Per the Federal Facility Agreement for Iowa Army Ammunition Plant, Article X.B.1, the attached document is the final version of the submitted document.

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cc: Mr. Leon Baxter

JAYCOR

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M & H-SM CO

2 March 1993

Commander USAEC
Attn: ENAEC/IR/A; Building E4480
Attn: Mr. Derek Romitti
Aberdeen Proving Ground, Maryland 21010-5400

Dear Mr. Romitti:

Title

Transmitted herewith are the revised Preliminary Site Characterization Reports for the STP/Sludge Drying Beds (R18), Line 3A STP/Sludge Drying Beds (R21), Building 600-86 Septic System (R26), Roundhouse Transformer Storage Yard (R28), and the Fly Ash Disposal Area (R30). USAEC comments of 23 February 1993 have been incorporated.

Please call should you have questions or concerns, or require any additional information.

Sincerely,

JAYCOR ENVIRONMENTAL SERVICES

Mary Robertson
Iowa AAP Project Manager

Distribution: Project File DAAA15-90-D-0006
David Hrebenach, CDM Federal Programs Corporation
Ms. Phyllis Bennett, USAEC Contracts Specialist (w/o attachments)
Ms. Barbara Ballard, JAYCOR Contracts Manager (w/o attachments)

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REMARKS CC: Tim Howard (AIHM)

JAYCOR

2 March 1993

Mr. Scott Marquess
Site Assessment and Federal Facilities Section
Superfund Branch, Waste Management Division
U.S. Environmental Protection Agency Region VII
726 Minnesota Avenue
Kansas City, Kansas 66101

Dear Mr. Marquess:

Preliminary Site Characterization Reports for the STP/Sludge Drying Beds (R18), Line 3A STP/Sludge Drying Beds (R21), Building 600-86 Septic System (R26), Roundhouse Transformer Storage Yard (R28), and the Fly Ash Disposal Area (R30) were prepared from SI data and Phase I RI data. Draft reports were submitted to USAEC 22 February 1993; USAEC review comments were provided to JAYCOR 23 February 1993. The revised Preliminary Site Characterization Reports incorporating USAEC review comments are transmitted at the direction of USAEC Project Officer Mr. Derek Romitti.

Based on SI and Phase I data, further remedial work at Phase II has been recommended at only the Transformer Storage Yard (R28). The SOP for the immunoassay screening proposed at the subject site will be transmitted for USEPA review prior to the Phase II field effort. No further remedial action is proposed for the remaining six sites.

Sincerely,

JAYCOR ENVIRONMENTAL

Laura A. Jay for Mary Robertson

Mary Knowles Robertson
Iowa AAP Project Manager

01712659.93

JAYCOR

TECHNICAL BRIEF

TO: Mr. Derek Romitti, USAEC

FROM: Mary Robertson, Iowa AAP Project Manager

DATE: 2 March 1993

SUBJECT: Revised Preliminary Site Characterization Reports for Iowa AAP sites R18, R21, R26, R28, and R30

INTRODUCTION

Preliminary Site Characterization Reports will be prepared for each Iowa AAP site from SI data and Phase I RI data. Each report will include a discussion of site sampling and results, recommendations for Phase II activities (or, alternatively, the rationale for no further action), a sample summary table detailing Phase I RI samples, a site map with draft corrections/additions, a data report of all analytical results from Phase I, and a data report that presents only those results reported above evaluation levels. The Phase I RI/FS Work Plan (transmitted June 1992) details the history, physical and environmental setting, and geology of the Iowa AAP. Background information for each site is provided in the Phase I Work Plan. This information will not be repeated in the individual Preliminary Site Characterization Reports.

Preliminary Site Characterization Reports will be prepared and submitted to USAEC for review and comment as each is completed. USAEC review comments will be incorporated and the reports finalized. Final Preliminary Site Characterization Reports will comprise the Phase II Work Plan deliverable; Standard Operating Procedures (SOPs), health and safety issues, and addendums to the Quality Assurance Project Plan (QAPjP) relevant to proposed Phase II activities will be appended to the deliverable.

DISCUSSION

Data Evaluation

SI and Phase I RI metals data will be evaluated against maximum background levels for each matrix; groundwater, surface water, sediments, and soil. Background soil samples were collected in accordance with Section 5.2.1 of the Phase I Work Plan. The data package of all soil, sediment, and surface water background data was transmitted to U.S. EPA Region VII under separate cover on 21 January 1993; background groundwater data was transmitted on 11 February 1993. Summary tables of background sample results are included at Attachment 1. All other constituents were evaluated against the Criterion of Detection (COD). Soil data were

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further evaluated using the Risk-Based Concentration Table, First Quarter 1993, promulgated by the U.S. Environmental Protection Agency, Region III (Attachment 2). Use of this guidance was suggested by Region VII Project Officer Mr. Scott Marquess. Though not intended to substitute for a risk assessment, the table is a risk-based screen for Superfund sites, and provides a benchmark for evaluating preliminary site data. Surface water data will further be compared to State of Iowa Ambient Water Quality Criteria for Class B(WW) waters. Groundwater data will be compared to Maximum Contaminant Levels (MCLs); or the Lifetime Health Advisory (HAL), whichever is more protective, or the Drinking Water Equivalent Level (DWEL); or the EPA action level, if no MCL, HAL, or DWEL is available. MCL, DWEL, HAL, and action levels were obtained from "Drinking Water Regulations and Health Advisories," December 1992, published by the Office of Water, U.S. Environmental Protection Agency, Washington, D.C.

Site Samples will be compared to the Evaluation criteria cited above, and site conditions assessed to determine whether a substantive release of contaminants is originating from the site. Additionally, basewide sample in proximity the subject site will be evaluated to aid in evaluating site conditions and contaminant migration.

Interpretation of Summary Data Tables
The data summary tables are organized as follows:

Column	Description
1	SWMU description
2	Sample location
3	Sample location, indicating how many samples were collected at depth
4	Depth, in tenths of feet
5	SO soil, GW groundwater, SW surface water, SD sediment
6	Parameter group
7	Compound within parameter group
8	Analytical result
9	BOOL = indicates a result was reported above the COD, < indicates that the result is undetected at the reported COD. The method number indicates which USAEC certified method was used for analyses.
10	COD indicates the Criterion of Detection; the lowest reportable quantity certified by USAEC for the method used.
11	Reporting units are µg/g for soil and sediment, µg/L for aqueous samples
12	Date sample collected

REVISED PRELIMINARY SITE CHARACTERIZATION REPORTS - R18, R21, R26 R28, AND R30

Preliminary Site Characterization Reports for the STP/Sludge Drying Beds (R18), Line 3A STP/Sludge Drying Beds (R21), Building 600-86 Septic System (R26), Roundhouse Transformer Storage Yard (R28), and the Fly Ash Disposal Area (R30) were prepared from SI data and Phase I RI data. Draft reports were submitted to USAEC 22 February 1993; USAEC review comments were provided to JAYCOR 23 February 1993. The revised Preliminary Site Characterization Reports incorporating USAEC review comments are attached.

Based on SI and Phase I data, further remedial work at Phase II has been recommended at only the Transformer Storage Yard (R28). No further action is proposed for the remaining six sites.

Attachments: 1: Statistical Reports for background soil, sediment, surface water, and groundwater
2: Risk-Based Concentration Table, First Quarter 1993
3: State of Iowa Surface Water Quality Criteria
4: Preliminary Site Characterization Reports (R18, R21, R26, R28, and R30)

MR:lh

ATTACHMENT 1

STATISTICAL REPORTS
FOR SOIL, SEDIMENT, SURFACE WATER, AND GROUNDWATER

Iowa A.A.P.
CDM:Environmental Data Manager
Version 3.02.00

Action Levels
(max. bkgd.)

12/2
12:3

SUMMARY STATISTICS

SAMPLE LIST ID: RBKSOMET

Description	Units	# of Rslt	# of Pts	# of Hits	# of Dtcts	Minimum	25th	Median	75th	Maximum	Average	Std.Dev.	Coef Va
SILVER	UGG	88	88	0	0	0.294	0.294	0.294	0.294	0.294	0.294	0.	0.
ALUMINUM	UGG	88	88	88	88	3,990.	8,870.	12,400.	15,600.	22,100.	12,637.	4,238.07	0.33
ARSENIC	UGG	87	87	87	87	0.661	4.945	6.79	8.5375	30.	7.4325	4.1487	0.55
BARIUM	UGG	88	88	88	88	82.3	163.	201.	233.	363.	201.507	58.9504	0.29
BERYLLIUM	UGG	88	88	80	80	0.25	0.864	1.03	1.21	2.1	1.0328	0.3608	0.34
CALCIUM	UGG	88	88	88	88	1,020.	2,560.	3,410.	4,130.	64,000.	4,740.23	7,497.16	1.58
CADMIUM	UGG	88	88	1	1	0.35	0.35	0.35	0.35	0.899	0.3562	0.0582	0.16
COBALT	UGG	88	88	88	88	2.71	7.09	11.	14.9	58.	12.1916	7.5629	0.6
CHROMIUM	UGG	88	88	88	88	7.71	14.2	18.4	22.3	48.	18.9463	6.0076	0.31
COPPER	UGG	88	88	88	88	6.39	11.8	14.9	18.8	30.9	15.7066	5.1979	0.33
IRON	UGG	88	88	88	88	5,110.	14,800.	18,000.	24,100.	72,000.	20,017.	8,499.77	0.42
MERCURY	UGG	88	88	1	1	0.025	0.025	0.025	0.025	0.155	0.0265	0.0138	0.5
POTASSIUM	UGG	88	88	88	88	193.	697.	963.	1,230.	2,750.	1,008.92	418.851	0.41
MAGNESIUM	UGG	88	88	88	88	1,020.	2,170.	2,700.	3,890.	6,260.	3,038.86	1,112.31	0.36
MANGANESE	UGG	88	88	88	88	39.6	276.	742.	1,100.	2,790.	801.444	610.192	0.761
SODIUM	UGG	88	88	88	88	124.	186.	198.	217.	327.	206.273	34.7771	0.169
NICKEL	UGG	88	88	88	88	7.16	14.8	18.9	25.4	67.9	22.2868	11.8751	0.533
LEAD	UGG	87	87	87	87	7.02	13.4	17.	20.75	53.	18.2003	7.74	0.425
ANTIMONY	UGG	88	88	0	0	3.57	3.57	3.57	3.57	3.57	3.57	0.	0.0
SELENIUM	UGG	85	85	21	21	0.125	0.125	0.125	0.19	0.612	0.215	0.1605	0.746
THALLIUM	UGG	88	88	7	7	3.31	3.31	3.31	3.31	18.2	4.0385	2.6265	0.65
VANADIUM	UGG	88	88	88	88	13.7	27.	32.2	39.9	74.	33.9159	10.3215	0.304
ZINC	UGG	88	88	88	88	25.7	49.8	60.	71.7	133.	61.9943	18.7376	0.302

SUMMARY STATISTICS

SAMPLE LIST ID: RBKSORAD

Description	Units	# of Rslt	# of Pts	# of Hits	# of Dtcts	Minimum	25th	Median	75th	Maximum	Average	Std.Dev.	Coef Va
ALPHA GROSS	PCG	88	88	88	88	2.41	5.4	6.29	7.43	11.8	6.4758	1.6446	0.25
GROSS BETA	PCG	84	84	84	84	2.15	4.33	5.37	7.16	9.4	5.7094	1.6772	0.29
GAMMA SCAN / GAMMA SCREEN	PCG	0	0	0	0	?	?	?	?	?	?	?	
ACTINIUM 228	PCG	86	86	84	84	0.	1.4	1.5	1.7	2.	1.5174	0.3085	0.20
BISMUTH 214	PCG	87	87	85	85	0.	0.9475	1.1	1.275	1.5	1.0906	0.2521	0.23
CESIUM 137	PCG	89	89	22	22	0.	0.	0.	0.045	1.	0.0836	0.1678	2.00
POTASSIUM 40	PCG	86	86	86	86	7.1	12.5	14.	16.	18.	13.7547	2.677	0.19
LEAD 212	PCG	86	86	86	86	0.91	1.2	1.3	1.4	1.6	1.2827	0.1345	0.10
LEAD 214	PCG	86	86	85	85	0.	0.895	1.	1.2	1.5	1.0562	0.2314	0.21
RADIUM 226	PCG	89	89	68	68	0.	1.2	4.3	5.125	6.9	3.5966	2.2146	0.61
RADIUM 228	PCG	0	0	0	0	?	?	?	?	?	?	?	
THALLIUM 208	PCG	86	86	61	61	0.	0.	0.43	0.5	0.68	0.3385	0.2258	0.66

SUMMARY STATISTICS

SAMPLE LIST ID: RBKSD

Description	Units	# of Rslt	# of Pts	# of Hits	# of Dtcts	Minimum	25th	Median	75th	Maximum	Average	Std.Dev.	Coef Va
SILVER	UGG	7	7	0	0	0.589	0.589	0.589	0.589	0.589	0.589	0.	0.(
ALUMINUM	UGG	7	7	7	7	6,020.	9,205.	11,700.	12,850.	15,500.	11,047.1	3,218.05	0.29
ARSENIC	UGG	7	7	7	7	3.77	4.45	4.96	6.17	7.98	5.4214	1.3596	0.25
BARIUM	UGG	7	7	7	7	133.	159.5	192.	211.5	243.	187.143	37.6959	0.20
BERYLLIUM	UGG	7	7	5	5	0.5	0.81	1.12	1.225	1.29	0.9971	0.3197	0.32
CALCIUM	UGG	7	7	7	7	3,460.	4,205.	4,900.	6,145.	6,890.	5,135.71	1,241.97	0.24
CADMIUM	UGG	7	7	0	0	0.7	0.7	0.7	0.7	0.7	0.7	0.	0.(
COBALT	UGG	7	7	7	7	5.76	6.84	7.65	9.24	16.2	8.8243	3.2897	0.37
CHROMIUM	UGG	7	7	7	7	9.65	13.1	16.9	18.35	23.7	16.1643	4.5236	0.2(
COPPER	UGG	7	7	7	7	8.07	10.64	13.2	16.3	19.5	13.5214	3.9647	0.29
IRON	UGG	7	7	7	7	10,800.	13,300.	16,300.	17,300.	21,900.	15,742.9	3,540.73	0.22
MERCURY	UGG	7	7	0	0	0.05	0.05	0.05	0.05	0.05	0.05	0.	0.(
POTASSIUM	UGG	7	7	7	7	583.	788.5	922.	955.5	1,090.	869.	152.729	0.17
MAGNESIUM	UGG	7	7	7	7	1,590.	2,130.	2,450.	3,240.	3,910.	2,670.	772.602	0.28
MANGANESE	UGG	7	7	7	7	299.	347.5	404.	534.	1,270.	533.714	314.379	0.58
SODIUM	UGG	7	7	7	7	245.	259.	272.	338.	402.	301.857	57.4492	0.1
NICKEL	UGG	7	7	7	7	10.9	14.	16.9	18.45	26.	16.9571	4.5292	0.26
LEAD	UGG	7	7	7	7	11.8	15.1	15.7	16.8	22.5	16.2571	3.0509	0.18
ANTIMONY	UGG	7	7	0	0	7.14	7.14	7.14	7.14	7.14	7.14	0.	0.(
SELENIUM	UGG	7	7	3	3	0.25	0.25	0.25	0.9535	1.65	0.651	0.5165	0.79
THALLIUM	UGG	7	7	0	0	6.62	6.62	6.62	6.62	6.62	6.62	0.	0.(
VANADIUM	UGG	7	7	7	7	19.	24.3	29.5	32.9	44.2	29.5857	8.0669	0.27
ZINC	UGG	7	7	7	7	40.1	47.	73.7	74.15	79.8	62.2714	15.7138	0.25

SUMMARY STATISTICS

SAMPLE LIST ID: RBKSW

Description	Units	# of Rslt	# of Pts	# of Hits	# of Dtcts	Minimum	25th	Median	75th	Maximum	Average	Std.Dev.	Coef Va
SILVER	UGG	6	6	0	0	4.6	4.6	4.6	4.6	4.6	4.6	0.	0.
ALUMINUM	UGG	6	6	6	6	744.	843.5	1,100.	2,845.	4,630.	1,898.67	1,345.11	0.70
ARSENIC	UGG	6	6	2	2	2.54	2.54	2.54	3.4375	4.48	2.955	0.711	0.24
BARIUM	UGG	6	6	6	6	111.	116.75	122.	170.	227.	141.667	40.2478	0.28
BERYLLIUM	UGG	6	6	0	0	5.	5.	5.	5.	5.	5.	0.	0.
CALCIUM	UGG	6	6	6	6	48,500.	54,625.	55,600.	64,475.	77,300.	59,233.3	8,945.7	0.15
CADMIUM	UGG	6	6	0	0	4.01	4.01	4.01	4.01	4.01	4.01	0.	0.
COBALT	UGG	6	6	0	0	25.	25.	25.	25.	25.	25.	0.	0.
CHROMIUM	UGG	6	6	0	0	6.02	6.02	6.02	6.02	6.02	6.02	0.	0.
COPPER	UGG	6	6	0	0	8.09	8.09	8.09	8.09	8.09	8.09	0.	0.
IRON	UGG	6	6	6	6	1,030.	1,302.5	1,760.	2,985.	3,630.	2,145.	924.261	0.43
MERCURY	UGG	6	6	3	3	0.1	0.1	0.1	0.243	0.243	0.1715	0.0715	0.417
POTASSIUM	UGG	6	6	6	6	1,660.	1,940.	2,150.	2,412.5	2,840.	2,158.33	367.125	0.17
MAGNESIUM	UGG	6	6	6	6	18,300.	21,050.	22,100.	26,000.	32,600.	23,500.	4,467.29	0.19
MANGANESE	UGG	6	6	6	6	36.4	76.7	116.	526.5	1,470.	336.333	509.959	1.516
SODIUM	UGG	6	6	6	6	7,270.	8,217.5	10,100.	14,875.	17,500.	11,210.	3,591.11	0.32
NICKEL	UGG	6	6	0	0	34.3	34.3	34.3	34.3	34.3	34.3	0.	0.0
LEAD	UGG	6	6	6	6	2.	2.675	2.9	3.825	4.8	3.15	0.8694	0.276
ANTIMONY	UGG	6	6	0	0	38.	38.	38.	38.	38.	38.	0.	0.0
SELENIUM	UGG	6	6	1	1	3.02	3.02	3.02	3.14	3.5	3.1	0.1789	0.058
THALLIUM	UGG	6	6	0	0	6.99	6.99	6.99	6.99	6.99	6.99	0.	0.0
VANADIUM	UGG	6	6	4	4	11.	11.225	11.9	16.4	21.5	14.05	3.6326	0.259
ZINC	UGG	6	6	1	1	21.1	21.1	21.1	21.475	22.6	21.35	0.559	0.026

SUMMARY STATISTICS

SAMPLE LIST ID: RBKGW

Description	Units	# of Rslt	# of Pts	# of Hits	# of Dtcts	Minimum	25th	Median	75th	Maximum	Average	Std.Dev.	Coef Va
SILVER	UGG	6	6	0	0	4.6	4.6	4.6	4.6	4.6	4.6	0.	0.
ALUMINUM	UGG	6	6	6	6	146.	917.25	2,160.	3,407.5	5,830.	2,238.17	1,845.2	0.82
ARSENIC	UGG	6	6	2	2	2.54	2.54	2.54	3.6	3.84	2.92	0.5453	0.18
BARIUM	UGG	6	6	6	6	67.2	84.25	112.	184.25	257.	132.867	63.6246	0.47
BERYLLIUM	UGG	6	6	0	0	5.	5.	5.	5.	5.	5.	0.	0.
CALCIUM	UGG	6	6	6	6	38,200.	56,825.	71,600.	87,525.	102,000.	71,066.7	20,896.1	0.29
CADMIUM	UGG	6	6	0	0	4.01	4.01	4.01	4.01	4.01	4.01	0.	0.
COBALT	UGG	6	6	0	0	25.	25.	25.	25.	25.	25.	0.	0.
CHROMIUM	UGG	6	6	1	1	6.02	6.02	6.02	6.4375	7.69	6.2983	0.6224	0.09
COPPER	UGG	6	6	1	1	8.09	8.09	8.09	8.8425	11.1	8.5917	1.1218	0.13
IRON	UGG	6	6	6	6	426.	1,387.5	1,710.	5,220.	7,920.	2,989.33	2,507.14	0.83
MERCURY	UGG	6	6	0	0	0.243	0.243	0.243	0.243	0.243	0.243	0.	0.
POTASSIUM	UGG	6	6	2	2	375.	375.	375.	1,565.	2,390.	863.333	760.113	0.8
MAGNESIUM	UGG	6	6	6	6	16,800.	20,025.	25,500.	27,925.	29,800.	24,033.3	4,813.41	0.
MANGANESE	UGG	6	6	6	6	19.	86.9	125.	350.25	408.	182.533	139.433	0.76
SODIUM	UGG	6	6	6	6	9,070.	10,405.	12,400.	26,800.	29,500.	17,885.	7,970.81	0.44
NICKEL	UGG	6	6	0	0	34.3	34.3	34.3	34.3	34.3	34.3	0.	0.
LEAD	UGG	6	6	6	6	2.2	2.475	2.7	6.7	7.	4.5333	2.1148	0.46
ANTIMONY	UGG	6	6	0	0	38.	38.	38.	38.	38.	38.	0.	0.
SELENIUM	UGG	6	6	0	0	3.02	3.02	3.02	3.02	3.02	3.02	0.	0.
THALLIUM	UGG	6	6	0	0	6.99	6.99	6.99	6.99	6.99	6.99	0.	0.
VANADIUM	UGG	6	6	1	1	11.	11.	11.	12.325	16.3	11.8833	1.9752	0.16
ZINC	UGG	6	6	3	3	21.1	21.1	21.1	117.575	194.	64.9	62.9576	0.97

ATTACHMENT 2

RISK-BASED CONCENTRATION TABLE
FIRST QUARTER 1993

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

January 28, 1993

SUBJECT: Risk-Based Concentration Table, First Quarter 1993

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 has been distributed quarterly to all interested EPA offices and private parties since March 1991. If you are not currently on the mailing list, but would like to be, please call Anna Poulton (215-597-3179) and give her your name, address, and phone and FAX numbers.

The table contains reference doses and carcinogenic potency slopes (obtained from IRIS through December 1992, HEAST through July 1992, 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 other requests for immediate information. The table also provides a useful benchmark for evaluating preliminary site investigation data and contractor-prepared 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 a substitute for EPA guidance for preparing RI/FS baseline risk assessments or setting site-specific cleanup levels.

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

This update of the table contains new inhalation reference concentrations derived by EPA/ECAO for benzene, carbon tetrachloride, and 1,2-dichloroethene. However, since all three compounds already had inhaled carcinogenic potency slopes, the risk-based concentrations have not changed. No change to IRIS since the last update of this table has caused any change in a risk-based concentration.

Attachments

Risk-Based Concentration Table
Background Information

The risk-based concentrations were calculated as follows:

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. For non-carcinogens, the averaging time equals the exposure duration, so the exposure duration term has been used for both. The following terms were used in the calculations:

General:	
Carcinogenic potency slope oral $(mg/kg/d)^{-1}$:	SF_o
Carcinogenic potency slope inhaled $(mg/kg/d)^{-1}$:	SF_i
Reference dose oral (mg/kg/d):	RfD_o
Reference dose oral (mg/kg/d):	RfD_i
Target cancer risk:	TR
Target hazard quotient:	THQ
Body weight, adult (kg):	BW_a
Body weight, child age 1-6 (kg):	BW_c
Averaging time (years of life):	AT
Air breathed (m^3/d):	IR_a
Drinking water ingestion (L/d):	IR_w
Fish ingestion (g/d):	IR_f
Soil ingestion - age adjusted (mg/d)	IRS_{adj}
Soil ingestion - age 1-6 (mg/d):	IRS_c
Soil ingestion - adult (mg/d):	IRS_a
Residential:	
Exposure frequency (d/y):	EF_r
Exposure duration (y):	ED_r
Volatilization factor (L/m^3):	VF
Commercial/industrial:	
Exposure frequency (d/y):	EF_o
Exposure duration (y):	ED_o

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. Numbers from PHRED and non-EPA sources are no longer included.

ALGORITHMS:

1. Residential water use ($\mu g/L$). Volatilization terms were calculated only for compounds with "y" in the "Volatile" 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 the draft 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:

$$\frac{TR \cdot BW_a \cdot AT \cdot 365\frac{d}{y} \cdot 1000\frac{ug}{mg}}{EF_r \cdot ED_r \cdot ([VF \cdot IR_a \cdot CPS_i] + [IR_w \cdot SF_o])}$$

b. Non-carcinogens:

$$\frac{THQ \cdot BW_a \cdot ED_r \cdot 365\frac{d}{y} \cdot 1000\frac{ug}{mg}}{EF_r \cdot ED_r \cdot \left(\frac{VF \cdot IR_a}{RfD_i} + \frac{IR_w}{RfD_o}\right)}$$

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

a. Carcinogens:

$$\frac{TR \cdot BW_a \cdot AT \cdot 365\frac{d}{y} \cdot 1000\frac{ug}{mg}}{EF_r \cdot ED_r \cdot IR_a \cdot SF_i}$$

b. Non-carcinogens:

$$\frac{THQ \cdot RfD_i \cdot BW_a \cdot ED_r \cdot 365\frac{d}{y} \cdot 1000\frac{ug}{mg}}{EF_r \cdot ED_r \cdot IR_a}$$

3. Fish (mg/kg):

a. Carcinogens:

$$\frac{TR \cdot BW_a \cdot AT \cdot 365\frac{d}{y}}{EF_r \cdot ED_r \cdot \frac{IR_f}{1000\frac{g}{kg}} \cdot SF_o}$$

b. Non-carcinogens:

$$\frac{THQ \cdot RfD_o \cdot BW_a \cdot ED_r \cdot 365\frac{d}{y}}{EF_r \cdot ED_r \cdot \frac{IR_f}{1000\frac{g}{kg}}}$$

4. Soil commercial/industrial (mg/kg): The default exposure assumption that only 50% of incidental soil ingestion occurs at work has been omitted.

a. Carcinogens:

$$\frac{TR \cdot BW_a \cdot AT \cdot 365\frac{d}{y}}{EF_o \cdot ED_o \cdot \frac{IRS_a}{10^6\ \frac{mg}{kg}} \cdot SF_o}$$

b. Non-carcinogens:

$$\frac{THQ \cdot RfD_o \cdot BW_a \cdot ED_o \cdot 365\frac{d}{y}}{EF_o \cdot ED_o \cdot \frac{IRS_a}{10^6\ \frac{mg}{kg}}}$$

5. Soil residential (mg/kg):

a. Carcinogens:

$$\frac{TR \cdot BW_a \cdot AT \cdot 365\frac{d}{y}}{EF_r \cdot ED_r \cdot \frac{IRS_{adj}}{10^6\ \frac{mg}{kg}} \cdot CPS_o}$$

b. Non-carcinogens:

$$\frac{THQ \cdot RfD_o \cdot BW_c \cdot ED_r \cdot 365\frac{d}{y}}{EF_r \cdot ED_r \cdot \frac{IRS_c}{10^6\ \frac{mg}{kg}}}$$

EXPOSURE ASSUMPTIONS:	
1-General:	
Target cancer risk:	1e-06
Target hazard quotient:	1
Body weight, adult (kg):	70
Body weight, age 1-6 (kg):	15
Averaging time (years of life):	70
Air breathed (m3/d):	20
Drinking water ingestion (l/d):	2
Fish ingestion (g/d):	54
Soil ingestion - age adjusted (mg/d):	100
Soil ingestion - age 1-6 (mg/d):	200
Soil ingestion - adult (mg/d):	100
2-Residential:	
Exposure frequency (d/y):	350
Exposure duration (y):	30
Volatilization factor (L/m3):	0.5
3-Occupational:	
Exposure frequency (d/y):	250
Exposure duration (y):	25

