09500	UGL	11/07/92

IAAP - R13 - All Analytical Results

SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	HIT	RESULT	BOOL/METH	EVALUATION PROTOCOL	CRL	COD	UNITS	SAMPLE DATE
R13	R13-SS-14	R13SS1401	0.5	SO	VOA	DIBROMOCHLOROMETHANE		0.003	<LM19	0.00155	0.00310	0.00155	UGL	11/07/92
						ETHYLBENZENE		0.002	<LM19	0.00085	0.00170	0.00085	UGL	11/07/92
						METHYLENE CHLORIDE		0.012	<LM19	0.006	0.01200	0.00600	UGL	11/07/92
						METHYLETHYL PHENOL/METHYLETHYL		0.07	<LM19	0.035	0.07000	0.03500	UGL	11/07/92
						METHYLISOBUTYL KETONE		0.027	<LM19	0.0135	0.02700	0.01350	UGL	11/07/92
						STYRENE		0.003	<LM19	0.0013	0.00260	0.00130	UGL	11/07/92
						TETRACHLOROETHENE		0.0008	<LM19	0.000405	0.00081	0.00041	UGL	11/07/92
						TOLUENE		0.0008	<LM19	0.00039	0.00078	0.00039	UGL	11/07/92
						TRANS-1,3-DICHLOROPROPENE		0.003	<LM19	0.0014	0.00280	0.00140	UGL	11/07/92
						TRICHLOROETHENE		0.003	<LM19	0.0014	0.00280	0.00140	UGL	11/07/92
						TRICHLOROFLUOROMETHANE		0.006	<LM19	0.00295	0.00590	0.00295	UGG	11/07/92
						XYLENES		0.002	<LM19	0.00075	0.00150	0.00075	UGL	11/07/92
		R13SS1401N			EXP	2,4-DINITROTOLUENE		0.14	<LM18	0.212	0.14000	0.07000	UGL	11/07/92
						2,6-DINITROTOLUENE		0.09	<LM18	0.262	0.08500	0.04250	UGL	11/07/92
						NITROBENZENE		0.05	<LM18	1.205	0.04500	0.02250	UGL	11/07/92
					PCB	4,4'-DDD		0.3	<LM18	0.004130	0.30000	0.15000	UGL	11/07/92
						4,4'-DDE		0.31	<LM18	0.003825	0.31000	0.15500	UGL	11/07/92
						4,4'-DDT		0.31	<LM18	0.003535	0.31000	0.15500	UGL	11/07/92
						ALDRIN		0.33	<LM18	0.003645	0.33000	0.16500	UGL	11/07/92
						ALPHA-BENZENEHEXACHLORIDE		0.27	<LM18	0.004535	0.27000	0.13500	UGL	11/07/92
						ALPHA-CHLORDANE		0.005	<LH10		0.00500	0.00250	UGL	11/07/92
						ALPHA-ENDOSULFAN/ENDOSULFAN I		0.62	<LM18	0.003010	0.62000	0.31000	UGL	11/07/92
						BETA-BENZENEHEXACHLORIDE		0.27	<LM18	0.001285	0.27000	0.13500	UGL	11/07/92
						BETA-ENDOSULFAN/ENDOSULFAN II		0.62	<LM18	0.003315	0.62000	0.31000	UGL	11/07/92
						DELTA-BENZENEHEXACHLORIDE		0.27	<LM18	0.002775	0.27000	0.13500	UGL	11/07/92
						DIELDRIN		0.31	<LM18	0.003145	0.31000	0.15500	UGL	11/07/92
						ENDOSULFAN SULFATE		0.62	<LM18	0.003815	0.62000	0.31000	UGG	11/07/92
						ENDRIN		0.45	<LM18	0.0012	0.45000	0.22500	UGL	11/07/92
						ENDRIN ALDEHYDE		0.53	<LM18	0.012	0.53000	0.26500	UGL	11/07/92
						GAMMA-CHLORDANE		0.005	<LH10		0.00500	0.00250	UGL	11/07/92
						HEPTACHLOR		0.13	<LM18	0.00309	0.13000	0.06500	UGL	11/07/92
						HEPTACHLOR EPOXIDE		0.33	<LM18	0.0031	0.33000	0.16500	UGL	11/07/92
						LINDANE		0.27	<LM18	0.00319	0.27000	0.13500	UGL	11/07/92
						METHOXYCHLOR		0.33	<LM18	0.03555	0.33000	0.16500	UGL	11/07/92
						PCB 1016		1.4	<LM18	0.0333	1.40000	0.70000	UGL	11/07/92
						PCB 1221		0.082	<LH16		0.08200	0.04100	UGL	11/07/92

SWMU	SAMPLE ID	DEPTH	COMPOUND	HIT	RESULT	BOOLEAN	EVALUATION PROTOCOL	DETECTION LIMIT	DATE
R13	R13-0001M-01	0.5	ANTIMONY		0.9	=	3.0	3.0	11/07/92
			ARSENIC		6.39	=	90	5.0	11/07/92
			BARIUM		162.87	=	1089	2.0	11/07/92
			CADMIUM		0.0	<	3.0	3.0	11/07/92
			CHROMIUM		11.46	=	144	5.0	11/07/92
			COPPER		22.96	=	92.7	5.0	11/07/92
			LEAD		33.48	=	159	5.0	11/07/92
			MERCURY		0.04	<	2.0	2.0	11/07/92
			NICKEL		10.7	=	203.7	5.0	11/07/92
			SELENIUM		0.0	<	3.0	3.0	11/07/92
			SILVER		0.0	<	2.0	2.0	11/07/92
			ZINC		85.01	=	399	5.0	11/07/92
	R13-0001M-02	1.0	ANTIMONY		1.7	=	3.0	3.0	11/07/92
			ARSENIC		0.0	<	90	5.0	11/07/92
			BARIUM		157.24	=	1089	2.0	11/07/92
			CADMIUM		2.16	=	3.0	3.0	11/07/92
			CHROMIUM		10.14	=	144	5.0	11/07/92
			COPPER		11.0	=	92.7	5.0	11/07/92
			LEAD		21.51	=	159	5.0	11/07/92
			MERCURY		0.16	=	2.0	2.0	11/07/92
			NICKEL		12.82	=	203.7	5.0	11/07/92
			SELENIUM		1.07	=	3.0	3.0	11/07/92
			SILVER		0.82	=	2.0	2.0	11/07/92
			ZINC		41.19	=	399	5.0	11/07/92
	R13-0002M-01	0.5	ANTIMONY		0.0	<	3.0	3.0	11/07/92
			ARSENIC		0.0	<	90	5.0	11/07/92
			BARIUM		214.05	=	1089	2.0	11/07/92
			CADMIUM		1.38	=	3.0	3.0	11/07/92
			CHROMIUM		29.14	=	144	5.0	11/07/92
			COPPER		26.3	=	92.7	5.0	11/07/92
			LEAD		34.93	=	159	5.0	11/07/92
			MERCURY		0.25	=	2.0	2.0	11/07/92
			NICKEL		13.99	=	203.7	5.0	11/07/92
			SELENIUM		0.0	<	3.0	3.0	11/07/92
			SILVER		0.0	<	2.0	2.0	11/07/92
			ZINC		67.77	=	399	5.0	11/07/92
	R13-0002M-02	1.0	ANTIMONY		2.4	=	3.0	3.0	11/07/92
			ARSENIC		1.73	=	90	5.0	11/07/92
			BARIUM		226.49	=	1089	2.0	11/07/92
			CADMIUM		0.0	<	3.0	3.0	11/07/92
			CHROMIUM		13.48	=	144	5.0	11/07/92
			COPPER		18.05	=	92.7	5.0	11/07/92
			LEAD		19.92	=	159	5.0	11/07/92
			MERCURY		0.18	=	2.0	2.0	11/07/92
			NICKEL		20.33	=	203.7	5.0	11/07/92
			SELENIUM		0.26	<	3.0	3.0	11/07/92
			SILVER		0.0	<	2.0	2.0	11/07/92
			ZINC		53.28	=	399	5.0	11/07/92
	R13-0003M-01	0.5	ANTIMONY		1.4	=	3.0	3.0	11/07/92
			ARSENIC		5.38	=	90	5.0	11/07/92
			BARIUM		183.84	=	1089	2.0	11/07/92
			CADMIUM		0.52	=	3.0	3.0	11/07/92
			CHROMIUM		16.74	=	144	5.0	11/07/92
			COPPER		12.6	=	92.7	5.0	11/07/92
			LEAD		16.48	=	159	5.0	11/07/92
			MERCURY		0.11	=	2.0	2.0	11/07/92
			NICKEL		13.28	=	203.7	5.0	11/07/92
			SELENIUM		0.86	=	3.0	3.0	11/07/92
			SILVER		0.0	<	2.0	2.0	11/07/92
			ZINC		71.85	=	399	5.0	11/07/92
	R13-0003M-02	1.0	ANTIMONY		2.12	=	3.0	3.0	11/07/92

SWMU	SAMPLE ID	DEPTH	COMPOUND	HIT	RESULT	BOOLEAN	EVALUATION PROTOCOL	DETECTION LIMIT	DATE
R13	R13-0006M-01	0.5	BARIUM		184.62	=	1089	2.0	11/07/92
			CADMIUM		0.0	<	3.0	3.0	11/07/92
			CHROMIUM		25.96	=	144	5.0	11/07/92
			COPPER		24.46	=	92.7	5.0	11/07/92
			LEAD		30.24	=	159	5.0	11/07/92
			MERCURY		0.26	=	2.0	2.0	11/07/92
			NICKEL		17.29	=	203.7	5.0	11/07/92
			SELENIUM		0.5	<	3.0	3.0	11/07/92
			SILVER		0.0	<	2.0	2.0	11/07/92
			ZINC		87.57	=	399	5.0	11/07/92
	R13-0006M-02	1.0	ANTIMONY		0.0	<	3.0	3.0	11/07/92
			ARSENIC		3.64	=	90	5.0	11/07/92
			BARIUM		197.94	=	1089	2.0	11/07/92
			CADMIUM		0.44	<	3.0	3.0	11/07/92
			CHROMIUM		31.62	=	144	5.0	11/07/92
			COPPER		26.25	=	92.7	5.0	11/07/92
			LEAD		31.03	=	159	5.0	11/07/92
			MERCURY		0.11	=	2.0	2.0	11/07/92
			NICKEL		25.21	=	203.7	5.0	11/07/92
			SELENIUM		0.45	<	3.0	3.0	11/07/92
			SILVER		0.22	<	2.0	2.0	11/07/92
			ZINC	HIT	855.31	=	399	5.0	11/07/92
	R13-0007M-01	0.5	ANTIMONY		0.0	<	3.0	3.0	11/07/92
			ARSENIC		0.0	<	90	5.0	11/07/92
			BARIUM		185.68	=	1089	2.0	11/07/92
			CADMIUM		0.78	=	3.0	3.0	11/07/92
			CHROMIUM		3.31	<	144	5.0	11/07/92
			COPPER		18.94	=	92.7	5.0	11/07/92
			LEAD		36.39	=	159	5.0	11/07/92
			MERCURY		0.0	<	2.0	2.0	11/07/92
			NICKEL		13.28	=	203.7	5.0	11/07/92
			SELENIUM		0.0	<	3.0	3.0	11/07/92
			SILVER		0.11	<	2.0	2.0	11/07/92
			ZINC		69.56	=	399	5.0	11/07/92
	R13-0007M-02	1.0	ANTIMONY	HIT	5.12	=	3.0	3.0	11/07/92
			ARSENIC		5.7	=	90	5.0	11/07/92
			BARIUM		167.04	=	1089	2.0	11/07/92
			CADMIUM		0.14	<	3.0	3.0	11/07/92
			CHROMIUM		27.71	=	144	5.0	11/07/92
			COPPER		12.79	=	92.7	5.0	11/07/92
			LEAD		30.73	=	159	5.0	11/07/92
			MERCURY		0.02	<	2.0	2.0	11/07/92
			NICKEL		9.14	=	203.7	5.0	11/07/92
			SELENIUM		0.28	<	3.0	3.0	11/07/92
			SILVER		0.18	<	2.0	2.0	11/07/92
			ZINC		68.35	=	399	5.0	11/07/92
	R13-0008M-01	0.5	ANTIMONY		1.82	=	3.0	3.0	11/07/92
			ARSENIC		0.0	<	90	5.0	11/07/92
			BARIUM		190.16	=	1089	2.0	11/07/92
			CADMIUM		0.63	=	3.0	3.0	11/07/92
			CHROMIUM		14.66	=	144	5.0	11/07/92
			COPPER		24.27	=	92.7	5.0	11/07/92
			LEAD		84.2	=	159	5.0	11/07/92
			MERCURY		0.36	=	2.0	2.0	11/07/92
			NICKEL		14.05	=	203.7	5.0	11/07/92
			SELENIUM		0.23	<	3.0	3.0	11/07/92
			SILVER		0.0	<	2.0	2.0	11/07/92
			ZINC		138.64	=	399	5.0	11/07/92
	R13-0008M-02	1.0	ANTIMONY		0.0	<	3.0	3.0	11/07/92
			ARSENIC		2.54	=	90	5.0	11/07/92
			BARIUM		208.43	=	1089	2.0	11/07/92

SWMU	SAMPLE ID	DEPTH	COMPOUND	HIT	RESULT	BOOLEAN	EVALUATION PROTOCOL	DETECTION LIMIT	DATE
R13	R13-0011M-01	0.5	CHROMIUM		20.33	=	144	5.0	11/07/92
			COPPER		15.92	=	92.7	5.0	11/07/92
			LEAD		63.08	=	159	5.0	11/07/92
			MERCURY		0.12	<	2.0	2.0	11/07/92
			NICKEL		34.41	=	203.7	5.0	11/07/92
			SELENIUM		0.0	<	3.0	3.0	11/07/92
			SILVER		0.4	<	2.0	2.0	11/07/92
			ZINC		104.56	=	399	5.0	11/07/92
	R13-0011M-02	1.0	ANTIMONY		2.33	=	3.0	3.0	11/07/92
			ARSENIC		12.63	=	90	5.0	11/07/92
			BARIUM		262.46	=	1089	2.0	11/07/92
			CADMIUM		0.0	<	3.0	3.0	11/07/92
			CHROMIUM		11.46	=	144	5.0	11/07/92
			COPPER		40.92	=	92.7	5.0	11/07/92
			LEAD		17.93	=	159	5.0	11/07/92
			MERCURY		0.21	=	2.0	2.0	11/07/92
			NICKEL		67.16	=	203.7	5.0	11/07/92
			SELENIUM		1.41	=	3.0	3.0	11/07/92
			SILVER		1.21	=	2.0	2.0	11/07/92
			ZINC		83.85	=	399	5.0	11/07/92

APPENDIX C

Complete List of ARARs for IAAP

TABLE 2-2
Potential Chemical-Specific ARARs

Standard, Requirement, Criterion, or Limitation	*Citation*	*Description*	*Comment*
		FEDERAL	
Safe Drinking Water Act	40 USC Section 300		
National Primary Drinking Water Standards	40 CFR Part 141	Established maximum contaminant levels (MCLs) which are health-based standards for public water systems.	The MCLs for organic and inorganic contaminants are relevant and appropriate to the groundwater contaminants, including MCLs for volatile organics and metals.
National Secondary Drinking Water Standards	40 CFR Part 143	Establishes secondary maximum contaminant levels (SMCLs) which are nonenforceable guidelines for public water systems to ensure the aesthetic quality of the water.	SMCLs may be relevant and appropriate if treated groundwater is used as a source of water.
Maximum Contaminant Level Goals (MCLGs)	PL No. 99-339 100 Statute 642 (1986)	Establishes drinking water quality goals set at levels of no known or anticipated adverse health effects with an adequate margin of safety.	MCLGs for organic and inorganic contaminants may be relevant and appropriate if a more stringent standard is required to protect human health or the environment.
Clean Water Act	33 USC Section 1251-1376		
Ambient Water Quality Criteria	40 CFR Part 131, Quality Criteria for Water, 1976, 1980, 1986	Requires the states to set ambient water quality criteria (AWQC) for water quality based on use classifications and the criteria developed under Section 304(a) of the Clean Water Act.	AWQC for some of the organic and inorganic contaminants in the groundwater at the site have been developed. May be relevant and appropriate if contaminated or treated groundwater is discharged to surface water during a removal action.
		STATE	
Iowa Air Pollution Control Regulations	Chapter 567-28	Ambient Air Quality Standards (Adopts 40 CFR 40).	See national Primary and Secondary Ambient Air Quality Standards.
Iowa Air Pollution Control Regulations (Continued)	Chapter 567-30	This chapter is not yet promulgated, but it will govern emissions from an onsite treatment process. Development of a permit will be on a case-by-case basis under the general authority of the IDNR to protect human health and the environment.	None
Iowa Water Pollution Control Regulation	Chapter 576-60 to 64	Chapter 60 provides general definitions applicable in this title and rules of practice. Chapter 61 contains the water quality standards of the State including classification of surface waters. Chapter 62 contains the standards relevant to the discharge of pollutants to the water of the state. Chapters 63 and 64 identify monitoring, analytical and reporting requirements pertaining to specific permits for the operation of water disposal systems.	None
Iowa Responsible Parties Cleanup Regulations	Title X, Chapter 133	These rules establish the procedures and criteria the IDNR will use to determine the parties responsible and cleanup actions necessary to meet the goals of the State pertaining to the protection of groundwater. These rules pertain to the cleanup of groundwater, soils, and surface water where groundwater may be impacted.	None

TABLE 2-3
Potential Action-Specific ARARs

Standard, Requirement, Criterion, or Limitation	Citation	Description	Comment
		FEDERAL	
Solid Waste Disposal Act (SWDA)	42 USC Section 6901-6987		
Criteria for Classification of Solid Waste Disposal Facilities and Practices	40 CFR Part 257	Establishes criteria for use in determining which solid waste disposal facilities and practices pose a reasonable probability of adverse effects on health and thereby constitute prohibited open dumps.	If an alternative developed would involve the land disposal of solid waste, this part would be applicable.
Hazardous Waste Management Systems General	40 CFR Part 260	Establishes procedures and criteria for modification or revocation of any provision in 40 CFR Parts 260-265.	May be applicable if a substance at the site was to be excluded from the list of hazardous wastes.
Identification and Listing of Hazardous Wastes	40 CFR Part 261	Defines those solid wastes which are subject to regulation as hazardous wastes under 40 CFR Parts 263-265 and Parts 124, 270, and 271.	Identifies those wastes considered to be hazardous wastes at the site. Any wastes considered as hazardous would be required to be handled as such.
Standards Applicable to Transporters of Hazardous Waste	40 CFR Part 263	Establishes standards which apply to persons transporting hazardous waste within the U. S. if the transportation requires a manifest under 40 CFR Part 262.	If an alternative developed would involve offsite transportation of hazardous wastes, these standards would be applicable.
Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities	40 CFR Part 264	Establishes minimum national standards which define the acceptable management of hazardous waste for owners and operators of facilities which treat, store, or dispose hazardous waste.	Subparts B through X may be applicable or relevant and appropriate to onsite and offsite remedial actions.
Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities	40 CFR Part 265	Establishes minimum national standards which define the acceptable management of hazardous waste during the period of interim status and until certification of final closure or if the facility is subject to post-closure requirements, until post-closure responsibilities are fulfilled.	Remedies should be consistent with the more stringent Part 264 standards since these represent the ultimate RCRA compliance standards and are consistent with CERCLA's goal of long-term protection of public health and welfare and the environment.
Interim Standards for Owners and Operators of New Hazardous Waste Land Disposal Facilities	40 CFR Part 267	Establishes minimum national standards which define the acceptable management of hazardous waste for new land disposal facilities.	Remedies should be consistent with the more stringent Part 264 standards since these represent the ultimate RCRA compliance standards and are consistent with CERCLA's goal of long-term protection of public health and welfare and the environment.
Land Disposal Restrictions	40 CFR Part 268	Establishes a timetable for restriction of land disposal of wastes and other hazardous materials.	If an alternative involves land disposal of any restricted waste, this part may be applicable.
Hazardous Waste Permit Program	40 CFR Part 270	Establishes provisions covering basic EPA permitting requirements.	A permit is not required for onsite CERCLA response actions; however, a permit is required for offsite actions. Substantive requirements are addressed in 40 CFR Part 264. Under 40 CFR Section 300.38, requirements of the Act apply to all response activities under the NCP.
Clean Water Act	33 USC Section 1251-1376		
National Pollutant Discharge Elimination System Permit Regulations	40 CFR Parts 122, 125	Requires permits for the discharge of pollutants from any point source into water of the United States.	A permit is not required for onsite CERCLA response actions, but the substantive requirements would apply if an alternative developed would discharge into a creek or other surface water on the site. A permit would be required if the discharge is to a creek or surface water located offsite.
National Pretreatment Standards	40 CFR Part 403	Sets standards to control pollutants which pass through or interfere with treatment processes in publicly-owned treatment works or which may contaminate sewage sludge.	If an alternative developed involves discharge to publicly-owned treatment works, these standards would be applicable.
Occupational Safety and Health Act (OSHA)	20 USC Section 651-678 29 CFR 1910.120	Regulates worker health and safety.	None.
Clear Air Act	42 USC Section 7401-7642	Treatment technology standards for emissions to air: incinerators, surface impoundments, waste piles, landfills, fugitive emissions.	If an alternative developed would involve emissions governed by these standards, then the requirements are applicable.
National Ambient Air Quality Standards	40 CFR Part 50		
Toxic Substance Control Act	15 USC 2601 40 CFR Part 761	Establishes management standards for PCB disposal.	May be applicable for offsite treatment.

TABLE 2-3 (Continued)
Potential Action-Specific ARARs

Standard, Requirement, Criterion, or Limitation	Citation	Description	Comment
STATE			
Iowa Environmental Quality Act	Chapter 455B	Defines the jurisdiction of the IDNR, defines powers and duties of the commission and the director, civil, or criminal proceedings to be undertaken by the State Attorney General.	None.
Iowa Hazardous Substances and Waste Regulations	Chapters 131, 140, 141, 149	Chapter 131 requires reporting of hazardous conditions. Chapter 140 provides general definitions applicable in this title. Chapter 141 contains specific regulations identifying and listing hazardous wastes, the standards applicable to generators and transporters of hazardous wastes and standards applicable to treatment, storage, and disposal facilities. Chapter 149 contains the procedures for the assessment and collection of fees for transportation, treatment, and disposal of hazardous waste.	Considered in an alternative involving offsite transportation and disposal.
Iowa Solid Waste Disposal Regulations	Chapters 567-100, 101, 102, 103, 110	Establishes standards for sanitary disposal projects and by regulating the dumping of solid waste through a system of general rules and specific permits. Deals with excavation of closed landfills or dumps, operation, cover, and monitoring of landfills.	Considered in an alternative involving onsite landfill disposal.
Iowa Hazardous Waste Disposal Penalty Law	Chapter 7168	Establishes penalties for unlawful transportation and disposal of hazardous waste.	Offsite disposal.
Iowa Air Pollution Control Regulation	Chapter 567-23	Governs the release of fugitive dust in quantities creating a nuisance during site activities and emissions from a treatment system.	Considered for excavation activities.
	Chapter 567-24	Applies to emissions from a permitted emission point. Could be applied to excess emissions of fugitive dust.	None.
	Chapter 567-25	State could require measurement of emissions from an air stripper.	None.
	Chapter 567-28	Ambient Air Quality Standards (Adopts 40 CFR 50).	None.
Iowa Water Pollution Control Regulations	Chapter 567-37	Registration of water well contractors.	Considered if wells installed for future monitoring.
	Chapter 567-38	Private water well construction permits.	
	Chapter 567-39	Well abandonment requirements.	
	Chapter 567-40	Water supply definitions. Defines MCLs that Chapter 133 refers to.	
	Chapter 567-49	These rules refer to nonpublic water wells, contains well construction standards, materials standards and abandonment guidelines.	
Iowa Responsible Parties Cleanup Regulations	Chapter 133	These rules establish the procedures and criteria the IDNR will use to determine the parties responsible and cleanup actions necessary to meet the goals of the State pertaining to the protection of groundwater. These rules pertain to the cleanup of groundwater itself and soils and surface water where groundwater may be impacted.	None.
Iowa Hazardous Waste Facilities Siting and Land Disposal Acts	455B.441 to 455B.470, Iowa Code	Provides procedures for establishing appropriate sites and properly designed facilities for the treatment, storage, and disposal of hazardous waste and to limit land disposal of hazardous waste.	Considered for onsite treatment or disposal.

TABLE 2-4
Potential Location-Specific ARARs

Standard, Requirement, Criteria, or Limitation	*Citation*	*Description*	*Comment*
FEDERAL			
Clean Water Act	40 CFR 230 Section 404	Establishes a permit program administered by the U. S. Army Corps of Engineers to regulate the nonpoint source discharges of dredged or fill material into waters of the U. S.	Potentially applicable in watersheds at IAAP.
RCRA	40 CFR 270.14(b)(11) (iii) and (iv)	Establishes building criteria for TSD facilities located in floodplain.	Potentially applicable in watersheds at IAAP.
Fish and Wildlife	40 CFR 6.302(a)	Requires federally-funded projects ensure that any modification of any stream or other water body affected be provided adequate protection of fish and wildlife resources.	Potentially applicable in watersheds at IAAP.
Floodplain Management Order	40 CFR Part 6	Mandates that federally-funded projects within 10-year floodplain avoid adverse impacts associated with development of a floodplain.	Potentially applicable in watersheds at IAAP.
Endangered Species Act	50 CFR 402	Requires that any federal activity may not jeopardize the continued existence of any threatened or endangered species or destroy or adversely modify a critical habitat.	Potentially applicable in watersheds at IAAP.
STATE			
Clean Water Act	Section 401	State Section 401 water quality certification is mandatory for all projects requiring Federal Section 404 permit. Section 401 certification is State's concurrence that a project is consistent with state's water quality standards. Also establishes criteria for wetlands.	Potentially applicable in watersheds at IAAP.
Floodplain Development	Iowa Code Section 455B, Chapters 70-76	The State has authority to regulate construction on all floodplains and floodways in the State. Chapters 70-76 explain how and when a permit must be obtained for various types of development.	Potentially applicable in watersheds at IAAP.

APPENDIX D

Cost Estimate Support

Pesticide Pit Remedial Costs

Process:

1. Excavate Contaminated soil
2. Confirmitory sampling and backfill of area upon approval
3. Transport soil To TSD facility
4. Incineration and disposal of media.

* References:

Means Heavy construction Cost Data, 1994. Number refers to the section numbers.
Vendor quotes are included in the report in the TCR section of the Appendix.

1. Excavate Contaminated Soil

Pit 8'x8'x 3', Assume contamination extended 2' beyond pit limits.

excavate $12' \times 12' \times 5' = 720\ ft^3 = 26.7\ yd^3$

Contamination on driveway, assume 12' wide x 25' long x 6" deep.

$12' \times 25' \times 0.5' = 150\ ft^3 = 5.56\ yd^3$

Total excavation $= 32.3\ yd^3$

(ref: Means 022-274-0900) mobilization of equipment

1 backhoe @ $299.00 = $299.00

(ref Means 022-254-0090) Excavation of contaminated soil

$32.3\ yd^3$ @ $4.20\ yd^3 = \$138.60$

add 40% to excavation for hazardous site work

Excavation = $138.60 x 1.4 = 194.04
Mobilization = $229.00

Total Con 1 = 423.04

2. Confirmitory Sampling and backfill of area upon approval

5 samples @ $220/sample = $1350.00

2. (continued)

Backfill and compaction of area

Excavate 33 yd^3 of borrow material @ $4.20/$yd^3$ = $138.60
(Ref means 022-254-0020)
Haul to site (assume 4 mile haul distance) 33 yd^3 @ $7.05/$yd^3$ = 234.70
(Ref means 022-266-0200)
Compact backfill (Ref means 022-226-7020)
equipment charge = $60.00/day
Labor @ $0.82/$yd^3$ = $27.00

TOTAL for #2 = $1815.00

3. Transport To TSD facility

(Ref. vendor quote from Chem waste management)

2 loads @ $990/load = $1980

4. Incineration and disposal costs

(Ref. Vendor quote from Chem. waste management)

assume 95 lb/ft^3 in-place density of contaminated soil

$$35\ yd^3 \times 27\ \frac{ft^3}{yd^3} \times 95\ lb/ft^3 = 89,800\ lbs$$

89,800 lbs @ $0.65/lb = $58,370

TOTAL costs for Remedial Actions at Pesticide Pit

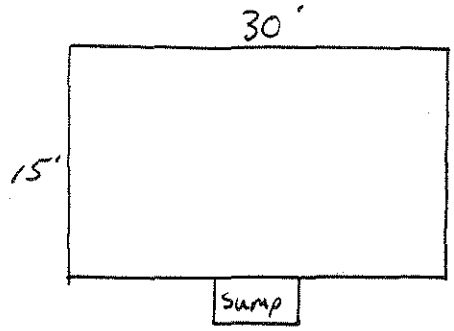
1. $ 425.00
2. $ 1815.00
3. $ 1980.00
4. $ 58,370.00

TOTAL = $62,590.00

CDM FEDERAL PROGRAMS CORPORATION
a subsidiary of Camp Dresser & McKee Inc.

PROJECT Iowa AAP JOB NO. _____ DATE 7-8-94
COMPUTED BY DGG CHECKED BY TM DATE CHECKED 7-8-94
CLIENT _____ PAGE NO. _____

Decon Facility



30'x15'x 8" concrete pad with attached 5'x4'x 3.5' concrete sump.

Concrete volume needed:

pad: $30'\times15'\times\frac{8''}{12} = 300\ ft^3 = 11.1\ yd^3$

Sump: $4'\times3.5'\times\frac{6''}{12}\times2 + 4'\times3.5'\times\frac{6''}{12} + 4'\times3'\times\frac{6''}{12} + 4'\times5'\times\frac{6''}{12} = 37\ ft^3 = 1.37\ yd^3$

Total concrete volume needed = $12.5\ yd^3$

Costs.

Site grading and sump excavation

Front end loader with backhoe 3 hours @20.5 $/hr = 61.50
ref. (Crew B-10R)

Concrete installation

Slab (ref 031-170-2000)	450 ft² x $7.15/ft²	= $3200.00
Sump (ref 031-182-2000)	92 ft² x $6.95/ft²	= $640.00

Fence for Decon area.
chain link with polyethelyene lining, gate on both ends.
90 lf including 2x12' wide gates. (ref 015-306-0300) (ref 028-312-0100) (ref 028-308-5010)
6' high

Fence	90-24 = 66 Lf @ $8.70/L.F	= $570.00
gate	2 @ $680.00	= $1360.00
polyethelyene	516 ft² @ $0.50/ft²	= $260.00

Steam cleaner rental for 1 month (ref 016-420-6300)

1 @ $405 per month $405.00

Pump rental for 1 month (ref 016-420-5500)

1 @ $246 per month $246.00

Total $6700.00

CDM Federal Programs Corporation

RECORD OF COMMUNICATION

☒ TELEPHONE CONVERSATION ☒ INCOMING ☐ OUTGOING ☐ MEETING

DATE: 7-7-94

TIME: 10:22 (AM/PM)

RECORDED BY: David Evenson

PROJECT: Iowa AAP CONTRACT NO. _____

SUBJECT: Incineration Pricing

PARTICIPANTS	ORGANIZATION/DEPARTMENT	TELEPHONE/EXT.
David Evenson	CDM Federal	(413) 482-5181
Rob Barnhart	Chem Waste Management	(708) 218-1900 ext 1503

SUMMARY: Rob returned my call with prices. He stated that costs would be as follows for pesticide incineration:

$ 0.55 to $0.65 per lb. for incineration

$900.00 to $990.00 per load for shipping.

Trucks haul about 45 tons per load, so

The pesticide soil will require at least 2 Trucks.

DISTRIBUTION:	☐ PARTICIPANTS	☐ FILE	INFORMATION	ACTION
OTHER: _____			☐	☐
_____			☐	☐
_____			☐	☐

CDM Federal Programs Corporation

RECORD OF COMMUNICATION

☒ TELEPHONE CONVERSATION ☐ INCOMING ☒ OUTGOING

☐ MEETING

DATE: 7-11-94

TIME: 11:30 (AM)/PM

RECORDED BY: David Euerson

PROJECT: Iowa AAP CONTRACT NO.

SUBJECT: Incineration costs for Pesticide P.I.

PARTICIPANTS	ORGANIZATION/DEPARTMENT	TELEPHONE/EXT.
David Euerson	CDM Federal	(913) 492-8181
Jesse Glasper	Rollins Environmental Services	(504) 778-1234

SUMMARY: Called to inquire about incineration costs. They do not accept explosives but they will take pesticides. They have 2 facilities, one in Louisana and one in Texas. In Louisana they only take 55 gallon drums, in Texas they will take Roll off Boxes.

Transportation costs $4.17 per loaded mile.

incineration costs

Baton Rouge, LA $480/drum, 5001b max

Deer Park, TX $0.85/lb

DISTRIBUTION: ☐ PARTICIPANTS ☐ FILE

OTHER:	INFORMATION	ACTION
	☐	☐
	☐	☐
	☐	☐

CDM Federal Programs Corporation

RECORD OF COMMUNICATION

☒ TELEPHONE CONVERSATION ☒ INCOMING ☐ OUTGOING ☐ MEETING

DATE: 7-7-94

TIME: 1415 AM (PM)

RECORDED BY: David Everson

PROJECT: Iowa AAP CONTRACT NO.

SUBJECT: Incineration costs for Pesticide contaminated soils

PARTICIPANTS	ORGANIZATION/DEPARTMENT	TELEPHONE/EXT.
David Everson	CDM Federal	(913) 492-8181
Teresa Wilson	Ensco	(504) 927-9600

SUMMARY: Teresa returned my call with prices. She stated that costs would be as follows:

1 soil sample for approval - 1 pint sample at $300

Disposal - Incineration and ash disposal - $1.25 per pound

Transporting soil to incinerator - $3.25 per loaded mile

They can handle the pesticides and metals, however they would be very hesitant to accept the explosive contaminated soil due to concerns that it may be a D003 waste.

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			☐	☐
			☐	☐

CDM Federal Programs Corporation

RECORD OF COMMUNICATION

☒ TELEPHONE CONVERSATION
☒ INCOMING ☐ OUTGOING
☐ MEETING

DATE: 7-13-94
TIME: 1500 AM/PM
RECORDED BY: David Everson

PROJECT: Iowa EE/CA CONTRACT NO. _____
SUBJECT: Incineration costs

PARTICIPANTS	ORGANIZATION/DEPARTMENT	TELEPHONE/EXT.
David Everson	CDM Federal	(913) 492-8181
Karen Stewart	Thermal Tech	1(800) 283-6402

SUMMARY: Karen Returned my call regarding incineration costs for explosives and pesticides. She said That if the explosives weren't classified as explosive they would take a sample for analysis and that would determine the price and whether or not Thier facility would accept the waste.

Costs she quoted were for incineration and Transportation.

incineration $1840 per cubic yard ≈ 70¢ per lb.
Transportation $2800-3000 per rolloff container.

The facility is in South Caroling.

DISTRIBUTION: ☐ PARTICIPANTS ☒ FILE

	INFORMATION	ACTION
OTHER: _____	☐	☐
_____	☐	☐
_____	☐	☐

APPENDIX E

Confirmation Sampling

CONFIRMATION SAMPLING

Confirmatory sampling will consist of taking a composite sample (3 aliquots) from each side of the excavation (5 sample total for analysis). The samples will be analyzed for pesticides and metals using Methods SW-846-8080 and SW-846-6010, respectively. If the composite sample shows that concentrations of either contaminant is above remediation goals, an additional 1 foot will be removed from the side of the excavation where the sample was taken.

APPENDIX F

EPA Comments to Draft EE/CA and Comment Responses

CDM FEDERAL RESPONSE TO COMMENTS

Re: EPA Region VII Comments to Pesticide Pit EE/CA

NO. **RESPONSE**

GENERAL COMMENTS

1. Comment: "The EE/CA should contain an introductory section to briefly explain the non time-critical removal process to the public. This should describe, at a minimum, the purpose of the EE/CA, the non-time critical removal action process (EE/CA, public comment, Action Memorandum/Decision Document, removal implementation), and the authority by which the Army is executing the non-time critical removal. An example of such an introductory section used in an EE/CA for another Army NPL site is included for reference."