Contaminant	Oral RfD (mg/kg/d)	Inhaled RfD (mg/kg/d)	Oral Potency Slope 1/(mg/kg/d)	Inhaled Potency Slope 1/(mg/kg/d)	VOC	Tap water (µg/l)	Ambient air (µg/m3)	Fish (mg/kg)	Commercial/ industrial soil (mg/kg)	Residential soil (mg/kg)
Acephate	4.00e-03 i		8.70e-03 i			9.8	0.98	0.36	330	200
Acetaldehyde		2.57e-03 i		7.70e-03 i		94	1.1			
Acetone	1.00e-01 i					3700	370	140	100000	7800
Acetone cyanohydrin	7.00e-02 h	2.86e-03 a				2600	10	95	72000	5500
Acetonitrile	6.00e-03 i	1.43e-02 a				220	52	8.1	6100	470
Acetophenone	1.00e-01 i	5.71e-06 a			y	0.042	0.021	140	100000	7800
Acifluorfen	1.30e-02 i					470	47	18	13000	1000
Acrolein	2.00e-02 h	5.71e-06 i				730	0.021	27	20000	1600
Acrylamide	2.00e-04 i		4.50e+00 i	4.55e+00 i		0.019	0.0019	0.0007	0.64	0.38
Acrylic acid	8.00e-02 i	8.57e-05 i				2900	0.31	110	82000	6300
Acrylonitrile		5.71e-04 i	5.40e-01 i	2.38e-01 i		0.16	0.036	0.0058	5.3	3.2
Alachlor	1.00e-02 i		8.05e-02 h			1.1	0.11	0.039	36	21
Alar	1.50e-01 i					5500	550	200	150000	12000
Aldicarb	2.00e-04 i					7.3	0.73	0.27	200	16
Aldicarb sulfone	3.00e-04 x					11	1.1	0.41	310	23
Aldrin	3.00e-05 i		1.70e+01 i	1.72e+01 i		0.005	0.0005	0.00019	0.17	0.1
Ally	2.50e-01 i					9100	910	340	260000	20000
Allyl alcohol	5.00e-03 i					180	18	6.8	5100	390
Allyl chloride	5.00e-02 h	2.86e-04 i				1800	1	68	51000	3900
Aluminum	2.90e+00 o					110000	11000	3900	3000000	230000
Aluminum phosphide	4.00e-04 i					15	1.5	0.54	410	31
Amdro	3.00e-04 i					11	1.1	0.41	310	23
Ametryn	9.00e-03 i					330	33	12	9200	700
m-Aminophenol	7.00e-02 h					2600	260	95	72000	5500
4-Aminopyridine	2.00e-05 h					0.73	0.073	0.027	20	1.6
Amitraz	2.50e-03 i					91	9.1	3.4	2600	200
Ammonia		2.86e-02 i				1000	100			
Ammonium sulfamate	2.00e-01 i					7300	730	270	200000	16000
Aniline		2.86e-04 i	5.70e-03 i			10	1	0.55	500	300
Antimony and compounds	4.00e-04 i					15	1.5	0.54	410	31
Antimony pentoxide	5.00e-04 h					18	1.8	0.68	510	39
Antimony potassium tartrate	9.00e-04 h					33	3.3	1.2	920	70
Antimony tetroxide	4.00e-04 h					15	1.5	0.54	410	31
Antimony trioxide	4.00e-04 h					15	1.5	0.54	410	31
Apollo	1.30e-02 i					470	47	18	13000	1000
Aramite	5.00e-02 h		2.50e-02 i	2.49e-02 i		3.4	0.34	0.13	110	68
Arsenic	3.00e-04 i					11	1.1	0.41	310	23
Arsenic (as carcinogen)			1.75e+00 i	1.51e+01 i		0.049	0.00057	0.0018	1.6	0.97
Assure	9.00e-03 i					330	33	12	9200	700

Key to Data Sources: i=IRIS x=Withdrawn from IRIS h=HEAST a=HEAST ate method y=Withdrawn from HEAST c=EPA-ECAO o=Other EPA documents

Contaminant	Oral RfD (mg/kg/d)	Inhaled RfD (mg/kg/d)	Oral Potency Slope 1/(mg/kg/d)	Inhaled Potency Slope 1/(mg/kg/d)	VOC	Tap water (µg/l)	Ambient air (µg/m3)	Fish (mg/kg)	Commercial/ industrial soil (mg/kg)	Residential soil (mg/kg)
Asulam	5.00e-02 i					1800	180	68	51000	3900
Atrazine	5.00e-03 i		2.22e-01 h			0.38	0.038	0.014	13	7.7
Avermectin B1	4.00e-04 i					15	1.5	0.54	410	31
Azobenzene			1.10e-01 i	1.09e-01 i		0.77	0.078	0.029	26	15
Barium and compounds	7.00e-02 i	1.43e-04 a				2600	0.52	95	72000	5500
Baygon	4.00e-03 i					150	15	5.4	4100	310
Bayleton	3.00e-02 i					1100	110	41	31000	2300
Baythroid	2.50e-02 i					910	91	34	26000	2000
Benefin	3.00e-01 i					11000	1100	410	310000	23000
Benomyl	5.00e-02 i					1800	180	68	51000	3900
Bentazon	2.50e-03 i					91	9.1	3.4	2600	200
Benzaldehyde	1.00e-01 i				y	610	370	140	100000	7800
Benzene		5.71e-05 e	2.90e-02 i	2.91e-02 i	y	0.35	0.21	0.11	99	59
Benzidine	3.00e-03 i		2.30e+02 i	2.35e+02 i		0.00037	0.000036	0.000014	0.012	0.0074
Benzoic acid	4.00e+00 i					150000	15000	5400	4100000	310000
Benzotrichloride			1.30e+01 i			0.0066	0.00066	0.00024	0.22	0.13
Benzyl alcohol	3.00e-01 h					11000	1100	410	310000	23000
Benzyl chloride			1.70e-01 i		y	0.083	0.05	0.019	17	10
Beryllium and compounds	5.00e-03 i		4.30e+00 i	8.40e+00 i		0.02	0.001	0.00073	0.67	0.4
Bidrin	1.00e-04 i					3.7	0.37	0.14	100	7.8
Biphenthrin (Talstar)	1.50e-02 i					550	55	20	15000	1200
1,1-Biphenyl	5.00e-02 i					1800	180	68	51000	3900
Bis(2-chloroethyl)ether			1.10e+00 i	1.16e+00 i	y	0.012	0.0074	0.0029	2.6	1.5
Bis(2-chloroisopropyl)ether	4.00e-02 i		7.00e-02 h	3.50e-02 h	y	0.35	0.24	0.045	41	24
Bis(chloromethyl)ether			2.20e+02 i	2.17e+02 i	y	0.000065	0.000039	0.000014	0.013	0.0077
Bis(2-chloro-1-methylethyl)ether			7.00e-02 y	7.00e-02 y		1.2	0.12	0.045	41	24
Bis(2-ethylhexyl)phthalate (DEHP)	2.00e-02 i		1.40e-02 i			6.1	0.61	0.23	200	120
Bisphenol A	5.00e-02 i					1800	180	68	51000	3900
Boron	9.00e-02 i	5.71e-03 h				3300	21	120	92000	7000
Boron trifluoride		2.00e-04 h				7.3	0.73			
Bromodichloromethane	2.00e-02 i		1.30e-01 i		y	0.11	0.066	0.024	22	13
Bromoethene				1.10e-01 h	y	0.13	0.077			
Bromoform (tribromomethane)	2.00e-02 i		7.90e-03 i	3.85e-03 i	y	3.1	2.2	0.4	360	220
Bromomethane	1.40e-03 i	1.43e-03 i			y	8.7	5.2	1.9	1400	110
4-Bromophenyl phenyl ether	5.80e-02 o					2100	210	78	59000	4500
Bromophos	5.00e-03 h					180	18	6.8	5100	390
Bromoxynil	2.00e-02 i					730	73	27	20000	1600
Bromoxynil octanoate	2.00e-02 i					730	73	27	20000	1600
1,3-Butadiene				9.80e-01 i	y	0.014	0.0087			

Key to Data Sources: i=IRIS x=Withdrawn from IRIS h=HEAST a=HEAST alternate method y=Withdrawn from HEAST e=EPA-ECAO o=Other EPA documents

Contaminant	Oral RfD (mg/kg/d)		Inhaled RfD (mg/kg/d)		Oral Potency Slope 1/(mg/kg/d)		Inhaled Potency Slope 1/(mg/kg/d)		VOC	Tap water (µg/l)	Ambient air (µg/m3)	Fish (mg/kg)	Commercial/ industrial soil (mg/kg)	Residential soil (mg/kg)
1-Butanol	1.00e-01	i								3700	370	140	100000	7800
Butylate	5.00e-02	i								1800	180	68	51000	3900
Butyl benzyl phthalate	2.00e-01	i								7300	730	270	200000	16000
Butylphthalyl butylglycolate	1.00e+00	i								37000	3700	1400	1000000	78000
Cacodylic acid	3.00e-03	h								110	11	4.1	3100	230
Cadmium and compounds	5.00e-04	i					6.30e+00	i		18	0.0014	0.68	510	39
Caprolactam	5.00e-01	i								18000	1800	680	510000	39000
Captafol	2.00e-03	i			8.60e-03	h				9.9	0.99	0.37	330	160
Captan	1.30e-01	i			3.50e-03	h				24	2.4	0.9	820	490
Carbaryl	1.00e-01	i								3700	370	140	100000	7800
Carbazole					2.00e-02	h				4.3	0.43	0.16	140	85
Carbofuran	5.00e-03	i								180	18	6.8	5100	390
Carbon disulfide	1.00e-01	i	2.86e-03	h					y	21	10	140	100000	7800
Carbon tetrachloride	7.00e-04	i	5.71e-04	e	1.30e-01	i	5.25e-02	i	y	0.22	0.16	0.024	22	13
Carbosulfan	1.00e-02	i								370	37	14	10000	780
Carboxin	1.00e-01	i								3700	370	140	100000	7800
Chloral	2.00e-03	i								73	7.3	2.7	2000	160
Chloramben	1.50e-02	i								550	55	20	15000	1200
Chloranil					4.03e-01	h				0.21	0.021	0.0078	7.1	4.2
Chlordane	6.00e-05	i			1.30e+00	i	1.30e+00	i		0.066	0.0066	0.0024	2.2	1.3
Chlorimuron-ethyl	2.00e-02	i								730	73	27	20000	1600
Chlorine dioxide			5.71e-05	i						2.1	0.21			
Chloroacetaldehyde	6.90e-03	o								250	25	9.3	7100	540
Chloroacetic acid	2.00e-03	h								73	7.3	2.7	2000	160
2-Chloroacetophenone			8.57e-06	i						0.31	0.031			
4-Chloroaniline	4.00e-03	i								150	15	5.4	4100	310
Chlorobenzene	2.00e-02	i	5.71e-03	a					y	39	21	27	20000	1600
Chlorobenzilate	2.00e-02	i								730	73	27	20000	1600
p-Chlorobenzoic acid	2.00e-01	h								7300	730	270	200000	16000
4-Chlorobenzotrifluoride	2.00e-02	h								730	73	27	20000	1600
2-Chloro-1,3-butadiene	7.00e-03	h	2.86e-02	a					y	110	100	9.5	7200	550
1-Chlorobutane	4.00e-01	h							y	2400	1500	540	410000	31000
2-Chloroethyl vinyl ether	2.50e-02	o							y	150	91	34	26000	2000
Chloroform	1.00e-02	i			6.10e-03	i	8.05e-02	i	y	0.21	0.11	0.52	470	280
Chloromethane					1.30e-02	h	6.30e-03	h	y	1.9	1.4	0.24	220	130
4-Chloro-2-methylaniline					5.80e-01	h				0.15	0.015	0.0054	4.9	2.9
4-Chloro-2,2-methylaniline hydrochloride					4.60e-01	h				0.19	0.019	0.0069	6.2	3.7
beta-Chloronaphthalene	8.00e-02	i								2900	290	110	82000	6300

Key to Data Sources: i=IRIS r=Withdrawn from IRIS h=HEAST a=HEA[illegible] ate method y=Withdrawn from HEAST e=EPA-ECAO o=Other EPA document

Contaminant	Oral RfD (mg/kg/d)		Inhaled RfD (mg/kg/d)		Oral Potency Slope 1/(mg/kg/d)		Inhaled Potency Slope 1/(mg/kg/d)		VOC	Tap water (µg/l)	Ambient air (µg/m3)	Fish (mg/kg)	Commercial/ industrial soil (mg/kg)	Residential soil (mg/kg)
o-Chloronitrobenzene					2.50e-02	h			y	0.57	0.34	0.13	110	68
p-Chloronitrobenzene					1.80e-02	h			y	0.79	0.47	0.18	160	95
2-Chlorophenol	5.00e-03	i								180	18	6.8	5100	390
2-Chloropropane			2.86e-02	h					y	170	100			
Chlorothalonil	1.50e-02	i			1.10e-02	h				7.7	0.77	0.29	260	150
o-Chlorotoluene	2.00e-02	i							y	120	73	27	20000	1600
Chlorpropham	2.00e-01	i								7300	730	270	200000	16000
Chlorpyrifos	3.00e-03	i								110	11	4.1	3100	230
Chlorpyrifos-methyl	1.00e-02	h								370	37	14	10000	780
Chlorsulfuron	5.00e-02	i								1800	180	68	51000	3900
Chlorthiophos	8.00e-04	h								29	2.9	1.1	820	63
Chromium III and compounds	1.00e+00	i	5.71e-07	y						37000	0.0021	1400	1000000	78000
Chromium VI and compounds	5.00e-03	i					4.20e+01	i		180	0.0002	6.8	5100	390
Coal tars							2.20e+00	h			0.0039			
Coke Oven Emissions							2.17e+00	i			0.0039			
Copper and compounds	3.71e-02	h								1400	140	50	38000	2900
Crotonaldehyde	1.00e-02	x			1.90e+00	h	1.90e+00	y		0.045	0.0045	0.0017	1.5	0.9
Cumene	4.00e-02	i	2.57e-03	h						1500	9.4	54	41000	3100
Cyanazine	2.00e-03	x								73	7.3	2.7	2000	160
Cyanides														
Barium cyanide	1.00e-01	h								3700	370	140	100000	7800
Copper cyanide	5.00e-03	i								180	18	6.8	5100	390
Calcium cyanide	4.00e-02	i								1500	150	54	41000	3100
Cyanogen	4.00e-02	i								1500	150	54	41000	3100
Cyanogen bromide	9.00e-02	i								3300	330	120	92000	7000
Cyanogen chloride	5.00e-02	i								1800	180	68	51000	3900
Free cyanide	2.00e-02	i								730	73	27	20000	1600
Hydrogen cyanide	2.00e-02	i								730	73	27	20000	1600
Potassium cyanide	5.00e-02	i								1800	180	68	51000	3900
Potassium silver cyanide	2.00e-01	i								7300	730	270	200000	16000
Silver cyanide	1.00e-01	i								3700	370	140	100000	7800
Sodium cyanide	4.00e-02	i								1500	150	54	41000	3100
Zinc cyanide	5.00e-02	i								1800	180	68	51000	3900
Cyclohexanone	5.00e+00	i							y	30000	18000	6800	5100000	390000
Cyclohexlamine	2.00e-01	i								7300	730	270	200000	16000
Cyhalothrin/Karate	5.00e-03	i								180	18	6.8	5100	390
Cypermethrin	1.00e-02	i								370	37	14	10000	780
Cyromazine	7.50e-03	i								270	27	10	7700	590
Dacthal	5.00e-01	i								18000	1800	680	510000	39000

Key to Data Sources: i=IRIS x=Withdrawn from IRIS h=HEAST a=HEAST alternate method y=Withdrawn from HEAST e=EPA-ECAO o=Other EPA documents

Contaminant	Oral RfD (mg/kg/d)	Inhaled RfD (mg/kg/d)	Oral Potency Slope 1/(mg/kg/d)	Inhaled Potency Slope 1/(mg/kg/d)	VOC	Tap water (µg/l)	Ambient air (µg/m3)	Fish (mg/kg)	Commercial/ industrial soil (mg/kg)	Residential soil (mg/kg)
Dalapon	3.00e-02 i					1100	110	41	31000	2300
Danitol	5.00e-04 i					18	1.8	0.68	510	39
DDD			2.40e-01 i			0.35	0.035	0.013	12	7.1
DDE			3.40e-01 i			0.25	0.025	0.0093	8.4	5
DDT	5.00e-04 i		3.40e-01 i	3.40e-01 i		0.25	0.025	0.0093	8.4	5
Decabromodiphenyl ether	1.00e-02 i				y	61	37	14	10000	780
Demeton	4.00e-05 i					1.5	0.15	0.054	41	3.1
Diallate			6.10e-02 h		y	0.23	0.14	0.052	47	28
Diazinon	9.00e-04 h					33	3.3	1.2	920	70
1,4-Dibromobenzene	1.00e-02 i				y	61	37	14	10000	780
Dibromochloromethane	2.00e-02 i		8.40e-02 i		y	0.17	0.1	0.038	34	20
1,2-Dibromo-3-chloropropane		5.71e-05 i	1.40e+00 h	2.40e-03 h	y	0.06	0.21	0.0023	2	1.2
1,2-Dibromoethane			8.50e+01 i	7.70e-01 i	y	0.00096	0.011	0.000037	0.034	0.02
Di-n-butyl phthalate	1.00e-01 i					3700	370	140	100000	7800
Dicamba	3.00e-02 i					1100	110	41	31000	2300
1,2-Dichlorobenzene	9.00e-02 i	5.71e-02 a			y	370	210	120	92000	7000
1,3-Dichlorobenzene	8.90e-02 o				y	540	320	120	91000	7000
1,4-Dichlorobenzene		2.00e-01 h	2.40e-02 h		y	0.59	0.35	0.13	120	71
3,3*-Dichlorobenzidine			4.50e-01 i			0.19	0.019	0.007	6.4	3.8
1,4-Dichloro-2-butene				9.30e+00 h	y	0.0015	0.00092			
Dichlorodifluoromethane	2.00e-01 i	5.71e-02 a			y	390	210	270	200000	16000
1,1-Dichloroethane	1.00e-01 h	1.43e-01 a			y	810	520	140	100000	7800
1,2-Dichloroethane (EDC)		2.86e-03 e	9.10e-02 i	9.10e-02 i	y	0.16	0.094	0.035	31	19
1,1-Dichloroethylene	9.00e-03 i		6.00e-01 i	1.75e-01 i	y	0.058	0.049	0.0053	4.8	2.8
1,2-Dichloroethylene (cis)	1.00e-02 h				y	61	37	14	10000	780
1,2-Dichloroethylene (trans)	2.00e-02 i				y	120	73	27	20000	1600
1,2-Dichloroethylene (mixture)	9.00e-03 h				y	55	33	12	9200	700
2,4-Dichlorophenol	3.00e-03 i					110	11	4.1	3100	230
4-(2,4-Dichlorophenoxy)butyric Acid (2,4-DB)	8.00e-03 i					290	29	11	8200	630
2,4-Dichlorophenoxyacetic Acid (2,4-D)	1.00e-02 i				y	61	37	14	10000	780
1,2-Dichloropropane		1.14e-03 i	6.80e-02 h		y	0.21	0.13	0.046	42	25
1,3-Dichloropropene	3.00e-04 i	5.71e-03 i	1.80e-01 h	1.30e-01 h	y	0.1	0.066	0.018	16	9.5
2,3-Dichloropropanol	3.00e-03 i					110	11	4.1	3100	230
Dichlorvos	8.00e-04 x		2.90e-01 i			0.29	0.029	0.011	9.9	5.9
Dicofol			4.40e-01 x			0.19	0.019	0.0072	6.5	3.9
Dicyclopentadiene	3.00e-02 h	5.71e-05 a			y	0.42	0.21	41	31000	2300
Dieldrin	5.00e-05 i		1.60e+01 i	1.61e+01 i		0.0053	0.00053	0.0002	0.18	0.11

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Contaminant	Oral RfD (mg/kg/d)	Inhaled RfD (mg/kg/d)	Oral Potency Slope 1/(mg/kg/d)	Inhaled Potency Slope 1/(mg/kg/d)	VOC	Tap water (µg/l)	Ambient air (µg/m3)	Fish (mg/kg)	Commercial/ industrial soil (mg/kg)	Residential soil (mg/kg)
Diethylene glycol, monobutyl ether		5.71e-03 h				210	21			
Diethylene glycol, monoethyl ether	2.00e+00 h					73000	7300	2700	2000000	160000
Diethylforamide	1.10e-02 h					400	40	15	11000	860
Di(2-ethylhexyl)adipate	6.00e-01 i		1.20e-03 i			71	7.1	2.6	2400	1400
Diethyl phthalate	8.00e-01 i					29000	2900	1100	820000	63000
Diethylstilbestrol			4.70e+03 h			0.000018	0.0000018	0.00000067	0.00061	0.00036
Difenzoquat (Avenge)	8.00e-02 i					2900	290	110	82000	6300
Diflubenzuron	2.00e-02 i					730	73	27	20000	1600
Diisopropyl methylphosphonate (DIMP)	8.00e-02 i					2900	290	110	82000	6300
Dimethipin	2.00e-02 i					730	73	27	20000	1600
Dimethoate	2.00e-04 i					7.3	0.73	0.27	200	16
3,3'-Dimethoxybenzidine			1.40e-02 h			6.1	0.61	0.23	200	120
Dimethylamine		5.71e-06 x				0.21	0.021			
N-N-Dimethylaniline	2.00e-03 i					73	7.3	2.7	2000	160
2,4-Dimethylaniline			7.50e-01 h			0.11	0.011	0.0042	3.8	2.3
2,4-Dimethylaniline hydrochloride			5.80e-01 h			0.15	0.015	0.0054	4.9	2.9
3,3'-Dimethylbenzidine			9.20e+00 h			0.0093	0.00093	0.00034	0.31	0.19
1,1-Dimethylhydrazine			2.60e+00 h	3.50e+00 h		0.033	0.0024	0.0012	1.1	0.66
1,2-Dimethylhydrazine			3.70e+01 h	3.70e+01 h		0.0023	0.00023	0.000085	0.077	0.046
N,N-Dimethylforamide	1.00e-01 h	8.57e-03 i				3700	31	140	100000	7800
2,4-Dimethylphenol	2.00e-02 i					730	73	27	20000	1600
2,6-Dimethylphenol	6.00e-04 i					22	2.2	0.81	610	47
3,4-Dimethylphenol	1.00e-03 i					37	3.7	1.4	1000	78
Dimethyl phthalate	1.00e+01 h					370000	37000	14000	10000000	780000
Dimethyl terephthalate	1.00e-01 i					3700	370	140	100000	7800
4,6-Dinitro-o-cyclohexyl phenol	2.00e-03 i					73	7.3	2.7	2000	160
1,2-Dinitrobenzene	4.00e-04 h					15	1.5	0.54	410	31
1,3-Dinitrobenzene	1.00e-04 i					3.7	0.37	0.14	100	7.8
1,4-Dinitrobenzene	4.00e-04 h					15	1.5	0.54	410	31
2,4-Dinitrophenol	2.00e-03 i					73	7.3	2.7	2000	160
Dinitrotoluene mixture			6.80e-01 i			0.13	0.013	0.0046	4.2	2.5
2,4-Dinitrotoluene	2.00e-03 i			i		73	7.3	2.7	2000	160
2,6-Dinitrotoluene			6.80e-01 i			0.13	0.013	0.0046	4.2	2.5
Dinoseb	1.00e-03 i					37	3.7	1.4	1000	78
di-n-Octyl phthalate	2.00e-02 h					730	73	27	20000	1600
1,4-Dioxane			1.10e-02 i			7.7	0.77	0.29	260	150
Diphenamid	3.00e-02 i					1100	110	41	31000	2300
Diphenylamine	2.50e-02 i					910	91	34	26000	2000

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Contaminant	Oral RfD (mg/kg/d)	Inhaled RfD (mg/kg/d)	Oral Potency Slope 1/(mg/kg/d)	Inhaled Potency Slope 1/(mg/kg/d)	VOC	Tap water (µg/l)	Ambient air (µg/m3)	Fish (mg/kg)	Commercial/ industrial soil (mg/kg)	Residential soil (mg/kg)
1,2-Diphenylhydrazine			8.00e-01 i	7.70e-01 i		0.11	0.011	0.0039	3.6	2.1
Diquat	2.20e-03 i					80	8	3	2200	170
Direct black 38			8.60e+00 h			0.0099	0.00099	0.00037	0.33	0.2
Direct blue 6			8.10e+00 h			0.011	0.0011	0.00039	0.35	0.21
Direct brown 35			9.30e+00 h			0.0092	0.00092	0.00034	0.31	0.18
Disulfoton	4.00e-05 i					1.5	0.15	0.054	41	3.1
Diuron	2.00e-03 i					73	7.3	2.7	2000	160
Dodine	4.00e-03 i					150	15	5.4	4100	310
Endosulfan	5.00e-05 x					1.8	0.18	0.068	51	3.9
Endothall	2.00e-02 i					730	73	27	20000	1600
Endrin	3.00e-04 i					11	1.1	0.41	310	23
Epichlorohydrin	2.00e-03 h	2.86e-04 i	9.90e-03 i	4.20e-03 i		8.6	1	0.32	290	160
1,2-Epoxybutane		5.71e-03 i				210	21			
EPTC (S-Ethyl dipropylthiocarbamate)	2.50e-02 i					910	91	34	26000	2000
Ethephon (2-chloroethyl phosphonic acid)	5.00e-03 i					180	18	6.8	5100	390
Ethion	5.00e-04 i					18	1.8	0.68	510	39
2-Ethoxyethanol	4.00e-01 h	5.71e-02 i				15000	210	540	410000	31000
2-Ethoxyethanol acetate	3.00e-01 a					11000	1100	410	310000	23000
Ethyl acetate	9.00e-01 i					33000	3300	1200	920000	70000
Ethyl acrylate			4.80e-02 h			1.8	0.18	0.066	60	35
Ethylbenzene	1.00e-01 i	2.86e-01 i			y	1300	1000	140	100000	7800
Ethylene cyanohydrin	3.00e-01 h					11000	1100	410	310000	23000
Ethylene diamine	2.00e-02 h					730	73	27	20000	1600
Ethylene glycol	2.00e+00 i					73000	7300	2700	2000000	160000
Ethylene glycol, monobutyl ether		5.71e-03 h				210	21			
Ethylene oxide			1.02e+00 h	3.50e-01 h		0.083	0.024	0.0031	2.8	1.7
Ethylene thiourea (ETU)	8.00e-05 i		6.00e-01 h			0.14	0.014	0.0053	4.8	2.8
Ethyl chloride	2.00e-02 e	2.86e+00 i			y	710	10000	27	20000	1600
Ethyl ether	2.00e-01 i				y	1200	730	270	200000	16000
Ethyl methacrylate	9.00e-02 h					3300	330	120	92000	7000
Ethyl p-nitrophenyl phenylphosphorothioate	1.00e-05 i					0.37	0.037	0.014	10	0.78
Ethylnitrosourea			1.40e+02 h			0.00061	0.000061	0.000023	0.02	0.012
Ethylphthalyl ethyl glycolate	3.00e+00 i					110000	11000	4100	3100000	230000
Express	8.00e-03 i					290	29	11	8200	630
Fenamiphos	2.50e-04 i					9.1	0.91	0.34	260	20
Fluometuron	1.30e-02 i					470	47	18	13000	1000
Fluoride	6.00e-02 i					2200	220	81	61000	4700

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Contaminant	Oral RfD (mg/kg/d)	Inhaled RfD (mg/kg/d)	Oral Potency Slope 1/(mg/kg/d)	Inhaled Potency Slope 1/(mg/kg/d)	VOC	Tap water (µg/l)	Ambient air (µg/m3)	Fish (mg/kg)	Commercial/ industrial soil (mg/kg)	Residential soil (mg/kg)
Fluoridone	8.00e-02 i					2900	290	110	82000	6300
Fluprimidol	2.00e-02 i					730	73	27	20000	1600
Flutolanil	6.00e-02 i					2200	220	81	61000	4700
Fluvalinate	1.00e-02 i					370	37	14	10000	780
Folpet	1.00e-01 i		3.50e-03 i			24	2.4	0.9	820	490
Fomesafen			1.90e-01 i			0.45	0.045	0.017	15	9
Fonofos	2.00e-03 i					73	7.3	2.7	2000	160
Formaldehyde	2.00e-01 i			4.55e-02 i		7300	0.19	270	200000	16000
Formic Acid	2.00e+00 h					73000	7300	2700	2000000	160000
Fosetyl-al	3.00e+00 i					110000	11000	4100	3100000	230000
Furan	1.00e-03 i					37	3.7	1.4	1000	78
Furazolidone			3.80e+00 h			0.022	0.0022	0.00083	0.75	0.45
Furfural	3.00e-03 i	1.43e-02 a				110	52	4.1	3100	230
Furium			5.00e+01 h			0.0017	0.00017	0.000063	0.057	0.034
Furmecyclox			3.00e-02 i			2.8	0.28	0.11	95	57
Glufosinate-ammonium	4.00e-04 i					15	1.5	0.54	410	31
Glycidaldehyde	4.00e-04 i	2.86e-04 h				15	1	0.54	410	31
Glyphosate	1.00e-01 i					3700	370	140	100000	7800
Haloxyfop-methyl	5.00e-05 i					1.8	0.18	0.068	51	3.9
Harmony	1.30e-02 i					470	47	18	13000	1000
Heptachlor	5.00e-04 i		4.50e+00 i	4.55e+00 i	y	0.0031	0.0019	0.0007	0.64	0.38
Heptachlor epoxide	1.30e-05 i		9.10e+00 i	9.10e+00 i	y	0.0016	0.00094	0.00035	0.31	0.19
Hexabromobenzene	2.00e-03 i				y	12	7.3	2.7	2000	160
Hexachlorobenzene	8.00e-04 i		1.60e+00 i	1.61e+00 i	y	0.0088	0.0053	0.002	1.8	1.1
Hexachlorobutadiene	2.00e-03 i		7.80e-02 i	7.70e-02 i	y	0.18	0.11	0.04	37	22
HCH (alpha)			6.30e+00 i	6.30e+00 i		0.014	0.0014	0.0005	0.45	0.27
HCH (beta)			1.80e+00 i	1.80e+00 i		0.047	0.0047	0.0018	1.6	0.95
HCH (gamma) Lindane	3.00e-04 i		1.30e+00 h			0.066	0.0066	0.0024	2.2	1.3
HCH-technical			1.80e+00 i	1.79e+00 i		0.047	0.0048	0.0018	1.6	0.95
Hexachlorocyclopentadiene	7.00e-03 i	2.00e-05 h			y	0.15	0.073	9.5	7200	550
Hexachlorodibenzo-p-dioxin mixture (HxCDD)			6.20e+03 i	4.55e+03 i		0.000014	0.0000019	0.00000051	0.00046	0.00027
Hexachloroethane	1.00e-03 i		1.40e-02 i	1.40e-02 i	y	1	0.61	0.23	200	78
Hexachlorophene	3.00e-04 i					11	1.1	0.41	310	23
n-Hexane	6.00e-02 h	5.71e-02 i			y	350	210	81	61000	4700
Hexazinone	3.30e-02 i					1200	120	45	34000	2600
Hydrazine, hydrazine sulfate			3.00e+00 i	1.72e+01 i		0.028	0.0005	0.0011	0.95	0.57
Hydrogen chloride		2.00e-03 i				73	7.3			
Hydrogen sulfide	3.00e-03 i	2.57e-04 i				110	0.94	4.1	3100	230