   Response: An introductory paragraph will be added explaining the non time-critical removal process to the public.

2. Comment: "EPA requests the opportunity to review and provide input to any work plans which may be prepared by the Army to execute the proposed removal action."

   Response: Shop drawings or other required submittals of the construction contractor could be provided to EPA for review, however a review schedule will be necessary to avoid delay claims from the construction contractor.

3. Comment: "It would be beneficial to contain, within the Site Characterization section, a summary of detections at the site and a figure depicting the nature and extent of contamination."

   Response: The only detection of pesticides at the site above the risk-based action levels being used at the site was in sample R13SA1702. Sections of the preliminary site characterization report and the remedial investigation reports were included in Appendices A and B. With only one sample exhibiting concentration levels above a health based concern a figure depicting nature and extent would be difficult to develop.

4. Comment: "The Army should address the possibility that 2,3,7,8-TCDD (dioxin) may be present at the site or within the wastes to be disposed."

Response: Dioxin (2,3,7,8-TCDD) is a by-product in the production of 2,4,5-T (2,4,5-trichlorophenol). Concentrations of TCDD have been found in pure 2,4,5-T up to 0.001 percent (Verschueren, Handbook of Environmental Data on Organic Chemicals). The concentration of 2,4,5-T found in the sample taken from the pit (RA13SA1702) was reported as 1 ppb, therefore, concentrations of TCDD, if any, would be extremely low.

5. Comment: "Please note, that for any proposed interim response actions, the ultimate remedial action(s) are determined only after appropriate consideration through the Feasibility Study, Proposed Plan, and Record of Decision (ROD). It is feasible that, if a comprehensive interim action is performed, no further action may be required by the ROD."

Response: Comment noted.

SPECIFIC COMMENTS

1. Comment: "Page 1-1, Section 1.1, Paragraphs 1 and 3. Please identify the Pesticide Pit on a figure relative to the entire IAAP facility.

Please clarify that the Winnebago School House is abandoned and discuss the historic significance of the building."

Response: A figure will be included in the document identifying the pesticide pit relative to the entire site.

The Winnebago School House is no longer in use, its historical significance needs to be investigated. The purpose for its inclusion in the EE/CA is to allow for its protection during the removal until its historic value can be determined.

2. Comment: "Page 1-3, Paragraph 5. Specific considerations regarding the historic preservation of the Winnebago School should be identified as a location-specific ARAR.

Response: Historic preservation will be included as an location specific ARAR under the National Historic Preservation Act (36 CFR 800).

3. Comment: "Page 1-3, Section 1.2. It is significant that the '...description of the nature and extent of contamination in the Preliminary Site Characterization (PSC) and Remedial Investigation (RI) was not

adequate for the purposes of this EE/CA...' This suggests that comprehensive confirmatory sampling may be required to show that removal action objectives (RAOs) have been met. It would be appropriate to include an outline of the plan for collecting confirmatory samples at some point in the EE/CA. The Army should plan to analyze such samples for organochlorine and organophosphorus pesticide/herbicides along with metals, since all are contaminants of concern at the site. Based on historical sampling reported in the PSC and Draft Final RI, it may be appropriate to collect samples outside of the Pit area proposed for excavation to assure that RAOs are met."

Response: Comprehensive confirmation sampling (sampling all sides of the excavation) is planned to verify adequate removal. The characterization statement quoted from the EE/CA was in reference to one sample being taken in the pit, numerous samples were taken outside of the pit and resulted in little (below risk based levels) or no contamination. The specific pesticides included in this paragraph were those that were identified at concentrations above risk based levels. The previous two investigations analyzed samples for many pesticides (insecticides/herbicides) and metals. The confirmatory sampling within the excavation will include analysis for pesticides identified to be a risk and pesticides that were not analyzed for in the two previous investigations.

4. Comment: "Page 1-4, 'Risk-Based Concentration Levels.' It would be most appropriate to indicate site-specific remediation goals (RGs) based on the agreed upon scenarios from the Baseline Risk Assessment (BLRA). RGs should be determined for all contaminants of concern at the site. Therefore RGs for metals, 2,4,5-T, and 2,4-D should be included. Documentation of the procedures used to determine the RGs should be included in an appendix."

Response: PRG calculations have not been completed for every chemical of concern at the IAAP but only for those that posed a significant risk as depicted in the risk assessment; therefore, when a site specific PRG was not available a value was obtained from the Risk based concentration tables developed by Region III. These value are based on a 10E-6 carcinogenic risk and 1E+00 hazard quotient for a commercial use scenario.

5. Comment: "Page 1-4, Last Paragraph. The assumption that contamination extends two feet from the boundaries of the Pit in any direction may underestimate the volume of contaminants which exceeds the RGs. Please note any contingencies which have been considered should the actual waste volume encountered exceed that which is anticipated."

Response: The assumption that contamination does not extent more than 2 feet from the boundary of the pit was based on the fact that the pesticides found in soil samples taken from the pit are relatively immobile. The confirmation sampling should verify the validity of this assumption. A contingency of 10 percent has been added to the cost estimates for unforeseen conditions, this may be low and will be increased to 30 percent to account for additional volume that may be encountered.

6. Comment: "Page 1-5, Last Paragraph. See Specific Comment No. 4."

Response: See response to Specific Comment No 4.

7. Comment: "Page 2-1, Section 2.1. Please discuss applicability of the 2-million dollar funding limit relative to DERA financed removal actions."

Response: There is no statutory funding limit of the DERA fund for removal actions, however, there is an approval process necessary when 2-million dollars is exceeded.

8. Comment: "Page 2-1, Section 2.2. The objective of the removal action is to eliminate unacceptable risks due to potential exposures to site soils, to reduce the potential for contaminant migration from soil to groundwater, to maintain consistency with a final site remedy, and to attain ARARs. The report should state that the Army will achieve these goals by remediating all site soils which exceed risk-based RGs defined by the commercial/industrial land use scenario in the BLRA.

We could not locate the RCRA soil action levels (Subpart S) which are referenced here. These levels should be included or their reference eliminated from the text."

Response: The section refers back to the pathways of concern in Section 1.1 which is what was identified in the comment. A sentence will be added that the removal will achieve these goals by remediating site soils to the risk based remediation goals.

9. Comment: "Page 2-2, Section 2.3. It would be appropriate to include details of the removal schedule so that the public may be informed. This may include the anticipated date for the public comment period regarding the EE/CA, any associated public meetings which are planned, the date by which the Action Memorandum/Decision Document will be issued, and the approximate date that construction activities would begin."

Response: A schedule will be provided in the text.

10. Comment: "Page 3-1, Section 3.0. The removal action alternatives should be more fully discussed here. Alternatives should include in-situ treatment, ex-situ treatment, and containment. As part of the comparative analysis of alternatives, containment options could be eliminated since they do not offer a permanenet solution and do not reduce contaminant toxicity, mobility, or volume. In-situ treatment options could be eliminated based on implementability considerations. Therefore, it is reasonable to conclude that ex-situ treatment is appropriate. Ex-situ treatment options would include onsite and offsite treatment, using each of the treatment technologies referenced in the text. The rationale provided regarding the proposal for incineration as the BDAT is sufficient, however, should be presented in the comparative analysis. Since CERCLA states a preference for onsite actions, the proposed offsite incineration should be discussed. For offsite actions, the requirements described as Section 300.440 of the NCP as amended in Federal Register, Vol. 58, No. 182, September 22, 1993, must be satisfied. Therefore, the Army must specify the facility to be receiving wastes associated with any offsite response actions so that it can be verified that such faculties are acceptable."

Response: There will be mention of containment onsite and in-situ options through the comparative analysis.

11. Comment: "Page 3-1, Last Paragraph. The removal action should be presented as a "proposal" or "recommendation" rather than as the "selected alternative," to allow for meaningful public comment. Such a recommendation should be presented following the comparative analysis of alternatives."

Response: The verbiage in the last paragraph on page 3-1 will be changed to recommended alternative.

12. Comment: "Page 3-1, Section 3.1.1. The RGs/action levels which are being proposed are unclear based on the reference in this section to RCRA action levels. Please clarify. See Specific Comment No. 14."

Response: The paragraph should refer to risk based action levels, the text will be corrected.

13. Comment: "Page 3-2, Section 3.1.2. EPA does not consider the proposed response action at the Pesticide Pit to address potential groundwater concerns at the site. Significant concentrations of metals, exceeding MCLs, have been found in proximity to the site. It is unclear whether the Pit is acting as the source of this contamination. We will require that any risk factors associated with the Pit which are unaddressed by the proposed interim action, be addressed in a Feasibility Study (or multiple Feasibility Studies - if an operable unit approach is defined).

The Army should provide information regarding the historical significance or designations of the Winnebago School to determine whether the Historic Preservation Act is an ARAR.

OSHA requirements should be specified as an ARAR for hazardous waste management activities at the site.

The applicability/relevance of elements of the Clean Air Act - such as the National Ambient Air Quality Standards and the National Emission Standards for Hazardous Air Pollutants should be discussed. Such ARARs may be subsumed by the requirements of the Iowa Air Pollution Control Regulations."

Response: It was not intended to address groundwater contamination in this removal action. As suggested the groundwater will be addressed in the groundwater operable unit for the entire site.

Regarding the Historic Preservation Act see response to Specific Comment No. 2.

The OSHA requirements will be added as an ARAR to be complied with.

The reference to 40 CFR 50 for emission standards for hazardous waste incinerators is part of the National Ambient Air quality standards, this will be clarified in the text.

14. Comment: "Page 3-3, Section 3.1.3. If the removal achieves the goal of remediating all contaminated soils to levels below commercial/industrial land use RGs, the site would be fit for unrestricted use consistent with such a land use. The proposed interim response does not address groundwater contamination at the site, and would not necessarily achieve protective levels for soils for a possible future residential setting. Determinations regarding the need for additional clean-up activities, future monitoring, or institutional controls are appropriately addressed in the FS and ROD for the site."

Response: Comment noted. The commercial scenario accepted for this site is based on the foreseeable future land use. The Army will discuss a contingency if the property is excessed and a possible residential scenario may be realized in the FS and ROD to be developed for the installation.

15. Comment: "Page 3-4, Section 3.1.5. It would be appropriate to identify the nearest community to the Pesticide Pit and note that impacts are 'unlikely.'

If the Army intends to divert truck traffic around communities in route to a proposed disposal facility, this should be stated. If not, the reference should be removed from the text.

It should be stated that site workers will be appropriately trained in hazardous waste management activities, as required by OSHA."

Response: Agree, the nearest community will be identified and the impacts to that community described as unlikely.

The Army intends to transport the contaminated soil in an acceptable manner according to DOT regulations. If truck traffic hauling pesticide contaminated soil does not have to be diverted around communities this statement is not necessary. The intent is to put the burden of DOT compliance on the licensed hauler, this sentence will be changed to state that the waste will be hauled in accordance with DOT regulations which are intended to protect the public.

16. Comment: "Page 3-5, Section 3.2.2, Paragraph 2. Please correct the apparent typographical error, '...the submittal should not be an administrative problem...'

Also, note that the offsite facility must be in compliance with EPA's CERCLA 'Offsite Policy' - NCP Section 300.440 (See Specific Comment No. 10).

Response: The typographical error will be corrected to read should **NOT** be a problem.

Agree, the accepting facility will be in compliance with the "offsite policy" cited in the comment.

APPENDIX G

EPA Region III
Risk-Based Concentrations

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region III
841 Chestnut Street
Philadelphia, Pennsylvania 19107

January 7, 1994

SUBJECT: Risk-Based Concentration Table, First Quarter 1994

FROM: Roy L. Smith, Ph.D., Senior Toxicologist
Technical Support Section (3HW13)

TO: RBC Table mailing list

Attached is the EPA Region III risk-based concentration table, which we have distributed quarterly to all interested parties since 1991. If you are not currently on the mailing list, but would like to be, please contact Anna Poulton (phone: 215-597-3179, fax: 215-597-9890) and give her your name, address, and phone and fax numbers.

The table contains reference doses and carcinogenic potency slopes (obtained from IRIS through January 1, 1994, HEAST through July 1993, OHEA-Cincinnati, and other EPA sources) for nearly 600 chemicals. These toxicity constants have been combined with "standard" exposure scenarios to calculate chemical concentrations corresponding to fixed levels of risk (*i.e.*, a hazard quotient of 1, or lifetime cancer risk of 10^{-6}, whichever occurs at a lower concentration) in water, air, fish tissue, and soil.

The Region III toxicologists use this table as a risk-based screen for Superfund sites, and as a desk reference for emergencies and requests for immediate information. The table also provides a useful benchmark for evaluating site investigation data and preliminary remediation goals. The table has no official status as either regulation or guidance, and should be used only as a predictor of generic single-contaminant health risk estimates. *The table is specifically not intended as (1) a stand-alone decision-making tool, (2) a substitute for EPA guidance for preparing baseline risk assessments, (3) a source of site-specific cleanup levels, or (4) a rule to determine if a waste is hazardous under RCRA.* In general, chemical concentrations above the levels in the table suggest a need for a closer look by a toxicologist, but should not be used as the sole basis for taking any action.

The toxicity information in the table has been assembled by hand, and (despite extensive checking and years of use) may contain errors. It's advisable to cross-check before relying on any numbers in the table. If you find any errors, please send me a note.

This issue of the table is printed in a new format, which was developed because it fits more information on each page, while (hopefully) retaining legibility. The table now includes the CAS number of each contaminant, which should reduce confusion about multi-named compounds. Also, each risk-based concentration is now accompanied by a footnote indicating its basis, whether carcinogenic or non-carcinogenic effects. Finally, all newly revised risk-based concentrations have been placed in shaded boxes for quick recognition, rather than summarized here.

I'd like to express my appreciation to all the users of the RBC Table who have contributed suggestions for improvements over the last three years. I hope your continued interest will help us make the table even better in the future. Have a great 1994!

Attachment

Risk-Based Concentration Table
Background Information

General: Separate carcinogenic and non-carcinogenic risk-based concentrations were calculated for each compound for each pathway. The concentration in the table is the lower of the two, rounded to two significant figures. The following terms and values were used in the calculations:

Exposure variables	Value	Name
1-General:		
Carcinogenic potency slope oral (kg-d/mg):	*	CPSo
Carcinogenic potency slope inhaled (kg-d/mg):	*	CPSi
Reference dose oral (mg/kg/d):	*	RfDo
Reference dose inhaled (mg/kg/d):	*	RfDi
Target cancer risk:	1e-06	TR
Target hazard quotient:	1	THQ
Body weight, adult (kg):	70	BWa
Body weight, age 1-6 (kg):	15	BWc
Averaging time carcinogens (d):	25550	ATc
Averaging time non-carcinogens (d):	ED*365	ATn
Inhalation, adult (m3/d):	20	IRAa
Inhalation, child (m3/d):	12	IRAc
Inhalation factor, age-adjusted (m3-y/kg-d):	11.66	IFAadj
Tap water ingestion, adult (L/d):	2	IRWa
Tap water ingestion, age 1-6 (L/d):	1	IRWc
Tap water ingestion factor, age-adjusted (L-y/kg-d):	1.09	IFWadj
Fish ingestion (g/d):	54	IRF
Soil ingestion, adult (mg/d):	100	IRSa
Soil ingestion, age 1-6 (mg/d):	200	IRSc
Soil ingestion factor, age adjusted (mg-y/kg-d):	114.29	IFSadj
2-Residential:		
Exposure frequency (d/y):	350	EFr
Exposure duration, total (y):	30	EDtot

Exposure variables	Value	Name
Exposure duration, age 1-6 (y):	6	EDc
Volatilization factor (L/m3):	0.5	VF
3-Occupational:		
Exposure frequency (d/y):	250	EFo
Exposure duration (y):	25	EDo
* = Contaminant-specific toxicity parameters		

The priority among sources of toxicological constants was as follows: (1) IRIS, (2) HEAST, (3) HEAST alternative method, (4) ECAO-Cincinnati, (5) withdrawn from IRIS, (6) withdrawn from HEAST, and (7) other EPA documents. Each source was used only if numbers from higher-priority sources were unavailable.

Algorithms:

1. Age-adjusted factors: Because contact rates with tap water, ambient air, and residential soil are different for children and adults, carcinogenic risks during the first 30 years of life were calculated using age-adjusted factors. These factors approximated the integrated exposure from birth until age 30 by combining contact rates, body weights, and exposure durations for two age groups - small children and adults. The age-adjusted factor for soil was obtained from RAGS IB; the others were developed by analogy.

a. Air inhalation ($[m^3 \cdot y]/[kg \cdot d]$):

$$IFAadj = \frac{EDc \cdot IRAc}{BWc} + \frac{(EDtot - EDc) \cdot IRAa}{BWa}$$

b. Tap water ingestion ($[L \cdot y]/[kg \cdot d]$):

$$IFWadj = \frac{EDc \cdot IRWc}{BWc} + \frac{(EDtot - EDc) \cdot IRWa}{BWa}$$

c. Soil ingestion ($[mg \cdot y]/[kg \cdot d]$):

$$IFSadj = \frac{EDc \cdot IRSc}{BWc} + \frac{(EDtot - EDc) \cdot IRSa}{BWa}$$

2. Residential water use ($\mu g/L$). Volatilization terms were calculated only for compounds with "***" in the "VOC" column. Compounds having a Henry's Law constant greater than 10^{-5} were considered volatile. The list may be incomplete, but is unlikely to include false positives. The equations and the volatilization factor (VF, above) were obtained from RAGS IB. Oral potency slopes and reference doses were used for both oral and inhaled exposures for volatile compounds lacking inhalation values. Inhaled potency slopes were substituted for unavailable oral potency slopes only for volatile compounds; inhaled RfDs were substituted for unavailable oral RfDs for both volatile and non-volatile compounds.

a. Carcinogens: Calculations were based on combined childhood and adult exposure.

$$\frac{TR \cdot ATc \cdot 1000\frac{ug}{mg}}{EFr \cdot ([VF \cdot IFAadj \cdot CPSi] + [IFWadj \cdot CPSo])}$$

b. Non-carcinogens: Calculations were based on adult exposure.

$$\frac{THQ \cdot BWa \cdot ATn \cdot 1000\frac{ug}{mg}}{EFr \cdot EDtot \cdot \left(\frac{VF \cdot IRAa}{RfDi} + \frac{IRWa}{RfDo}\right)}$$

3. Air ($\mu g/m^3$). Oral potency slopes and references were used where inhalation values were not available.

a. Carcinogens: Calculations were based on combined childhood and adult exposure.

$$\frac{TR \cdot ATc \cdot 1000\frac{ug}{mg}}{EFr \cdot IFAadj \cdot CPSi}$$

b. Non-carcinogens: Calculations were based on adult exposure.

$$\frac{THQ \cdot RfDi \cdot BWa \cdot ATn \cdot 1000\frac{ug}{mg}}{EFr \cdot EDtot \cdot IRAa}$$

4. Fish (mg/kg):

a. Carcinogens: Calculations were based on adult exposure.

$$\frac{TR \cdot BWa \cdot ATc}{EFr \cdot EDtot \cdot \frac{IRF}{1000\frac{g}{kg}} \cdot CPSo}$$

b. Non-carcinogens: Calculations were based on adult exposure.

$$\frac{THQ \cdot RfDo \cdot BWa \cdot ATn}{EFr \cdot EDtot \cdot \frac{IRF}{1000\frac{g}{kg}}}$$

5. Soil commercial/industrial (mg/kg): The default exposure assumption that only 50% of incidental soil ingestion occurs at work has been omitted. Calculations were based on adult occupational exposure.

a. Carcinogens:

$$\frac{TR \cdot BWa \cdot ATc}{EFo \cdot EDo \cdot \frac{IRSa}{10^6\ \frac{mg}{kg}} \cdot CPSo}$$

b. Non-carcinogens:

$$\frac{THQ \cdot RfDo \cdot BWa \cdot ATn}{EFo \cdot EDo \cdot \frac{IRSa}{10^6\ \frac{mg}{kg}}}$$

6. Soil residential (mg/kg):

a. Carcinogens: Calculations were based on combined childhood and adult exposure.

$$\frac{TR \cdot ATc}{EFr \cdot \frac{IFSadj}{10^6\ \frac{mg}{kg}} \cdot CPSo}$$

b. Non-carcinogens: Calculations were based on childhood exposure only.

$$\frac{THQ \cdot RfDo \cdot BWc \cdot ATn}{EFr \cdot EDc \cdot \frac{IRSc}{10^6\ \frac{mg}{kg}}}$$

Sources: i=IRIS h=HEAST a=HEAST alt. x=W/D from IRIS y=W/D from HEAST c=EPA-ECAO o=Other EPA docs. *Basis of RBC: c=carcinogenic effects n=noncarcinogenic effects.*

Contaminant	CAS	RfDo mg/kg/d	RfDi mg/kg/d	CPSo kg•d/mg	CPSi kg•d/mg	VOC	Tap water µg/L	Ambient air µg/m3	Fish mg/kg	Industrial soil mg/kg	Residential soil mg/kg
Acephate	30560191	4.00E-03 *i*		8.70E-03 *i*			7.7 *o*	0.72 *o*	0.36 *o*	330 *o*	73 *c*
Acetaldehyde	75070		2.57E-03 *i*		7.70E-03 *i*		94 *n*	0.81 *c*			
Acetochlor	34256821	2.00E-02 *i*					730 *n*	73 *n*	27 *n*	20000 *n*	1600 *n*
Acetone	67641	1.00E-01 *i*					3700 *n*	370 *n*	140 *n*	100000 *n*	7800 *n*
Acetone cyanohydrin	75865	7.00E-02 *h*	2.86E-03 *h*				2600 *n*	10 *n*	95 *n*	72000 *n*	5500 *n*
Acetonitrile	75078	6.00E-03 *i*	1.43E-02 *h*				220 *n*	52 *n*	8.1 *n*	6100 *n*	470 *n*
Acetophenone	98862	1.00E-01 *i*	5.71E-06 *w*			***	0.042 *n*	0.021 *n*	140 *n*	100000 *n*	7800 *n*
Acifluorfen	62476599	1.30E-02 *i*					470 *n*	47 *n*	18 *n*	13000 *n*	1000 *n*
Acrolein	107028	2.00E-02 *h*	5.71E-06 *i*				730 *n*	0.021 *n*	27 *n*	20000 *n*	1600 *n*
Acrylamide	79061	2.00E-04 *i*		4.50E+00 *i*	4.55E+00 *i*		0.015 *c*	0.0014 *c*	0.0007 *c*	0.64 *c*	0.14 *c*
Acrylic acid	79107	8.00E-02 *i*	8.57E-05 *i*				2900 *n*	0.31 *n*	110 *n*	82000 *n*	6300 *n*
Acrylonitrile	107131		5.71E-04 *i*	5.40E-01 *i*	2.38E-01 *i*		0.12 *c*	0.026 *c*	0.0058 *c*	5.3 *c*	1.2 *c*
Alachlor	15972608	1.00E-02 *i*		8.00E-02 *h*			0.84 *c*	0.078 *c*	0.039 *c*	36 *c*	8 *c*
Alar	1596845	1.50E-01 *i*					5500 *n*	550 *n*	200 *n*	150000 *n*	12000 *n*
Aldicarb	116063	1.00E-03 *i*					37 *n*	3.7 *n*	1.4 *n*	1000 *n*	78 *n*
Aldicarb sulfone	1646884	1.00E-03 *i*					37 *n*	3.7 *n*	1.4 *n*	1000 *n*	78 *n*
Aldrin	309002	3.00E-05 *i*		1.70E+01 *i*	1.71E+01 *i*		0.004 *c*	0.00037 *c*	0.00019 *o*	0.17 *c*	0.038 *c*
Ally	74223646	2.50E-01 *i*					9100 *n*	910 *n*	340 *n*	260000 *n*	20000 *n*
Allyl alcohol	107186	5.00E-03 *i*					180 *n*	18 *n*	6.8 *n*	5100 *n*	390 *n*
Allyl chloride	107051	5.00E-02 *w*	2.86E-04 *i*				1800 *n*	1 *n*	68 *n*	51000 *n*	3900 *n*
Aluminum	7429905	2.90E+00 *o*					110000 *n*	11000 *n*	3900 *n*	1000000 *n*	230000 *n*
Aluminum phosphide	20859738	4.00E-04 *i*					15 *n*	1.5 *n*	0.54 *n*	410 *n*	31 *n*
Amdro	67485294	3.00E-04 *i*					11 *n*	1.1 *n*	0.41 *n*	310 *n*	23 *n*
Ametryn	834128	9.00E-03 *i*					330 *n*	33 *n*	12 *n*	9200 *n*	700 *n*
m-Aminophenol	591275	7.00E-02 *h*					2600 *n*	260 *n*	95 *n*	72000 *n*	5500 *n*
4-Aminopyridine	504245	2.00E-05 *h*					0.73 *n*	0.073 *n*	0.027 *n*	20 *n*	1.6 *n*
Amitraz	33089611	2.50E-03 *i*					91 *n*	9.1 *n*	3.4 *n*	2600 *n*	200 *n*
Ammonia	7664417		2.86E-02 *i*				1000 *n*	100 *n*			
Ammonium sulfamate	7773060	2.00E-01 *i*					7300 *n*	730 *n*	270 *n*	200000 *n*	16000 *n*
Aniline	62533		2.86E-04 *i*	5.70E-03 *i*			10 *n*	1 *n*	0.55 *o*	500 *c*	110 *c*
Antimony and compounds	7440360	4.00E-04 *i*					15 *n*	1.5 *n*	0.54 *n*	410 *n*	31 *n*
Antimony pentoxide	1314609	5.00E-04 *h*					18 *n*	1.8 *n*	0.68 *n*	510 *n*	39 *n*
Antimony potassium tartrate	304610	9.00E-04 *h*					33 *n*	3.3 *n*	1.2 *n*	920 *n*	70 *n*
Antimony tetroxide	1332316	4.00E-04 *h*					15 *n*	1.5 *n*	0.54 *n*	410 *n*	31 *n*
Antimony trioxide	1309644	4.00E-04 *h*					15 *n*	1.5 *n*	0.54 *n*	410 *n*	31 *n*
Apollo	74115245	1.30E-02 *i*					470 *n*	47 *n*	18 *n*	13000 *n*	1000 *n*
Aramite	140578	5.00E-02 *h*		2.50E-02 *i*	2.49E-02 *i*		2.7 *o*	0.25 *o*	0.13 *o*	110 *o*	26 *c*
Arsenic	7440382	3.00E-04 *i*					11 *n*	1.1 *n*	0.41 *n*	310 *n*	23 *n*
Arsenic (as carcinogen)	744032	3.00E-04		1.75E+00 *i*	1.51E+01 *i*		0.038 *c*	0.00041 *c*	0.0018 *o*	1.6 *o*	0.37 *c*
Assure	76578148	9.00E-03 *i*					330 *n*	33 *n*	12 *n*	9200 *n*	700 *n*
Asulam	3337711	5.00E-02 *i*					1800 *n*	180 *n*	68 *n*	51000 *n*	3900 *n*
Atrazine	1912249	3.50E-02 *i*		2.22E-01 *h*			0.3 *c*	0.028 *c*	0.014 *c*	13 *o*	2.9 *c*

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Contaminant	CAS	RfDo mg/kg/d	RfDi mg/kg/d	CPSo kg•d/mg	CPSi kg•d/mg	VOC	Tap water µg/L	Ambient air µg/m3	Fish mg/kg	Industrial soil mg/kg	Residential soil mg/kg
Avermectin B1	65195553	4.00E-04 *i*					15 *n*	1.5 *n*	0.54 *n*	410 *n*	31 *n*
Azobenzene	103333			1.10E-01 *i*	1.08E-01 *i*		0.61 *c*	0.058 *c*	0.029 *o*	26 *c*	5.8 *c*
Barium and compounds	7440393	7.00E-02 *i*	1.43E-04 *h*				2600 *n*	0.52 *n*	95 *n*	72000 *n*	5500 *n*
Baygon	114261	4.00E-03 *i*					150 *n*	15 *n*	5.4 *n*	4100 *n*	310 *n*
Bayleton	43121433	3.00E-02 *i*					1100 *n*	110 *n*	41 *n*	31000 *n*	2300 *n*
Baythroid	68359375	2.50E-02 *i*					910 *n*	91 *n*	34 *n*	26000 *n*	2000 *n*
Benefin	1861401	3.00E-01 *i*					11000 *n*	1100 *n*	410 *n*	310000 *n*	23000 *n*
Benomyl	17804352	5.00E-02 *i*					1800 *n*	180 *n*	68 *n*	51000 *n*	3900 *n*
Bentazon	25057890	2.50E-03 *i*					91 *n*	9.1 *n*	3.4 *n*	2600 *n*	200 *n*
Benzaldehyde	100527	1.00E-01 *i*				•••	610 *n*	370 *n*	140 *n*	100000 *n*	7800 *n*
Benzene	71432		1.43E-04 *a*	2.90E-02 *i*	2.90E-02 *i*	•••	0.36 *c*	0.22 *c*	0.11 *o*	99 *c*	22 *c*
Benzidine	92875	3.00E-03 *i*		2.30E+02 *i*	2.35E+02 *i*		0.00029 *c*	0.000027 *c*	0.000014 *o*	0.012 *c*	0.0028 *c*
Benzoic acid	65850	4.00E+00 *i*					150000 *n*	15000 *n*	5400 *n*	1000000 *n*	310000 *n*
Benzotrichloride	98077			1.30E+01 *i*			0.0052 *c*	0.00048 *c*	0.00024 *c*	0.22 *c*	0.049 *c*
Benzyl alcohol	100516	3.00E-01 *h*					11000 *n*	1100 *n*	410 *n*	310000 *n*	23000 *n*
Benzyl chloride	100447			1.70E-01 *i*		•••	0.062 *c*	0.037 *c*	0.019 *c*	17 *c*	3.8 *c*
Beryllium and compounds	7440417	5.00E-03 *i*		4.30E+00 *i*	8.40E+00 *i*		0.016 *c*	0.00075 *c*	0.00073 *o*	0.67 *c*	0.15 *c*
Bidrin	141662	1.00E-04 *i*					3.7 *n*	0.37 *n*	0.14 *n*	100 *n*	7.8 *n*
Biphenthrin (Talstar)	82657043	1.50E-02 *i*					550 *n*	55 *n*	20 *n*	15000 *n*	1200 *n*
1,1-Biphenyl	92524	5.00E-02 *i*					1800 *n*	180 *n*	68 *n*	51000 *n*	3900 *n*
Bis(2-chloroethyl)ether	111444			1.10E+00 *i*	1.16E+00 *i*	•••	0.0092 *c*	0.0054 *o*	0.0029 *o*	2.6 *c*	0.58 *c*
Bis(2-chloroisopropyl)ether	39638329	4.00E-02 *i*		7.00E-02 *h*	3.50E-02 *h*	•••	0.26 *o*	0.18 *o*	0.045 *o*	41 *o*	9.1 *c*
Bis(chloromethyl)ether	542881			2.20E+02 *i*	2.17E+02 *i*	•••	0.000049 *c*	0.000029 *o*	0.000014 *o*	0.013 *c*	0.0029 *c*
Bis(2-chloro-1-methylethyl)ether				7.00E-02 *w*	7.00E-02 *w*		0.96 *o*	0.089 *o*	0.045 *o*	41 *o*	9.1 *c*
Bis(2-ethylhexyl)phthalate (DEHP)	117817	2.00E-02 *i*		1.40E-02 *i*			4.8 *o*	0.45 *o*	0.23 *o*	200 *c*	46 *c*
Bisphenol A	80057	5.00E-02 *i*					1800 *n*	180 *n*	68 *n*	51000 *n*	3900 *n*
Boron (and borates)	7440428	9.00E-02 *i*	5.71E-03 *h*				3300 *n*	21 *n*	120 *n*	92000 *n*	7000 *n*
Boron trifluoride	7637072		2.00E-04 *h*				7.3 *n*	0.73 *n*			
Bromodichloromethane	75274	2.00E-02 *i*		6.20E-02 *i*		•••	0.17 *o*	0.1 *o*	0.051 *o*	46 *c*	10 *c*
Bromoethene	593602				1.10E-01 *h*	•••	0.096 *c*	0.057 *c*			
Bromoform (tribromomethane)	75252	2.00E-02 *i*		7.90E-03 *i*	3.85E-03 *i*	•••	2.4 *c*	1.6 *c*	0.4 *o*	360 *o*	81 *c*
Bromomethane	74839	1.40E-03 *i*	1.43E-03 *i*			•••	8.7 *n*	5.2 *n*	1.9 *n*	1400 *n*	110 *n*
4-Bromophenyl phenyl ether	101553	5.80E-02 *o*					2100 *n*	210 *n*	78 *n*	59000 *n*	4500 *n*
Bromophos	2104963	5.00E-03 *h*					180 *n*	18 *n*	6.8 *n*	5100 *n*	390 *n*
Bromoxynil	1689845	2.00E-02 *i*					730 *n*	73 *n*	27 *n*	20000 *n*	1600 *n*
Bromoxynil octanoate	1689992	2.00E-02 *i*					730 *n*	73 *n*	27 *n*	20000 *n*	1600 *n*
1,3-Butadiene	106990				9.80E-01 *i*	•••	0.011 *c*	0.0064 *o*			
1-Butanol	71363	1.00E-01 *i*					3700 *n*	370 *n*	140 *n*	100000 *n*	7800 *n*
Butyl benzyl phthalate	85687	2.00E-01 *i*					7300 *n*	730 *n*	270 *n*	200000 *n*	16000 *n*
Butylate	2008415	5.00E-02 *i*					1800 *n*	180 *n*	68 *n*	51000 *n*	3900 *n*
sec-Butylbenzene	135988	1.00E-02 *e*				•••	61 *n*	37 *n*	14 *n*	10000 *n*	780 *n*
tert-But... ene	104518	1.00E-02 *e*				•••	61 *n*	37 *n*	14 *n*	100...	780 *n*