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Contaminant	Oral RfD (mg/kg/d)	Inhaled RfD (mg/kg/d)	Oral Potency Slope 1/(mg/kg/d)	Inhaled Potency Slope 1/(mg/kg/d)	VOC	Tap water (µg/l)	Ambient air (µg/m3)	Fish (mg/kg)	Commercial/ industrial soil (mg/kg)	Residential soil (mg/kg)
p-Hydroquinone	4.00e-02 h					1500	150	54	41000	3100
Imazalil	1.30e-02 i					470	47	18	13000	1000
Imazaquin	2.50e-01 i					9100	910	340	260000	20000
Iprodione	4.00e-02 i					1500	150	54	41000	3100
Isobutanol	3.00e-01 i				y	1800	1100	410	310000	23000
Isophorone	2.00e-01 i		9.50e-04 i			90	9	3.3	3000	1800
Isopropalin	1.50e-02 i					550	55	20	15000	1200
Isopropyl methyl phosphonic acid (IMPA)	1.00e-01 i					3700	370	140	100000	7800
Isoxaben	5.00e-02 i					1800	180	68	51000	3900
Kepone			1.80e+01 e			0.0047	0.00047	0.00018	0.16	0.095
Lactofen	2.00e-03 i					73	7.3	2.7	2000	160
Lead (tetraethyl)	1.00e-07 i					0.0037	0.00037	0.00014	0.1	0.0078
Linuron	2.00e-03 i					73	7.3	2.7	2000	160
Lithium	2.00e-02 e					730	73	27	20000	1600
Londax	2.00e-01 i					7300	730	270	200000	16000
Malathion	2.00e-02 i					730	73	27	20000	1600
Maleic anhydride	1.00e-01 i					3700	370	140	100000	7800
Maleic hydrazide	5.00e-01 i					18000	1800	680	510000	39000
Malononitrile	2.00e-05 h					0.73	0.073	0.027	20	1.6
Mancozeb	3.00e-02 h					1100	110	41	31000	2300
Maneb	5.00e-03 i					180	18	6.8	5100	390
Manganese and compounds	1.00e-01 x	1.14e-04 i				3700	0.42	140	100000	7800
Mephosfolan	9.00e-05 h					3.3	0.33	0.12	92	7
Mepiquat	3.00e-02 i					1100	110	41	31000	2300
Mercury and compounds (methyl)	3.00e-04 i					11	1.1	0.41	310	23
Mercury and compounds (inorganic)	3.00e-04 h	8.57e-05 h				11	0.31	0.41	310	23
Merphos	3.00e-05 i					1.1	0.11	0.041	31	2.3
Merphos oxide	3.00e-05 i					1.1	0.11	0.041	31	2.3
Metalaxyl	6.00e-02 i					2200	220	81	61000	4700
Methacrylonitrile	1.00e-04 i	2.00e-04 a				3.7	0.73	0.14	100	7.8
Methamidophos	5.00e-05 i					1.8	0.18	0.068	51	3.9
Methanol	5.00e-01 i					18000	1800	680	510000	39000
Methidathion	1.00e-03 i					37	3.7	1.4	1000	78
Methomyl	2.50e-02 i					910	91	34	26000	2000
Methoxychlor	5.00e-03 i					180	18	6.8	5100	390
2-Methoxyethanol	4.00e-03 h	5.71e-03 i				150	21	5.4	4100	310
2-Methoxyethanol acetate	2.00e-03 a					73	7.3	2.7	2000	160

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Contaminant	Oral RfD (mg/kg/d)	Inhaled RfD (mg/kg/d)	Oral Potency Slope 1/(mg/kg/d)	Inhaled Potency Slope 1/(mg/kg/d)	VOC	Tap water (µg/l)	Ambient air (µg/m3)	Fish (mg/kg)	Commercial/ industrial soil (mg/kg)	Residential soil (mg/kg)
2-Methoxy-5-nitroaniline			4.60e-02 h			1.9	0.19	0.069	62	37
Methyl acetate	1.00e+00 h					37000	3700	1400	1000000	78000
Methyl acrylate	3.00e-02 a					1100	110	41	31000	2300
2-Methylaniline (o-toluidine)			2.40e-01 h			0.35	0.035	0.013	12	7.1
2-Methylaniline hydrochloride			1.80e-01 h			0.47	0.047	0.018	16	9.5
Methyl chlorocarbonate	1.00e+00 x					37000	3700	1400	1000000	78000
2-Methyl-4-chlorophenoxyacetic acid	5.00e-04 i					18	1.8	0.68	510	39
4-(2-Methyl-4-chlorophenoxy) butyric acid (MCPB)	1.00e-02 i					370	37	14	10000	780
2-(2-Methyl-4-chlorophenoxy) propionic acid	1.00e-03 i					37	3.7	1.4	1000	78
2-(2-Methyl-1,4-chlorophenoxy) propionic acid (MCPP)	1.00e-03 i					37	3.7	1.4	1000	78
Methylcyclohexane		8.57e-01 h				31000	3100			
4,4'-Methylenediphenyl isocyanate		5.71e-06 h			y	0.035	0.021			
4,4'-Methylenebisbenzeneamine			2.50e-01 h			0.34	0.034	0.013	11	6.8
4,4'-Methylene bis(2-chloroaniline)	7.00e-04 h		1.30e-01 h	1.30e-01 h		0.66	0.066	0.024	22	13
4,4'-Methylene bis(N,N'-dimethyl)aniline			4.60e-02 i			1.9	0.19	0.069	62	37
Methylene bromide	1.00e-02 a				y	61	37	14	10000	780
Methylene chloride	6.00e-02 i	8.57e-01 h	7.50e-03 i	1.65e-03 i	y	5.4	5.2	0.42	380	230
Methyl ethyl ketone	5.00e-02 h	2.86e-01 i				1800	1000	68	51000	3900
Methyl hydrazine			1.10e+00 h			0.077	0.0077	0.0029	2.6	1.5
Methyl isobutyl ketone	5.00e-02 h	2.29e-02 a				1800	83	68	51000	3900
Methyl methacrylate	8.00e-02 h					2900	290	110	82000	6300
2-Methyl-5-nitroaniline			3.30e-02 h			2.6	0.26	0.096	87	52
Methyl parathion	2.50e-04 i					9.1	0.91	0.34	260	20
2-Methylphenol (o-cresol)	5.00e-02 i					1800	180	68	51000	3900
3-Methylphenol (m-cresol)	5.00e-02 i					1800	180	68	51000	3900
4-Methylphenol (p-cresol)	5.00e-03 h					180	18	6.8	5100	390
Methyl styrene (mixture)	6.00e-03 a	1.14e-02 a			y	60	42	8.1	6100	470
Methyl styrene (alpha)	7.00e-02 a				y	430	260	95	72000	5500
Methyl tertbutyl ether (MTBE)	5.00e-03 e	1.43e-01 i			y	160	520	6.8	5100	390
Metolaclor (Dual)	1.50e-01 i					5500	550	200	150000	12000
Metribuzin	2.50e-02 i					910	91	34	26000	2000
Mirex	2.00e-04 i		1.80e+00 h			0.047	0.0047	0.0018	1.6	0.95
Molinate	2.00e-03 i					73	7.3	2.7	2000	160
Molybdenum	5.00e-03 i					180	18	6.8	5100	390
Monochloramine	1.00e-01 i					3700	370	140	100000	7800

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Contaminant	Oral RfD (mg/kg/d)	Inhaled RfD (mg/kg/d)	Oral Potency Slope 1/(mg/kg/d)	Inhaled Potency Slope 1/(mg/kg/d)	VOC	Tap water (µg/l)	Ambient air (µg/m3)	Fish (mg/kg)	Commercial/ industrial soil (mg/kg)	Residential soil (mg/kg)
Naled	2.00e-03 i					73	7.3	2.7	2000	160
Napropamide	1.00e-01 i					3700	370	140	100000	7800
Nickel and compounds	2.00e-02 i					730	73	27	20000	1600
Nickel refinery dust				8.40e-01 i			0.01			
Nickel subsulfide				1.70e+00 i			0.005			
Nitrapyrin	1.50e-03 x					55	5.5	2	1500	120
Nitrate	1.60e+00 i					58000	5800	2200	1600000	130000
Nitric Oxide	1.00e-01 i					3700	370	140	100000	7800
Nitrite	1.00e-01 i					3700	370	140	100000	7800
2-Nitroaniline	6.00e-05 h	5.71e-05 h				2.2	0.21	0.081	61	4.7
3-Nitroaniline	3.00e-03 o					110	11	4.1	3100	230
4-Nitroaniline	3.00e-03 o					110	11	4.1	3100	230
Nitrobenzene	5.00e-04 i	5.71e-04 a			y	3.4	2.1	0.68	510	39
Nitrofurantoin	7.00e-02 h					2600	260	95	72000	5500
Nitrofurazone			1.50e+00 h	9.40e+00 h		0.057	0.00091	0.0021	1.9	1.1
Nitrogen dioxide	1.00e+00 i					37000	3700	1400	1000000	78000
Nitroguanidine	1.00e-01 i					3700	370	140	100000	7800
4-Nitrophenol	6.20e-02 o					2300	230	84	63000	4800
2-Nitropropane		5.71e-03 i		9.40e+00 h		210	0.00091			
N-Nitrosodi-n-butylamine			5.40e+00 i	5.60e+00 i		0.016	0.0015	0.00058	0.53	0.32
N-Nitrosodiethanolamine			2.80e+00 i			0.03	0.003	0.0011	1	0.61
N-Nitrosodiethylamine			1.50e+02 i	1.51e+02 i		0.00057	0.000057	0.000021	0.019	0.011
N-Nitrosodimethylamine			5.10e+01 i	4.90e+01 i		0.0017	0.00017	0.000062	0.056	0.033
N-Nitrosodiphenylamine			4.90e-03 i			17	1.7	0.64	580	350
N-Nitroso di-n-propylamine			7.00e+00 i			0.012	0.0012	0.00045	0.41	0.24
N-Nitroso-N-methylethylamine			2.20e+01 i			0.0039	0.00039	0.00014	0.13	0.077
N-Nitrosopyrrolidine			2.10e+00 i	2.14e+00 i		0.041	0.004	0.0015	1.4	0.81
m-Nitrotoluene	1.00e-02 h				y	61	37	14	10000	780
p-Nitrotoluene	1.00e-02 h				y	61	37	14	10000	780
Norflurazon	4.00e-02 i					1500	150	54	41000	3100
NuStar	7.00e-04 i					26	2.6	0.95	720	55
Octabromodiphenyl ether	3.00e-03 i					110	11	4.1	3100	230
Octahydro-1357-tetranitro-1357-tetrazocine (HMX)	5.00e-02 i					1800	180	68	51000	3900
Octamethylpyrophosphoramide	2.00e-03 h					73	7.3	2.7	2000	160
Oryzalin	5.00e-02 i					1800	180	68	51000	3900
Oxadiazon	5.00e-03 i					180	18	6.8	5100	390
Oxamyl	2.50e-02 i					910	91	34	26000	2000
Oxyfluorfen	3.00e-03 i					110	11	4.1	3100	230

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Contaminant	Oral RfD (mg/kg/d)	Inhaled RfD (mg/kg/d)	Oral Potency Slope 1/(mg/kg/d)	Inhaled Potency Slope 1/(mg/kg/d)	VOC	Tap water (µg/l)	Ambient air (µg/m3)	Fish (mg/kg)	Commercial/ industrial soil (mg/kg)	Residential soil (mg/kg)
Paclobutrazol	1.30e-02 i					470	47	18	13000	1000
Paraquat	4.50e-03 i					160	16	6.1	4600	350
Parathion	6.00e-03 h					220	22	8.1	6100	470
Pebulate	5.00e-02 h					1800	180	68	51000	3900
Pendimethalin	4.00e-02 i					1500	150	54	41000	3100
Pentabromo-6-chloro cyclohexane			2.30e-02 h			3.7	0.37	0.14	120	74
Pentabromodiphenyl ether	2.00e-03 i					73	7.3	2.7	2000	160
Pentachlorobenzene	8.00e-04 i				y	4.9	2.9	1.1	820	63
Pentachloronitrobenzene	3.00e-03 i		2.60e-01 h		y	0.055	0.033	0.012	11	6.6
Pentachlorophenol	3.00e-02 i		1.20e-01 i			0.71	0.071	0.026	24	14
Permethrin	5.00e-02 i					1800	180	68	51000	3900
Phenmedipham	2.50e-01 i					9100	910	340	260000	20000
Phenol	6.00e-01 i					22000	2200	810	610000	47000
m-Phenylenediamine	6.00e-03 i					220	22	8.1	6100	470
p-Phenylenediamine	1.90e-01 h					6900	690	260	190000	15000
Phenylmercuric acetate	8.00e-05 i					2.9	0.29	0.11	82	6.3
Phenylphenol			1.94e-03 h			44	4.4	1.6	1500	880
Phorate	2.00e-04 h					7.3	0.73	0.27	200	16
Phosmet	2.00e-02 i					730	73	27	20000	1600
Phosphine	3.00e-04 i	8.57e-06 h				11	0.031	0.41	310	23
Phosphorus (white)	2.00e-05 i					0.73	0.073	0.027	20	1.6
p-Phthalic acid	1.00e+00 h					37000	3700	1400	1000000	78000
Phthalic anhydride	2.00e+00 i					73000	7300	2700	2000000	160000
Picloram	7.00e-02 i					2600	260	95	72000	5500
Pirimiphos-methyl	1.00e-02 i					370	37	14	10000	780
Polybrominated biphenyls	7.00e-06 h		8.90e+00 h			0.0096	0.00096	0.00035	0.32	0.19
Polychlorinated biphenyls (PCBs)			7.70e+00 i			0.011	0.0011	0.00041	0.37	0.22
Polychlorinated terphenyls (PCTs)			4.50e+00 e			0.019	0.0019	0.0007	0.64	0.38
Polynuclear aromatic hydrocarbons										
Acenaphthene	6.00e-02 i					2200	220	81	61000	4700
Anthanthrene			2.31e+00 o	1.93e+00 o		0.037	0.0044	0.0014	1.2	0.74
Anthracene	3.00e-01 i					11000	1100	410	310000	23000
Benz[a]anthracene			1.06e+00 o	8.85e-01 o		0.08	0.0096	0.003	2.7	1.6
Benzo[b]fluoranthene			8.96e-01 o	7.49e-01 o		0.095	0.011	0.0035	3.2	1.9
Benzo[j]fluoranthene			3.82e-01 o	3.19e-01 o		0.22	0.027	0.0083	7.5	4.5
Benzo[k]fluoranthene			3.88e-01 o	3.25e-01 o		0.22	0.026	0.0081	7.4	4.4
Benzo[ghi]perylene			1.55e-01 o	1.29e-01 o		0.55	0.066	0.02	18	11
Benzo[a]pyrene			7.30e+00 i	6.10e+00 h		0.012	0.0014	0.00043	0.39	0.23
Benzo[e]pyrene			5.11e-02 o	4.27e-02 o		1.7	0.2	0.062	56	33

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Contaminant	Oral RfD (mg/kg/d)		Inhaled RfD (mg/kg/d)		Oral Potency Slope 1/(mg/kg/d)		Inhaled Potency Slope 1/(mg/kg/d)		VOC	Tap water (µg/l)	Ambient air (µg/m3)	Fish (mg/kg)	Commercial/ industrial soil (mg/kg)	Residential soil (mg/kg)
Dibenz[ah]anthracene					8.10e+00	o	6.77e+00	o		0.011	0.0013	0.00039	0.35	0.21
Fluoranthene	4.00e-02	i								1500	150	54	41000	3100
Fluorene	4.00e-02	i								1500	150	54	41000	3100
Indeno[1,2,3-cd]pyrene					2.03e+00	o	1.70e+00	o		0.042	0.005	0.0016	1.4	0.84
Naphthalene	4.00e-02	h								1500	150	54	41000	3100
Phenanthrene	2.90e-02	o								1100	110	39	30000	2300
Pyrene	3.00e-02	i								1100	110	41	31000	2300
Prochloraz	9.00e-03	i			1.50e-01	i				0.57	0.057	0.021	19	11
Profluralin	6.00e-03	h								220	22	8.1	6100	470
Prometon	1.50e-02	i								550	55	20	15000	1200
Prometryn	4.00e-03	i								150	15	5.4	4100	310
Pronamide	7.50e-02	i								2700	270	100	77000	5900
Propachlor	1.30e-02	i								470	47	18	13000	1000
Propanil	5.00e-03	i								180	18	6.8	5100	390
Propargite	2.00e-02	i								730	73	27	20000	1600
Propargyl alcohol	2.00e-03	i								73	7.3	2.7	2000	160
Propazine	2.00e-02	i								730	73	27	20000	1600
Propham	2.00e-02	i								730	73	27	20000	1600
Propiconazole	1.30e-02	i								470	47	18	13000	1000
Propylene glycol	2.00e+01	h								730000	73000	27000	20000000	1600000
Propylene glycol, monoethyl ether	7.00e-01	h								26000	2600	950	720000	55000
Propylene glycol, monomethyl ether	7.00e-01	h	5.71e-01	i						26000	2100	950	720000	55000
Propylene oxide			8.57e-03	i	2.40e-01	i	1.30e-02	i		0.35	0.66	0.013	12	7.1
Pursuit	2.50e-01	i								9100	910	340	260000	20000
Pydrin	2.50e-02	i								910	91	34	26000	2000
Pyridine	1.00e-03	i								37	3.7	1.4	1000	78
Quinalphos	5.00e-04	i								18	1.8	0.68	510	39
Quinoline					1.20e+01	h				0.0071	0.00071	0.00026	0.24	0.14
RDX (Cyclonite)	3.00e-03	i			1.10e-01	i				0.77	0.077	0.029	26	15
Resmethrin	3.00e-02	i								1100	110	41	31000	2300
Ronnel	5.00e-02	h								1800	180	68	51000	3900
Rotenone	4.00e-03	i								150	15	5.4	4100	310
Savey	2.50e-02	i								910	91	34	26000	2000
Selenious Acid	5.00e-03	i								180	18	6.8	5100	390
Selenium	5.00e-03	i								180	18	6.8	5100	390
Selenourea	5.00e-03	h								180	18	6.8	5100	390
Sethoxydim	9.00e-02	i								3300	330	120	92000	7000
Silver and compounds	5.00e-03	i								180	18	6.8	5100	390
Simazine	2.00e-03	h			1.20e-01	h				0.71	0.071	0.026	24	14

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Contaminant	Oral RfD (mg/kg/d)	Inhaled RfD (mg/kg/d)	Oral Potency Slope 1/(mg/kg/d)	Inhaled Potency Slope 1/(mg/kg/d)	VOC	Tap water (µg/l)	Ambient air (µg/m3)	Fish (mg/kg)	Commercial/ industrial soil (mg/kg)	Residential soil (mg/kg)
Sodium azide	4.00e-03 i					150	15	5.4	4100	310
Sodium diethyldithiocarbamate	3.00e-02 i		2.70e-01 h			0.32	0.032	0.012	11	6.3
Sodium fluoroacetate	2.00e-05 i					0.73	0.073	0.027	20	1.6
Sodium metavanadate	1.00e-03 h					37	3.7	1.4	1000	78
Strontium, stable	6.00e-01 i					22000	2200	810	610000	47000
Strychnine	3.00e-04 i					11	1.1	0.41	310	23
Styrene	2.00e-01 i	2.86e-01 i	3.00e-02 o		y	0.47	0.28	0.11	95	57
Systhane	2.50e-02 i					910	91	34	26000	2000
2,3,7,8-TCDD (dioxin)			1.50e+05 h	1.50e+05 h		0.00000057	0.000000057	0.000000021	0.000019	0.000011
Tebuthiuron	7.00e-02 i					2600	260	95	72000	5500
Temephos	2.00e-02 h					730	73	27	20000	1600
Terbacil	1.30e-02 i					470	47	18	13000	1000
Terbufos	2.50e-05 h					0.91	0.091	0.034	26	2
Terbutryn	1.00e-03 i					37	3.7	1.4	1000	78
1,2,4,5-Tetrachlorobenzene	3.00e-04 i				y	1.8	1.1	0.41	310	23
1,1,1,2-Tetrachloroethane	3.00e-02 i		2.60e-02 i	2.59e-02 i	y	0.55	0.33	0.12	110	66
1,1,2,2-Tetrachloroethane			2.00e-01 i	2.03e-01 i	y	0.07	0.042	0.016	14	8.5
Tetrachloroethylene (PCE)	1.00e-02 i		5.20e-02 c	2.03e-03 c	y	1.4	4.2	0.061	55	33
2,3,4,6-Tetrachlorophenol	3.00e-02 i					1100	110	41	31000	2300
p,a,a,a-Tetrachlorotoluene			2.00e+01 h		y	0.00071	0.00043	0.00016	0.14	0.085
Tetrachlorovinphos	3.00e-02 i		2.40e-02 h			3.5	0.35	0.13	120	71
Tetraethyldithiopyrophosphate	5.00e-04 i					18	1.8	0.68	510	39
Tetrahydrofuran	2.00e-03 o					73	7.3	2.7	2000	160
Thallic oxide	7.00e-05 h					2.6	0.26	0.095	72	5.5
Thallium acetate	9.00e-05 i					3.3	0.33	0.12	92	7
Thallium carbonate	8.00e-05 i					2.9	0.29	0.11	82	6.3
Thallium chloride	8.00e-05 i					2.9	0.29	0.11	82	6.3
Thallium nitrate	9.00e-05 i					3.3	0.33	0.12	92	7
Thallium selenite	9.00e-05 i					3.3	0.33	0.12	92	7
Thallium sulfate	8.00e-05 i					2.9	0.29	0.11	82	6.3
Thiobencarb	1.00e-02 i					370	37	14	10000	780
2-(Thiocyanomethylthio)-benzothiazole (TCMTB)	3.00e-02 y					1100	110	41	31000	2300
Thiofanox	3.00e-04 h					11	1.1	0.41	310	23
Thiophanate-methyl	8.00e-02 i					2900	290	110	82000	6300
Thiram	5.00e-03 i					180	18	6.8	5100	390
Tin and compounds	6.00e-01 h					22000	2200	810	610000	47000
Toluene	2.00e-01 i	1.14e-01 h			y	750	420	270	200000	16000
Toluene-2,4-diamine			3.20e+00 h			0.027	0.0027	0.00099	0.89	0.53

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Contaminant	Oral RfD (mg/kg/d)	Inhaled RfD (mg/kg/d)	Oral Potency Slope 1/(mg/kg/d)	Inhaled Potency Slope 1/(mg/kg/d)	VOC	Tap water (µg/l)	Ambient air (µg/m3)	Fish (mg/kg)	Commercial/ industrial soil (mg/kg)	Residential soil (mg/kg)
Toluene-2,5-diamine	6.00e-01 h					22000	2200	810	610000	47000
Toluene-2,6-diamine	2.00e-01 h					7300	730	270	200000	16000
Toxaphene			1.10e+00 i	1.12e+00 i		0.077	0.0076	0.0029	2.6	1.5
Tralomethrin	7.50e-03 i					270	27	10	7700	590
Triallate	1.30e-02 i					470	47	18	13000	1000
Triasulfuron	1.00e-02 i					370	37	14	10000	780
1,2,4-Tribromobenzene	5.00e-03 i				y	30	18	6.8	5100	390
Tributyltin oxide (TBTO)	3.00e-05 i					1.1	0.11	0.041	31	2.3
2,4,6-Trichloroaniline			3.40e-02 h			2.5	0.25	0.093	84	50
2,4,6-Trichloroaniline hydrochloride			2.90e-02 h			2.9	0.29	0.11	99	59
1,2,4-Trichlorobenzene	1.00e-02 i	2.57e-03 a			y	18	9.4	14	10000	780
1,1,1-Trichloroethane	9.00e-02 h	2.86e-01 a			y	1300	1000	120	92000	7000
1,1,2-Trichloroethane	4.00e-03 i		5.70e-02 i	5.60e-02 i	y	0.25	0.15	0.055	50	30
Trichloroethylene (TCE)	6.00e-03 e		1.10e-02 y	6.00e-03 e	y	2.1	1.4	0.29	260	150
Trichlorofluoromethane	3.00e-01 i	2.00e-01 a			y	1300	730	410	310000	23000
2,4,5-Trichlorophenol	1.00e-01 i					3700	370	140	100000	7800
2,4,6-Trichlorophenol			1.10e-02 i	1.09e-02 i		7.7	0.78	0.29	260	150
2,4,5-Trichlorophenoxyacetic Acid	1.00e-02 i					370	37	14	10000	780
2-(2,4,5-Trichlorophenoxy) propionic acid	8.00e-03 i					290	29	11	8200	630
1,1,2-Trichloropropane	5.00e-03 i				y	30	18	6.8	5100	390
1,2,3-Trichloropropane	6.00e-03 i				y	37	22	8.1	6100	470
1,2,3-TCP as carcinogen			2.70e+00 e		y	0.0053	0.0032	0.0012	1.1	0.63
1,2,3-Trichloropropene	5.00e-03 h				y	30	18	6.8	5100	390
1,1,2-Trichloro-1,2,2-trifluoroethane	3.00e+01 i	8.57e+00 h			y	59000	31000	41000	31000000	2300000
Tridiphane	3.00e-03 i					110	11	4.1	3100	230
Triethylamine		2.00e-03 i				73	7.3			
Trifluralin	7.50e-03 i		7.70e-03 i			11	1.1	0.41	370	220
Trimethyl phosphate			3.70e-02 h			2.3	0.23	0.085	77	46
1,3,5-Trinitrobenzene	5.00e-05 i					1.8	0.18	0.068	51	3.9
Trinitrophenylmethylnitramine	1.00e-02 h					370	37	14	10000	780
2,4,6-Trinitrotoluene	5.00e-04 i		3.00e-02 i			2.8	0.28	0.11	95	39
Uranium (soluble salts)	3.00e-03 i					110	11	4.1	3100	230
Vanadium	7.00e-03 h					260	26	9.5	7200	550
Vanadium pentoxide	9.00e-03 i					330	33	12	9200	700
Vanadyl sulfate	2.00e-02 h					730	73	27	20000	1600
Vanadium sulfate	2.00e-02 h					730	73	27	20000	1600
Vernam	1.00e-03 i					37	3.7	1.4	1000	78
Vinclozolin	2.50e-02 i					910	91	34	26000	2000

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Contaminant	Oral RfD (mg/kg/d)	Inhaled RfD (mg/kg/d)	Oral Potency Slope 1/(mg/kg/d)	Inhaled Potency Slope 1/(mg/kg/d)	VOC	Tap water (µg/l)	Ambient air (µg/m3)	Fish (mg/kg)	Commercial/ industrial soil (mg/kg)	Residential soil (mg/kg)
Vinyl acetate	1.00e+00 h	5.71e-02 i				37000	210	1400	1000000	78000
Vinyl chloride			1.90e+00 h	3.00e-01 h	y	0.025	0.028	0.0017	1.5	0.9
Warfarin	3.00e-04 i					11	1.1	0.41	310	23
m-Xylene	2.00e+00 i	2.00e-01 y			y	1400	730	2700	2000000	160000
o-Xylene	2.00e+00 i	2.00e-01 y			y	1400	730	2700	2000000	160000
p-Xylene		8.57e-02 y			y	520	310			
Xylene (mixed)	2.00e+00 i				y	12000	7300	2700	2000000	160000
Zinc	3.00e-01 i					11000	1100	410	310000	23000
Zinc phosphide	3.00e-04 i					11	1.1	0.41	310	23
Zineb	5.00e-02 i					1800	180	68	51000	3900

Key to Data Sources: i=IRIS x=Withdrawn from IRIS h=HEAST a=HEAST alternate method y=Withdrawn from HEAST e=EPA-ECAO o=Other EPA documents

association with the low flow characteristics, width, length and time of travel associated with the mixing zone or decay rates of various effluent parameters. The wasteload allocation will be calculated considering the applicable data and consistent with the provisions and restrictions in the rules.

61.3(455B) Surface water quality criteria.

61.3(1) Surface water classification. All waters of the state are classified for protection of beneficial uses. These classified waters include general use segments and designated use segments.

a. General use segments. These are intermittent watercourses and those watercourses which typically flow only for short periods of time following precipitation in the immediate locality or as a result of discharges from wastewater treatment facilities, and whose channels are normally above the water table. These waters do not support a viable aquatic community of significance during low flow, and do not maintain pooled conditions during periods of no flow.

However, during periods when sufficient flow exists in the intermittent watercourses to support various uses, the general use segments are to be protected for livestock and wildlife watering, noncontact recreation, crop irrigation, and industrial, agricultural, domestic and other incidental water withdrawal uses. The aquatic life existing within these watercourses during elevated flows will be protected from acutely toxic conditions.

b. Designated use segments. These are water bodies which maintain flow throughout the year, or contain sufficient pooled areas during intermittent flow periods to maintain a viable aquatic community of significance.

Designated use waters are to be protected for all uses of general use segments in addition to the specific uses assigned. Designated use segments include:

(1) Primary contact recreation (Class "A"). Waters in which recreational or other uses may result in prolonged and direct contact with the water, involving considerable risk of ingesting water in quantities sufficient to pose a health hazard. Such activities would include, but not be limited to, swimming, diving, water skiing, and water contact recreational canoeing.