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Contaminant	CAS	RfDo mg/kg/d	RfDi mg/kg/d	CPSo kg•d/mg	CPSi kg•d/mg	VOC	Tap water µg/L	Ambient air µg/m3	Fish mg/kg	Industrial soil mg/kg	Residential soil mg/kg
Butylphthalyl butylglycolate	85701	1.00E+00 *i*					37000 *n*	3700 *n*	1400 *n*	1000000 *n*	78000 *n*
Cacodylic acid	75605	3.00E-03 *h*					110 *n*	11 *n*	4.1 *n*	3100 *n*	230 *n*
Cadmium and compounds	7440439	5.00E-04 *i*			6.30E+00 *i*		18 *n*	0.00099 *o*	0.68 *n*	510 *n*	39 *n*
Caprolactam	105602	5.00E-01 *i*					18000 *n*	1800 *n*	680 *n*	510000 *n*	39000 *n*
Captafol	2425061	2.00E-03 *i*		8.60E-03 *h*			7.8 *o*	0.73 *o*	0.37 *o*	330 *o*	74 *c*
Captan	133062	1.30E-01 *i*		3.50E-03 *h*			19 *c*	1.8 *o*	0.9 *c*	820 *o*	180 *c*
Carbaryl	63252	1.00E-01 *i*					3700 *n*	370 *n*	140 *n*	100000 *n*	7800 *n*
Carbazole	86748			2.00E-02 *h*			3.4 *o*	0.31 *o*	0.16 *o*	140 *o*	32 *c*
Carbofuran	1563662	5.00E-03 *i*					180 *n*	18 *n*	6.8 *n*	5100 *n*	390 *n*
Carbon disulfide	75150	1.00E-01 *i*	2.86E-03 *h*			***	21 *n*	10 *n*	140 *n*	100000 *n*	7800 *n*
Carbon tetrachloride	56235	7.00E-04 *i*	5.71E-04 *o*	1.30E-01 *i*	5.25E-02 *i*	***	0.16 *c*	0.12 *o*	0.024 *o*	22 *o*	4.9 *c*
Carbosulfan	55285148	1.00E-02 *i*					370 *n*	37 *n*	14 *n*	10000 *n*	780 *n*
Carboxin	5234684	1.00E-01 *i*					3700 *n*	370 *n*	140 *n*	100000 *n*	7800 *n*
Chloral	75876	2.00E-03 *i*					73 *n*	7.3 *n*	2.7 *n*	2000 *n*	160 *n*
Chloramben	133904	1.50E-02 *i*					550 *n*	55 *n*	20 *n*	15000 *n*	1200 *n*
Chloranil	118752			4.03E-01 *h*			0.17 *o*	0.016 *o*	0.0078 *o*	7.1 *c*	1.6 *c*
Chlordane	57749	6.00E-05 *i*		1.30E+00 *i*	1.29E+00 *i*		0.052 *o*	0.0049 *o*	0.0024 *o*	2.2 *o*	0.49 *c*
Chlorimuron-ethyl	90982324	2.00E-02 *i*					730 *n*	73 *n*	27 *n*	20000 *n*	1600 *n*
Chlorine dioxide	10049044		5.71E-05 *i*				2.1 *n*	0.21 *n*			
Chloroacetaldehyde	107200	6.90E-03 *o*					250 *n*	25 *n*	9.3 *n*	7100 *n*	540 *n*
Chloroacetic acid	79118	2.00E-03 *h*					73 *n*	7.3 *n*	2.7 *n*	2000 *n*	160 *n*
2-Chloroacetophenone	532274		8.57E-06 *i*				0.31 *n*	0.031 *n*			
4-Chloroaniline	106478	4.00E-03 *i*					150 *n*	15 *n*	5.4 *n*	4100 *n*	310 *n*
Chlorobenzene	108907	2.00E-02 *i*	5.71E-03 *h*			***	39 *n*	21 *n*	27 *n*	20000 *n*	1600 *n*
Chlorobenzilate	510156	2.00E-02 *i*		2.70E-01 *h*	2.70E-01 *h*		0.25 *o*	0.023 *o*	0.012 *o*	11 *o*	2.4 *c*
p-Chlorobenzoic acid	74113	2.00E-01 *h*					7300 *n*	730 *n*	270 *n*	200000 *n*	16000 *n*
4-Chlorobenzotrifluoride	98566	2.00E-02 *h*					730 *n*	73 *n*	27 *n*	20000 *n*	1600 *n*
2-Chloro-1,3-butadiene	126998	2.00E-02 *h*	2.00E-03 *h*			***	14 *n*	7.3 *n*	27 *n*	20000 *n*	1600 *n*
1-Chlorobutane	109693	4.00E-01 *h*				***	2400 *n*	1500 *n*	540 *n*	410000 *n*	31000 *n*
Chlorodifluoromethane	75456		1.43e+01 *i*			***	87000 *n*	52000 *n*			
Chloroethane	75003	2.00E-02 *e*	2.86E+00 *i*			***	710 *n*	10000 *n*	27 *n*	20000 *n*	1600 *n*
2-Chloroethyl vinyl ether	110758	2.50E-02 *o*				***	150 *n*	91 *n*	34 *n*	26000 *n*	2000 *n*
Chloroform	67663	1.00E-02 *i*		6.10E-03 *i*	8.05E-02 *i*	***	0.15 *o*	0.078 *o*	0.52 *o*	470 *o*	100 *c*
Chloromethane	74873			1.30E-02 *h*	6.30E-03 *h*	***	1.4 *o*	0.99 *o*	0.24 *o*	220 *o*	49 *c*
4-Chloro-2,2-methylaniline hydrochloride	3165933			4.60E-01 *h*			0.15 *c*	0.014 *o*	0.0069 *o*	6.2 *o*	1.4 *c*
4-Chloro-2-methylaniline	95692			5.80E-01 *h*			0.12 *c*	0.011 *o*	0.0054 *o*	4.9 *o*	1.1 *c*
beta-Chloronaphthalene	91587	8.00E-02 *i*					2900 *n*	290 *n*	110 *n*	82000 *n*	6300 *n*
o-Chloronitrobenzene	88733			2.50E-02 *h*		***	0.42 *c*	0.25 *o*	0.13 *o*	110 *o*	26 *c*
p-Chloronitrobenzene	121733			1.80E-02 *h*		***	0.59 *c*	0.35 *o*	0.18 *o*	160 *o*	35 *c*
2-Chlorophenol	95578	5.00E-03 *i*					180 *n*	18 *n*	6.8 *n*	5100 *n*	390 *n*
2-Chloropropane	75296		2.86E-02 *h*			***	170 *n*	100 *n*			
Chlorothalonil	1897456	1.50E-02 *i*		1.10E-02 *h*			6.1 *o*	0.57 *o*	0.29 *o*	260 *o*	58 *c*

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Contaminant	CAS	RfDo mg/kg/d	RfDi mg/kg/d	CPSo kg•d/mg	CPSi kg•d/mg	VOC	Tap water µg/L	Ambient air µg/m3	Fish mg/kg	Industrial soil mg/kg	Residential soil mg/kg
o-Chlorotoluene	95498	2.00E-02 *i*				***	120 *n*	73 *n*	27 *n*	20000 *n*	1600 *n*
Chlorpropham	101213	2.00E-01 *i*					7300 *n*	730 *n*	270 *n*	200000 *n*	16000 *n*
Chlorpyrifos	2921882	3.00E-03 *i*					110 *n*	11 *n*	4.1 *n*	3100 *n*	230 *n*
Chlorpyrifos-methyl	5598130	1.00E-02 *h*					370 *n*	37 *n*	14 *n*	10000 *n*	780 *n*
Chlorsulfuron	64902723	5.00E-02 *h*					1800 *n*	180 *n*	68 *n*	51000 *n*	3900 *n*
Chlorthiophos	60238564	8.00E-04 *h*					29 *n*	2.9 *n*	1.1 *n*	820 *n*	63 *n*
Chromium III and compounds	16065831	1.00E+00 *i*	5.71E-07 *w*				37000 *n*	0.0021 *n*	1400 *n*	1000000 *n*	78000 *n*
Chromium VI and compounds	7440473	5.00E-03 *i*			4.20E+01 *i*		180 *n*	0.00015 *o*	6.8 *n*	5100 *n*	390 *n*
Coal tar	8001589				2.20E+00 *w*			0.0028 *o*			
Coke Oven Emissions	8007452				2.17E+00 *i*			0.0029 *o*			
Copper and compounds	7440508	3.71E-02 *h*					1400 *n*	140 *n*	50 *n*	38000 *n*	2900 *n*
Crotonaldehyde	123739	1.00E-02 *w*		1.90E+00 *h*	1.90E+00 *w*		0.035 *o*	0.0033 *o*	0.0017 *o*	1.5 *o*	0.34 *c*
Cumene	98828	4.00E-02 *i*	2.57E-03 *h*				1500 *n*	9.4 *n*	54 *n*	41000 *n*	3100 *n*
Cyanides:											
Barium cyanide	542621	1.00E-01 *h*					3700 *n*	370 *n*	140 *n*	100000 *n*	7800 *n*
Calcium cyanide	592018	4.00E-02 *i*					1500 *n*	150 *n*	54 *n*	41000 *n*	3100 *n*
Copper cyanide	544923	5.00E-03 *i*					180 *n*	18 *n*	6.8 *n*	5100 *n*	390 *n*
Cyanazine	21725462	2.00E-03 *h*		8.40E-01 *h*			0.08 *o*	0.0075 *o*	0.0038 *o*	3.4 *o*	0.76 *c*
Cyanogen	460195	4.00E-02 *i*					1500 *n*	150 *n*	54 *n*	41000 *n*	3100 *n*
Cyanogen bromide	506683	9.00E-02 *i*					3300 *n*	330 *n*	120 *n*	92000 *n*	7000 *n*
Cyanogen chloride	506774	5.00E-02 *i*					1800 *n*	180 *n*	68 *n*	51000 *n*	3900 *n*
Free cyanide	57125	2.00E-02 *i*					730 *n*	73 *n*	27 *n*	20000 *n*	1600 *n*
Hydrogen cyanide	74908	2.00E-02 *i*					730 *n*	73 *n*	27 *n*	20000 *n*	1600 *n*
Potassium cyanide	151508	5.00E-02 *i*					1800 *n*	180 *n*	68 *n*	51000 *n*	3900 *n*
Potassium silver cyanide	506616	2.00E-01 *i*					7300 *n*	730 *n*	270 *n*	200000 *n*	16000 *n*
Silver cyanide	506649	1.00E-01 *i*					3700 *n*	370 *n*	140 *n*	100000 *n*	7800 *n*
Sodium cyanide	143339	4.00E-02 *i*					1500 *n*	150 *n*	54 *n*	41000 *n*	3100 *n*
Zinc cyanide	557211	5.00E-02 *i*					1800 *n*	180 *n*	68 *n*	51000 *n*	3900 *n*
Cyclohexanone	108941	5.00E+00 *i*				***	30000 *n*	18000 *n*	6800 *n*	1000000 *n*	390000 *n*
Cyclohexlamine	108918	2.00E-01 *i*					7300 *n*	730 *n*	270 *n*	200000 *n*	16000 *n*
Cyhalothrin/Karate	68085858	5.00E-03 *i*					180 *n*	18 *n*	6.8 *n*	5100 *n*	390 *n*
Cypermethrin	52315078	1.00E-02 *i*					370 *n*	37 *n*	14 *n*	10000 *n*	780 *n*
Cyromazine	66215278	7.50E-03 *i*					270 *n*	27 *n*	10 *n*	7700 *n*	590 *n*
Dacthal	1861321	5.00E-01 *i*					18000 *n*	1800 *n*	680 *n*	510000 *n*	39000 *n*
Dalapon	75990	3.00E-02 *i*					1100 *n*	110 *n*	41 *n*	31000 *n*	2300 *n*
Danitol	39515418	5.00E-04 *w*					18 *n*	1.8 *n*	0.68 *n*	510 *n*	39 *n*
DDD	72548			2.40E-01 *i*			0.28 *o*	0.026 *o*	0.013 *o*	12 *o*	2.7 *c*
DDE	72559			3.40E-01 *i*			0.2 *o*	0.018 *o*	0.0093 *o*	8.4 *o*	1.9 *c*
DDT	50293	5.00E-04 *i*		3.40E-01 *i*	3.40E-01 *i*		0.2 *o*	0.018 *o*	0.0093 *o*	8.4 *o*	1.9 *c*
Decabromodiphenyl ether	1163195	1.00E-02 *i*				***	61 *n*	37 *n*	14 *n*	10000 *n*	780 *n*
Demeton	8065483	4.00E-05 *i*					1.5 *n*	0.15 *n*	0.054 *n*	41 -	3.1 *n*
Diallate	2303164			10E-02 *h*		***	0.17 *o*	0.1 *o*	0.052 *o*		10 *c*

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Contaminant	CAS	RfDo mg/kg/d	RfDi mg/kg/d	CPSo kg•d/mg	CPSi kg•d/mg	VOC	Tap water µg/L	Ambient air µg/m3	Fish mg/kg	Industrial soil mg/kg	Residential soil mg/kg
Diazinon	333415	9.00E-04 *h*					33 *n*	3.3 *n*	1.2 *n*	920 *n*	70 *n*
1,4-Dibromobenzene	106376	1.00E-02 *i*				***	61 *n*	37 *n*	14 *n*	10000 *n*	780 *n*
Dibromochloromethane	124481	2.00E-02 *i*		8.40E-02 *i*		***	0.13 *o*	0.075 *o*	0.038 *o*	34 *o*	7.6 *c*
1,2-Dibromo-3-chloropropane	96128		5.71E-05 *i*	1.40E+00 *h*	6.90E-07 *h*	***	0.048 *c*	0.21 *n*	0.0023 *o*	2 *c*	0.46 *c*
1,2-Dibromoethane	106934		5.71E-05 *h*	8.50E+01 *i*	7.70E-01 *i*	***	0.00075 *c*	0.0081 *o*	0.000037 *o*	0.034 *c*	0.0075 *c*
Dibutyl phthalate	84742	1.00E-01 *i*					3700 *n*	370 *n*	140 *n*	100000 *n*	7800 *n*
Dicamba	1918009	3.00E-02 *i*					1100 *n*	110 *n*	41 *n*	31000 *n*	2300 *n*
1,2-Dichlorobenzene	95501	9.00E-02 *i*	5.71E-02 *h*			***	370 *n*	210 *n*	120 *n*	92000 *n*	7000 *n*
1,3-Dichlorobenzene	541731	8.90E-02 *o*				***	540 *n*	320 *n*	120 *n*	91000 *n*	7000 *n*
1,4-Dichlorobenzene	106467		2.29E-01 *i*	2.40E-02 *h*		***	0.44 *c*	0.26 *o*	0.13 *o*	120 *c*	27 *c*
3,3'-Dichlorobenzidine	91941			4.50E-01 *i*			0.15 *o*	0.014 *o*	0.007 *o*	6.4 *c*	1.4 *c*
1,4-Dichloro-2-butene	764410				9.30E+00 *h*	***	0.0011 *o*	0.00067 *o*			
Dichlorodifluoromethane	75718	2.00E-01 *i*	5.71E-02 *h*			***	390 *n*	210 *n*	270 *n*	200000 *n*	16000 *n*
1,1-Dichloroethane	75343	1.00E-01 *h*	1.43E-01 *h*			***	810 *n*	520 *n*	140 *n*	100000 *n*	7800 *n*
1,2-Dichloroethane (EDC)	107062		2.86E-03 *e*	9.10E-02 *i*	9.10E-02 *i*	***	0.12 *c*	0.069 *o*	0.035 *o*	31 *o*	7 *c*
1,1-Dichloroethylene	75354	9.00E-03 *i*		6.00E-01 *i*	1.75E-01 *i*	***	0.044 *c*	0.036 *o*	0.0053 *o*	4.8 *o*	1.1 *c*
1,2-Dichloroethylene (cis)	156592	1.00E-02 *h*				***	61 *n*	37 *n*	14 *n*	10000 *n*	780 *n*
1,2-Dichloroethylene (trans)	156605	2.00E-02 *i*				***	120 *n*	73 *n*	27 *n*	20000 *n*	1600 *n*
1,2-Dichloroethylene (mixture)	540590	9.00E-03 *h*				***	55 *n*	33 *n*	12 *n*	9200 *n*	700 *n*
2,4-Dichlorophenol	120832	3.00E-03 *i*					110 *n*	11 *n*	4.1 *n*	3100 *n*	230 *n*
2,4-Dichlorophenoxyacetic Acid (2,4-D)	94757	1.00E-02 *i*				***	61 *n*	37 *n*	14 *n*	10000 *n*	780 *n*
4-(2,4-Dichlorophenoxy)butyric Acid	94826	8.00E-03 *i*					290 *n*	29 *n*	11 *n*	8200 *n*	630 *n*
1,2-Dichloropropane	78875		1.14E-03 *i*	6.80E-02 *h*		***	0.16 *o*	0.092 *o*	0.046 *o*	42 *o*	9.4 *c*
2,3-Dichloropropanol	616239	3.00E-03 *i*					110 *n*	11 *n*	4.1 *n*	3100 *n*	230 *n*
1,3-Dichloropropene	542756	3.00E-04 *i*	5.71E-03 *i*	1.80E-01 *h*	1.30E-01 *h*	***	0.077 *o*	0.048 *o*	0.018 *o*	16 *o*	3.5 *c*
Dichlorvos	62737	5.00e-04 *i*		2.90E-01 *i*			0.23 *o*	0.022 *o*	0.011 *o*	9.9 *o*	2.2 *c*
Dicofol	115322			4.40E-01 *w*			0.15 *o*	0.014 *o*	0.0072 *o*	6.5 *o*	1.5 *c*
Dicyclopentadiene	77736	3.00E-02 *h*	5.71E-05 *h*			***	0.42 *n*	0.21 *n*	41 *n*	31000 *n*	2300 *n*
Dieldrin	60571	5.00E-05 *i*		1.60E+01 *i*	1.61E+01 *i*		0.0042 *o*	0.00039 *o*	0.0002 *o*	0.18 *o*	0.04 *c*
Diesel emissions			1.43E-03 *i*				52 *n*	5.2 *n*			
Diethyl phthalate	84662	8.00E-01 *i*					29000 *n*	2900 *n*	1100 *n*	820000 *n*	63000 *n*
Diethylene glycol, monobutyl ether	112345		5.71E-03 *h*				210 *n*	21 *n*			
Diethylene glycol, monoethyl ether	111900	2.00E+00 *h*					73000 *n*	7300 *n*	2700 *n*	1000000 *n*	160000 *n*
Diethylformamide	617845	1.10E-02 *h*					400 *n*	40 *n*	15 *n*	11000 *n*	860 *n*
Di(2-ethylhexyl)adipate	103231	6.00E-01 *i*		1.20E-03 *i*			56 *o*	5.2 *o*	2.6 *o*	2400 *o*	530 *c*
Diethylstilbestrol	56531			4.70E+03 *h*			0.000014 *o*	1.30E-06 *o*	6.70E-07 *o*	0.00061 *o*	0.00014 *c*
Difenzoquat (Avenge)	43222486	8.00E-02 *i*					2900 *n*	290 *n*	110 *n*	82000 *n*	6300 *n*
Diflubenzuron	35367385	2.00E-02 *i*					730 *n*	73 *n*	27 *n*	20000 *n*	1600 *n*
Diisopropyl methylphosphonate (DIMP)	1445756	8.00E-02 *i*					2900 *n*	290 *n*	110 *n*	82000 *n*	6300 *n*
Dimethipin	55290647	2.00E-02 *i*					730 *n*	73 *n*	27 *n*	20000 *n*	1600 *n*
Dimethoate	60515	2.00E-04 *i*					7.3 *n*	0.73 *n*	0.27 *n*	200 *n*	16 *n*
3,3'-Dimethoxybenzidine	119904			1.40E-02 *h*			4.8 *o*	0.45 *o*	0.23 *o*	200 *o*	46 *c*

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Dimethyl phthalate	131113	1.00E+01 *h*					370000 *n*	37000 *n*	14000 *n*	1000000 *n*	780000 *n*
Dimethyl terephthalate	120616	1.00E-01 *i*					3700 *n*	370 *n*	140 *n*	100000 *n*	7800 *n*
Dimethylamine	124403		5.71E-06 *w*				0.21 *n*	0.021 *n*			
2,4-Dimethylaniline hydrochloride	21436964			5.80E-01 *h*			0.12 *o*	0.011 *o*	0.0054 *o*	4.9 *o*	1.1 *c*
2,4-Dimethylaniline	95681			7.50E-01 *h*			0.09 *o*	0.0083 *o*	0.0042 *o*	3.8 *o*	0.85 *c*
N-N-Dimethylaniline	121697	2.00E-03 *h*					73 *n*	7.3 *n*	2.7 *n*	2000 *n*	160 *n*
3,3'-Dimethylbenzidine	119937			9.20E+00 *h*			0.0073 *o*	0.00068 *o*	0.00034 *o*	0.31 *o*	0.069 *c*
N,N-Dimethylformamide	68122	1.00E-01 *h*	8.57E-03 *i*				3700 *n*	31 *n*	140 *n*	100000 *n*	7800 *n*
1,1-Dimethylhydrazine	57147			2.60E+00 *h*	3.50E+00 *h*		0.026 *o*	0.0018 *o*	0.0012 *o*	1.1 *o*	0.25 *c*
1,2-Dimethylhydrazine	540738			3.70E+01 *w*	3.70E+01 *w*		0.0018 *o*	0.00017 *o*	0.000085 *o*	0.077 *o*	0.017 *c*
2,4-Dimethylphenol	105679	2.00E-02 *i*					730 *n*	73 *n*	27 *n*	20000 *n*	1600 *n*
2,6-Dimethylphenol	576261	6.00E-04 *i*					22 *n*	2.2 *n*	0.81 *n*	610 *n*	47 *n*
3,4-Dimethylphenol	95658	1.00E-03 *i*					37 *n*	3.7 *n*	1.4 *n*	1000 *n*	78 *n*
1,2-Dinitrobenzene	528290	4.00E-04 *h*					15 *n*	1.5 *n*	0.54 *n*	410 *n*	31 *n*
1,3-Dinitrobenzene	99650	1.00E-04 *i*					3.7 *n*	0.37 *n*	0.14 *n*	100 *n*	7.8 *n*
1,4-Dinitrobenzene	100254	4.00E-04 *h*					15 *n*	1.5 *n*	0.54 *n*	410 *n*	31 *n*
4,6-Dinitro-o-cydohexyl phenol	131895	2.00E-03 *i*					73 *n*	7.3 *n*	2.7 *n*	2000 *n*	160 *n*
2,4-Dinitrophenol	51285	2.00E-03 *i*					73 *n*	7.3 *n*	2.7 *n*	2000 *n*	160 *n*
Dinitrotoluene mixture				6.80E-01 *i*			0.099 *o*	0.0092 *o*	0.0046 *o*	4.2 *o*	0.94 *c*
2,4-Dinitrotoluene	121142	2.00E-03 *i*					73 *n*	7.3 *n*	2.7 *n*	2000 *n*	160 *n*
2,6-Dinitrotoluene	606202	1.00E-03 *h*					37 *n*	3.7 *n*	1.4 *n*	1000 *n*	78 *n*
Dinoseb	88857	1.00E-03 *i*					37 *n*	3.7 *n*	1.4 *n*	1000 *n*	78 *n*
di-n-Octyl phthalate	117840	2.00E-02 *h*					730 *n*	73 *n*	27 *n*	20000 *n*	1600 *n*
1,4-Dioxane	123911			1.10E-02 *i*			6.1 *o*	0.57 *o*	0.29 *o*	260 *o*	58 *c*
Diphenamid	957517	3.00E-02 *i*					1100 *n*	110 *n*	41 *n*	31000 *n*	2300 *n*
Diphenylamine	122394	2.50E-02 *i*					910 *n*	91 *n*	34 *n*	26000 *n*	2000 *n*
1,2-Diphenylhydrazine	122667			8.00E-01 *i*	7.70E-01 *i*		0.084 *o*	0.0081 *o*	0.0039 *o*	3.6 *o*	0.8 *c*
Diquat	85007	2.20E-03 *i*					80 *n*	8 *n*	3 *n*	2200 *n*	170 *n*
Direct black 38	1937377			8.60E+00 *h*			0.0078 *o*	0.00073 *o*	0.00037 *o*	0.33 *o*	0.074 *c*
Direct blue 6	2602462			8.10E+00 *h*			0.0083 *o*	0.00077 *o*	0.00039 *o*	0.35 *o*	0.079 *c*
Direct brown 95	16071866			9.30E+00 *h*			0.0072 *o*	0.00067 *o*	0.00034 *o*	0.31 *o*	0.069 *c*
Disulfoton	298044	4.00E-05 *i*					1.5 *n*	0.15 *n*	0.054 *n*	41 *n*	3.1 *n*
1,4-Dithiane	505293	1.00E-02 *i*					370 *n*	37 *n*	14 *n*	10000 *n*	780 *n*
Diuron	330541	2.00E-03 *i*					73 *n*	7.3 *n*	2.7 *n*	2000 *n*	160 *n*
Dodine	2439103	4.00E-03 *i*					150 *n*	15 *n*	5.4 *n*	4100 *n*	310 *n*
Endosulfan	115297	6.00E-03 *h*					220 *n*	22 *n*	8.1 *n*	6100 *n*	470 *n*
Endothall	145733	2.00E-02 *i*					730 *n*	73 *n*	27 *n*	20000 *n*	1600 *n*
Endrin	72208	3.00E-04 *i*					11 *n*	1.1 *n*	0.41 *n*	310 *n*	23 *n*
Epichlorohydrin	106898	2.00E-03 *h*	2.86E-04 *i*	9.90E-03 *i*	4.20E-03 *i*		6.8 *o*	1 *n*	0.32 *o*	290 *o*	65 *c*
1,2-Epoxybutane	106887		5.71E-03 *i*				210 *n*	21 *n*			
Ethephon (2-chloroethyl phosphonic acid)	16672870	5.00E-03 *i*					180 *n*	18 *n*	6.8 *n*	5100 *n*	390 *n*
Ethion	563122	5.00E-04 *i*					18 *n*	1.8 *n*	0.68 *n*	5'	39 *n*

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2-Ethoxyethanol acetate	111159	3.00E-01 h					11000 n	1100 n	410 n	310000 n	23000 n
2-Ethoxyethanol	110805	4.00E-01 h	5.71E-02 i				15000 n	210 n	540 n	410000 n	31000 n
Ethyl acrylate	140885			4.80E-02 h			1.4 c	0.13 c	0.066 c	60 c	13 c
EPTC (S-Ethyl dipropylthiocarbamate)	759944	2.50E-02 i					910 n	91 n	34 n	26000 n	2000 n
Ethyl ether	60297	2.00E-01 i				***	1200 n	730 n	270 n	200000 n	16000 n
Ethyl methacrylate	97632	9.00E-02 h					3300 n	330 n	120 n	92000 n	7000 n
Ethyl acetate	141786	9.00E-01 i					33000 n	3300 n	1200 n	920000 n	70000 n
Ethylbenzene	100414	1.00E-01 i	2.86E-01 i			***	1300 n	1000 n	140 n	100000 n	7800 n
Ethylene cyanohydrin	109784	3.00E-01 h					11000 n	1100 n	410 n	310000 n	23000 n
Ethylene diamine	107153	2.00E-02 h					730 n	73 n	27 n	20000 n	1600 n
Ethylene glycol	107211	2.00E+00 i					73000 n	7300 n	2700 n	1000000 n	160000 n
Ethylene glycol, monobutyl ether	111762		5.71E-03 h				210 n	21 n			
Ethylene oxide	75218			1.02E+00 h	3.50E-01 h		0.066 c	0.018 c	0.0031 c	2.8 c	0.63 c
Ethylene thiourea (ETU)	96457	8.00E-05 i		6.00E-01 h			0.11 c	0.01 c	0.0053 c	4.8 c	1.1 c
Ethyl p-nitrophenyl phenylphosphorothioate	2104645	1.00E-05 i					0.37 n	0.037 n	0.014 n	10 n	0.78 n
Ethylnitrosourea	759739			1.40E+02 w			0.00048 c	0.000045 c	0.000023 c	0.02 c	0.0046 c
Ethylphthalyl ethyl glycolate	84720	3.00E+00 i					110000 n	11000 n	4100 n	1000000 n	230000 n
Express	10120	8.00E-03 i					290 n	29 n	11 n	8200 n	630 n
Fenamiphos	22224926	2.50E-04 i					9.1 n	0.91 n	0.34 n	260 n	20 n
Fluometuron	2164172	1.30E-02 i					470 n	47 n	18 n	13000 n	1000 n
Fluoride	7782414	6.00E-02 i					2200 n	220 n	81 n	61000 n	4700 n
Fluoridone	59756604	8.00E-02 i					2900 n	290 n	110 n	82000 n	6300 n
Flurprimidol	56425913	2.00E-02 i					730 n	73 n	27 n	20000 n	1600 n
Flutolanil	66332965	6.00E-02 i					2200 n	220 n	81 n	61000 n	4700 n
Fluvalinate	69409945	1.00E-02 i					370 n	37 n	14 n	10000 n	780 n
Folpet	133073	1.00E-01 i		3.50E-03 i			19 c	1.8 c	0.9 c	820 c	180 c
Fomesafen	72178020			1.90E-01 i			0.35 c	0.033 c	0.017 c	15 c	3.4 c
Fonofos	944229	2.00E-03 i					73 n	7.3 n	2.7 n	2000 n	160 n
Formaldehyde	50000	2.00E-01 i			4.55E-02 i		7300 n	0.14 c	270 n	200000 n	16000 n
Formic Acid	64186	2.00E+00 h					73000 n	7300 n	2700 n	1000000 n	160000 n
Fosetyl-al	39148248	3.00E+00 i					110000 n	11000 n	4100 n	1000000 n	230000 n
Furan	110009	1.00E-03 i					37 n	3.7 n	1.4 n	1000 n	78 n
Furazolidone	67458			3.80E+00 h			0.018 c	0.0016 c	0.00083 c	0.75 c	0.17 c
Furfural	98011	3.00E-03 i	1.43E-02 h				110 n	52 n	4.1 n	3100 n	230 n
Furium	531828			5.00E+01 h			0.0013 c	0.00013 c	0.000063 c	0.057 c	0.013 c
Furmecyclox	60568050			3.00E-02 i			2.2 c	0.21 c	0.11 c	95 c	21 c
Glufosinate-ammonium	77182822	4.00E-04 i					15 n	1.5 n	0.54 n	410 n	31 n
Glycidaldehyde	765344	4.00E-04 i	2.86E-04 h				15 n	1 n	0.54 n	410 n	31 n
Glyphosate	1071836	1.00E-01 i					3700 n	370 n	140 n	100000 n	7800 n
Haloxyfop-methyl	69806402	5.00E-05 i					1.8 n	0.18 n	0.068 n	51 n	3.9 n
Harmony	79277273	1.30E-02 i					470 n	47 n	18 n	13000 n	1000 n
HCH (alpha)	319846			6.30E+00 i	6.30E+00 i		0.011 c	0.00099 c	0.0005 c	0.45 c	0.1 c

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HCH (beta)	319857			1.80E+00 *i*	1.80E+00 *i*		0.037 *o*	0.0035 *o*	0.0018 *o*	1.6 *o*	0.35 *c*
HCH (gamma) Lindane	58899	3.00E–04 *i*		1.30E+00 *h*			0.052 *o*	0.0048 *o*	0.0024 *o*	2.2 *o*	0.49 *c*
HCH–technical	608731			1.80E+00 *i*	1.79E+00 *i*		0.037 *o*	0.0035 *o*	0.0018 *o*	1.6 *o*	0.35 *c*
Heptachlor	76448	5.00E–04 *i*		4.50E+00 *i*	4.55E+00 *i*	***	0.0023 *o*	0.0014 *o*	0.0007 *o*	0.64 *o*	0.14 *c*
Heptachlor epoxide	1024573	1.30E–05 *i*		9.10E+00 *i*	9.10E+00 *i*	***	0.0012 *o*	0.00069 *o*	0.00035 *o*	0.31 *o*	0.07 *c*
Hexabromobenzene	87821	2.00E–03 *i*				***	12 *n*	7.3 *n*	2.7 *n*	2000 *n*	160 *n*
Hexachlorobenzene	118741	8.00E–04 *i*		1.60E+00 *i*	1.61E+00 *i*	***	0.0066 *o*	0.0039 *o*	0.002 *o*	1.8 *o*	0.4 *c*
Hexachlorobutadiene	87683	2.00E–04 *h*		7.80E–02 *i*	7.70E–02 *i*	***	0.14 *o*	0.081 *o*	0.04 *o*	37 *o*	8.2 *c*
Hexachlorocyclopentadiene	77474	7.00E–03 *i*	2.00E–05 *h*			***	0.15 *n*	0.073 *n*	9.5 *n*	7200 *n*	550 *n*
Hexachlorodibenzo–p–dioxin mixture	19408743			6.20E+03 *i*	4.55E+03 *i*		0.000011 *o*	1.40E–06 *o*	5.10E–07 *o*	0.00046 *o*	0.0001 *c*
Hexachloroethane	67721	1.00E–03 *i*		1.40E–02 *i*	1.40E–02 *i*	***	0.75 *o*	0.45 *o*	0.23 *o*	200 *o*	46 *c*
Hexachlorophene	70304	3.00E–04 *i*					11 *n*	1.1 *n*	0.41 *n*	310 *n*	23 *n*
Hexahydro–1,3,5–trinitro–1,3,5–triazine	121824	3.00E–03 *i*		1.10E–01 *i*			0.61 *o*	0.057 *o*	0.029 *o*	26 *c*	5.8 *c*
n–Hexane	110543	6.00E–02 *h*	5.71E–02 *i*			***	350 *n*	210 *n*	81 *n*	61000 *n*	4700 *n*
Hexazinone	51235042	3.30E–02 *i*					1200 *n*	120 *n*	45 *n*	34000 *n*	2600 *n*
Hydrazine, hydrazine sulfate	302012			3.00E+00 *i*	1.71E+01 *i*		0.022 *o*	0.00037 *o*	0.0011 *o*	0.95 *o*	0.21 *c*
Hydrogen chloride	7647010		2.00E–03 *i*				73 *n*	7.3 *n*			
Hydrogen sulfide	7783064	3.00E–03 *i*	2.57E–04 *i*				110 *n*	0.94 *n*	4.1 *n*	3100 *n*	230 *n*
Hydroquinone	123319	4.00E–02 *h*					1500 *n*	150 *n*	54 *n*	41000 *n*	3100 *n*
Imazalil	35554440	1.30E–02 *i*					470 *n*	47 *n*	18 *n*	13000 *n*	1000 *n*
Imazaquin	81335377	2.50E–01 *i*					9100 *n*	910 *n*	340 *n*	260000 *n*	20000 *n*
Iprodione	36734197	4.00E–02 *i*					1500 *n*	150 *n*	54 *n*	41000 *n*	3100 *n*
Isobutanol	78831	3.00E–01 *i*				***	1800 *n*	1100 *n*	410 *n*	310000 *n*	23000 *n*
Isophorone	78591	2.00E–01 *i*		9.50E–04 *i*			71 *o*	6.6 *o*	3.3 *o*	3000 *o*	670 *c*
Isopropalin	33820530	1.50E–02 *i*					550 *n*	55 *n*	20 *n*	15000 *n*	1200 *n*
Isopropyl methyl phosphonic acid	1832548	1.00E–01 *i*					3700 *n*	370 *n*	140 *n*	100000 *n*	7800 *n*
Isoxaben	82558507	5.00E–02 *i*					1800 *n*	180 *n*	68 *n*	51000 *n*	3900 *n*
Kepone	143500			1.80E+01 *a*			0.0037 *o*	0.00035 *o*	0.00018 *o*	0.16 *o*	0.035 *c*
Lactofen	77501634	2.00E–03 *i*					73 *n*	7.3 *n*	2.7 *n*	2000 *n*	160 *n*
Lead (tetraethyl)	78002	1.00E–07 *i*					0.0037 *n*	0.00037 *n*	0.00014 *n*	0.1 *n*	0.0078 *n*
Linuron	330552	2.00E–03 *i*					73 *n*	7.3 *n*	2.7 *n*	2000 *n*	160 *n*
Lithium	7439932	2.00E–02 *a*					730 *n*	73 *n*	27 *n*	20000 *n*	1600 *n*
Londax	83056996	2.00E–01 *i*					7300 *n*	730 *n*	270 *n*	200000 *n*	16000 *n*
Malathion	121755	2.00E–02 *i*					730 *n*	73 *n*	27 *n*	20000 *n*	1600 *n*
Maleic anhydride	108316	1.00E–01 *i*					3700 *n*	370 *n*	140 *n*	100000 *n*	7800 *n*
Maleic hydrazide	123331	5.00E–01 *i*					18000 *n*	1800 *n*	680 *n*	510000 *n*	39000 *n*
Malononitrile	109773	2.00E–05 *h*					0.73 *n*	0.073 *n*	0.027 *n*	20 *n*	1.6 *n*
Mancozeb	8018017	3.00E–02 *h*					1100 *n*	110 *n*	41 *n*	31000 *n*	2300 *n*
Maneb	12427382	5.00E–03 *i*					180 *n*	18 *n*	6.8 *n*	5100 *n*	390 *n*
Manganese and compounds	7439965	5.00E–03 *i*	1.43e–05 *i*				180 *n*	0.052 *n*	6.8 *n*	5100 *n*	390 *n*
Mephosfolan	950107	9.00E–05 *h*					3.3 *n*	0.33 *n*	0.12 *n*	92 *n*	7 *n*
Mepiqua ide	24307264	3.00E–02 *i*					1100 *n*	110 *n*	41 *n*	310	2300 *n*