(2) Cold water aquatic life (Class "B(CW)"). Waters in which the temperature, flow, and other habitat characteristics are suitable for the maintenance of a wide variety of cold water species, including nonreproducing populations of trout and associated aquatic communities.

(3) High quality water (Class "HQ"). Waters with exceptionally better quality than the levels specified in Tables 1, 2 and 3 and with exceptional recreational and ecological importance. Special protection is warranted to maintain the unusual, unique or outstanding physical, chemical, or biological characteristics which these waters possess.

(4) High quality resource water (Class "HQR"). Waters of substantial recreational or ecological significance which possess unusual, outstanding or unique physical, chemical, or biological characteristics which enhance the beneficial uses and warrant special protection.

(5) Significant resource warm water (Class "B(WW)"). Waters in which temperature, flow and other habitat characteristics are suitable for the maintenance of a wide variety of reproducing populations of warm water fish and associated aquatic communities, including sensitive species.

(6) Limited resource warm water (Class "B(LR)"). Waters in which flow or other physical characteristics limit the ability of the water body to maintain a balanced warm water community. Such waters support only populations composed of species able to survive and reproduce in a wide range of physical and chemical conditions, and are not generally harvested for human consumption.

(7) Lakes and wetlands (Class "B(LW)"). These are artificial and natural impoundments with hydraulic retention times and other physical and chemical characteristics suitable to maintain a balanced community normally associated with lake-like conditions.

(8) Drinking water supply (Class "C"). Waters which are used as a raw water source of potable water supply.

61.3(2) General water quality criteria. The following criteria are applicable to all surface waters including general use and designated use waters, at all places and at all times to protect livestock and wildlife watering, aquatic life, noncontact recreation, crop irrigation, and industrial, domestic, agricultural and other incidental water withdrawal uses not protected by the specific numerical criteria of subrule 61.3(3).

a. Such waters shall be free from substances attributable to point source wastewater discharges that will settle to form sludge deposits.

b. Such waters shall be free from floating debris, oil, grease, scum and other floating materials attributable to wastewater discharges or agricultural practices in amounts sufficient to create a nuisance.

c. Such waters shall be free from materials attributable to wastewater discharges or agricultural practices producing objectionable color, odor or other aesthetically objectionable conditions.

d. Such waters shall be free from substances attributable to wastewater discharges or agricultural practices in concentrations or combinations which are acutely toxic to human, animal, or plant life.

e. Such waters shall be free from substances, attributable to wastewater discharges or agricultural practices, in quantities which would produce undesirable or nuisance aquatic life.

f. The turbidity of the receiving water shall not be increased by more than 25 Nephelometric turbidity units by any point source discharge.

g. Total dissolved solids shall not exceed 750 mg/l in any lake or impoundment or in any stream with a flow rate equal to or greater than three times the flow rate of upstream point source discharges.

h. Water which enters a sinkhole or losing stream segment shall not exceed a fecal coliform content of 200 organisms/100 ml, except when the waters are materially affected by surface runoff; but in no case shall fecal coliform levels downstream from an existing discharge which may contain pathogens to humans be more than 200 organisms/100 ml higher than the background level upstream from the discharge. No new wastewater discharges will be allowed on watercourses which directly or indirectly enter sinkholes or losing stream segments.

61.3(3) Specific water quality criteria.

a. Class "A" waters. Waters which are designated as Class "A" in subrule

61.3(5) are to be protected for primary contact recreation. The general criteria of subrule 61.3(2) and the following specific criteria apply to all Class "A" waters.

(1) From April 1 through October 31, the fecal coliform content shall not exceed 200 organisms/100 ml, except when the waters are materially affected by surface runoff; but in no case shall fecal coliform levels downstream from a discharge which may contain pathogens to humans be more than 200 organisms/100 ml higher than the background level upstream from the discharge.

(2) The pH shall not be less than 6.5 nor greater than 9.0. The maximum change permitted as a result of a waste discharge shall not exceed 0.5 pH units.

b. Class "B" waters. All waters which are designated as Class B(CW), B(WW), B(LR), or B(LW) are to be protected for wildlife, fish, aquatic and semiaquatic life, and secondary contact water uses. The following criteria shall apply to all Class "B" waters designated in subrule 61.3(5).

(1) Dissolved oxygen. Dissolved oxygen shall not be less than the values shown in Table 2 of this subrule.

(2) pH. The pH shall not be less than 6.5 nor greater than 9.0. The maximum change permitted as a result of a waste discharge shall not exceed 0.5 pH units.

(3) General chemical constituents. The specific numerical criteria shown in Tables 1, 2, and 3 of this subrule apply to all waters designated in subrule 61.3(5). The sole determinant of compliance with these criteria will be established by the department on a case-by-case basis. Effluent monitoring or instream monitoring, or both, will be the required approach to determine compliance.

1. The acute criteria represent the level of protection necessary to prevent acute toxicity to aquatic life. Instream concentrations above the acute criteria will be allowed only within the boundaries of the zone of initial dilution.

2. The chronic criteria represent the level of protection necessary to prevent chronic toxicity to aquatic life. Excursions above the chronic criteria will be allowed only inside of mixing zones or only for short-term periods outside of mixing zones; however, these excursions cannot exceed the acute criteria shown in Tables 1 and 3. The chronic criteria will be met as short-term average conditions at all times the flow equals or exceeds either the seven-day, ten-year flow or any site-specific low flow established under the provisions of subrule 61.2(5).

3. The human health criteria represent the level of protection necessary, in the case of non-carcinogens, to prevent adverse health effects in humans, and in the case of carcinogens, to prevent a level of incremental cancer risk not exceeding 1 in 100,000. Instream concentrations in excess of the human health criteria will be allowed only within the boundaries of the mixing zone.

(4) The waters shall contain no substances in concentrations which will make fish or shellfish inedible due to undesirable tastes or cause a hazard to humans after consumption.

(5) Temperature.

1. No heat shall be added to interior streams or the Big Sioux River that would cause an increase of more than 3°C. The rate of temperature change shall not exceed 1°C per hour. In no case shall heat be added in excess of that amount that would raise the stream temperature above 32°C.

2. No heat shall be added to streams designated as cold water fisheries that would cause an increase of more than 2°C. The rate of temperature change shall not exceed 1°C. per hour. In no case shall heat be added in excess of that amount that would raise the stream temperature above 20°C.

3. No heat shall be added to lakes and reservoirs that would cause an increase of more than 2°C. The rate of temperature change shall not exceed 1°C. per hour. In no case shall heat be added in excess of that amount that would raise the temperature of the lake or reservoir above 32°C.

4. No heat shall be added to the Missouri River that would cause an increase of more than 3°C. The rate of temperature change shall not exceed 1°C. per hour. In no case shall heat be added that would raise the stream temperature above 32°C.

5. No heat shall be added to the Mississippi River that would cause an increase of more than 3°C. The rate of temperature change shall not exceed 1°C. per hour. In addition, the water temperature at representative locations in the Mississippi River shall not exceed the maximum limits in the table below during more than 1 percent of the hours in the 12-month period ending with any month. Moreover, at no time shall the water temperature at such locations exceed the maximum limits in the table below by more than 2°C.

Zone II — Iowa-Minnesota state line to the northern Illinois border (Mile Point 1534.6)

Zone III—northern Illinois border (Mile Point 1534.6) to Iowa-Missouri state line.

Month	Zone II	Zone III
January	4° C	7° C
February	4° C	7° C
March	12° C	14° C
April	18° C	20° C
May	24° C	26° C
June	29° C	29° C
July	29° C	30° C
August	29° C	30° C
September	28° C	29° C
October	23° C	24° C
November	14° C	18° C
December	9° C	11° C

c. Class "C" waters. Waters which are designated as Class "C" waters are to be protected as a raw water source of potable water supply. The following criteria shall apply to all Class "C" waters designated in subrule 61.3(5):

(1) Radioactive substances.

1. The combined radium-226 and radium-228 shall not exceed 5 picocuries per liter at the point of withdrawal.

2. Gross alpha particle activity (including radium-226 but excluding radon and uranium) shall not exceed 15 picocuries per liter at the point of withdrawal.

3. The average annual concentration at the point of withdrawal of beta particle and photon radioactivity from man-made radionuclides other than tritium and strontium-90 shall not produce an annual dose equivalent to the total body or any internal organ greater than 4 millirem/year.

4. The average annual concentration of tritium shall not exceed 20,000 picocuries per liter at the point of withdrawal; the average annual concentration of strontium-90 shall not exceed 8 picocuries per liter at the point of withdrawal.

(2) All substances toxic or detrimental to humans or detrimental to treatment process shall be limited to nontoxic or nondetrimental concentrations in the surface water.
(3) The pH shall not be less than 6.5 nor greater than 9.0.

TABLE 1: Criteria for Chemical Constituents

(all values as micrograms per liter unless noted otherwise)

Human health criteria for carcinogenic parameters noted below were based on the prevention of an incremental cancer risk of 1 in 100,000. For parameters not having a noted human health criteria, the U.S. Environmental Protection Agency has not developed final national guideline values. For noncarcinogenic parameters, the recommended EPA criterion was selected. For Class C water, the EPA criteria for fish and water consumption were selected using the same considerations for carcinogenic and noncarcinogenic parameters as noted above.

Parameter		Use Designations				
		B(CW)	B(WW)	B(LR)	B(LW)	C
Arsenic (III)	Chronic	200	200	1000	200	—
	Acute	360	360	1800	360	50
	Human Health	50	50	—	50	—
Barium	Acute	—	—	—	—	1000
Benzene	Acute	—	—	—	—	5
	Human Health	712.8	712.8	—	712.8	—
Cadmium	Chronic	1	15	25	1	—
	Acute	4	75	100	4	10
	Human Health +	168	168	—	168	—
Carbon Tetrachloride	Acute	—	—	—	—	5
	Human Health	44.2	44.2	—	44.2	—
Chloride	Acute	—	—	—	—	250*
Chlordane	Chronic	.004	.004	.15	.004	—
	Acute	2.5	2.5	2.5	2.5	—
	Human Health	.006	.006	—	.006	.006
Chlorobenzene	Human Health +	20	20	—	20	20
Chromium (VI)	Chronic	40	40	200	10	—
	Acute	60	60	300	15	50
	Human Health +	3365	3365	—	3365	—
Copper	Chronic	20	35	55	10	—
	Acute	30	60	90	20	1000
	Human Health +	1000	1000	—	1000	—
Cyanide	Chronic	5	10	10	10	—
	Acute	20	45	45	45	20
4,4-DDT + +	Human Health	.0059	.0059	—	.0059	.0059
para-Dichlorobenzene	Acute	—	—	—	—	75
	Human Health +	2.6*	2.6*	—	2.6*	—
3,3-Dichloro/benzidine	Human Health	.2	.2	—	.2	.1
1,2-Dichloroethane	Acute	—	—	—	—	5
	Human Health	986	986	—	986	—
1,1-Dichloroethylene	Acute	—	—	—	—	7
	Human Health	32	32	—	32	—
Dieldrin	Human Health	.0014	.0014	—	.0014	.0014
2,3,7,8-TCDD (Dioxin)	Human Health	.000014†	.000014†	—	.000014†	.000013†

Parameter		Use Designations B(CW)	B(WW)	B(LR)	B(LW)	C
Fluoride	Acute	—	—	—	—	2000
Heptachlor	Human Health	.002	.002	—	.002	.002
Lead	Chronic	3	30	80	3	—
	Acute	80	200	750	80	50
Mercury (II)	Chronic	.05	.05	.25	.05	—
	Acute	6.5	6.5	10	2.5	2
	Human Health +	.15	.15	—	.15	—
Nitrate as NO3	Acute	—	—	—	—	45*
Nickel	Chronic	350	650	750	150	—
	Acute	3250	5800	7000	1400	—
	Human Health +	4584	4584	—	4584	607
Polychlorinated	Chronic	.014	.014	1	.014	—
Biphenyls (PCBs)	Acute	2	2	2	2	—
	Human Health	.0004	.0004	—	.0004	.0004
Polynuclear	Chronic	.03	.03	3	.03	—
Aromatic Hydro-	Acute	30	30	30	30	—
Carbons (PAHs)**	Human Health	.3	.3	—	.3	.028
Phenols	Chronic	50	50	50	50	—
	Acute	1000	2500	2500	1000	50
	Human Health +	300	300	—	300	—
Selenium (VI)	Chronic	10	125	125	70	—
	Acute	15	175	175	100	10
Silver	Chronic	2.5	8.5	8.5	.35	—
	Acute	30	100	100	4	50
Toluene	Chronic	50	50	150	50	—
	Acute	2500	2500	7500	2500	--
	Human Health +	300*	300*	—	300*	101*
Total Residual	Chronic	10	20	25	10	—
Chlorine (TRC)	Acute	35	35	40	20	—
1,1,1-Trichloro-						
ethane	Acute	—	—	—	—	200
	Human Health +	173*	173*	—	173*	—
Trichloroethylene	Chronic	80	80	80	80	—
(TCE)	Acute	4000	4000	4000	4000	5
	Human Health	807	807	—	807	—
Vinyl Chloride	Acute	—	—	—	—	2
	Human Health	5250	5250	—	5250	—
Zinc	Chronic	200	450	2000	100	—
	Acute	220	500	2200	110	1000
	Human Health +	5000	5000	—	5000	—

* expressed as milligrams/liter
** to include the sum of known and suspected carcinogenic PAHs
† expressed as nanograms/liter
\+ Represents the noncarcinogenic human health parameters
+ + The concentrations of 4,4-DDT or its metabolites; 4,4-DDE and 4,4-DDD, individually shall not exceed the human health criterion.

ATTACHMENT 4

PRELIMINARY SITE CHARACTERIZATION REPORTS
R18, R21, R26, R28, AND R30

PRELIMINARY SITE CHARACTERIZATION
Sewage Treatment Plant/Sludge Drying Beds (R18)

SITE DESCRIPTION

- Been in operation since early 1940s.
- The Sewage Treatment Plant (STP) handles domestic wastes, car wash water, laundry facility water, boiler blowdown from the steam generating plants at Line 1 and heating plant at Line 2, and wastewater from the X-ray processing plant at IAAP.
- Treated wastewater is discharged into Brush Creek at the NPDES outfall #013, and sludge is disposed in the Fly Ash Waste Pile (IAAP-15).

CONTAMINANT SUMMARY

- Sludge: Mercury and silver were reported in the sludge samples collected from within the sludge drying beds during the SI. No explosives were detected. Silver was reported in four samples obtained in and adjacent to the sludge beds during the RI. Chromium and mercury were reported in one of the samples obtained from within the sludge beds.
- Process stream sample obtained from the chlorine contact building prior to discharge during the SI contained the explosives RDX (6.7 µg/l), HMX (4.2 µg/l), 2, 4, 6-TNT (12 µg/l), and tetryl (0.66 µg/l). No significant levels of metals were reported. During the RI, a process stream sample obtained from the chlorine contact building prior to discharge contained the explosives HMX (1.76 µg/l) and RDX (5.49 µg/l), and the metals lead (7 µg/l), selenium (8.8 µg/l), and silver (13.8 µg/l). A process stream sample was obtained from the outfall of the settling basin at the laundry as directed by EPA in an effort to determine whether explosives were being contributed to the STP wastestream by laundry activities. This sample contained the explosives RDX (2680 µg/l), HMX (558 µg/l), 2,4-DNT (2.94 µg/l), and 2,4,6-TNT (8.32 µg/l). The sample contained the metals cadmium (19.1 µg/l), chromium (21.7 µg/l), lead (142 µg/l), and silver (7.94 µg/l). A process stream sample was obtained from the discharge of the silver recovery system at Building 100-1 at Line 1 as directed by EPA in an effort to determine whether this process was contributing metals to the STP wastestream. This process stream sample contained metals including aluminum (724,000 µg/l); chromium (1600 µg/l); cobalt (243 µg/l); mercury (6.3 µg/l); nickel (1890 µg/l); and silver (837 µg/l).
- Basewide samples RBW-SD/SW-02 (100 feet upstream), RBW-SD/SW-03 (outfall), and RBW-SD/SW-04 (500 feet downstream) were collected in Brush Creek, which receives discharge from the STP. The sediment sample obtained from upstream of the outfall contained the explosives 2,4,6-TNT (3.37 µg/g) and RDX (1.6 µg/g). The surface water sample contained HMX (8.97 µg/l) and RDX (20.9 µg/l). The sediment sample obtained at the outfall contained low levels of RDX (1.03 µg/g). No detectable contaminants were reported in the surface water sample at this location. The surface water sample obtained at the downstream location was reported to contain the explosives RDX (13.8 µg/l) and HMX (5.58 µg/l), and the metal lead (10.4 µg/l).

SITE EVALUATION AND RECOMMENDATIONS

- Silver was reported in samples obtained in the sludge beds. The levels of silver were relatively low (0.843-6.54 µg/g), except in a surface sample obtained within the sludge bed which contained 88.2 µg/g. This sample also contained chromium (72.1 µg/g) and mercury (0.493 µg/g). Low levels of mercury and silver were also reported in samples obtained during the SI. These low level metals appear to be contained in the sludge drying beds. Metals are expected to be concentrated in dried STP sludges. Once or twice annually, dried sludge is removed from the beds and disposed at the Fly Ash Waste Pile. This activity is regulated under the installation 5-year Sludge Management Iowa DNR.

- The explosives RDX and HMX were reported in the process stream sample taken in the chlorine contact building prior to wastewater being discharged into Brush Creek. The sample obtained in the chlorine contact building during the SI also contained explosives at about the same levels. A basewide surface water sample taken at the outfall in Brush Creek did not contain detectable contamination. Basewide surface water samples obtained at upstream and downstream locations contained the explosives HMX and RDX. The explosives contamination in Brush Creek can be attributed to many sources other than the STP including discharge points at Lines 1 and 2 and the Former Line 1 Impoundment.

- Process samples obtained at the laundry facility and the Building 100-1 silver recovery system at Line 1 appear to suggest that explosives and metals (primarily silver and mercury) are being introduced into the STP waste stream at these two facilities. Other sources of explosives contamination could be groundwater infiltration of sewer lines and/or residual contaminants in the lines. According to monthly NPDES reports and regulatory correspondence, a problem of groundwater infiltration into the old sewer mains does exist at the facility.

- Phase I RI sampling was conducted in response to EPA comments to SI results. Phase I RI data indicate that no releases are originating from the STP. Discharge to receiving streams is monitored and permitted under NPDES permit #29-00-9-00.

Attachments: R18 Site Map
R18 Sample Summary
R18 All Phase I RI Data
R18 Results Above Maximum Background

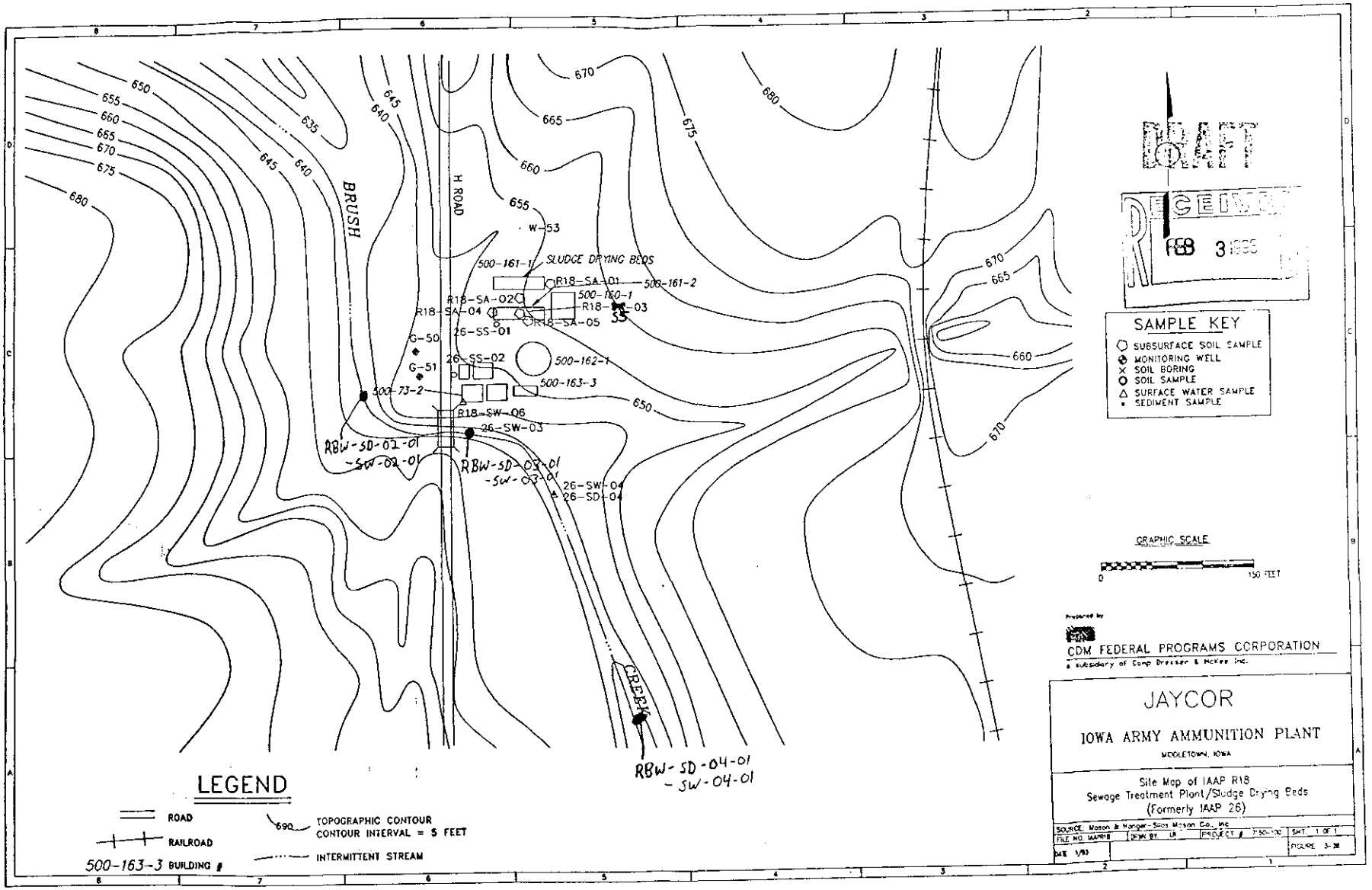
650
655
660
665
670
675
680
635
645
640
BRUSH
H ROAD
W-53
500-161-1
SLUDGE DRYING BEDS
R18-SA-01
500-161-2
R18-SA-02
500-160-1
R18-SA-04
R18-SA-03
R18-SA-05
55
26-SS-01
G-50
26-SS-02
G-51
500-162-1
500-163-3
500-73-2
R18-SW-06
26-SW-03
RBW-SD-02-01
-SW-02-01
RBW-SD-03-01
-SW-03-01
26-SW-04
26-SD-04
CREEK
RBW-SD-04-01
-SW-04-01
DRAFT
RECEIVED
FEB 3 1988
SAMPLE KEY
SUBSURFACE SOIL SAMPLE
MONITORING WELL
SOIL BORING
SOIL SAMPLE
SURFACE WATER SAMPLE
SEDIMENT SAMPLE
GRAPHIC SCALE
0
150 FEET
LEGEND
ROAD
RAILROAD
500-163-3 BUILDING #
690 TOPOGRAPHIC CONTOUR
CONTOUR INTERVAL = 5 FEET
INTERMITTENT STREAM
Prepared by
CDM FEDERAL PROGRAMS CORPORATION
a subsidiary of Camp Dresser & McKee Inc.
JAYCOR
IOWA ARMY AMMUNITION PLANT
MIDDLETOWN, IOWA
Site Map of IAAP R18
Sewage Treatment Plant/Sludge Drying Beds
(Formerly IAAP 26)
SOURCE: Mason & Hanger-Silas Mason Co., Inc.
FILE NO. IAAP18
DRAWN BY LR
PROJECT # 7-50-10
SHT. 1 OF 1
FIGURE 3-28
DATE 1/83

Table R18
Sample Summary
IAAP-R18 (Sewage Treatment Plant/Sludge Drying Beds)

RI Sample Number	Analyses	Sample Type	Sample Category	Depth	Location
R18-SA-01-01	Metals Explosives	G	A	4.5′	Three feet east (outside) of the east wall of the north sludge bed (500-161-1).
R18-SA-02-01	Metals Explosives	G	A	5.0′	Grid point between the two sludge beds in a gravel area.
R18-SS-03-01	Metals Explosives	G	A	0-6"	From the middle of the south sludge bed (500-161-2).
R18-SA-03-02	Metals Explosives	G	A	4.5′	Same location as R18-SS-03-01.
R18-SA-04-01	Metals Explosives	G	A	4.2′	Three feet west (outside) of the south sludge bed (500-161-2); 20 feet south of NW corner, 17 feet north of SW corner.
R18-SA-05-01	Metals Explosives	G	A	4.75′	Three feet south (outside) of the south sludge bed (500-161-2); 37 feet west of the southeast corner of south sludge bed.
R18-SW-06-01	Metals Explosives	G	A	NA	Obtained from the Chlorine Contact Building (500-73-2) prior to discharge.
R18-SW-07-01	Metals Explosives	G	A	NA	Obtained from settling basin on the east side of the laundry (IAAP-19). Sampled as potential source of explosives.
R18-SW-08-01	Metals	G	A	NA	Obtained from discharge of silver recovery system at Building 100-1 at Line 1.
R18-SW-09-01	Metals	G	A	NA	Was not collected; no discharge was occurring at time of field activities.