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Contaminant	CAS	RfDo mg/kg/d	RfDi mg/kg/d	CPSo kg•d/mg	CPSi kg•d/mg	VOC	Tap water µg/L	Ambient air µg/m3	Fish mg/kg	Industrial soil mg/kg	Residential soil mg/kg
Mercury (inorganic)	7439976	3.00E-04 h	8.57E-05 h				11 n	0.31 n	0.41 n	310 n	23 n
Mercury (methyl)	22967926	3.00E-04 i					11 n	1.1 n	0.41 n	310 n	23 n
Merphos	150505	3.00E-05 i					1.1 n	0.11 n	0.041 n	31 n	2.3 n
Merphos oxide	78488	3.00E-05 i					1.1 n	0.11 n	0.041 n	31 n	2.3 n
Metalaxyl	57837191	6.00E-02 i					2200 n	220 n	81 n	61000 n	4700 n
Methacrylonitrile	126987	1.00E-04 i	2.00E-04 h				3.7 n	0.73 n	0.14 n	100 n	7.8 n
Methamidophos	10265926	5.00E-05 i					1.8 n	0.18 n	0.068 n	51 n	3.9 n
Methanol	67561	5.00E-01 i					18000 n	1800 n	680 n	510000 n	39000 n
Methidathion	950378	1.00E-03 i					37 n	3.7 n	1.4 n	1000 n	78 n
Methomyl	16752775	2.50E-02 i					910 n	91 n	34 n	26000 n	2000 n
Methoxychlor	72435	5.00E-03 i					180 n	18 n	6.8 n	5100 n	390 n
2-Methoxyethanol acetate	110496	2.00E-03 h					73 n	7.3 n	2.7 n	2000 n	160 n
2-Methoxyethanol	109864	1.00E-03 h	5.71E-03 i				37 n	21 n	1.4 n	1000 n	78 n
2-Methoxy-5-nitroaniline	99592			4.60E-02 h			1.5 c	0.14 o	0.069 o	62 o	14 c
Methyl acetate	79209	1.00E+00 h					37000 n	3700 n	1400 n	1000000 n	78000 n
Methyl acrylate	96333	3.00E-02 h					1100 n	110 n	41 n	31000 n	2300 n
2-Methylaniline hydrochloride	636215			1.80E-01 h			0.37 c	0.035 o	0.018 o	16 o	3.5 c
2-Methylaniline	95534			2.40E-01 h			0.28 o	0.026 o	0.013 o	12 o	2.7 c
Methyl chlorocarbonate	79221	1.00E+00 w					37000 n	3700 n	1400 n	1000000 n	78000 n
4-(2-Methyl-4-chlorophenoxy) butyric acid	94815	1.00E-02 i					370 n	37 n	14 n	10000 n	780 n
2-Methyl-4-chlorophenoxyacetic acid	94746	5.00E-04 i					18 n	1.8 n	0.68 n	510 n	39 n
2-(2-Methyl-14-chlorophenoxy)propionic acid	93652	1.00E-03 i					37 n	3.7 n	1.4 n	1000 n	78 n
Methylcyclohexane	108872		8.57E-01 h				31000 n	3100 n			
Methylene bromide	74953	1.00E-02 h				***	61 n	37 n	14 n	10000 n	780 n
Methylene chloride	75092	6.00E-02 i	8.57E-01 h	7.50E-03 i	1.64E-03 i	***	4.1 c	3.8 o	0.42 o	380 o	85 c
4,4'-Methylene bis(2-chloroaniline)	101144	7.00E-04 h		1.30E-01 h	1.30E-01 h		0.52 c	0.048 o	0.024 o	22 o	4.9 c
4,4'-Methylenebisbenzeneamine	101779			2.50E-01 h			0.27 c	0.025 o	0.013 o	11 o	2.6 c
4,4'-Methylene bis(N,N'-dimethyl)aniline	101611			4.60E-02 i			1.5 c	0.14 c	0.069 o	62 o	14 c
4,4'-Methylenediphenyl isocyanate	101688		5.71E-06 h			***	0.035 n	0.021 n			
Methyl ethyl ketone	78933	6.00E-01 i	2.86E-01 i				22000 n	1000 n	810 n	610000 n	47000 n
Methyl hydrazine	60344			1.10E+00 h			0.061 c	0.0057 o	0.0029 o	2.6 c	0.58 c
Methyl isobutyl ketone	108101	5.00E-02 h	2.29E-02 h				1800 n	84 n	68 n	51000 n	3900 n
Methyl methacrylate	80626	8.00E-02 h					2900 n	290 n	110 n	82000 n	6300 n
2-Methyl-5-nitroaniline	99558			3.30E-02 h			2 o	0.19 o	0.096 o	87 o	19 c
Methyl parathion	298000	2.50E-04 i					9.1 n	0.91 n	0.34 n	260 n	20 n
2-Methylphenol (o-cresol)	95487	5.00E-02 i					1800 n	180 n	68 n	51000 n	3900 n
3-Methylphenol (m-cresol)	103394	5.00E-02 i					1800 n	180 n	68 n	51000 n	3900 n
4-Methylphenol (p-cresol)	106445	5.00E-03 h					180 n	18 n	6.8 n	5100 n	390 n
Methyl styrene (mixture)	25013154	6.00E-03 h	1.14E-02 h			***	60 n	42 n	8.1 n	6100 n	470 n
Methyl styrene (alpha)	98839	7.00E-02 h				***	430 n	260 n	95 n	72000 n	5500 n
Methyl tertbutyl ether (MTBE)	1634044	5.00E-03 e	8.57E-01 i			***	180 n	3100 n	6.8 n	5100 n	390 n
Metolador (Dual)	51218452	1.50E-01 i					5500 n	550 n	200 n	150000 n	12000 n

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Contaminant	CAS	RfDo mg/kg/d	RfDi mg/kg/d	CPSo kg•d/mg	CPSi kg•d/mg	VOC	Tap water µg/L	Ambient air µg/m3	Fish mg/kg	Industrial soil mg/kg	Residential soil mg/kg
Metribuzin	21807649	2.50E-02 *i*					910 *n*	91 *n*	34 *n*	26000 *n*	2000 *n*
Mirex	2385855	2.00E-04 *i*		1.80E+00 *h*			0.037 *o*	0.0035 *o*	0.0018 *o*	1.6 *c*	0.35 *c*
Molinate	2212671	2.00E-03 *i*					73 *n*	7.3 *n*	2.7 *n*	2000 *n*	160 *n*
Molybdenum	7439987	5.00E-03 *i*					180 *n*	18 *n*	6.8 *n*	5100 *n*	390 *n*
Monochloramine	10599903	1.00E-01 *i*					3700 *n*	370 *n*	140 *n*	100000 *n*	7800 *n*
Naled	300765	2.00E-03					73 *n*	7.3 *n*	2.7 *n*	2000 *n*	160 *n*
Napropamide	15299997	1.00E-01 *i*					3700 *n*	370 *n*	140 *n*	100000 *n*	7800 *n*
Nickel refinery dust					8.40E-01 *i*			0.0075 *o*			
Nickel (soluble salts)	7440020	2.00E-02 *i*					730 *n*	73 *n*	27 *n*	20000 *n*	1600 *n*
Nickel subsulfide	12035722				1.70E+00 *i*			0.0037 *o*			
Nitrapyrin	1929824	1.50E-03 *w*					55 *n*	5.5 *n*	2 *n*	1500 *n*	120 *n*
Nitrate	14797558	1.60E+00 *i*					58000 *n*	5800 *n*	2200 *n*	1000000 *n*	130000 *n*
Nitric Oxide	10102439	1.00E-01 *i*					3700 *n*	370 *n*	140 *n*	100000 *n*	7800 *n*
Nitrite	14797650	1.00E-01 *i*					3700 *n*	370 *n*	140 *n*	100000 *n*	7800 *n*
2-Nitroaniline	88744	6.00E-05 *w*	5.71E-05 *h*				2.2 *n*	0.21 *n*	0.081 *n*	61 *n*	4.7 *n*
3-Nitroaniline	99092	3.00E-03 *o*					110 *n*	11 *n*	4.1 *n*	3100 *n*	230 *n*
4-Nitroaniline	100016	3.00E-03 *o*					110 *n*	11 *n*	4.1 *n*	3100 *n*	230 *n*
Nitrobenzene	98953	5.00E-04 *i*	5.71E-04 *h*			***	3.4 *n*	2.1 *n*	0.68 *n*	510 *n*	39 *n*
Nitrofurantoin	67209	7.00E-02 *h*					2600 *n*	260 *n*	95 *n*	72000 *n*	5500 *n*
Nitrofurazone	59870			1.50E+00 *h*	9.40E+00 *h*		0.045 *o*	0.00067 *o*	0.0021 *o*	1.9 *o*	0.43 *c*
Nitrogen dioxide	10102440	1.00E+00 *i*					37000 *n*	3700 *n*	1400 *n*	1000000 *n*	78000 *n*
Nitroguanidine	556887	1.00E-01 *i*					3700 *n*	370 *n*	140 *n*	100000 *n*	7800 *n*
4-Nitrophenol	100027	6.20E-02 *o*					2300 *n*	230 *n*	84 *n*	63000 *n*	4800 *n*
2-Nitropropane	79469		5.71E-03 *i*		9.40E+00 *h*		210 *n*	0.00067 *o*			
N-Nitrosodi-n-butylamine	924163			5.40E+00 *i*	5.60E+00 *i*		0.012 *o*	0.0011 *o*	0.00058 *o*	0.53 *o*	0.12 *c*
N-Nitrosodiethanolamine	1116547			2.80E+00 *i*			0.024 *o*	0.0022 *o*	0.0011 *o*	1 *o*	0.23 *c*
N-Nitrosodiethylamine	55185			1.50E+02 *i*	1.51E+02 *i*		0.00045 *o*	0.000041 *o*	0.000021 *o*	0.019 *o*	0.0043 *c*
N-Nitrosodimethylamine	62759			5.10E+01 *i*	4.90E+01 *i*		0.0013 *o*	0.00013 *o*	0.000062 *o*	0.056 *o*	0.013 *c*
N-Nitrosodiphenylamine	86306			4.90E-03 *i*			14 *o*	1.3 *o*	0.64 *o*	580 *o*	130 *c*
N-Nitroso di-n-propylamine	621647			7.00E+00 *i*			0.0096 *o*	0.00089 *o*	0.00045 *o*	0.41 *o*	0.091 *c*
N-Nitroso-N-methylethylamine	10595956			2.20E+01 *i*			0.0031 *o*	0.00028 *o*	0.00014 *o*	0.13 *o*	0.029 *c*
N-Nitrosopyrrolidine	930552			2.10E+00 *i*	2.13E+00 *i*		0.032 *o*	0.0029 *o*	0.0015 *o*	1.4 *o*	0.3 *c*
m-Nitrotoluene	99081	1.00E-02 *h*				***	61 *n*	37 *n*	14 *n*	10000 *n*	780 *n*
o-Nitrotoluene	88722	1.00E-02 *h*				***	61 *n*	37 *n*	14 *n*	10000 *n*	780 *n*
p-Nitrotoluene	99990	1.00E-02 *h*				***	61 *n*	37 *n*	14 *n*	10000 *n*	780 *n*
Norflurazon	27314132	4.00E-02 *i*					1500 *n*	150 *n*	54 *n*	41000 *n*	3100 *n*
NuStar	85509199	7.00E-04 *i*					26 *n*	2.6 *n*	0.95 *n*	720 *n*	55 *n*
Octabromodiphenyl ether	32536520	3.00E-03 *i*					110 *n*	11 *n*	4.1 *n*	3100 *n*	230 *n*
Octahydro-1357-tetranitro-1357-tetrazocine	2691410	5.00E-02 *i*					1800 *n*	180 *n*	68 *n*	51000 *n*	3900 *n*
Octamethyl pyrophosphoramide	152169	2.00E-03 *h*					73 *n*	7.3 *n*	2.7 *n*	2000 *n*	160 *n*
Oryzalin	19044883	5.00E-02 *i*					1800 *n*	180 *n*	68 *n*	51000 *n*	3900 *n*
Oxadiazor	19666309	5.00E-03 *i*					180 *n*	18 *n*	6.8 *n*	510	390 *n*

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Oxamyl	23135220	2.50E-02 *i*					910 *n*	91 *n*	34 *n*	26000 *n*	2000 *n*
Oxyfluorfen	42874033	3.00E-03 *i*					110 *n*	11 *n*	4.1 *n*	3100 *n*	230 *n*
Paclobutrazol	76738620	1.30E-02 *i*					470 *n*	47 *n*	18 *n*	13000 *n*	1000 *n*
Paraquat	1910425	4.50E-03 *i*					160 *n*	16 *n*	6.1 *n*	4600 *n*	350 *n*
Parathion	56382	6.00E-03 *h*					220 *n*	22 *n*	8.1 *n*	6100 *n*	470 *n*
Pebulate	1114712	5.00E-02 *h*					1800 *n*	180 *n*	68 *n*	51000 *n*	3900 *n*
Pendimethalin	40487421	4.00E-02 *i*					1500 *n*	150 *n*	54 *n*	41000 *n*	3100 *n*
Pentabromo-6-chloro cyclohexane	87843			2.30E-02 *h*			2.9 *c*	0.27 *c*	0.14 *c*	120 *c*	28 *c*
Pentabromodiphenyl ether	32534819	2.00E-03 *i*					73 *n*	7.3 *n*	2.7 *n*	2000 *n*	160 *n*
Pentachlorobenzene	608935	8.00E-04 *i*				***	4.9 *n*	2.9 *n*	1.1 *n*	820 *n*	63 *n*
Pentachloronitrobenzene	82688	3.00E-03 *i*		2.60E-01 *h*		***	0.041 *c*	0.024 *c*	0.012 *o*	11 *c*	2.5 *c*
Pentachlorophenol	87865	3.00E-02 *i*		1.20E-01 *i*			0.56 *c*	0.052 *o*	0.026 *o*	24 *o*	5.3 *c*
Permethrin	52645531	5.00E-02 *i*					1800 *n*	180 *n*	68 *n*	51000 *n*	3900 *n*
Phenmedipham	13684634	2.50E-01 *i*					9100 *n*	910 *n*	340 *n*	260000 *n*	20000 *n*
Phenol	108952	6.00E-01 *i*					22000 *n*	2200 *n*	810 *n*	610000 *n*	47000 *n*
m-Phenylenediamine	108452	6.00E-03 *i*					220 *n*	22 *n*	8.1 *n*	6100 *n*	470 *n*
o-Phenylenediamine	95545	6.00E-03 *h*					220 *n*	22 *n*	8.1 *n*	6100 *n*	470 *n*
p-Phenylenediamine	106503	1.90E-01 *h*					6900 *n*	690 *n*	260 *n*	190000 *n*	15000 *n*
Phenylmercuric acetate	62384	8.00E-05 *i*					2.9 *n*	0.29 *n*	0.11 *n*	82 *n*	6.3 *n*
2-Phenylphenol	90437			1.94E-03 *h*			35 *c*	3.2 *c*	1.6 *c*	1500 *c*	330 *c*
Phorate	298022	2.00E-04 *h*					7.3 *n*	0.73 *n*	0.27 *n*	200 *n*	16 *n*
Phosmet	732116	2.00E-02 *i*					730 *n*	73 *n*	27 *n*	20000 *n*	1600 *n*
Phosphine	7803512	3.00E-04 *i*	8.57E-06 *h*				11 *n*	0.031 *n*	0.41 *n*	310 *n*	23 *n*
Phosphorus (white)	7723140	2.00E-05 *i*					0.73 *n*	0.073 *n*	0.027 *n*	20 *n*	1.6 *n*
p-Phthalic acid	100210	1.00E+00 *h*					37000 *n*	3700 *n*	1400 *n*	1000000 *n*	78000 *n*
Phthalic anhydride	85449	2.00E+00 *i*	3.43E-01 *h*				73000 *n*	1300 *n*	2700 *n*	1000000 *n*	160000 *n*
Picloram	1918021	7.00E-02 *i*					2600 *n*	260 *n*	95 *n*	72000 *n*	5500 *n*
Pirimiphos-methyl	29232937	1.00E-02 *i*					370 *n*	37 *n*	14 *n*	10000 *n*	780 *n*
Polybrominated biphenyls		7.00E-06 *h*		8.90E+00 *h*			0.0076 *c*	0.0007 *c*	0.00035 *o*	0.32 *o*	0.072 *c*
Polychlorinated biphenyls (PCBs)	1336363			7.70E+00 *i*			0.0087 *c*	0.00081 *c*	0.00041 *o*	0.37 *c*	0.083 *c*
Aroclor 1016	12674112	7.00E-05 *i*					2.6 *n*	0.26 *n*	0.095 *n*	72 *n*	5.5 *n*
Polychlorinated terphenyls (PCTs)				4.50E+00 *e*			0.015 *c*	0.0014 *o*	0.0007 *o*	0.64 *o*	0.14 *c*
Polynuclear aromatic hydrocarbons											
Acenaphthene	83329	6.00E-02 *i*					2200 *n*	220 *n*	81 *n*	61000 *n*	4700 *n*
Anthracene	120127	3.00E-01 *i*					11000 *n*	1100 *n*	410 *n*	310000 *n*	23000 *n*
Benzo[a]pyrene	50328			7.30E+00 *i*	6.10E+00 *h*		0.0092 *c*	0.001 *c*	0.00043 *o*	0.39 *o*	0.088 *c*
Benzo[b]fluoranthene	205992			7.30E-01 *e*	6.10E-01 *e*		0.092 *o*	0.01 *c*	0.0043 *o*	3.9 *o*	0.88 *c*
Benzo[k]fluoranthene	207089			7.30E-02 *e*	6.10E-02 *e*		0.92 *o*	0.1 *c*	0.043 *o*	39 *o*	8.8 *c*
Benz[a]anthracene	56553			7.30E-01 *e*	6.10E-01 *e*		0.092 *o*	0.01 *o*	0.0043 *o*	3.9 *o*	0.88 *c*
Chrysene	218019			7.30E-03 *e*	6.10E-03 *e*		9.2 *c*	1 *o*	0.43 *o*	390 *o*	88 *c*
Dibenz[ah]anthracene	53703			7.30E+00 *e*	6.10E+00 *e*		0.0092 *c*	0.001 *c*	0.00043 *o*	0.39 *c*	0.088 *c*
Fluoranthene	206440	4.00E-02 *i*					1500 *n*	150 *n*	54 *n*	41000 *n*	3100 *n*

Sources: i=IRIS h=HEAST s=HEAST alt. x=W/D from IRIS y=W/D from HEAST e=EPA–ECAO o=Other EPA docs. *Basis of RBC: c=carcinogenic effects n=noncarcinogenic effects.*