C = Composite S = Screening Sample G = Grab A = Analytical Sample

Non Screening Sit. ,AAPR18 All Data

IAAP-BW All Results

SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	RESULT VALUE	BOOL METHOD	CRL	UNITS	DATE
AAPBW	R18-SA-01	R18SA0101	4.5	SO	EXPLOSIV	1,3,5-TRINITROBENZENE	0.488	<LW12	0.488	UGG	07/21/1992
						1,3-DINITROBENZENE	0.496	<LW12	0.496	UGG	07/21/1992
						2,4,6-TNT	0.456	<LW12	0.456	UGG	07/21/1992
						2,4-DINITROTOLUENE	0.424	<LW12	0.424	UGG	07/21/1992
						2,6-DINITROTOLUENE	0.524	<LW12	0.524	UGG	07/21/1992
						HMX	0.666	<LW12	0.666	UGG	07/21/1992
						NITROBENZENE	2.41	<LW12	2.41	UGG	07/21/1992
						RDX	0.587	<LW12	0.587	UGG	07/21/1992
						TETRYL	0.731	<LW12	0.731	UGG	07/21/1992
		R18SA0101	4.5	SO	METALS	ALUMINUM	11,900.0	=JS16	2.35	UGG	07/21/1992
						ANTIMONY	7.14	<JS16	7.14	UGG	07/21/1992
						ARSENIC	4.27	=JD19	0.25	UGG	07/21/1992
						BARIUM	139.0	=JS16	5.18	UGG	07/21/1992
						BERYLLIUM	0.5	<JS16	0.5	UGG	07/21/1992
						CADMIUM	0.7	<JS16	0.7	UGG	07/21/1992
						CALCIUM	2,730.0	=JS16	100.0	UGG	07/21/1992
						CHROMIUM	17.1	=JS16	4.05	UGG	07/21/1992
						COBALT	5.85	=JS16	1.42	UGG	07/21/1992
						COPPER	9.71	=JS16	0.965	UGG	07/21/1992
						IRON	15,900.0	=JS16	3.68	UGG	07/21/1992
						LEAD	11.9	=JD17	0.177	UGG	07/21/1992
						MAGNESIUM	2,500.0	=JS16	100.0	UGG	07/21/1992
						MANGANESE	287.0	=JS16	2.05	UGG	07/21/1992
						MERCURY	0.05	<JB01	0.05	UGG	07/21/1992
						NICKEL	15.1	=JS16	1.71	UGG	07/21/1992
						POTASSIUM	511.0	=JS16	100.0	UGG	07/21/1992
						SELENIUM	0.25	<JD15	0.25	UGG	07/21/1992
						SILVER	0.589	<JS16	0.589	UGG	07/21/1992
						SODIUM	177.0	=JS16	100.0	UGG	07/21/1992
						THALLIUM	6.62	<JS16	6.62	UGG	07/21/1992
						VANADIUM	27.0	=JS16	3.39	UGG	07/21/1992
						ZINC	34.6	=JS16	8.03	UGG	07/21/1992
	R18-SA-02	R18SA0201	5.0	SO	EXPLOSIV	1,3,5-TRINITROBENZENE	0.488	<LW12	0.488	UGG	07/21/1992
						1,3-DINITROBENZENE	0.496	<LW12	0.496	UGG	07/21/1992
						2,4,6-TNT	0.456	<LW12	0.456	UGG	07/21/1992
						2,4-DINITROTOLUENE	0.424	<LW12	0.424	UGG	07/21/1992
						2,6-DINITROTOLUENE	0.524	<LW12	0.524	UGG	07/21/1992
						HMX	0.666	<LW12	0.666	UGG	07/21/1992
						NITROBENZENE	2.41	<LW12	2.41	UGG	07/21/1992
						RDX	0.587	<LW12	0.587	UGG	07/21/1992
						TETRYL	0.731	<LW12	0.731	UGG	07/21/1992
		R18SA0201	5.0	SO	METALS	ALUMINUM	16,400.0	=JS16	2.35	UGG	07/21/1992
						ANTIMONY	7.14	<JS16	7.14	UGG	07/21/1992
						ARSENIC	5.59	=JD19	0.25	UGG	07/21/1992
						BARIUM	213.0	=JS16	5.18	UGG	07/21/1992
						BERYLLIUM	1.3	=JS16	0.5	UGG	07/21/1992
						CADMIUM	0.7	<JS16	0.7	UGG	07/21/1992
						CALCIUM	4,160.0	=JS16	100.0	UGG	07/21/1992
						CHROMIUM	24.2	=JS16	4.05	UGG	07/21/1992
						COBALT	6.82	=JS16	1.42	UGG	07/21/1992
						COPPER	13.2	=JS16	0.965	UGG	07/21/1992
						IRON	22,700.0	=JS16	3.68	UGG	07/21/1992
						LEAD	13.1	=JD17	0.177	UGG	07/21/1992

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SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	RESULT VALUE	BOOL METHOD	CRL	UNITS	DATE
						MAGNESIUM	3,750.0	=JS16	100.0	UGG	07/21/1992
						MANGANESE	517.0	=JS16	2.05	UGG	07/21/1992
						MERCURY	0.05	<JB01	0.05	UGG	07/21/1992
						NICKEL	19.3	=JS16	1.71	UGG	07/21/1992
						POTASSIUM	1,050.0	=JS16	100.0	UGG	07/21/1992
						SELENIUM	0.25	<JD15	0.25	UGG	07/21/1992
						SILVER	0.843	=JS16	0.589	UGG	07/21/1992
						SODIUM	247.0	=JS16	100.0	UGG	07/21/1992
						THALLIUM	6.62	<JS16	6.62	UGG	07/21/1992
						VANADIUM	39.4	=JS16	3.39	UGG	07/21/1992
						ZINC	65.4	=JS16	8.03	UGG	07/21/1992
	R18-SA-03	R18SA0301	0.5	SO	EXPLOSIV	1,3,5-TRINITROBENZENE	0.488	<LW12	0.488	UGG	07/21/1992
						1,3-DINITROBENZENE	0.496	<LW12	0.496	UGG	07/21/1992
						2,4,6-TNT	0.456	<LW12	0.456	UGG	07/21/1992
						2,4-DINITROTOLUENE	0.424	<LW12	0.424	UGG	07/21/1992
						2,6-DINITROTOLUENE	0.524	<LW12	0.524	UGG	07/21/1992
						HMX	0.666	<LW12	0.666	UGG	07/21/1992
						NITROBENZENE	2.41	<LW12	2.41	UGG	07/21/1992
						RDX	0.587	<LW12	0.587	UGG	07/21/1992
						TETRYL	0.731	<LW12	0.731	UGG	07/21/1992
		R18SA0301	0.5	SO	METALS	ALUMINUM	2,740.0	=JS16	2.35	UGG	07/21/1992
						ANTIMONY	7.14	<JS16	7.14	UGG	07/21/1992
						ARSENIC	1.4	=JD19	0.25	UGG	07/21/1992
						BARIUM	47.5	=JS16	5.18	UGG	07/21/1992
						BERYLLIUM	0.5	<JS16	0.5	UGG	07/21/1992
						CADMIUM	0.7	<JS16	0.7	UGG	07/21/1992
						CALCIUM	1,580.0	=JS16	100.0	UGG	07/21/1992
						CHROMIUM	72.1	=JS16	4.05	UGG	07/21/1992
						COBALT	4.34	=JS16	1.42	UGG	07/21/1992
						COPPER	12.4	=JS16	0.965	UGG	07/21/1992
						IRON	7,370.0	=JS16	3.68	UGG	07/21/1992
						LEAD	11.4	=JD17	0.177	UGG	07/21/1992
						MAGNESIUM	1,590.0	=JS16	100.0	UGG	07/21/1992
						MANGANESE	136.0	=JS16	2.05	UGG	07/21/1992
						MERCURY	0.493	=JB01	0.05	UGG	07/21/1992
						NICKEL	10.2	=JS16	1.71	UGG	07/21/1992
						POTASSIUM	263.0	=JS16	100.0	UGG	07/21/1992
						SELENIUM	0.25	<JD15	0.25	UGG	07/21/1992
						SILVER	88.2	=JS16	0.589	UGG	07/21/1992
						SODIUM	164.0	=JS16	100.0	UGG	07/21/1992
						THALLIUM	6.62	<JS16	6.62	UGG	07/21/1992
						VANADIUM	14.9	=JS16	3.39	UGG	07/21/1992
						ZINC	62.1	=JS16	8.03	UGG	07/21/1992
		R18SA0302	4.6	SO	EXPLOSIV	1,3,5-TRINITROBENZENE	0.488	<LW12	0.488	UGG	07/21/1992
						1,3-DINITROBENZENE	0.496	<LW12	0.496	UGG	07/21/1992
						2,4,6-TNT	0.456	<LW12	0.456	UGG	07/21/1992
						2,4-DINITROTOLUENE	0.424	<LW12	0.424	UGG	07/21/1992
						2,6-DINITROTOLUENE	0.524	<LW12	0.524	UGG	07/21/1992
						HMX	0.666	<LW12	0.666	UGG	07/21/1992
						NITROBENZENE	2.41	<LW12	2.41	UGG	07/21/1992
						RDX	0.587	<LW12	0.587	UGG	07/21/1992
						TETRYL	0.731	<LW12	0.731	UGG	07/21/1992
		R18SA0302	4.6	SO	METALS	ALUMINUM	15,800.0	=JS16	2.35	UGG	07/21/1992

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SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	RESULT VALUE	BOOL METHOD	CRL	UNITS	DATE
						ANTIMONY	7.14	<JS16	7.14	UGG	07/21/1992
						ARSENIC	6.68	=JD19	0.25	UGG	07/21/1992
						BARIUM	165.0	=JS16	5.18	UGG	07/21/1992
						BERYLLIUM	0.827	=JS16	0.5	UGG	07/21/1992
						CADMIUM	0.7	<JS16	0.7	UGG	07/21/1992
						CALCIUM	2,870.0	=JS16	100.0	UGG	07/21/1992
						CHROMIUM	25.1	=JS16	4.05	UGG	07/21/1992
						COBALT	6.86	=JS16	1.42	UGG	07/21/1992
						COPPER	13.7	=JS16	0.965	UGG	07/21/1992
						IRON	20,900.0	=JS16	3.68	UGG	07/21/1992
						LEAD	11.3	=JD17	0.177	UGG	07/21/1992
						MAGNESIUM	3,380.0	=JS16	100.0	UGG	07/21/1992
						MANGANESE	390.0	=JS16	2.05	UGG	07/21/1992
						MERCURY	0.062	=JB01	0.05	UGG	07/21/1992
						NICKEL	17.2	=JS16	1.71	UGG	07/21/1992
						POTASSIUM	717.0	=JS16	100.0	UGG	07/21/1992
						SELENIUM	0.25	<JD15	0.25	UGG	07/21/1992
						SILVER	3.72	=JS16	0.589	UGG	07/21/1992
						SODIUM	202.0	=JS16	100.0	UGG	07/21/1992
						THALLIUM	6.62	<JS16	6.62	UGG	07/21/1992
						VANADIUM	32.5	=JS16	3.39	UGG	07/21/1992
						ZINC	46.4	=JS16	8.03	UGG	07/21/1992
	R18-SA-04	R18SA0401	4.2	SO	EXPLOSIV	1,3,5-TRINITROBENZENE	0.488	<LW12	0.488	UGG	07/21/1992
						1,3-DINITROBENZENE	0.496	<LW12	0.496	UGG	07/21/1992
						2,4,6-TNT	0.456	<LW12	0.456	UGG	07/21/1992
						2,4-DINITROTOLUENE	0.424	<LW12	0.424	UGG	07/21/1992
						2,6-DINITROTOLUENE	0.524	<LW12	0.524	UGG	07/21/1992
						HMX	0.666	<LW12	0.666	UGG	07/21/1992
						NITROBENZENE	2.41	<LW12	2.41	UGG	07/21/1992
						RDX	0.587	<LW12	0.587	UGG	07/21/1992
						TETRYL	0.731	<LW12	0.731	UGG	07/21/1992
		R18SA0401	4.2	SO	METALS	ALUMINUM	15,000.0	=JS16	2.35	UGG	07/21/1992
						ANTIMONY	7.14	<JS16	7.14	UGG	07/21/1992
						ARSENIC	1.88	=JD19	0.25	UGG	07/21/1992
						BARIUM	190.0	=JS16	5.18	UGG	07/21/1992
						BERYLLIUM	0.694	=JS16	0.5	UGG	07/21/1992
						CADMIUM	0.7	<JS16	0.7	UGG	07/21/1992
						CALCIUM	4,900.0	=JS16	100.0	UGG	07/21/1992
						CHROMIUM	23.1	=JS16	4.05	UGG	07/21/1992
						COBALT	10.0	=JS16	1.42	UGG	07/21/1992
						COPPER	15.7	=JS16	0.965	UGG	07/21/1992
						IRON	22,500.0	=JS16	3.68	UGG	07/21/1992
						LEAD	11.7	=JD17	0.177	UGG	07/21/1992
						MAGNESIUM	3,550.0	=JS16	100.0	UGG	07/21/1992
						MANGANESE	505.0	=JS16	2.05	UGG	07/21/1992
						MERCURY	0.085	=JB01	0.05	UGG	07/21/1992
						NICKEL	20.9	=JS16	1.71	UGG	07/21/1992
						POTASSIUM	996.0	=JS16	100.0	UGG	07/21/1992
						SELENIUM	0.25	<JD15	0.25	UGG	07/21/1992
						SILVER	2.64	=JS16	0.589	UGG	07/21/1992
						SODIUM	239.0	=JS16	100.0	UGG	07/21/1992
						THALLIUM	6.62	<JS16	6.62	UGG	07/21/1992
						VANADIUM	35.5	=JS16	3.39	UGG	07/21/1992

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SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	RESULT VALUE	BOOL METHOD	CRL	UNITS	DATE
						ZINC	58.9	=JS16	8.03	UGG	07/21/1992
	R18-SA-05	R18SA0501	4.75	SO	EXPLOSIV	1,3,5-TRINITROBENZENE	0.488	<LW12	0.488	UGG	07/21/1992
						1,3-DINITROBENZENE	0.496	<LW12	0.496	UGG	07/21/1992
						2,4,6-TNT	0.456	<LW12	0.456	UGG	07/21/1992
						2,4-DINITROTOLUENE	0.424	<LW12	0.424	UGG	07/21/1992
						2,6-DINITROTOLUENE	0.524	<LW12	0.524	UGG	07/21/1992
						HMX	0.666	<LW12	0.666	UGG	07/21/1992
						NITROBENZENE	2.41	<LW12	2.41	UGG	07/21/1992
						RDX	0.587	<LW12	0.587	UGG	07/21/1992
						TETRYL	0.731	<LW12	0.731	UGG	07/21/1992
		R18SA0501	4.75	SO	METALS	ALUMINUM	16,200.0	=JS16	2.35	UGG	07/21/1992
						ANTIMONY	7.14	<JS16	7.14	UGG	07/21/1992
						ARSENIC	4.19	=JD19	0.25	UGG	07/21/1992
						BARIUM	162.0	=JS16	5.18	UGG	07/21/1992
						BERYLLIUM	1.24	=JS16	0.5	UGG	07/21/1992
						CADMIUM	0.7	<JS16	0.7	UGG	07/21/1992
						CALCIUM	4,720.0	=JS16	100.0	UGG	07/21/1992
						CHROMIUM	27.0	=JS16	4.05	UGG	07/21/1992
						COBALT	4.44	=JS16	1.42	UGG	07/21/1992
						COPPER	14.8	=JS16	0.965	UGG	07/21/1992
						IRON	21,000.0	=JS16	3.68	UGG	07/21/1992
						LEAD	11.7	=JD17	0.177	UGG	07/21/1992
						MAGNESIUM	3,640.0	=JS16	100.0	UGG	07/21/1992
						MANGANESE	180.0	=JS16	2.05	UGG	07/21/1992
						MERCURY	0.05	<JB01	0.05	UGG	07/21/1992
						NICKEL	19.0	=JS16	1.71	UGG	07/21/1992
						POTASSIUM	1,080.0	=JS16	100.0	UGG	07/21/1992
						SELENIUM	0.25	<JD15	0.25	UGG	07/21/1992
						SILVER	6.54	=JS16	0.589	UGG	07/21/1992
						SODIUM	242.0	=JS16	100.0	UGG	07/21/1992
						THALLIUM	6.62	<JS16	6.62	UGG	07/21/1992
						VANADIUM	37.2	=JS16	3.39	UGG	07/21/1992
						ZINC	55.5	=JS16	8.03	UGG	07/21/1992
	R18-SW-06	R18SW0601	0	SW	EXPLOSIV	1,3,5-TRINITROBENZENE	0.449	<UW32	0.449	UGL	07/22/1992
						1,3-DINITROBENZENE	0.611	<UW32	0.611	UGL	07/22/1992
						2,4,6-TNT	0.635	<UW32	0.635	UGL	07/22/1992
						2,4-DINITROTOLUENE	0.064	<UW32	0.064	UGL	07/22/1992
						2,6-DINITROTOLUENE	0.074	<UW32	0.074	UGL	07/22/1992
						HMX	1.76	=UW32	1.21	UGL	07/22/1992
						NITROBENZENE	0.645	<UW32	0.645	UGL	07/22/1992
						RDX	5.49	=UW32	1.17	UGL	07/22/1992
						TETRYL	1.6	<UW32	1.56	UGL	07/22/1992
		R18SW0601	0	SW	METALS	ALUMINUM	141.0	<SS10	141.0	UGL	07/22/1992
						ANTIMONY	38.0	<SS10	38.0	UGL	07/22/1992
						ARSENIC	2.54	<SD22	2.54	UGL	07/22/1992
						BARIUM	76.2	=SS10	5.0	UGL	07/22/1992
						BERYLLIUM	5.0	<SS10	5.0	UGL	07/22/1992
						CADMIUM	4.01	<SS10	4.01	UGL	07/22/1992
						CALCIUM	48,900.0	=SS10	500.0	UGL	07/22/1992
						CHROMIUM	6.02	<SS10	6.02	UGL	07/22/1992
						COBALT	25.0	<SS10	25.0	UGL	07/22/1992
						COPPER	8.09	<SS10	8.09	UGL	07/22/1992
						IRON	238.0	=SS10	38.8	UGL	07/22/1992

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SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	RESULT VALUE	BOOL METHOD	CRL	UNITS	DATE
						LEAD	7.0	=SD20	1.26	UGL	07/22/1992
						MAGNESIUM	18,200.0	=SS10	500.0	UGL	07/22/1992
						MANGANESE	59.3	=SS10	2.75	UGL	07/22/1992
						MERCURY	0.2	<SB01	0.243	UGL	07/22/1992
						NICKEL	34.3	<SS10	34.3	UGL	07/22/1992
						POTASSIUM	1,630.0	=SS10	375.0	UGL	07/22/1992
						SELENIUM	8.8	=SD21	3.02	UGL	07/22/1992
						SILVER	13.8	=SS10	4.6	UGL	07/22/1992
						SODIUM	20,500.0	=SS10	500.0	UGL	07/22/1992
						THALLIUM	7.0	<SD09	6.99	UGL	07/22/1992
						VANADIUM	11.0	<SS10	11.0	UGL	07/22/1992
						ZINC	21.1	<SS10	21.1	UGL	07/22/1992
	R18-SW-07	R18SW0701	0	SW	EXPLOSIV	1,3,5-TRINITROBENZENE	0.449	<UW32	0.449	UGL	07/22/1992
						1,3-DINITROBENZENE	0.611	<UW32	0.611	UGL	07/22/1992
						2,4,6-TNT	8.32	=UW32	0.635	UGL	07/22/1992
						2,4-DINITROTOLUENE	2.94	=UW32	0.064	UGL	07/22/1992
						2,6-DINITROTOLUENE	0.074	<UW32	0.074	UGL	07/22/1992
						HMX	558.0	=UW32	1.21	UGL	07/22/1992
						NITROBENZENE	0.645	<UW32	0.645	UGL	07/22/1992
						RDX	2,680.0	=UW32	1.17	UGL	07/22/1992
						TETRYL	1.6	<UW32	1.56	UGL	07/22/1992
		R18SW0701	0	SW	METALS	ALUMINUM	1,700.0	=SS10	141.0	UGL	07/22/1992
						ANTIMONY	38.0	<SS10	38.0	UGL	07/22/1992
						ARSENIC	2.54	<SD22	2.54	UGL	07/22/1992
						BARIUM	39.2	=SS10	5.0	UGL	07/22/1992
						BERYLLIUM	5.0	<SS10	5.0	UGL	07/22/1992
						CADMIUM	19.1	=SS10	4.01	UGL	07/22/1992
						CALCIUM	7,960.0	=SS10	500.0	UGL	07/22/1992
						CHROMIUM	21.7	=SS10	6.02	UGL	07/22/1992
						COBALT	25.0	<SS10	25.0	UGL	07/22/1992
						COPPER	133.0	=SS10	8.09	UGL	07/22/1992
						IRON	4,110.0	=SS10	38.8	UGL	07/22/1992
						LEAD	142.0	=SD20	1.26	UGL	07/22/1992
						MAGNESIUM	939.0	=SS10	500.0	UGL	07/22/1992
						MANGANESE	71.0	=SS10	2.75	UGL	07/22/1992
						MERCURY	0.2	<SB01	0.243	UGL	07/22/1992
						NICKEL	34.3	<SS10	34.3	UGL	07/22/1992
						POTASSIUM	3,960.0	=SS10	375.0	UGL	07/22/1992
						SELENIUM	4.2	=SD21	3.02	UGL	07/22/1992
						SILVER	7.94	=SS10	4.6	UGL	07/22/1992
						SODIUM	236,000.0	=SS10	500.0	UGL	07/22/1992
						THALLIUM	7.0	<SD09	6.99	UGL	07/22/1992
						VANADIUM	11.0	<SS10	11.0	UGL	07/22/1992
						ZINC	1,580.0	=SS10	21.1	UGL	07/22/1992
	R18-SW-08	R18SW0801	0	SW	METALS	ALUMINUM	724,000.0	=SS10	141.0	UGL	07/23/1992
						ANTIMONY	190.0	<SS10	38.0	UGL	07/23/1992
						ARSENIC	50.8	<SD22	2.54	UGL	07/23/1992
						BARIUM	32.8	=SS10	5.0	UGL	07/23/1992
						BERYLLIUM	56.6	=SS10	5.0	UGL	07/23/1992
						CADMIUM	20.1	<SS10	4.01	UGL	07/23/1992
						CALCIUM	26,300.0	=SS10	500.0	UGL	07/23/1992
						CHROMIUM	1,600.0	=SS10	6.02	UGL	07/23/1992
						COBALT	243.0	=SS10	25.0	UGL	07/23/1992

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SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	RESULT VALUE	BOOL METHOD	CRL	UNITS	DATE
						COPPER	318.0	=SS10	8.09	UGL	07/23/1992
						IRON	2460,000.0	=SS10	38.8	UGL	07/23/1992
						LEAD	12.6	<SD20	1.26	UGL	07/23/1992
						MAGNESIUM	6,770.0	=SS10	500.0	UGL	07/23/1992
						MANGANESE	19,500.0	=SS10	2.75	UGL	07/23/1992
						MERCURY	6.3	=SB01	0.243	UGL	07/23/1992
						NICKEL	1,890.0	=SS10	34.3	UGL	07/23/1992
						POTASSIUM	1160,000.0	=SS10	375.0	UGL	07/23/1992
						SELENIUM	60.4	<SD21	3.02	UGL	07/23/1992
						SILVER	837.0	=SS10	4.6	UGL	07/23/1992
						SODIUM	3730,000.0	=SS10	500.0	UGL	07/23/1992
						THALLIUM	69.9	<SD09	6.99	UGL	07/23/1992
						VANADIUM	55.0	<SS10	11.0	UGL	07/23/1992
						ZINC	455.0	=SS10	21.1	UGL	07/23/1992

Non Screening Site - IAAPR18 Maximum Background

IAAP-BW Results Above Evaluation Criteria

SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	RESULT VALUE	BOOL METHOD	CRL	UNITS	DATE
IAAPBW	R18-SA-02	R18SA0201	5.0	SO	METALS	SILVER	0.843	=JS16	0.294	UGG	07/21/1992
	R18-SA-03	R18SA0301	0.5	SO	METALS	CHROMIUM	72.1	=JS16	48.0	UGG	07/21/1992
						MERCURY	0.493	=JB01	0.155	UGG	07/21/1992
						SILVER	88.2	=JS16	0.294	UGG	07/21/1992
		R18SA0302	4.6	SO	METALS	SILVER	3.72	=JS16	0.294	UGG	07/21/1992
	R18-SA-04	R18SA0401	4.2	SO	METALS	SILVER	2.64	=JS16	0.294	UGG	07/21/1992
	R18-SA-05	R18SA0501	4.75	SO	METALS	SILVER	6.54	=JS16	0.294	UGG	07/21/1992
	R18-SW-06	R18SW0601	0	SW	EXPLOSIV	HMX	1.76	=UW32	1.21	UGL	07/22/1992
						RDX	5.49	=UW32	1.17	UGL	07/22/1992
		R18SW0601	0	SW	METALS	LEAD	7.0	=SD20	4.8	UGL	07/22/1992
						SELENIUM	8.8	=SD21	3.5	UGL	07/22/1992
						SILVER	13.8	=SS10	4.6	UGL	07/22/1992
						SODIUM	20,500.0	=SS10	17,500.0	UGL	07/22/1992
	R18-SW-07	R18SW0701	0	SW	EXPLOSIV	2,4,6-TNT	8.32	=UW32	0.635	UGL	07/22/1992
						2,4-DINITROTOLUENE	2.94	=UW32	0.064	UGL	07/22/1992
						HMX	558.0	=UW32	1.21	UGL	07/22/1992
						RDX	2,680.0	=UW32	1.17	UGL	07/22/1992
		R18SW0701	0	SW	METALS	CADMIUM	19.1	=SS10	4.01	UGL	07/22/1992
						CHROMIUM	21.7	=SS10	6.02	UGL	07/22/1992
						COPPER	133.0	=SS10	8.09	UGL	07/22/1992
						IRON	4,110.0	=SS10	3,630.0	UGL	07/22/1992
						LEAD	142.0	=SD20	4.8	UGL	07/22/1992
						POTASSIUM	3,960.0	=SS10	2,840.0	UGL	07/22/1992
						SELENIUM	4.2	=SD21	3.5	UGL	07/22/1992
						SILVER	7.94	=SS10	4.6	UGL	07/22/1992
						SODIUM	236,000.0	=SS10	17,500.0	UGL	07/22/1992
						ZINC	1,580.0	=SS10	22.6	UGL	07/22/1992
	R18-SW-08	R18SW0801	0	SW	METALS	ALUMINUM	724,000.0	=SS10	4,630.0	UGL	07/23/1992
						BERYLLIUM	56.6	=SS10	5.0	UGL	07/23/1992
						CHROMIUM	1,600.0	=SS10	6.02	UGL	07/23/1992
						COBALT	243.0	=SS10	25.0	UGL	07/23/1992
						COPPER	318.0	=SS10	8.09	UGL	07/23/1992
						IRON	2460,000.0	=SS10	3,630.0	UGL	07/23/1992
						MANGANESE	19,500.0	=SS10	1,470.0	UGL	07/23/1992
						MERCURY	6.3	=SB01	0.243	UGL	07/23/1992
						NICKEL	1,890.0	=SS10	34.3	UGL	07/23/1992
						POTASSIUM	1160,000.0	=SS10	2,840.0	UGL	07/23/1992
						SILVER	837.0	=SS10	4.6	UGL	07/23/1992
						SODIUM	3730,000.0	=SS10	17,500.0	UGL	07/23/1992
						ZINC	455.0	=SS10	22.6	UGL	07/23/1992

PRELIMINARY SITE CHARACTERIZATION
Line 3A Sewage Treatment Plant/Sludge Beds (R21)

SITE DESCRIPTION

- The Line 3A Sewage Treatment Plant (STP), which is currently shut down, received waste water reportedly limited to domestic wastes from Process Line 3A and blowdown water from the steam generating plant near Line 3A (Building 3A-02).

- Effluent from the STP flows into an unnamed intermittent tributary of the Skunk River and is discharged under NPDES Permit 29-00-9-00. Dried sludge is taken to the old Fly Ash Disposal Area (R30) once annually.

CONTAMINANT SUMMARY

- Sludge: A soil sample obtained from within the sludge beds during the SI contained low levels of mercury and silver, and trace levels of explosives. Silver was detected in two sludge samples collected from within the sludge beds during the RI.

- A process stream water sample obtained during the SI at the chlorine contact building prior to discharge contained the explosives RDX (200 µg/l); HMX (23 µg/l); and tetryl (0.66 µg/l). Samples obtained at the same location during the RI contained explosives and metals. The compounds detected during the RI included RDX, HMX, 2,4,6-TNT, 1,3,5-TNB, lead, and silver.

- Basewide samples RBW-SD/SW-08 (500 feet upstream), RBW-SD/SW-09 (outfall), and RBW-SD/SW-10 (500 feet downstream) were collected in the intermittent stream that receives discharge from the 3A STP. The sediment sample at the outfall contained lead (24.2 µg/g) and silver (11 µg/g). The sediment sample collected downstream contained mercury (0.065 µg/g) and silver (2.41 µg/l). Outfall and downgradient surface water samples contained explosives including; 1,3,5-TNB (0.978 µg/l and 0.647 µg/l), 2,4,6-TNT (4.74 µg/l and 4.47 µg/l), HMX (27.1 µg/l and 30.8 µg/l), and RDX 207 µg/l and 212 µg/l). The metals included silver at 8.25 µg/l and 6.39 µg/l, and lead at 6 µg/l. All three surface water samples contained chloroform at 0.82 µg/l to 2.1 µg/l.

SITE EVALUATION AND RECOMMENDATIONS

- Silver was reported in a sample collected from within the sludge bed. Phase I RI sampling included collecting a sludge sample from the drying beds as directed by EPA. Silver was reported in this sample at 15.1 µg/g. Metals are expected to be concentrated in STP sludges. Once annually dried sludge is removed to the Fly Ash Waste Pile. This disposal activity is regulated under the installation's 5-year sludge management plan, which was developed and approved by Iowa DNR. The process stream sample obtained from the Chlorine Contact Building prior to discharge contained silver and lead. Silver was also reported in basewide sediment samples collected in the intermittent stream downstream of the 3A STP outfall and at the outfall. Lead was detected in the downgradient location. The basewide sediment sample located upstream did not contain metals.

- Explosives contamination was reported in process stream samples obtained in the chlorine contact building at the 3A STP prior to discharge and at the basewide sample locations at and downgradient of the outfall. Explosives were also reported in the process stream sample obtained prior to discharge during the SI. No explosives were reported in sediment or soil samples.

- The Line 3A STP is out of service. However, there is still discharge from the plant because of groundwater infiltration of lateral lines. Historical NPDES monthly monitoring reports indicate that groundwater infiltration into the sewer mains frequently causes the facility to exceed the average permitted flow for the facility. Groundwater infiltration, residual contaminants in the lateral lines, and possible migration of contaminated groundwater along the conduit the line provides are the probable sources of the continuing contaminated waste stream.

- Phase I RI sampling was conducted in response to EPA comments to SI results. Phase I RI data indicate that no releases are originating from the Line 3A STP. No further remedial action is planned for R21.