Contaminant	CAS	RfDo mg/kg/d	RfDi mg/kg/d	CPSo kg•d/mg	CPSi kg•d/mg	VOC	Tap water µg/L	Ambient air µg/m3	Fish mg/kg	Industrial soil mg/kg	Residential soil mg/kg
Fluorene	86737	4.00E–02 *i*					1500 *n*	150 *n*	54 *n*	41000 *n*	3100 *n*
Indeno[1,2,3–cd]pyrene	193395			7.30E–01 *e*	6.10E–01 *e*		0.092 *c*	0.01 *o*	0.0043 *o*	3.9 *o*	0.88 *c*
Naphthalene	91203	4.00E–02 *w*					1500 *n*	150 *n*	54 *n*	41000 *n*	3100 *n*
Pyrene	129000	3.00E–02 *i*					1100 *n*	110 *n*	41 *n*	31000 *n*	2300 *n*
Prochloraz	67747095	9.00E–03 *i*		1.50E–01 *i*			0.45 *c*	0.042 *o*	0.021 *o*	19 *o*	4.3 *c*
Profluralin	26399360	6.00E–03 *h*					220 *n*	22 *n*	8.1 *n*	6100 *n*	470 *n*
Prometon	1610180	1.50E–02 *i*					550 *n*	55 *n*	20 *n*	15000 *n*	1200 *n*
Prometryn	7287196	4.00E–03 *i*					150 *n*	15 *n*	5.4 *n*	4100 *n*	310 *n*
Pronamide	23950585	7.50E–02 *i*					2700 *n*	270 *n*	100 *n*	77000 *n*	5900 *n*
Propachlor	1918167	1.30E–02 *i*					470 *n*	47 *n*	18 *n*	13000 *n*	1000 *n*
Propanil	709988	5.00E–03 *i*					180 *n*	18 *n*	6.8 *n*	5100 *n*	390 *n*
Propargite	2312358	2.00E–02 *i*					730 *n*	73 *n*	27 *n*	20000 *n*	1600 *n*
Propargyl alcohol	107197	2.00E–03 *i*					73 *n*	7.3 *n*	2.7 *n*	2000 *n*	160 *n*
Propazine	139402	2.00E–02 *i*					730 *n*	73 *n*	27 *n*	20000 *n*	1600 *n*
Propham	122429	2.00E–02 *i*					730 *n*	73 *n*	27 *n*	20000 *n*	1600 *n*
Propiconazole	60207901	1.30E–02 *i*					470 *n*	47 *n*	18 *n*	13000 *n*	1000 *n*
Propylene glycol	57556	2.00E+01 *h*					730000 *n*	73000 *n*	27000 *n*	1000000 *n*	1000000 *n*
Propylene glycol, monoethyl ether	52125538	7.00E–01 *h*					26000 *n*	2600 *n*	950 *n*	720000 *n*	55000 *n*
Propylene glycol, monomethyl ether	107982	7.00E–01 *h*	5.71E–01 *i*				26000 *n*	2100 *n*	950 *n*	720000 *n*	55000 *n*
Propylene oxide	75569		8.57E–03 *i*	2.40E–01 *i*	1.29E–02 *i*		0.28 *o*	0.49 *o*	0.013 *o*	12 *o*	2.7 *c*
Pursuit	81335775	2.50E–01 *i*					9100 *n*	910 *n*	340 *n*	260000 *n*	20000 *n*
Pydrin	51630581	2.50E–02 *i*					910 *n*	91 *n*	34 *n*	26000 *n*	2000 *n*
Pyridine	110861	1.00E–03 *i*					37 *n*	3.7 *n*	1.4 *n*	1000 *n*	78 *n*
Quinalphos	13593038	5.00E–04 *i*					18 *n*	1.8 *n*	0.68 *n*	510 *n*	39 *n*
Quinoline	91225			1.20E+01 *h*			0.0056 *c*	0.00052 *o*	0.00026 *o*	0.24 *o*	0.053 *c*
Resmethrin	10463868	3.00E–02 *i*					1100 *n*	110 *n*	41 *n*	31000 *n*	2300 *n*
Ronnel	299843	5.00E–02 *h*					1800 *n*	180 *n*	68 *n*	51000 *n*	3900 *n*
Rotenone	83794	4.00E–03 *i*					150 *n*	15 *n*	5.4 *n*	4100 *n*	310 *n*
Savey	78587050	2.50E–02 *i*					910 *n*	91 *n*	34 *n*	26000 *n*	2000 *n*
Selenious Acid	7783008	5.00E–03 *i*					180 *n*	18 *n*	6.8 *n*	5100 *n*	390 *n*
Selenium	7782492	5.00E–03 *i*					180 *n*	18 *n*	6.8 *n*	5100 *n*	390 *n*
Selenourea	630104	5.00E–03 *h*					180 *n*	18 *n*	6.8 *n*	5100 *n*	390 *n*
Sethoxydim	74051802	9.00E–02 *i*					3300 *n*	330 *n*	120 *n*	92000 *n*	7000 *n*
Silver and compounds	7440224	5.00E–03 *i*					180 *n*	18 *n*	6.8 *n*	5100 *n*	390 *n*
Simazine	122349	5.00E–03 *i*		1.20E–01 *h*			0.56 *c*	0.052 *o*	0.026 *o*	24 *o*	5.3 *c*
Sodium azide	26628228	4.00E–03 *i*					150 *n*	15 *n*	5.4 *n*	4100 *n*	310 *n*
Sodium diethyldithiocarbamate	148185	3.00E–02 *i*		2.70E–01 *h*			0.25 *c*	0.023 *o*	0.012 *o*	11 *o*	2.4 *c*
Sodium fluoroacetate	62748	2.00E–05 *i*					0.73 *n*	0.073 *n*	0.027 *n*	20 *n*	1.6 *n*
Sodium metavanadate	13718268	1.00E–03 *h*					37 *n*	3.7 *n*	1.4 *n*	1000 *n*	78 *n*
Strontium, stable	7440246	6.00E–01 *i*					22000 *n*	2200 *n*	810 *n*	610000 *n*	47000 *n*
Strychnine	57249	3.00E–04 *i*					11 *n*	1.1 *n*	0.41 *n*	310 *n*	23 *n*
Styrene	100425	2.00E–01 *i*	2.86E–01			***	1600 *n*	1000 *n*	270 *n*	2000	16000 *n*

Sources: i=IRIS h=HEAST a=HEAST alt. x=W/D from IRIS y=W/D from HEAST e=EPA-ECAO o=Other EPA docs. *Basis of RfC: c=carcinogenic effects n=noncarcinogenic effects.*

Contaminant	CAS	RfDo mg/kg/d	RfDi mg/kg/d	CPSo kg•d/mg	CPSi kg•d/mg	VOC	Tap water µg/L	Ambient air µg/m3	Fish mg/kg	Industrial soil mg/kg	Residential soil mg/kg
Systhane	88671890	2.50E-02 *i*					910 *n*	91 *n*	34 *n*	26000 *n*	2000 *n*
2,3,7,8-TCDD (dioxin)	1746016			1.50E+05 *h*	1.50E+05 *h*		4.50E-07 *c*	4.20E-08 *c*	2.10E-08 *o*	0.000019 *o*	4.30E-06 *c*
Tebuthiuron	34014181	7.00E-02 *i*					2600 *n*	260 *n*	95 *n*	72000 *n*	5500 *n*
Temephos	3383968	2.00E-02 *h*					730 *n*	73 *n*	27 *n*	20000 *n*	1600 *n*
Terbacil	5902512	1.30E-02 *i*					470 *n*	47 *n*	18 *n*	13000 *n*	1000 *n*
Terbufos	13071799	2.50E-05 *h*					0.91 *n*	0.091 *n*	0.034 *n*	26 *n*	2 *n*
Terbutryn	886500	1.00E-03 *i*					37 *n*	3.7 *n*	1.4 *n*	1000 *n*	78 *n*
1,2,4,5-Tetrachlorobenzene	95943	3.00E-04 *i*				***	1.8 *n*	1.1 *n*	0.41 *n*	310 *n*	23 *n*
1,1,1,2-Tetrachloroethane	630206	3.00E-02 *i*		2.60E-02 *i*	2.59E-02 *i*	***	0.41 *o*	0.24 *o*	0.12 *o*	110 *o*	25 *c*
1,1,2,2-Tetrachloroethane	630206			2.00E-01 *i*	2.03E-01 *i*	***	0.052 *o*	0.031 *o*	0.016 *o*	14 *o*	3.2 *c*
Tetrachloroethylene (PCE)	127184	1.00E-02 *i*		5.20E-02 *a*	2.03E-03 *a*	***	1.1 *o*	3.1 *o*	0.061 *o*	55 *o*	12 *c*
2,3,4,6-Tetrachlorophenol	58902	3.00E-02 *i*					1100 *n*	110 *n*	41 *n*	31000 *n*	2300 *n*
p,a,a,a-Tetrachlorotoluene	5216251			2.00E+01 *h*		***	0.00053 *o*	0.00031 *c*	0.00016 *o*	0.14 *c*	0.032 *c*
Tetrachlorovinphos	961115	3.00E-02 *i*		2.40E-02 *h*			2.8 *c*	0.26 *c*	0.13 *c*	120 *c*	27 *c*
Tetraethyldithiopyrophosphate	3689245	5.00E-04 *i*					18 *n*	1.8 *n*	0.68 *n*	510 *n*	39 *n*
Thallic oxide	1314325	7.00E-05 *h*					2.6 *n*	0.26 *n*	0.095 *n*	72 *n*	5.5 *n*
Thallium											
Thallium acetate	563688	9.00E-05 *i*					3.3 *n*	0.33 *n*	0.12 *n*	92 *n*	7 *n*
Thallium carbonate	6533739	8.00E-05 *i*					2.9 *n*	0.29 *n*	0.11 *n*	82 *n*	6.3 *n*
Thallium chloride	7791120	8.00E-05 *i*					2.9 *n*	0.29 *n*	0.11 *n*	82 *n*	6.3 *n*
Thallium nitrate	10102451	9.00E-05 *i*					3.3 *n*	0.33 *n*	0.12 *n*	92 *n*	7 *n*
Thallium selenite	12039520	9.00E-05 *w*					3.3 *n*	0.33 *n*	0.12 *n*	92 *n*	7 *n*
Thallium sulfate	7446186	8.00E-05 *i*					2.9 *n*	0.29 *n*	0.11 *n*	82 *n*	6.3 *n*
Thiobencarb	28249776	1.00E-02 *i*					370 *n*	37 *n*	14 *n*	10000 *n*	780 *n*
2-(Thiocyanomethylthio)-benzothiazole	21564170	3.00E-02 *h*					1100 *n*	110 *n*	41 *n*	31000 *n*	2300 *n*
Thiofanox	39196184	3.00E-04 *h*					11 *n*	1.1 *n*	0.41 *n*	310 *n*	23 *n*
Thiophanate-methyl	23564058	8.00E-02 *i*					2900 *n*	290 *n*	110 *n*	82000 *n*	6300 *n*
Thiram	137268	5.00E-03 *i*					180 *n*	18 *n*	6.8 *n*	5100 *n*	390 *n*
Tin and compounds		6.00E-01 *h*					22000 *n*	2200 *n*	810 *n*	610000 *n*	47000 *n*
Toluene	108883	2.00E-01 *i*	1.14E-01 *w*			***	750 *n*	420 *n*	270 *n*	200000 *n*	16000 *n*
Toluene-2,4-diamine	95807			3.20E+00 *h*			0.021 *c*	0.002 *o*	0.00099 *o*	0.89 *o*	0.2 *c*
Toluene-2,5-diamine	95705	6.00E-01 *h*					22000 *n*	2200 *n*	810 *n*	610000 *n*	47000 *n*
Toluene-2,6-diamine	823405	2.00E-01 *h*					7300 *n*	730 *n*	270 *n*	200000 *n*	16000 *n*
p-Toluidine	106490			1.90E-01 *h*			0.35 *o*	0.033 *o*	0.017 *o*	15 *o*	3.4 *c*
Toxaphene	8001352			1.10E+00 *i*	1.12E+00 *i*		0.061 *o*	0.0056 *o*	0.0029 *o*	2.6 *o*	0.58 *c*
Tralomethrin	66841256	7.50E-03 *i*					270 *n*	27 *n*	10 *n*	7700 *n*	590 *n*
Triallate	2303175	1.30E-02 *i*					470 *n*	47 *n*	18 *n*	13000 *n*	1000 *n*
Triasulfuron	82097505	1.00E-02 *i*					370 *n*	37 *n*	14 *n*	10000 *n*	780 *n*
1,2,4-Tribromobenzene	615543	5.00E-03 *i*				***	30 *n*	18 *n*	6.8 *n*	5100 *n*	390 *n*
Tributyltin oxide (TBTO)	56359	3.00E-05 *i*					1.1 *n*	0.11 *n*	0.041 *n*	31 *n*	2.3 *n*
2,4,6-Trichloroaniline hydrochloride	33663502			2.90E-02 *h*			2.3 *o*	0.22 *o*	0.11 *o*	99 *o*	22 *c*
2,4,6-Trichloroaniline	634935			3.40E-02 *h*			2 *o*	0.18 *o*	0.093 *o*	84 *o*	19 *c*

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Contaminant	CAS	RfDo mg/kg/d	RfDi mg/kg/d	CPSo kg•d/mg	CPSi kg•d/mg	VOC	Tap water µg/L	Ambient air µg/m3	Fish mg/kg	Industrial soil mg/kg	Residential soil mg/kg
1,2,4-Trichlorobenzene	120821	1.00E-02 *i*	2.57E-03 *h*			***	18 *n*	9.4 *n*	14 *n*	10000 *n*	780 *n*
1,1,1-Trichloroethane	71556	9.00E-02 *w*	2.86E-01 *w*			***	1300 *n*	1000 *n*	120 *n*	92000 *n*	7000 *n*
1,1,2-Trichloroethane	79005	4.00E-03 *i*		5.70E-02 *i*	5.60E-02 *i*	***	0.19 *c*	0.11 *c*	0.055 *c*	50 *c*	11 *c*
Trichloroethylene (TCE)	79016	6.00E-03 *e*		1.10E-02 *w*	6.00E-03 *e*	***	1.6 *c*	1 *c*	0.29 *c*	260 *c*	58 *c*
Trichlorofluoromethane	75694	3.00E-01 *i*	2.00E-01 *h*			***	1300 *n*	730 *n*	410 *n*	310000 *n*	23000 *n*
2,4,5-Trichlorophenol	95954	1.00E-01 *i*					3700 *n*	370 *n*	140 *n*	100000 *n*	7800 *n*
2,4,6-Trichlorophenol	88062			1.10E-02 *i*	1.09E-02 *i*		6.1 *c*	0.57 *c*	0.29 *c*	260 *c*	58 *c*
2,4,5-Trichlorophenoxyacetic acid	93765	1.00E-02 *i*					370 *n*	37 *n*	14 *n*	10000 *n*	780 *n*
2-(2,4,5-Trichlorophenoxy)propionic acid	93721	8.00E-03 *i*					290 *n*	29 *n*	11 *n*	8200 *n*	630 *n*
1,1,2-Trichloropropane	598776	5.00E-03 *i*				***	30 *n*	18 *n*	6.8 *n*	5100 *n*	390 *n*
1,2,3-Trichloropropane	96184	6.00E-03 *i*				***	37 *n*	22 *n*	8.1 *n*	6100 *n*	470 *n*
1,2,3-TCP as carcinogen	96184			2.70E+00 *e*		***	0.0039 *c*	0.0023 *c*	0.0012 *c*	1.1 *c*	0.24 *c*
1,2,3-Trichloropropene	96195	5.00E-03 *h*				***	30 *n*	18 *n*	6.8 *n*	5100 *n*	390 *n*
1,1,2-Trichloro-1,2,2- trifluoroethane	76131	3.00E+01 *i*	8.57E+00 *h*			***	59000 *n*	31000 *n*	41000 *n*	1000000 *n*	1000000 *n*
Tridiphane	58138082	3.00E-03 *i*					110 *n*	11 *n*	4.1 *n*	3100 *n*	230 *n*
Triethylamine	121448		2.00E-03 *i*				73 *n*	7.3 *n*			
Trifluralin	1582098	7.50E-03 *i*		7.70E-03 *i*			8.7 *c*	0.81 *c*	0.41 *c*	370 *c*	83 *c*
Trimethyl phosphate	512561			3.70E-02 *h*			1.8 *c*	0.17 *c*	0.085 *c*	77 *c*	17 *c*
1,2,4-Trimethylbenzene	95636	5.00e-04 *e*				***	3 *n*	1.8 *n*	0.68 *n*	510 *n*	39 *n*
1,3,5-Trimethylbenzene	108678	4.00e-04 *e*				***	2.4 *n*	1.5 *n*	0.54 *n*	410 *n*	31 *n*
1,3,5-Trinitrobenzene	99354	5.00E-05 *i*					1.8 *n*	0.18 *n*	0.068 *n*	51 *n*	3.9 *n*
Trinitrophenylmethylnitramine	479458	1.00E-02 *h*					370 *n*	37 *n*	14 *n*	10000 *n*	780 *n*
2,4,6-Trinitrotoluene	118967	5.00E-04 *i*		3.00E-02 *i*			2.2 *c*	0.21 *c*	0.11 *c*	95 *c*	21 *c*
Uranium (soluble salts)	7440611	3.00E-03 *i*					110 *n*	11 *n*	4.1 *n*	3100 *n*	230 *n*
Vanadium	7440622	7.00E-03 *h*					260 *n*	26 *n*	9.5 *n*	7200 *n*	550 *n*
Vanadium pentoxide	1314621	9.00E-03 *i*					330 *n*	33 *n*	12 *n*	9200 *n*	700 *n*
Vanadium sulfate	36907423	2.00E-02 *h*					730 *n*	73 *n*	27 *n*	20000 *n*	1600 *n*
Vernam	1929777	1.00E-03 *i*					37 *n*	3.7 *n*	1.4 *n*	1000 *n*	78 *n*
Vindozolin	50471448	2.50E-02 *i*					910 *n*	91 *n*	34 *n*	26000 *n*	2000 *n*
Vinyl acetate	108054	1.00E+00 *h*	5.71E-02 *i*				37000 *n*	210 *n*	1400 *n*	1000000 *n*	78000 *n*
Vinyl bromide	593602		8.57E-04 *i*			***	5.2 *n*	3.1 *n*			
Vinyl chloride	75014			1.90E+00 *h*	3.00E-01 *h*	***	0.019 *c*	0.021 *c*	0.0017 *c*	1.5 *c*	0.34 *c*
Warfarin	81812	3.00E-04 *i*					11 *n*	1.1 *n*	0.41 *n*	310 *n*	23 *n*
m-Xylene	108323	2.00E+00 *h*	2.00E-01 *w*			***	1400 *n*	730 *n*	2700 *n*	1000000 *n*	160000 *n*
o-Xylene	95476	2.00E+00 *h*	2.00E-01 *w*			***	1400 *n*	730 *n*	2700 *n*	1000000 *n*	160000 *n*
p-Xylene	106423		8.57E-02 *w*			***	520 *n*	310 *n*			