Attachments: R21 Site Map
R21 Sample Summary
R21 All Phase I RI Data
R21 Results Above Maximum Background

FM:lh

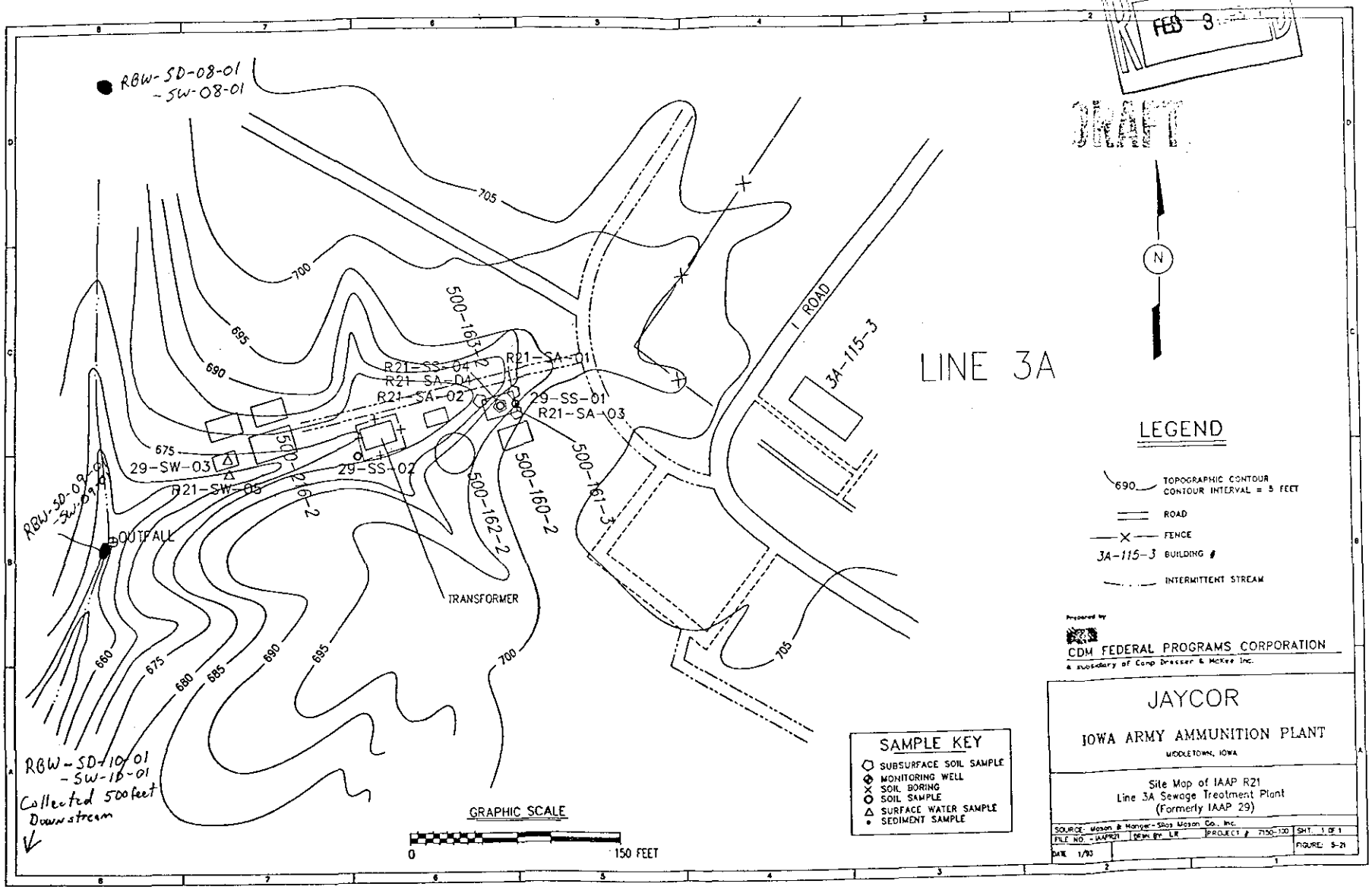
RBW-SD-08-01
-SW-08-01
705
700
695
690
675
660
680
685
500-163-2
R21-SS-04
R21-SA-04
R21-SA-02
R21-SA-01
29-SS-01
R21-SA-03
I ROAD
3A-115-3
LINE 3A
29-SW-03
R21-SW-05
150
R-16-2
29-SS-02
500-162-2
500-160-2
500-161-3
RBW-SD-09-01
-SW-09-01
OUTFALL
TRANSFORMER
RBW-SD-10-01
-SW-10-01
Collected 500 feet
Downstream
GRAPHIC SCALE
0
150 FEET
N
LEGEND
690 TOPOGRAPHIC CONTOUR
CONTOUR INTERVAL = 5 FEET
ROAD
FENCE
3A-115-3 BUILDING #
INTERMITTENT STREAM
SAMPLE KEY
SUBSURFACE SOIL SAMPLE
MONITORING WELL
SOIL BORING
SOIL SAMPLE
SURFACE WATER SAMPLE
SEDIMENT SAMPLE
DRAFT
FEB 9
Prepared by
CDM FEDERAL PROGRAMS CORPORATION
A subsidiary of Camp Dresser & McKee Inc.
JAYCOR
IOWA ARMY AMMUNITION PLANT
MIDDLETOWN, IOWA
Site Map of IAAP R21
Line 3A Sewage Treatment Plant
(Formerly IAAP 29)
SOURCE: Mason & Hanger-Silas Mason Co., Inc.
FILE NO. - IAAPR21
Dsgn. By: LR
PROJECT # 7150-130
SHT. 1 OF 1
DATE 1/93
FIGURE 5-21

Table R21
Sample Summary
IAAP-R21 (Line 3A Sewage Treatment Plant/Sludge Drying Beds)

RI Sample Number	Analyses	Sample Type	Sample Category	Depth	Location
R21-SA-01-01	Metals Explosives	G	A	4′	Three feet southeast of the northeast corner of sludge drying bed 500-161-3.
R21-SA-02-01	Metals Explosives	G	A	4′	Three feet west of the northwest corner of sludge drying bed 500-161-3.
R21-SA-03-01	Metals Explosives	G	A	4′	Three feet south of the southeast corner of sludge drying bed 500-161-3.
R21-SS-04-01	Metals Explosives	G	A	0-6"	Center of sludge drying bed 500-161-3.
R21-SA-04-02	Metals Explosives	G	A	2′	Same location as R21-SS-04-01. Depth of auger refusal.
R21-SW-05-01	Metals Explosives	G	A	N/A	Obtained from the Chlorine Contact Building prior to discharge.
R21-SW-06-01	Metals	G	A	N/A	Proposed to be obtained from the discharge of Carbon Filter Building 3A-70-2 at Line 3A. No sample; Line 3A not discharging any water.

C = Composite S = Screening Sample G = Grab A = Analytical Sample

Non Screening Sites - IAAPR21 All Data

IAAP-BW All Results

SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	RESULT VALUE	BOOL METHOD	CRL	UNITS	DATE
IAAPBW	R21-SA-01	R21SA0101	4.0	SO	EXPLOSIV	1,3,5-TRINITROBENZENE	0.488	<LW12	0.488	UGG	07/23/1992
						1,3-DINITROBENZENE	0.496	<LW12	0.496	UGG	07/23/1992
						2,4,6-TNT	0.456	<LW12	0.456	UGG	07/23/1992
						2,4-DINITROTOLUENE	0.424	<LW12	0.424	UGG	07/23/1992
						2,6-DINITROTOLUENE	0.524	<LW12	0.524	UGG	07/23/1992
						HMX	0.666	<LW12	0.666	UGG	07/23/1992
						NITROBENZENE	2.41	<LW12	2.41	UGG	07/23/1992
						RDX	0.587	<LW12	0.587	UGG	07/23/1992
						TETRYL	0.731	<LW12	0.731	UGG	07/23/1992
		R21SA0101	4.0	SO	METALS	ALUMINUM	5,250.0	=JS16	2.35	UGG	07/23/1992
						ANTIMONY	7.14	<JS16	7.14	UGG	07/23/1992
						ARSENIC	6.92	=JD19	0.25	UGG	07/23/1992
						BARIUM	77.2	=JS16	5.18	UGG	07/23/1992
						BERYLLIUM	0.713	=JS16	0.5	UGG	07/23/1992
						CADMIUM	0.7	<JS16	0.7	UGG	07/23/1992
						CALCIUM	24,800.0	=JS16	100.0	UGG	07/23/1992
						CHROMIUM	12.7	=JS16	4.05	UGG	07/23/1992
						COBALT	6.67	=JS16	1.42	UGG	07/23/1992
						COPPER	12.5	=JS16	0.965	UGG	07/23/1992
						IRON	13,000.0	=JS16	3.68	UGG	07/23/1992
						LEAD	7.62	=JD17	0.177	UGG	07/23/1992
						MAGNESIUM	5,130.0	=JS16	100.0	UGG	07/23/1992
						MANGANESE	414.0	=JS16	2.05	UGG	07/23/1992
						MERCURY	0.05	<JB01	0.05	UGG	07/23/1992
						NICKEL	18.5	=JS16	1.71	UGG	07/23/1992
						POTASSIUM	859.0	=JS16	100.0	UGG	07/23/1992
						SELENIUM	0.25	<JD15	0.25	UGG	07/23/1992
						SILVER	0.589	<JS16	0.589	UGG	07/23/1992
						SODIUM	263.0	=JS16	100.0	UGG	07/23/1992
						THALLIUM	6.62	<JS16	6.62	UGG	07/23/1992
						VANADIUM	21.0	=JS16	3.39	UGG	07/23/1992
						ZINC	36.5	=JS16	8.03	UGG	07/23/1992
	R21-SA-02	R21SA0201	4.0	SO	EXPLOSIV	1,3,5-TRINITROBENZENE	0.488	<LW12	0.488	UGG	07/23/1992
						1,3-DINITROBENZENE	0.496	<LW12	0.496	UGG	07/23/1992
						2,4,6-TNT	0.456	<LW12	0.456	UGG	07/23/1992
						2,4-DINITROTOLUENE	0.424	<LW12	0.424	UGG	07/23/1992
						2,6-DINITROTOLUENE	0.524	<LW12	0.524	UGG	07/23/1992
						HMX	0.666	<LW12	0.666	UGG	07/23/1992
						NITROBENZENE	2.41	<LW12	2.41	UGG	07/23/1992
						RDX	0.587	<LW12	0.587	UGG	07/23/1992
						TETRYL	0.731	<LW12	0.731	UGG	07/23/1992
		R21SA0201	4.0	SO	METALS	ALUMINUM	4,880.0	=JS16	2.35	UGG	07/23/1992
						ANTIMONY	7.14	<JS16	7.14	UGG	07/23/1992
						ARSENIC	7.93	=JD19	0.25	UGG	07/23/1992
						BARIUM	74.6	=JS16	5.18	UGG	07/23/1992
						BERYLLIUM	0.5	<JS16	0.5	UGG	07/23/1992
						CADMIUM	0.7	<JS16	0.7	UGG	07/23/1992
						CALCIUM	25,800.0	=JS16	100.0	UGG	07/23/1992
						CHROMIUM	14.5	=JS16	4.05	UGG	07/23/1992
						COBALT	6.68	=JS16	1.42	UGG	07/23/1992
						COPPER	12.2	=JS16	0.965	UGG	07/23/1992
						IRON	18,300.0	=JS16	3.68	UGG	07/23/1992
						LEAD	9.36	=JD17	0.177	UGG	07/23/1992

Non Screening Sites - IAAPR21 All Data

IAAP-BW All Results

SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	RESULT VALUE	BOOL METHOD	CRL	UNITS	DATE
						MAGNESIUM	4,540.0	=JS16	100.0	UGG	07/23/1992
						MANGANESE	334.0	=JS16	2.05	UGG	07/23/1992
						MERCURY	0.05	<JB01	0.05	UGG	07/23/1992
						NICKEL	18.3	=JS16	1.71	UGG	07/23/1992
						POTASSIUM	685.0	=JS16	100.0	UGG	07/23/1992
						SELENIUM	0.25	<JD15	0.25	UGG	07/23/1992
						SILVER	0.589	<JS16	0.589	UGG	07/23/1992
						SODIUM	240.0	=JS16	100.0	UGG	07/23/1992
						THALLIUM	6.62	<JS16	6.62	UGG	07/23/1992
						VANADIUM	21.2	=JS16	3.39	UGG	07/23/1992
						ZINC	41.3	=JS16	8.03	UGG	07/23/1992
	R21-SA-03	R21SA0301	4.0	SO	EXPLOSIV	1,3,5-TRINITROBENZENE	0.488	<LW12	0.488	UGG	07/23/1992
						1,3-DINITROBENZENE	0.496	<LW12	0.496	UGG	07/23/1992
						2,4,6-TNT	0.456	<LW12	0.456	UGG	07/23/1992
						2,4-DINITROTOLUENE	0.424	<LW12	0.424	UGG	07/23/1992
						2,6-DINITROTOLUENE	0.524	<LW12	0.524	UGG	07/23/1992
						HMX	0.666	<LW12	0.666	UGG	07/23/1992
						NITROBENZENE	2.41	<LW12	2.41	UGG	07/23/1992
						RDX	0.587	<LW12	0.587	UGG	07/23/1992
						TETRYL	0.731	<LW12	0.731	UGG	07/23/1992
		R21SA0301	4.0	SO	METALS	ALUMINUM	4,420.0	=JS16	2.35	UGG	07/23/1992
						ANTIMONY	7.14	<JS16	7.14	UGG	07/23/1992
						ARSENIC	3.95	=JD19	0.25	UGG	07/23/1992
						BARIUM	80.9	=JS16	5.18	UGG	07/23/1992
						BERYLLIUM	0.5	<JS16	0.5	UGG	07/23/1992
						CADMIUM	0.7	<JS16	0.7	UGG	07/23/1992
						CALCIUM	27,400.0	=JS16	100.0	UGG	07/23/1992
						CHROMIUM	14.2	=JS16	4.05	UGG	07/23/1992
						COBALT	9.3	=JS16	1.42	UGG	07/23/1992
						COPPER	15.0	=JS16	0.965	UGG	07/23/1992
						IRON	16,400.0	=JS16	3.68	UGG	07/23/1992
						LEAD	3.87	=JD17	0.177	UGG	07/23/1992
						MAGNESIUM	5,980.0	=JS16	100.0	UGG	07/23/1992
						MANGANESE	592.0	=JS16	2.05	UGG	07/23/1992
						MERCURY	0.05	<JB01	0.05	UGG	07/23/1992
						NICKEL	20.2	=JS16	1.71	UGG	07/23/1992
						POTASSIUM	723.0	=JS16	100.0	UGG	07/23/1992
						SELENIUM	0.25	<JD15	0.25	UGG	07/23/1992
						SILVER	0.589	<JS16	0.589	UGG	07/23/1992
						SODIUM	246.0	=JS16	100.0	UGG	07/23/1992
						THALLIUM	6.62	<JS16	6.62	UGG	07/23/1992
						VANADIUM	23.1	=JS16	3.39	UGG	07/23/1992
						ZINC	41.7	=JS16	8.03	UGG	07/23/1992
	R21-SS-04	R21SS0401	0.5	SO	EXPLOSIV	1,3,5-TRINITROBENZENE	0.488	<LW12	0.488	UGG	07/23/1992
						1,3-DINITROBENZENE	0.496	<LW12	0.496	UGG	07/23/1992
						2,4,6-TNT	0.456	<LW12	0.456	UGG	07/23/1992
						2,4-DINITROTOLUENE	0.424	<LW12	0.424	UGG	07/23/1992
						2,6-DINITROTOLUENE	0.524	<LW12	0.524	UGG	07/23/1992
						HMX	0.666	<LW12	0.666	UGG	07/23/1992
						NITROBENZENE	2.41	<LW12	2.41	UGG	07/23/1992
						RDX	0.587	<LW12	0.587	UGG	07/23/1992
						TETRYL	0.731	<LW12	0.731	UGG	07/23/1992
		R21SS0401	0.5	SO	METALS	ALUMINUM	1,300.0	=JS16	2.35	UGG	07/23/1992

Non Screening Sites - IAAPR21 All Data

IAAP-BW All Results

SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	RESULT VALUE	BOOL METHOD	CRL	UNITS	DATE
						ANTIMONY	7.14	<JS16	7.14	UGG	07/23/1992
						ARSENIC	1.01	=JD19	0.25	UGG	07/23/1992
						BARIUM	15.0	=JS16	5.18	UGG	07/23/1992
						BERYLLIUM	0.5	<JS16	0.5	UGG	07/23/1992
						CADMIUM	0.7	<JS16	0.7	UGG	07/23/1992
						CALCIUM	3,110.0	=JS16	100.0	UGG	07/23/1992
						CHROMIUM	5.88	=JS16	4.05	UGG	07/23/1992
						COBALT	3.56	=JS16	1.42	UGG	07/23/1992
						COPPER	5.11	=JS16	0.965	UGG	07/23/1992
						IRON	4,020.0	=JS16	3.68	UGG	07/23/1992
						LEAD	6.33	=JD17	0.177	UGG	07/23/1992
						MAGNESIUM	1,630.0	=JS16	100.0	UGG	07/23/1992
						MANGANESE	142.0	=JS16	2.05	UGG	07/23/1992
						MERCURY	0.065	=JB01	0.05	UGG	07/23/1992
						NICKEL	9.23	=JS16	1.71	UGG	07/23/1992
						POTASSIUM	237.0	=JS16	100.0	UGG	07/23/1992
						SELENIUM	0.25	<JD15	0.25	UGG	07/23/1992
						SILVER	15.1	=JS16	0.589	UGG	07/23/1992
						SODIUM	160.0	=JS16	100.0	UGG	07/23/1992
						THALLIUM	6.62	<JS16	6.62	UGG	07/23/1992
						VANADIUM	7.34	=JS16	3.39	UGG	07/23/1992
						ZINC	23.8	=JS16	8.03	UGG	07/23/1992
	R21-SA-04	R21SA0402	2.0	SO	EXPLOSIV	1,3,5-TRINITROBENZENE	0.488	<LW12	0.488	UGG	07/23/1992
						1,3-DINITROBENZENE	0.496	<LW12	0.496	UGG	07/23/1992
						2,4,6-TNT	0.456	<LW12	0.456	UGG	07/23/1992
						2,4-DINITROTOLUENE	0.424	<LW12	0.424	UGG	07/23/1992
						2,6-DINITROTOLUENE	0.524	<LW12	0.524	UGG	07/23/1992
						HMX	0.666	<LW12	0.666	UGG	07/23/1992
						NITROBENZENE	2.41	<LW12	2.41	UGG	07/23/1992
						RDX	0.587	<LW12	0.587	UGG	07/23/1992
						TETRYL	0.731	<LW12	0.731	UGG	07/23/1992
		R21SA0402	2.0	SO	METALS	ALUMINUM	4,710.0	=JS16	2.35	UGG	07/23/1992
						ANTIMONY	7.14	<JS16	7.14	UGG	07/23/1992
						ARSENIC	2.82	=JD19	0.25	UGG	07/23/1992
						BARIUM	57.9	=JS16	5.18	UGG	07/23/1992
						BERYLLIUM	0.5	<JS16	0.5	UGG	07/23/1992
						CADMIUM	0.7	<JS16	0.7	UGG	07/23/1992
						CALCIUM	20,900.0	=JS16	100.0	UGG	07/23/1992
						CHROMIUM	12.5	=JS16	4.05	UGG	07/23/1992
						COBALT	6.5	=JS16	1.42	UGG	07/23/1992
						COPPER	12.5	=JS16	0.965	UGG	07/23/1992
						IRON	16,300.0	=JS16	3.68	UGG	07/23/1992
						LEAD	12.0	=JD17	0.177	UGG	07/23/1992
						MAGNESIUM	5,220.0	=JS16	100.0	UGG	07/23/1992
						MANGANESE	508.0	=JS16	2.05	UGG	07/23/1992
						MERCURY	0.05	<JB01	0.05	UGG	07/23/1992
						NICKEL	17.2	=JS16	1.71	UGG	07/23/1992
						POTASSIUM	738.0	=JS16	100.0	UGG	07/23/1992
						SELENIUM	0.25	<JD15	0.25	UGG	07/23/1992
						SILVER	0.667	=JS16	0.589	UGG	07/23/1992
						SODIUM	264.0	=JS16	100.0	UGG	07/23/1992
						THALLIUM	6.62	<JS16	6.62	UGG	07/23/1992
						VANADIUM	21.3	=JS16	3.39	UGG	07/23/1992

Non Screening Sites - IAAPR21 All Data

IAAP-BW All Results

SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	RESULT VALUE	BOOL METHOD	CRL	UNITS	DATE
						ZINC	48.0	=JS16	8.03	UGG	07/23/1992
	R21-SW-05	R21SW0501	0.0	SW	EXPLOSIV	1,3,5-TRINITROBENZENE	1.07	=UW32	0.449	UGL	07/23/1992
						1,3-DINITROBENZENE	0.611	<UW32	0.611	UGL	07/23/1992
						2,4,6-TNT	8.29	=UW32	0.635	UGL	07/23/1992
						2,4-DINITROTOLUENE	0.064	<UW32	0.064	UGL	07/23/1992
						2,6-DINITROTOLUENE	0.074	<UW32	0.074	UGL	07/23/1992
						HMX	29.0	=UW32	1.21	UGL	07/23/1992
						NITROBENZENE	0.645	<UW32	0.645	UGL	07/23/1992
						RDX	249.0	=UW32	1.17	UGL	07/23/1992
						TETRYL	1.6	<UW32	1.56	UGL	07/23/1992
		R21SW0501	0.0	SW	METALS	ALUMINUM	141.0	<SS10	141.0	UGL	07/23/1992
						ANTIMONY	38.0	<SS10	38.0	UGL	07/23/1992
						ARSENIC	2.54	<SD22	2.54	UGL	07/23/1992
						BARIUM	88.7	=SS10	5.0	UGL	07/23/1992
						BERYLLIUM	5.0	<SS10	5.0	UGL	07/23/1992
						CADMIUM	4.01	<SS10	4.01	UGL	07/23/1992
						CALCIUM	50,500.0	=SS10	500.0	UGL	07/23/1992
						CHROMIUM	6.02	<SS10	6.02	UGL	07/23/1992
						COBALT	25.0	<SS10	25.0	UGL	07/23/1992
						COPPER	8.09	<SS10	8.09	UGL	07/23/1992
						IRON	195.0	=SS10	38.8	UGL	07/23/1992
						LEAD	9.8	=SD20	1.26	UGL	07/23/1992
						MAGNESIUM	22,800.0	=SS10	500.0	UGL	07/23/1992
						MANGANESE	14.6	=SS10	2.75	UGL	07/23/1992
						MERCURY	0.2	<SB01	0.243	UGL	07/23/1992
						NICKEL	34.3	<SS10	34.3	UGL	07/23/1992
						POTASSIUM	375.0	<SS10	375.0	UGL	07/23/1992
						SELENIUM	3.7	=SD21	3.02	UGL	07/23/1992
						SILVER	12.4	=SS10	4.6	UGL	07/23/1992
						SODIUM	18,700.0	=SS10	500.0	UGL	07/23/1992
						THALLIUM	7.0	<SD09	6.99	UGL	07/23/1992
						VANADIUM	11.0	<SS10	11.0	UGL	07/23/1992
						ZINC	21.1	<SS10	21.1	UGL	07/23/1992

Non Screening Site - IAAPR21 Maximum Background

IAAP-BW Results Above Evaluation Criteria

SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	RESULT VALUE	BOOL METHOD	CRL	UNITS	DATE
IAAPBW	R21-SS-04	R21SS0401	0.5	SO	METALS	SILVER	15.1	=JS16	0.294	UGG	07/23/1992
	R21-SA-04	R21SA0402	2.0	SO	METALS	SILVER	0.667	=JS16	0.294	UGG	07/23/1992
	R21-SW-05	R21SW0501	0.0	SW	EXPLOSIV	1,3,5-TRINITROBENZENE	1.07	=UW32	0.449	UGL	07/23/1992
						2,4,6-TNT	8.29	=UW32	0.635	UGL	07/23/1992
						HMX	29.0	=UW32	1.21	UGL	07/23/1992
						RDX	249.0	=UW32	1.17	UGL	07/23/1992
		R21SW0501	0.0	SW	METALS	LEAD	9.8	=SD20	4.8	UGL	07/23/1992
						SELENIUM	3.7	=SD21	3.5	UGL	07/23/1992
						SILVER	12.4	=SS10	4.6	UGL	07/23/1992
						SODIUM	18,700.0	=SS10	17,500.0	UGL	07/23/1992

PRELIMINARY SITE CHARACTERIZATION
Building 600-86 Septic System (R26)

SITE DESCRIPTION

- Building 600-86, built in 1941, was referred to as the Central Chemical Lab. The function of the laboratory during its operation was to perform drinking water and wastewater analysis, as well as analysis of primer mixes containing lead azide in quantities of 10 to 20 milligrams.

- The waste from the primer test was deactivated with ceric ammonium nitrate and the resultant waste solution was disposed of in the Explosive Disposal Area (R12).

- Primarily, sanitary wastewater was reported to be disposed in the building's septic system.

- Floor drains in the facility were believed to empty into the septic system. The floor drains were permanently plugged in 1983.

- Sludge was removed from the septic tank in 1983 and the tank was filled with sand. The sludge was sampled and tested for EP Toxicity, which produced acceptable analytical results.

- The building is currently utilized as a self contained permitted RCRA hazardous waste storage facility.

CONTAMINANT SUMMARY

- Soil: A soil sample was obtained at the outfall location during the SI. The SI sample contained low levels of chromium, cadmium, and mercury. Mercury was detected in two of the three samples obtained at the site during the RI. Cadmium, selenium, and toluene were detected in one sample. Toluene was detected at 0.007 µg/g (detection limit is 0.0008 µg/g). The following compounds were reported above guidance levels.

Compound	Evaluation Criteria
Cadmium at 3.45 µg/g	Maximum Background = 0.899 µg/g
Mercury at 0.253 and 0.633 µg/g	Maximum Background = 0.155 µg/g
Selenium at 0.826	Maximum Background = 0.612 µg/g

- Surface Water: None was present.

- Basewide samples RBK-SD/SW-06 were collected approximately 1500 feet east (upstream) of the subject site sample locations. The sediment sample contained toluene at 0.002 µg/g. Basewide samples RBK-SD/SW-03 were collected approximately 1500 feet west (downstream) of the subject site sample locations. No contaminants above detection levels were reported in this sample.

SITE EVALUATION AND RECOMMENDATIONS

- Mercury, cadmium, and selenium were reported in soil samples at low levels at and downgradient of the septic system outfall located in a intermittent stream. No surface water was present at the site. EPA Risk-Based Concentration for cadmium in residential soils is 39 µg/g (510 µg/g for industrial), and 23 µg/g (310 µg/g for industrial) for mercury in residential soils. The EPA Risk-Based Concentration for selenium in residential soils is 390 µg/g (5100 µg/g for industrial).

- The low level of toluene reported in sample R26-SA-03 may be attributed to railroad runoff. A basewide sample (RBK-SD-06) obtained approximately 1500 feet east (upstream) of this location and adjacent to the railroad track also contained a low level of toluene. EPA Risk-Based Concentration for toluene in residential soils is 16,000 µg/g (200,000 µg/g for industrial).

- Phase I RI samples were collected in response to EPA comments to SI data. No significant levels of metals or volatiles were reported in site samples. A low level of toluene was reported in a sample collected upstream from the site; therefore its presence at this location is not attributable to the site. Phase I RI data indicate that no releases are originating from this site. No further remedial action is planned for R26.

Attachments: R26 Site Map
R26 Sample Summary
R26 All Phase I RI Data
R26 Results Above Maximum Background

FM:lh

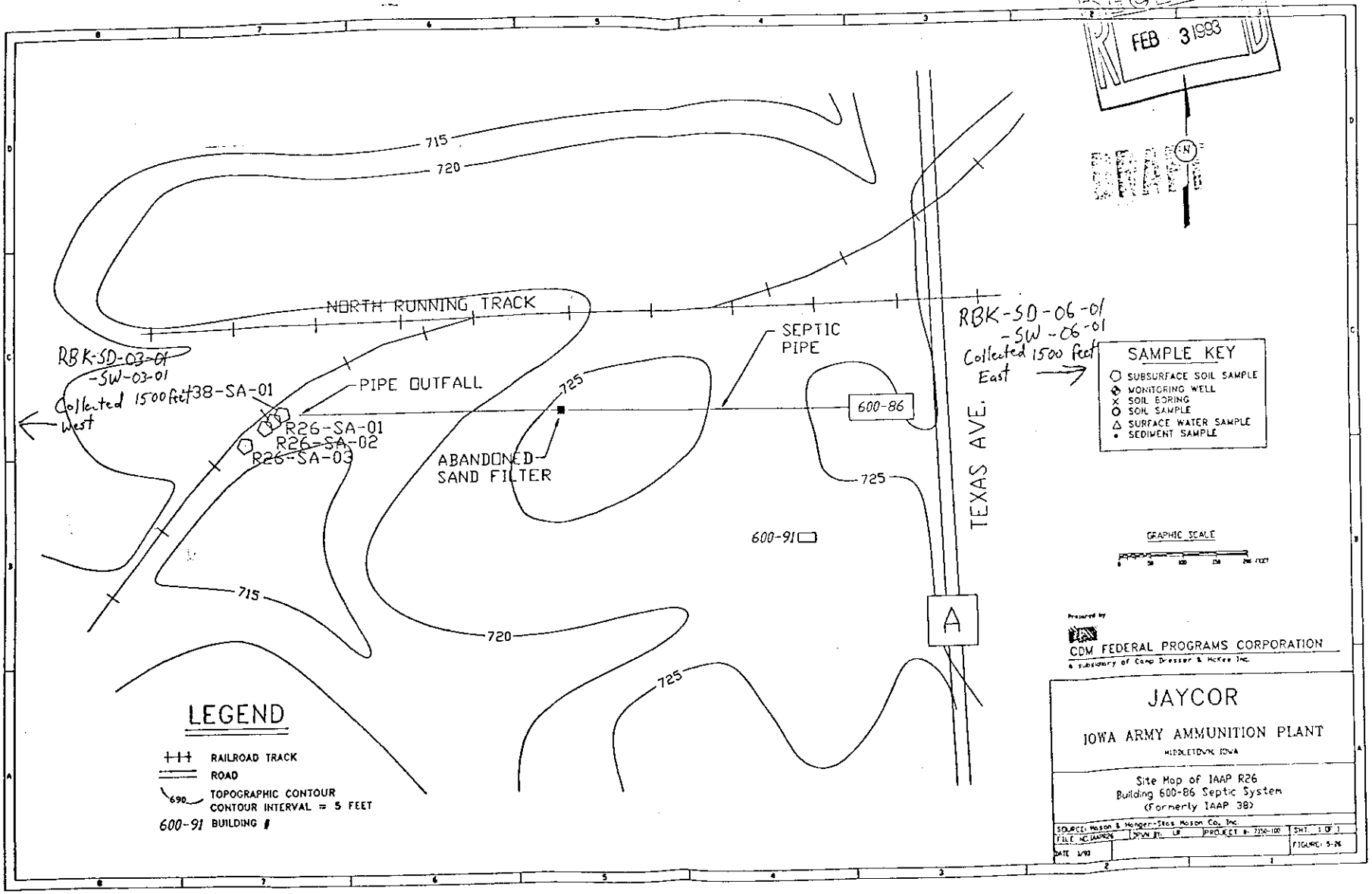
RECEIVED
FEB 3 1993
715
720
NORTH RUNNING TRACK
RBK-SD-03-01
-SW-03-01
Collected 1500 feet West
38-SA-01
PIPE OUTFALL
R26-SA-01
R26-SA-02
R26-SA-03
ABANDONED SAND FILTER
SEPTIC PIPE
725
600-86
600-91
TEXAS AVE.
A
RBK-SD-06-01
-SW-06-01
Collected 1500 feet East
SAMPLE KEY
SUBSURFACE SOIL SAMPLE
MONITORING WELL
SOIL BORING
SOIL SAMPLE
SURFACE WATER SAMPLE
SEDIMENT SAMPLE
GRAPHIC SCALE
LEGEND
RAILROAD TRACK
ROAD
690 TOPOGRAPHIC CONTOUR
CONTOUR INTERVAL = 5 FEET
600-91 BUILDING #
Prepared by
CDM FEDERAL PROGRAMS CORPORATION
a subsidiary of Camp Dresser & McKee Inc.
JAYCOR
IOWA ARMY AMMUNITION PLANT
MIDDLETOWN, IOWA
Site Map of IAAP R26
Building 600-86 Septic System
(Formerly IAAP 38)
SOURCE: Mason & Hanger-Silas Mason Co., Inc.
FILE: NCJAYCOR
DRWN BY: LR
PROJECT #: 7750-100
SHT. 1 OF 1
FIGURE: 5-26
DATE: 1/93

Table R26
Sample Summary
IAAP-R26 (Building 600-86 Septic System)

RI Sample Number	Analyses	Sample Type	Sample Category	Depth	Location
R26-SA-01	Metals VOCs SemiVOCs	C	A	0-18"	10 feet downstream of the outfall of the septic system pipe.
R26-SW-01	Metals VOCs SemiVOCs	G	A	N/A	Sample not collected; no water present.
R26-SA-02	Metals VOCs SemiVOCs	C	A	18"	10 feet downgradient (south to southwest) of sample R25-SA-01.
R26-SW-02	Metals VOCs SemiVOCs	G	A	N/A	Sample not collected; no water present.
R26-SA-03	Metals VOCs SemiVOCs	G	A	0-6"	25 feet downgradient (south to southwest) of sample R25-SA-02.
R26-SW-03	Metals VOCs SemiVOCs	G	A	N/A	Sample not collected; no water present.
R26-SA-04	Metals VOCs SemiVOCs	C	A	TBD	Proposed for the abandoned sand filter located approximately half way between the building and the outfall and 1 foot below the depth of the pipe. Samples not obtained per changes in the Work Plan (October 1992).
R26-SA-05	Metals VOCs SemiVOCs	C	A	TBD	Proposed for 200 feet east of Building 600-86, along the septic pipe and 1 foot below the depth of the pipe. Samples not obtained per changes in the Work Plan (October 1992).

C = Composite S = Screening Sample G = Grab A = Analytical Sample TBD = To be determined

IAAP - Non Screening Sites

R26- All Results

SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	RESULT VALUE	BOOL METHOD	COD	UNITS	DATE
R26	R26-SA-01	R26SA0101	1.5	SO	METALS	ALUMINUM	13,400.0	=JS16	2.35	UGG	07/24/1992
						ANTIMONY	7.14	<JS16	7.14	UGG	07/24/1992
						ARSENIC	5.07	=JD19	0.25	UGG	07/24/1992
						BARIUM	169.0	=JS16	5.18	UGG	07/24/1992
						BERYLLIUM	1.02	=JS16	0.5	UGG	07/24/1992
						CADMIUM	0.7	<JS16	0.7	UGG	07/24/1992
						CALCIUM	3,600.0	=JS16	100.0	UGG	07/24/1992
						CHROMIUM	22.4	=JS16	4.05	UGG	07/24/1992
						COBALT	4.11	=JS16	1.42	UGG	07/24/1992
						COPPER	13.7	=JS16	0.965	UGG	07/24/1992
						IRON	16,100.0	=JS16	3.68	UGG	07/24/1992
						LEAD	16.6	=JD17	0.177	UGG	07/24/1992
						MAGNESIUM	2,330.0	=JS16	100.0	UGG	07/24/1992
						MANGANESE	223.0	=JS16	2.05	UGG	07/24/1992
						MERCURY	0.253	=JB01	0.05	UGG	07/24/1992
						NICKEL	15.2	=JS16	1.71	UGG	07/24/1992
						POTASSIUM	1,130.0	=JS16	100.0	UGG	07/24/1992
						SELENIUM	0.25	<JD15	0.25	UGG	07/24/1992
						SILVER	0.589	<JS16	0.589	UGG	07/24/1992
						SODIUM	274.0	=JS16	100.0	UGG	07/24/1992
						THALLIUM	6.62	<JS16	6.62	UGG	07/24/1992
						VANADIUM	32.3	=JS16	3.39	UGG	07/24/1992
						ZINC	46.6	=JS16	8.03	UGG	07/24/1992
		R26SA0101	1.5	SO	SVOA	1,2,4-TRICHLOROBENZENE	0.04	<LM18	0.04	UGG	07/24/1992
						1,2-DICHLOROBENZENE	0.11	<LM18	0.11	UGG	07/24/1992
						1,2-DIPHENYLHYDRAZINE	0.14	<LM18	0.14	UGG	07/24/1992
						1,4-DICHLOROBENZENE	0.1	<LM18	0.098	UGG	07/24/1992
						2,4,5-TRICHLOROPHENOL	0.1	<LM18	0.1	UGG	07/24/1992
						2,4,6-TRICHLOROPHENOL	0.17	<LM18	0.17	UGG	07/24/1992
						2,4-DICHLOROPHENOL	0.18	<LM18	0.18	UGG	07/24/1992
						2,4-DIMETHYLPHENOL	0.69	<LM18	0.69	UGG	07/24/1992
						2,4-DINITROPHENOL	1.2	<LM18	1.2	UGG	07/24/1992
						2-CHLORONAPHTHALENE	0.04	<LM18	0.036	UGG	07/24/1992
						2-CHLOROPHENOL	0.06	<LM18	0.06	UGG	07/24/1992
						2-METHYL-4,6-DINITROPHENOL/4,6	0.55	<LM18	0.55	UGG	07/24/1992
						2-METHYLNAPHTHALENE	0.05	<LM18	0.049	UGG	07/24/1992
						2-METHYLPHENOL/2-CRESOL	0.29	<LM18	0.29	UGG	07/24/1992
						2-NITROANILINE	0.06	<LM18	0.062	UGG	07/24/1992
						2-NITROPHENOL	0.14	<LM18	0.14	UGG	07/24/1992
						3,3'-DICHLOROBENZIDINE	6.3	<LM18	6.3	UGG	07/24/1992
						3-METHYL-4-CHLOROPHENOL/4-CHLO	0.1	<LM18	0.095	UGG	07/24/1992
						3-NITROANILINE	0.45	<LM18	0.45	UGG	07/24/1992
						4-BROMOPHENYLPHENYL ETHER	0.03	<LM18	0.033	UGG	07/24/1992
						4-CHLOROANILINE	0.81	<LM18	0.81	UGG	07/24/1992
						4-CHLOROPHENYLPHENYL ETHER	0.03	<LM18	0.033	UGG	07/24/1992
						4-METHYLPHENOL/4-CRESOL	0.24	<LM18	0.24	UGG	07/24/1992
						4-NITROANILINE	0.41	<LM18	0.41	UGG	07/24/1992
						4-NITROPHENOL	1.4	<LM18	1.4	UGG	07/24/1992
						ACENAPHTHENE	0.04	<LM18	0.036	UGG	07/24/1992
						ACENAPHTHYLENE	0.03	<LM18	0.033	UGG	07/24/1992
						ANTHRACENE	0.03	<LM18	0.033	UGG	07/24/1992

IAAP - Non Screening Sites

R26- All Results

SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	RESULT VALUE	BOOL METHOD	COD	UNITS	DATE
						BENZIDINE	0.85	<LM18	0.85	UGG	07/24/1992
						BENZO(A)ANTHRACENE	0.17	<LM18	0.17	UGG	07/24/1992
						BENZO(A)PYRENE	0.25	<LM18	0.25	UGG	07/24/1992
						BENZO(B)FLUORANTHENE	0.21	<LM18	0.21	UGG	07/24/1992
						BENZO(G,H,I)PERYLENE	0.25	<LM18	0.25	UGG	07/24/1992
						BENZO(K)FLUORANTHENE	0.07	<LM18	0.066	UGG	07/24/1992
						BENZOIC ACID	6.1	<LM18	6.1	UGG	07/24/1992
						BENZYL ALCOHOL	0.19	<LM18	0.19	UGG	07/24/1992
						BIS (2-CHLOROETHOXY) METHANE	0.06	<LM18	0.059	UGG	07/24/1992
						BIS (2-CHLOROETHYL) ETHER	0.03	<LM18	0.033	UGG	07/24/1992
						BIS (2-CHLOROISOPROPYL) ETHER	0.2	<LM18	0.2	UGG	07/24/1992
						BIS (2-ETHYLHEXYL) PHTHALATE	0.62	<LM18	0.62	UGG	07/24/1992
						BUTYLBENZYL PHTHALATE	0.17	<LM18	0.17	UGG	07/24/1992
						CARBAZ	0.033	<LM18	0.033	UGG	07/24/1992
						CHRYSENE	0.12	<LM18	0.12	UGG	07/24/1992
						DI-N-BUTYL PHTHALATE	0.06	<LM18	0.061	UGG	07/24/1992
						DI-N-OCTYL PHTHALATE	0.19	<LM18	0.19	UGG	07/24/1992
						DIBENZ(A,H)ANTHRACENE	0.21	<LM18	0.21	UGG	07/24/1992
						DIBENZOFURAN	0.04	<LM18	0.035	UGG	07/24/1992
						DIETHYL PHTHALATE	0.24	<LM18	0.24	UGG	07/24/1992
						DIMETHYL PHTHALATE	0.17	<LM18	0.17	UGG	07/24/1992
						ENDOSULFAN SULFATE	0.62	<LM18	0.62	UGG	07/24/1992
						ENDRIN ALDEHYDE	0.53	<LM18	0.53	UGG	07/24/1992
						ENDRIN KETONE	0.53	<LM18	0.53	UGG	07/24/1992
						FLUORANTHENE	0.07	<LM18	0.068	UGG	07/24/1992
						FLUORENE	0.03	<LM18	0.033	UGG	07/24/1992
						HEXACHLOROBENZENE	0.03	<LM18	0.033	UGG	07/24/1992
						HEXACHLOROBUTADIENE	0.23	<LM18	0.23	UGG	07/24/1992
						HEXACHLOROCYCLOPENTADIENE	6.2	<LM18	6.2	UGG	07/24/1992
						HEXACHLOROETHANE	0.15	<LM18	0.15	UGG	07/24/1992
						INDENO(1,2,3-C,D)PYRENE	0.29	<LM18	0.29	UGG	07/24/1992
						ISOPHORONE	0.03	<LM18	0.033	UGG	07/24/1992
						N-NITROSODI-N-PROPYLAMINE	0.2	<LM18	0.2	UGG	07/24/1992
						N-NITROSODIMETHYLAMINE	0.14	<LM18	0.14	UGG	07/24/1992
						N-NITROSODIPHENYLAMINE	0.19	<LM18	0.19	UGG	07/24/1992
						NAPHTHALENE	0.04	<LM18	0.037	UGG	07/24/1992
						PENTACHLOROPHENOL	1.3	<LM18	1.3	UGG	07/24/1992
						PHENANTHRENE	0.03	<LM18	0.033	UGG	07/24/1992
						PHENOL	0.11	<LM18	0.11	UGG	07/24/1992
						PYRENE	0.03	<LM18	0.033	UGG	07/24/1992
		R26SA0101	1.5	SO	VOA	(2-CHLOROETHOXY) ETHENE/2-CHLO	0.01	<LM19	0.01	UGG	07/24/1992
						1,1,1-TRICHLOROETHANE	0.004	<LM19	0.004	UGG	07/24/1992
						1,1,2,2-TETRACHLOROETHANE	0.002	<LM19	0.002	UGG	07/24/1992
						1,1,2-TRICHLOROETHANE	0.005	<LM19	0.005	UGG	07/24/1992
						1,1-DICHLOROETHANE	0.002	<LM19	0.002	UGG	07/24/1992
						1,1-DICHLOROETHENE	0.004	<LM19	0.004	UGG	07/24/1992
						1,2-DICHLOROETHANE	0.002	<LM19	0.002	UGG	07/24/1992
						1,2-DICHLOROETHENE	0.003	<LM19	0.003	UGG	07/24/1992
						1,2-DICHLOROPROPANE	0.003	<LM19	0.003	UGG	07/24/1992
						1,3-DICHLOROBENZENE	0.13	<LM18	0.13	UGG	07/24/1992

IAAP - Non Screening Sites

R26- All Results

SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	RESULT VALUE	BOOL METHOD	COD	UNITS	DATE
						ACETIC ACID, VINYL ESTER/VINYL	0.03	<LM19	0.032	UGG	07/24/1992
						ACETONE	0.02	<LM19	0.017	UGG	07/24/1992
						ACROLEIN	0.1	<LM19	0.1	UGG	07/24/1992
						ACRYLONITRILE	0.1	<LM19	0.1	UGG	07/24/1992
						BENZENE	0.002	<LM19	0.002	UGG	07/24/1992
						BROMODICHLOROMETHANE	0.003	<LM19	0.003	UGG	07/24/1992
						BROMOFORM	0.007	<LM19	0.007	UGG	07/24/1992
						BROMOMETHANE	0.006	<LM19	0.006	UGG	07/24/1992
						CARBON DISULFIDE	0.004	<LM19	0.004	UGG	07/24/1992
						CARBON TETRACHLORIDE	0.007	<LM19	0.007	UGG	07/24/1992
						CHLORFORM	0.0009	<LM19	0.0009	UGG	07/24/1992
						CHLOROBENZENE	0.0009	<LM19	0.0009	UGG	07/24/1992
						CHLOROETHANE	0.01	<LM19	0.012	UGG	07/24/1992
						CHLOROETHANE/VINYL CHLORIDE	0.006	<LM19	0.006	UGG	07/24/1992
						CHLOROMETHANE	0.009	<LM19	0.009	UGG	07/24/1992
						CIS-1,3-DICHLOROPROPYLENE/CIS-	0.003	<LM19	0.003	UGG	07/24/1992
						DIBROMOCHLOROMETHANE	0.003	<LM19	0.003	UGG	07/24/1992
						DICHLOROBENZENE	0.1	<LM19	0.1	UGG	07/24/1992
						ETHYLBENZENE	0.002	<LM19	0.002	UGG	07/24/1992
						METHYL-N-BUTYL KETONE/2-HEXANO	0.03	<LM19	0.032	UGG	07/24/1992
						METHYLENE CHLORIDE	0.012	<LM19	0.012	UGG	07/24/1992
						METHYLETHYL PHENOL/METHYLETHYL	0.07	<LM19	0.07	UGG	07/24/1992
						METHYLISOBUTYL KETONE	0.03	<LM19	0.027	UGG	07/24/1992
						STYRENE	0.003	<LM19	0.003	UGG	07/24/1992
						TETRACHLOROETHENE	0.0008	<LM19	0.0008	UGG	07/24/1992
						TOLUENE	0.0008	<LM19	0.0008	UGG	07/24/1992
						TRANS-1,3-DICHLOROPROPENE	0.003	<LM19	0.003	UGG	07/24/1992
						TRICHLOROETHENE	0.003	<LM19	0.003	UGG	07/24/1992
						TRICHLOROFLUOROMETHANE	0.006	<LM19	0.006	UGG	07/24/1992
						XYLENES	0.002	<LM19	0.002	UGG	07/24/1992
	R26-SA-02	R26SA0201	1.5	SO	METALS	ALUMINUM	11,500.0	=JS16	2.35	UGG	07/24/1992
						ANTIMONY	7.14	<JS16	7.14	UGG	07/24/1992
						ARSENIC	6.2	=JD19	0.25	UGG	07/24/1992
						BARIUM	183.0	=JS16	5.18	UGG	07/24/1992
						BERYLLIUM	0.875	=JS16	0.5	UGG	07/24/1992
						CADMIUM	0.7	<JS16	0.7	UGG	07/24/1992
						CALCIUM	3,650.0	=JS16	100.0	UGG	07/24/1992
						CHROMIUM	17.8	=JS16	4.05	UGG	07/24/1992
						COBALT	6.83	=JS16	1.42	UGG	07/24/1992
						COPPER	14.2	=JS16	0.965	UGG	07/24/1992
						IRON	18,300.0	=JS16	3.68	UGG	07/24/1992
						LEAD	17.6	=JD17	0.177	UGG	07/24/1992
						MAGNESIUM	2,270.0	=JS16	100.0	UGG	07/24/1992
						MANGANESE	464.0	=JS16	2.05	UGG	07/24/1992
						MERCURY	0.633	=JB01	0.05	UGG	07/24/1992
						NICKEL	15.0	=JS16	1.71	UGG	07/24/1992
						POTASSIUM	858.0	=JS16	100.0	UGG	07/24/1992
						SELENIUM	0.25	<JD15	0.25	UGG	07/24/1992
						SILVER	0.589	<JS16	0.589	UGG	07/24/1992
						SODIUM	252.0	=JS16	100.0	UGG	07/24/1992

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R26- All Results

SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	RESULT VALUE	BOOL METHOD	COD	UNITS	DATE
						THALLIUM	6.62	<JS16	6.62	UGG	07/24/1992
						VANADIUM	31.8	=JS16	3.39	UGG	07/24/1992
						ZINC	44.8	=JS16	8.03	UGG	07/24/1992
		R26SA0201	1.5	SO	SVOA	1,2,4-TRICHLOROBENZENE	0.04	<LM18	0.04	UGG	07/24/1992
						1,2-DICHLOROBENZENE	0.11	<LM18	0.11	UGG	07/24/1992
						1,2-DIPHENYLHYDRAZINE	0.14	<LM18	0.14	UGG	07/24/1992
						1,4-DICHLOROBENZENE	0.1	<LM18	0.098	UGG	07/24/1992
						2,4,5-TRICHLOROPHENOL	0.1	<LM18	0.1	UGG	07/24/1992
						2,4,6-TRICHLOROPHENOL	0.17	<LM18	0.17	UGG	07/24/1992
						2,4-DICHLOROPHENOL	0.18	<LM18	0.18	UGG	07/24/1992
						2,4-DIMETHYLPHENOL	0.69	<LM18	0.69	UGG	07/24/1992
						2,4-DINITROPHENOL	1.2	<LM18	1.2	UGG	07/24/1992
						2-CHLORONAPHTHALENE	0.04	<LM18	0.036	UGG	07/24/1992
						2-CHLOROPHENOL	0.06	<LM18	0.06	UGG	07/24/1992
						2-METHYL-4,6-DINITROPHENOL/4,6	0.55	<LM18	0.55	UGG	07/24/1992
						2-METHYLNAPHTHALENE	0.05	<LM18	0.049	UGG	07/24/1992
						2-METHYLPHENOL/2-CRESOL	0.29	<LM18	0.29	UGG	07/24/1992
						2-NITROANILINE	0.06	<LM18	0.062	UGG	07/24/1992
						2-NITROPHENOL	0.14	<LM18	0.14	UGG	07/24/1992
						3,3'-DICHLOROBENZIDINE	6.3	<LM18	6.3	UGG	07/24/1992
						3-METHYL-4-CHLOROPHENOL/4-CHLO	0.1	<LM18	0.095	UGG	07/24/1992
						3-NITROANILINE	0.45	<LM18	0.45	UGG	07/24/1992
						4-BROMOPHENYLPHENYL ETHER	0.03	<LM18	0.033	UGG	07/24/1992
						4-CHLOROANILINE	0.81	<LM18	0.81	UGG	07/24/1992
						4-CHLOROPHENYLPHENYL ETHER	0.03	<LM18	0.033	UGG	07/24/1992
						4-METHYLPHENOL/4-CRESOL	0.24	<LM18	0.24	UGG	07/24/1992
						4-NITROANILINE	0.41	<LM18	0.41	UGG	07/24/1992
						4-NITROPHENOL	1.4	<LM18	1.4	UGG	07/24/1992
						ACENAPHTHENE	0.04	<LM18	0.036	UGG	07/24/1992
						ACENAPHTHYLENE	0.03	<LM18	0.033	UGG	07/24/1992
						ANTHRACENE	0.03	<LM18	0.033	UGG	07/24/1992
						BENZIDINE	0.85	<LM18	0.85	UGG	07/24/1992
						BENZO(A)ANTHRACENE	0.17	<LM18	0.17	UGG	07/24/1992
						BENZO(A)PYRENE	0.25	<LM18	0.25	UGG	07/24/1992
						BENZO(B)FLUORANTHENE	0.21	<LM18	0.21	UGG	07/24/1992
						BENZO(G,H,I)PERYLENE	0.25	<LM18	0.25	UGG	07/24/1992
						BENZO(K)FLUORANTHENE	0.07	<LM18	0.066	UGG	07/24/1992
						BENZOIC ACID	6.1	<LM18	6.1	UGG	07/24/1992
						BENZYL ALCOHOL	0.19	<LM18	0.19	UGG	07/24/1992
						BIS (2-CHLOROETHOXY) METHANE	0.06	<LM18	0.059	UGG	07/24/1992
						BIS (2-CHLOROETHYL) ETHER	0.03	<LM18	0.033	UGG	07/24/1992
						BIS (2-CHLOROISOPROPYL) ETHER	0.2	<LM18	0.2	UGG	07/24/1992
						BIS (2-ETHYLHEXYL) PHTHALATE	0.62	<LM18	0.62	UGG	07/24/1992
						BUTYLBENZYL PHTHALATE	0.17	<LM18	0.17	UGG	07/24/1992
						CARBAZ	0.033	<LM18	0.033	UGG	07/24/1992
						CHRYSENE	0.12	<LM18	0.12	UGG	07/24/1992
						DI-N-BUTYL PHTHALATE	0.06	<LM18	0.061	UGG	07/24/1992
						DI-N-OCTYL PHTHALATE	0.19	<LM18	0.19	UGG	07/24/1992

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SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	RESULT VALUE	BOOL METHOD	COD	UNITS	DATE
						DIBENZ(A,H)ANTHRACENE	0.21	<LM18	0.21	UGG	07/24/1992
						DIBENZOFURAN	0.04	<LM18	0.035	UGG	07/24/1992
						DIETHYL PHTHALATE	0.24	<LM18	0.24	UGG	07/24/1992
						DIMETHYL PHTHALATE	0.17	<LM18	0.17	UGG	07/24/1992
						ENDOSULFAN SULFATE	0.62	<LM18	0.62	UGG	07/24/1992
						ENDRIN ALDEHYDE	0.53	<LM18	0.53	UGG	07/24/1992
						ENDRIN KETONE	0.53	<LM18	0.53	UGG	07/24/1992
						FLUORANTHENE	0.07	<LM18	0.068	UGG	07/24/1992
						FLUORENE	0.03	<LM18	0.033	UGG	07/24/1992
						HEXACHLOROBENZENE	0.03	<LM18	0.033	UGG	07/24/1992
						HEXACHLOROBUTADIENE	0.23	<LM18	0.23	UGG	07/24/1992
						HEXACHLOROCYCLOPENTADIENE	6.2	<LM18	6.2	UGG	07/24/1992
						HEXACHLOROETHANE	0.15	<LM18	0.15	UGG	07/24/1992
						INDENO(1,2,3-C,D)PYRENE	0.29	<LM18	0.29	UGG	07/24/1992
						ISOPHORONE	0.03	<LM18	0.033	UGG	07/24/1992
						N-NITROSODI-N-PROPYLAMINE	0.2	<LM18	0.2	UGG	07/24/1992
						N-NITROSODIMETHYLAMINE	0.14	<LM18	0.14	UGG	07/24/1992
						N-NITROSODIPHENYLAMINE	0.19	<LM18	0.19	UGG	07/24/1992
						NAPHTHALENE	0.04	<LM18	0.037	UGG	07/24/1992
						PENTACHLOROPHENOL	1.3	<LM18	1.3	UGG	07/24/1992
						PHENANTHRENE	0.03	<LM18	0.033	UGG	07/24/1992
						PHENOL	0.11	<LM18	0.11	UGG	07/24/1992
						PYRENE	0.03	<LM18	0.033	UGG	07/24/1992
		R26SA0201	1.5	SO	VOA	(2-CHLOROETHOXY) ETHENE/2-CHLO	0.01	<LM19	0.01	UGG	07/24/1992
						1,1,1-TRICHLOROETHANE	0.004	<LM19	0.004	UGG	07/24/1992
						1,1,2,2-TETRACHLOROETHANE	0.002	<LM19	0.002	UGG	07/24/1992
						1,1,2-TRICHLOROETHANE	0.005	<LM19	0.005	UGG	07/24/1992
						1,1-DICHLOROETHANE	0.002	<LM19	0.002	UGG	07/24/1992
						1,1-DICHLOROETHENE	0.004	<LM19	0.004	UGG	07/24/1992
						1,2-DICHLOROETHANE	0.002	<LM19	0.002	UGG	07/24/1992
						1,2-DICHLOROETHENE	0.003	<LM19	0.003	UGG	07/24/1992
						1,2-DICHLOROPROPANE	0.003	<LM19	0.003	UGG	07/24/1992
						1,3-DICHLOROBENZENE	0.13	<LM18	0.13	UGG	07/24/1992
						ACETIC ACID, VINYL ESTER/VINYL	0.03	<LM19	0.032	UGG	07/24/1992
						ACETONE	0.02	<LM19	0.017	UGG	07/24/1992
						ACROLEIN	0.1	<LM19	0.1	UGG	07/24/1992
						ACRYLONITRILE	0.1	<LM19	0.1	UGG	07/24/1992
						BENZENE	0.002	<LM19	0.002	UGG	07/24/1992
						BROMODICHLOROMETHANE	0.003	<LM19	0.003	UGG	07/24/1992
						BROMOFORM	0.007	<LM19	0.007	UGG	07/24/1992
						BROMOMETHANE	0.006	<LM19	0.006	UGG	07/24/1992
						CARBON DISULFIDE	0.004	<LM19	0.004	UGG	07/24/1992
						CARBON TETRACHLORIDE	0.007	<LM19	0.007	UGG	07/24/1992
						CHLORFORM	0.0009	<LM19	0.0009	UGG	07/24/1992
						CHLOROBENZENE	0.0009	<LM19	0.0009	UGG	07/24/1992
						CHLOROETHANE	0.01	<LM19	0.012	UGG	07/24/1992
						CHLORDETHANE/VINYL CHLORIDE	0.006	<LM19	0.006	UGG	07/24/1992
						CHLOROMETHANE	0.009	<LM19	0.009	UGG	07/24/1992
						CIS-1,3-DICHLOROPROPYLENE/CIS-	0.003	<LM19	0.003	UGG	07/24/1992

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SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	RESULT VALUE	BOOL METHOD	COD	UNITS	DATE
						DIBROMOCHLOROMETHANE	0.003	<LM19	0.003	UGG	07/24/1992
						DICHLOROBENZENE	0.1	<LM19	0.1	UGG	07/24/1992
						ETHYLBENZENE	0.002	<LM19	0.002	UGG	07/24/1992
						METHYL-N-BUTYL KETONE/2-HEXANO	0.03	<LM19	0.032	UGG	07/24/1992
						METHYLENE CHLORIDE	0.012	<LM19	0.012	UGG	07/24/1992
						METHYLETHYL PHENOL/METHYLETHYL	0.07	<LM19	0.07	UGG	07/24/1992
						METHYLISOBUTYL KETONE	0.03	<LM19	0.027	UGG	07/24/1992
						STYRENE	0.003	<LM19	0.003	UGG	07/24/1992
						TETRACHLOROETHENE	0.0008	<LM19	0.0008	UGG	07/24/1992
						TOLUENE	0.0008	<LM19	0.0008	UGG	07/24/1992
						TRANS-1,3-DICHLOROPROPENE	0.003	<LM19	0.003	UGG	07/24/1992
						TRICHLOROETHENE	0.003	<LM19	0.003	UGG	07/24/1992
						TRICHLOROFLUOROMETHANE	0.006	<LM19	0.006	UGG	07/24/1992
						XYLENES	0.002	<LM19	0.002	UGG	07/24/1992
	R26-SA-03	R26SA0301	0.5	SO	METALS	ALUMINUM	12,900.0	=JS16	2.35	UGG	07/24/1992
						ANTIMONY	7.14	<JS16	7.14	UGG	07/24/1992
						ARSENIC	4.7	=JD19	0.25	UGG	07/24/1992
						BARIUM	220.0	=JS16	5.18	UGG	07/24/1992
						BERYLLIUM	0.5	<JS16	0.5	UGG	07/24/1992
						CADMIUM	3.45	=JS16	0.7	UGG	07/24/1992
						CALCIUM	6,390.0	=JS16	100.0	UGG	07/24/1992
						CHROMIUM	32.9	=JS16	4.05	UGG	07/24/1992
						COBALT	8.17	=JS16	1.42	UGG	07/24/1992
						COPPER	18.8	=JS16	0.965	UGG	07/24/1992
						IRON	18,300.0	=JS16	3.68	UGG	07/24/1992
						LEAD	27.8	=JD17	0.177	UGG	07/24/1992
						MAGNESIUM	3,050.0	=JS16	100.0	UGG	07/24/1992
						MANGANESE	319.0	=JS16	2.05	UGG	07/24/1992
						MERCURY	0.128	=JB01	0.05	UGG	07/24/1992
						NICKEL	22.7	=JS16	1.71	UGG	07/24/1992
						POTASSIUM	1,040.0	=JS16	100.0	UGG	07/24/1992
						SELENIUM	0.826	=JD15	0.25	UGG	07/24/1992
						SILVER	0.589	<JS16	0.589	UGG	07/24/1992
						SODIUM	404.0	=JS16	100.0	UGG	07/24/1992
						THALLIUM	6.62	<JS16	6.62	UGG	07/24/1992
						VANADIUM	33.9	=JS16	3.39	UGG	07/24/1992
						ZINC	80.9	=JS16	8.03	UGG	07/24/1992
		R26SA0301	0.5	SO	SVOA	1,2,4-TRICHLOROBENZENE	0.04	<LM18	0.04	UGG	07/24/1992
						1,2-DICHLOROBENZENE	0.11	<LM18	0.11	UGG	07/24/1992
						1,2-DIPHENYLHYDRAZINE	0.14	<LM18	0.14	UGG	07/24/1992
						1,4-DICHLOROBENZENE	0.1	<LM18	0.098	UGG	07/24/1992
						2,4,5-TRICHLOROPHENOL	0.1	<LM18	0.1	UGG	07/24/1992
						2,4,6-TRICHLOROPHENOL	0.17	<LM18	0.17	UGG	07/24/1992
						2,4-DICHLOROPHENOL	0.18	<LM18	0.18	UGG	07/24/1992
						2,4-DIMETHYLPHENOL	0.69	<LM18	0.69	UGG	07/24/1992
						2,4-DINITROPHENOL	1.2	<LM18	1.2	UGG	07/24/1992
						2-CHLORONAPHTHALENE	0.04	<LM18	0.036	UGG	07/24/1992
						2-CHLOROPHENOL	0.06	<LM18	0.06	UGG	07/24/1992

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SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	RESULT VALUE	BOOL METHOD	COD	UNITS	DATE
						2-METHYL-4,6-DINITROPHENOL/4,6	0.55	<LM18	0.55	UGG	07/24/1992
						2-METHYLNAPHTHALENE	0.05	<LM18	0.049	UGG	07/24/1992
						2-METHYLPHENOL/2-CRESOL	0.29	<LM18	0.29	UGG	07/24/1992
						2-NITROANILINE	0.06	<LM18	0.062	UGG	07/24/1992
						2-NITROPHENOL	0.14	<LM18	0.14	UGG	07/24/1992
						3,3'-DICHLOROBENZIDINE	6.3	<LM18	6.3	UGG	07/24/1992
						3-METHYL-4-CHLOROPHENOL/4-CHLO	0.1	<LM18	0.095	UGG	07/24/1992
						3-NITROANILINE	0.45	<LM18	0.45	UGG	07/24/1992
						4-BROMOPHENYLPHENYL ETHER	0.03	<LM18	0.033	UGG	07/24/1992
						4-CHLOROANILINE	0.81	<LM18	0.81	UGG	07/24/1992
						4-CHLOROPHENYLPHENYL ETHER	0.03	<LM18	0.033	UGG	07/24/1992
						4-METHYLPHENOL/4-CRESOL	0.24	<LM18	0.24	UGG	07/24/1992
						4-NITROANILINE	0.41	<LM18	0.41	UGG	07/24/1992
						4-NITROPHENOL	1.4	<LM18	1.4	UGG	07/24/1992
						ACENAPHTHENE	0.04	<LM18	0.036	UGG	07/24/1992
						ACENAPHTHYLENE	0.03	<LM18	0.033	UGG	07/24/1992
						ANTHRACENE	0.03	<LM18	0.033	UGG	07/24/1992
						BENZIDINE	0.85	<LM18	0.85	UGG	07/24/1992
						BENZO(A)ANTHRACENE	0.17	<LM18	0.17	UGG	07/24/1992
						BENZO(A)PYRENE	0.25	<LM18	0.25	UGG	07/24/1992
						BENZO(B)FLUORANTHENE	0.21	<LM18	0.21	UGG	07/24/1992
						BENZO(G,H,I)PERYLENE	0.25	<LM18	0.25	UGG	07/24/1992
						BENZO(K)FLUORANTHENE	0.07	<LM18	0.066	UGG	07/24/1992
						BENZOIC ACID	6.1	<LM18	6.1	UGG	07/24/1992
						BENZYL ALCOHOL	0.19	<LM18	0.19	UGG	07/24/1992
						BIS (2-CHLOROETHOXY) METHANE	0.06	<LM18	0.059	UGG	07/24/1992
						BIS (2-CHLOROETHYL) ETHER	0.03	<LM18	0.033	UGG	07/24/1992
						BIS (2-CHLOROISOPROPYL) ETHER	0.2	<LM18	0.2	UGG	07/24/1992
						BIS (2-ETHYLHEXYL) PHTHALATE	0.62	<LM18	0.62	UGG	07/24/1992
						BUTYLBENZYL PHTHALATE	0.17	<LM18	0.17	UGG	07/24/1992
						CARBAZ	0.033	<LM18	0.033	UGG	07/24/1992
						CHRYSENE	0.12	<LM18	0.12	UGG	07/24/1992
						DI-N-BUTYL PHTHALATE	0.06	<LM18	0.061	UGG	07/24/1992
						DI-N-OCTYL PHTHALATE	0.19	<LM18	0.19	UGG	07/24/1992
						DIBENZ(A,H)ANTHRACENE	0.21	<LM18	0.21	UGG	07/24/1992
						DIBENZOFURAN	0.04	<LM18	0.035	UGG	07/24/1992
						DIETHYL PHTHALATE	0.24	<LM18	0.24	UGG	07/24/1992
						DIMETHYL PHTHALATE	0.17	<LM18	0.17	UGG	07/24/1992
						ENDOSULFAN SULFATE	0.62	<LM18	0.62	UGG	07/24/1992
						ENDRIN ALDEHYDE	0.53	<LM18	0.53	UGG	07/24/1992
						ENDRIN KETONE	0.53	<LM18	0.53	UGG	07/24/1992
						FLUORANTHENE	0.07	<LM18	0.068	UGG	07/24/1992
						FLUORENE	0.03	<LM18	0.033	UGG	07/24/1992
						HEXACHLOROBENZENE	0.03	<LM18	0.033	UGG	07/24/1992
						HEXACHLOROBUTADIENE	0.23	<LM18	0.23	UGG	07/24/1992
						HEXACHLOROCYCLOPENTADIENE	6.2	<LM18	6.2	UGG	07/24/1992
						HEXACHLOROETHANE	0.15	<LM18	0.15	UGG	07/24/1992
						INDENO(1,2,3-C,D)PYRENE	0.29	<LM18	0.29	UGG	07/24/1992
						ISOPHORONE	0.03	<LM18	0.033	UGG	07/24/1992

IAAP - Non Screening Sites

R26- All Results

SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	RESULT VALUE	BOOL METHOD	COD	UNITS	DATE
						N-NITROSODI-N-PROPYLAMINE	0.2	<LM18	0.2	UGG	07/24/1992
						N-NITROSODIMETHYLAMINE	0.14	<LM18	0.14	UGG	07/24/1992
						N-NITROSODIPHENYLAMINE	0.19	<LM18	0.19	UGG	07/24/1992
						NAPHTHALENE	0.04	<LM18	0.037	UGG	07/24/1992
						PENTACHLOROPHENOL	1.3	<LM18	1.3	UGG	07/24/1992
						PHENANTHRENE	0.03	<LM18	0.033	UGG	07/24/1992
						PHENOL	0.11	<LM18	0.11	UGG	07/24/1992
						PYRENE	0.03	<LM18	0.033	UGG	07/24/1992
		R26SA0301	0.5	SO	VOA	(2-CHLOROETHOXY) ETHENE/2-CHLO	0.01	<LM19	0.01	UGG	07/24/1992
						1,1,1-TRICHLOROETHANE	0.004	<LM19	0.004	UGG	07/24/1992
						1,1,2,2-TETRACHLOROETHANE	0.002	<LM19	0.002	UGG	07/24/1992
						1,1,2-TRICHLOROETHANE	0.005	<LM19	0.005	UGG	07/24/1992
						1,1-DICHLOROETHANE	0.002	<LM19	0.002	UGG	07/24/1992
						1,1-DICHLOROETHENE	0.004	<LM19	0.004	UGG	07/24/1992
						1,2-DICHLOROETHANE	0.002	<LM19	0.002	UGG	07/24/1992
						1,2-DICHLOROETHENE	0.003	<LM19	0.003	UGG	07/24/1992
						1,2-DICHLOROPROPANE	0.003	<LM19	0.003	UGG	07/24/1992
						1,3-DICHLOROBENZENE	0.13	<LM18	0.13	UGG	07/24/1992
						ACETIC ACID, VINYL ESTER/VINYL	0.03	<LM19	0.032	UGG	07/24/1992
						ACETONE	0.02	<LM19	0.017	UGG	07/24/1992
						ACROLEIN	0.1	<LM19	0.1	UGG	07/24/1992
						ACRYLONITRILE	0.1	<LM19	0.1	UGG	07/24/1992
						BENZENE	0.002	<LM19	0.002	UGG	07/24/1992
						BROMODICHLOROMETHANE	0.003	<LM19	0.003	UGG	07/24/1992
						BROMOFORM	0.007	<LM19	0.007	UGG	07/24/1992
						BROMOMETHANE	0.006	<LM19	0.006	UGG	07/24/1992
						CARBON DISULFIDE	0.004	<LM19	0.004	UGG	07/24/1992
						CARBON TETRACHLORIDE	0.007	<LM19	0.007	UGG	07/24/1992
						CHLORFORM	0.0009	<LM19	0.0009	UGG	07/24/1992
						CHLOROBENZENE	0.0009	<LM19	0.0009	UGG	07/24/1992
						CHLOROETHANE	0.01	<LM19	0.012	UGG	07/24/1992
						CHLOROETHANE/VINYL CHLORIDE	0.006	<LM19	0.006	UGG	07/24/1992
						CHLOROMETHANE	0.009	<LM19	0.009	UGG	07/24/1992
						CIS-1,3-DICHLOROPROPYLENE/CIS-	0.003	<LM19	0.003	UGG	07/24/1992
						DIBROMOCHLOROMETHANE	0.003	<LM19	0.003	UGG	07/24/1992
						DICHLOROBENZENE	0.1	<LM19	0.1	UGG	07/24/1992
						ETHYLBENZENE	0.002	<LM19	0.002	UGG	07/24/1992
						METHYL-N-BUTYL KETONE/2-HEXANO	0.03	<LM19	0.032	UGG	07/24/1992
						METHYLENE CHLORIDE	0.012	<LM19	0.012	UGG	07/24/1992
						METHYLETHYL PHENOL/METHYLETHYL	0.07	<LM19	0.07	UGG	07/24/1992
						METHYLISOBUTYL KETONE	0.03	<LM19	0.027	UGG	07/24/1992
						STYRENE	0.003	<LM19	0.003	UGG	07/24/1992
						TETRACHLOROETHENE	0.0008	<LM19	0.0008	UGG	07/24/1992
						TOLUENE	0.007	=LM19	0.0008	UGG	07/24/1992
						TRANS-1,3-DICHLOROPROPENE	0.003	<LM19	0.003	UGG	07/24/1992
						TRICHLOROETHENE	0.003	<LM19	0.003	UGG	07/24/1992
						TRICHLOROFLUOROMETHANE	0.006	<LM19	0.006	UGG	07/24/1992
						XYLENES	0.002	<LM19	0.002	UGG	07/24/1992

Non Screening Site - IAAPR26 Maximum Background

IAAP-BW Results Above Evaluation Criteria

SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	RESULT VALUE	BOOL METHOD	CRL	UNITS	DATE
IAAPBW	R26-SA-01	R26SA0101	1.5	SO	METALS	MERCURY	0.253	=JB01	0.155	UGG	07/24/1992
	R26-SA-02	R26SA0201	1.5	SO	METALS	MERCURY	0.633	=JB01	0.155	UGG	07/24/1992
	R26-SA-03	R26SA0301	0.5	SO	METALS	CADMIUM	3.45	=JS16	0.899	UGG	07/24/1992
						SELENIUM	0.826	=JD15	0.612	UGG	07/24/1992
						SODIUM	404.0	=JS16	327.0	UGG	07/24/1992
		R26SA0301	0.5	SO	VOLATILE	TOLUENE	0.007	=LM19	0.0008	UGG	07/24/1992

PRELIMINARY SITE CHARACTERIZATION
Roundhouse Transformer Storage Yard (R28)

SITE DESCRIPTION

- The storage yard was used to store transformers containing dielectric fluid with polychlorinated biphenyl (PCB) constituents. The transformer fluid was topped off by persons contracted by IAAP. Therefore the fluid used to top off the transformers was not stored on-site.

- Around 1980 all transformers containing > 500 ppm PCBs were moved inside a warehouse for storage. Several years later, all transformers containing > 50 ppm Arochlor were moved inside a warehouse for storage.

- Transformers may have leaked during storage in the yard.

CONTAMINANT SUMMARY

- Soil: Five soil samples (4 surface samples and 1 sample 1.5-2 feet below ground surface) were collected at the transformer storage yard during the SI. Ten soil samples (5 surface samples and 5 samples 1.5 feet below ground surface) were collected during the RI. Arochlor 1260 was detected above EPA Risk-Based Concentration levels in both SI and RI samples. The EPA Risk-Based Concentration for Arochlor 1260 in residential soils is 0.22 µg/g, and 0.37 µg/g for industrial soils.

Compound	Evaluation Criteria
Arochlor 1260 at 0.067 to 59.9 µg/g	Detection Limit = 0.082 µg/g

- Sediment: One sediment sample was collected during the RI from a drainage ditch southeast of Yard A. The detected level is above the EPA Risk-Based Concentration for PCB 1260 in residential (0.22 µg/g) and industrial (0.37 µg/g) soils.

Compound	Evaluation Criteria
PCB 1260 at 3.67 µg/g	Detection Limit = 0.082 µg/g

SITE EVALUATION AND RECOMMENDATIONS

- PCBs were reported in the sediment sample (R28-SD-06-01) collected from a drainage area leading east of Yard A and into the ditch running along the railroad tracks.

- PCBs were reported in the soil samples (both surface and at depth to 1.5 feet) collected around the current transformer storage area both at the surface and at depth. Levels decreased with depth.

- PCBs were not detected in soil (either surface or at 1.5 feet below ground surface) samples collected in the drainage area leading west and off-site of Yard A. This drainage area runs into a corn field located approximately 3 feet west of Yard A.

- It has been reported by the installation that transformers containing > 49 ppm PCBs are no longer stored at the yard. Transformers containing < 49 ppm PCBs are currently stored on the ground surface and exposed to the elements.

PHASE II ACTIVITIES

- Recommend that the site be screened during Phase II utilizing PCB immunoassays to delineate the horizontal and vertical extent of PCB contamination around the transformer storage area and PCB migration from Yard A. This will aid in determining if soil removal is necessary. JAYCOR personnel will perform both the sample collection and sample screening utilizing the immunoassays.

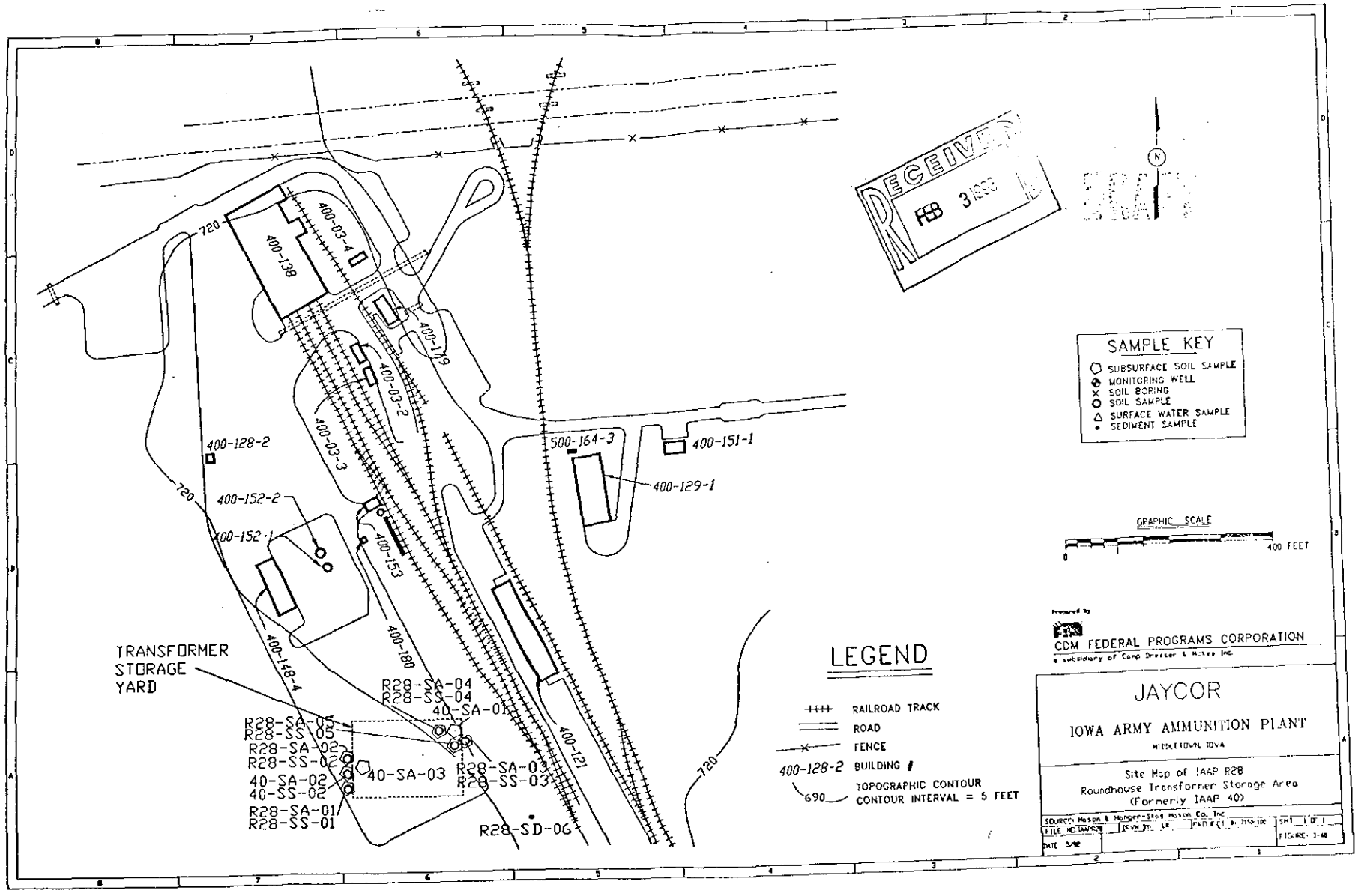
  A grid will be laid out in 25-foot intervals with the RI sample locations R28-SS-04-01 and R28-SD-06-01 as central nodes. Soil-gravel interface samples will be collected 25 feet north, south, east, and west of the contaminated RI samples. If the initial 4 samples show qualitatively no PCB contamination, then the areal extent of PCB contamination of surface soil samples will be estimated to encompass an area not to exceed 2500 square feet. If one or more of the initial 4 samples show PCB contamination, then additional samples will be collected 25 feet north, south, east, or west from the contaminated sample location (if screening of these locations has not already been completed). This should continue with the grid enlarging in 25-foot increments in the north, south, east, and west directions until all perimeter grid samples show no contamination from PCBs. The methodology and grid pattern should minimize repeated field effort (shared sample locations are not re-sampled while providing the optimum amount of sample locations and corresponding data for delineating contamination).

  After delineating PCB contamination in surface soils, initial depth samples (grab) at 1.5 feet below the surface will be collected at each contaminated surface soil location. If PCB contamination is found at a depth of 1.5 feet at any sample location, then additional samples will be collected at 1-foot depth intervals. Sampling at 1-foot depth intervals will continue at the sample location until screening indicates that no PCB contamination is present.

  A SOP will be provided for the immunoassay test prior to initiating field activities.

  Ten percent of the samples collected will be shipped to the laboratory for confirmatory analysis.

Attachments: R28 Site Map
R28 Sample Summary
R28 All Phase I RI Data
R28 Results Above Maximum Background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DRAFT
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SAMPLE KEY
SUBSURFACE SOIL SAMPLE
MONITORING WELL
SOIL BORING
SOIL SAMPLE
SURFACE WATER SAMPLE
SEDIMENT SAMPLE
GRAPHIC SCALE
0
400 FEET
LEGEND
RAILROAD TRACK
ROAD
FENCE
400-128-2 BUILDING #
690 TOPOGRAPHIC CONTOUR
CONTOUR INTERVAL = 5 FEET
TRANSFORMER STORAGE YARD
400-138
400-03-4
400-139
400-03-2
400-03-3
400-128-2
400-152-2
400-152-1
400-153
400-148-4
400-180
400-121
500-164-3
400-151-1
400-129-1
720
R28-SA-04
R28-SS-04
40-SA-01
R28-SA-05
R28-SS-05
R28-SA-02
R28-SS-02
40-SA-02
40-SS-02
R28-SA-01
R28-SS-01
40-SA-03
R28-SA-03
R28-SS-03
R28-SD-06
CDM FEDERAL PROGRAMS CORPORATION
a subsidiary of Camp Dresser & McKee Inc.
JAYCOR
IOWA ARMY AMMUNITION PLANT
MIDDLETOWN, IOWA
Site Map of IAAP R28
Roundhouse Transformer Storage Area
(Formerly IAAP 40)

Table R28
Sample Summary
IAAP-R28 (Roundhouse Transformer Storage Yard)

RI Sample Number	Analyses	Sample Type	Sample Category	Depth (feet)	Location
R28-SS-01-01	Pesticides PCBs	G	A	O.5	Edge of cornfield located west of storage area, 25 feet south of SI sample 40-SA-02-01.
R28-SA-01-02	Pesticides PCBs	G	A	1.5	The sample obtained from the same location as R28-SS-01-01.
R28-SS-02-01	Pesticides PCBs	G	A	0.5	25 feet north of SI sample 40-SA-02-01, at the edge of cornfield.
R28-SA-02-02	Pesticides PCBs	G	A	1.5	The sample obtained from the same location as R28-SS-02-01.
R28-SS-03-01	Pesticides PCBs	G	A	0.5	Located on the northeast corner of storage area, 25 feet southeast of SI sample 40-SA-01-01.
R28-SA-03-02	Pesticides PCBs	G	A	1.5	The sample obtained from the same location as R28-SS-03-01.
R28-SS-04-01	Pesticides PCBs	G	A	0.5	25 feet west of SI sample 40-SA-01-01.
R28-SA-04-02	Pesticides PCBs	G	A	1.5	The sample obtained from the same location as R28-SS-04-01.
R28-SS-05-01	Pesticides PCBs	G	A	0.5	25 feet south of SI sample 40-SA-01-01.
R28-SA-05-02	Pesticides PCBs	G	A	1.5	The sample obtained from the same location as R28-SS-05-01.
R28-SD-06-01	Pesticides PCBs	G	A	0.5	100 feet east of storage yard in drainage ditch.
R28-SW-06-02	Pesticides PCBs	G	A	N/A	Sample not collected; no water present.

C = Composite S = Screening Sample G = Grab A = Analytical Sample

Non Screening Site - IAAPR28 All Data

IAAP-BW All Results

SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	RESULT VALUE	BOOL METHOD	CRL	UNITS	DATE
IAAPBW	R28-SS-01	R28SS0101	0.5	SO	PEST-PCB	2,2-BIS(P-CHLOROPHENYL)-1,1-DI	0.008	<LH10	0.008	UGG	07/22/1992
						2,2-BIS(P-CHLOROPHENYL)-1,1-TR	0.007	<LH10	0.007	UGG	07/22/1992
						2,2-BIS(P-CHOLROPHENYL)-1,1-DI	0.008	<LH10	0.008	UGG	07/22/1992
						ALDRIN	0.007	<LH10	0.007	UGG	07/22/1992
						ALPHA-BENZENEHEXACHLORIDE	0.009	<LH10	0.009	UGG	07/22/1992
						ALPHA-CHLORDANE	0.005	<LH10	0.005	UGG	07/22/1992
						ALPHA-ENDOSULFAN/ENDOSULFAN I	0.006	<LH10	0.006	UGG	07/22/1992
						BETA-BENZENEHEXACHLORIDE	0.003	<LH10	0.003	UGG	07/22/1992
						BETA-ENDOSULFAN/ENDOSULFAN II	0.007	<LH10	0.007	UGG	07/22/1992
						DELTA-BENZENEHEXACHLORIDE	0.006	<LH10	0.006	UGG	07/22/1992
						DIELDRIN	0.006	<LH10	0.006	UGG	07/22/1992
						ENDRIN	0.007	<LH10	0.007	UGG	07/22/1992
						GAMMA-CHLORDANE	0.005	<LH10	0.005	UGG	07/22/1992
						HEPTACHLOR	0.006	<LH10	0.006	UGG	07/22/1992
						HEPTACHLOR EPOXIDE	0.006	<LH10	0.006	UGG	07/22/1992
						ISODRIN	0.005	<LH10	0.005	UGG	07/22/1992
						LINDANE	0.006	<LH10	0.006	UGG	07/22/1992
						METHOXYCHLOR	0.071	<LH10	0.071	UGG	07/22/1992
						PCB 1016	0.067	<LH16	0.067	UGG	07/22/1992
						PCB 1221	0.082	<LH16	0.082	UGG	07/22/1992
						PCB 1232	0.082	<LH16	0.082	UGG	07/22/1992
						PCB 1242	0.082	<LH16	0.082	UGG	07/22/1992
						PCB 1248	0.08	<LH16	0.082	UGG	07/22/1992
						PCB 1254	0.082	<LH16	0.082	UGG	07/22/1992
						PCB 1260	0.082	<LH16	0.082	UGG	07/22/1992
						TOXAPHENE	0.444	<LH10	0.444	UGG	07/22/1992
		R28SS0101	0.5	SO	SEMIVOA	ENDOSULFAN SULFATE	0.008	<LH10	0.008	UGG	07/22/1992
						ENDRIN ALDEHYDE	0.024	<LH10	0.024	UGG	07/22/1992
						ENDRIN KETONE	0.024	<LH10	0.024	UGG	07/22/1992
	R28-SA-01	R28SA0102	1.5	SO	PEST-PCB	2,2-BIS(P-CHLOROPHENYL)-1,1-DI	0.008	<LH10	0.008	UGG	07/22/1992
						2,2-BIS(P-CHLOROPHENYL)-1,1-TR	0.007	<LH10	0.007	UGG	07/22/1992
						2,2-BIS(P-CHOLROPHENYL)-1,1-DI	0.008	<LH10	0.008	UGG	07/22/1992
						ALDRIN	0.007	<LH10	0.007	UGG	07/22/1992
						ALPHA-BENZENEHEXACHLORIDE	0.009	<LH10	0.009	UGG	07/22/1992
						ALPHA-CHLORDANE	0.005	<LH10	0.005	UGG	07/22/1992
						ALPHA-ENDOSULFAN/ENDOSULFAN I	0.006	<LH10	0.006	UGG	07/22/1992
						BETA-BENZENEHEXACHLORIDE	0.003	<LH10	0.003	UGG	07/22/1992
						BETA-ENDOSULFAN/ENDOSULFAN II	0.007	<LH10	0.007	UGG	07/22/1992
						DELTA-BENZENEHEXACHLORIDE	0.006	<LH10	0.006	UGG	07/22/1992
						DIELDRIN	0.006	<LH10	0.006	UGG	07/22/1992
						ENDRIN	0.007	<LH10	0.007	UGG	07/22/1992
						GAMMA-CHLORDANE	0.005	<LH10	0.005	UGG	07/22/1992
						HEPTACHLOR	0.006	<LH10	0.006	UGG	07/22/1992
						HEPTACHLOR EPOXIDE	0.006	<LH10	0.006	UGG	07/22/1992
						ISODRIN	0.005	<LH10	0.005	UGG	07/22/1992
						LINDANE	0.006	<LH10	0.006	UGG	07/22/1992
						METHOXYCHLOR	0.071	<LH10	0.071	UGG	07/22/1992
						PCB 1016	0.067	<LH16	0.067	UGG	07/22/1992
						PCB 1221	0.082	<LH16	0.082	UGG	07/22/1992
						PCB 1232	0.082	<LH16	0.082	UGG	07/22/1992
						PCB 1242	0.082	<LH16	0.082	UGG	07/22/1992
						PCB 1248	0.08	<LH16	0.082	UGG	07/22/1992
						PCB 1254	0.082	<LH16	0.082	UGG	07/22/1992

Non Screening Site - IAAPR28 All Data

IAAP-8W All Results

SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	RESULT VALUE	BOOL METHOD	CRL	UNITS	DATE
						PCB 1260	0.082	<LH16	0.082	UGG	07/22/1992
						TOXAPHENE	0.444	<LH10	0.444	UGG	07/22/1992
		R28SA0102	1.5	SO	SEMIVOA	ENDOSULFAN SULFATE	0.008	<LH10	0.008	UGG	07/22/1992
						ENDRIN ALDEHYDE	0.024	<LH10	0.024	UGG	07/22/1992
						ENDRIN KETONE	0.024	<LH10	0.024	UGG	07/22/1992
	R28-SS-02	R28SS0201	0.5	SO	PEST-PCB	2,2-BIS(P-CHLOROPHENYL)-1,1-DI	0.008	<LH10	0.008	UGG	07/22/1992
						2,2-BIS(P-CHLOROPHENYL)-1,1-TR	0.007	<LH10	0.007	UGG	07/22/1992
						2,2-BIS(P-CHOLROPHENYL)-1,1-DI	0.008	<LH10	0.008	UGG	07/22/1992
						ALDRIN	0.007	<LH10	0.007	UGG	07/22/1992
						ALPHA-BENZENEHEXACHLORIDE	0.009	<LH10	0.009	UGG	07/22/1992
						ALPHA-CHLORDANE	0.005	<LH10	0.005	UGG	07/22/1992
						ALPHA-ENDOSULFAN/ENDOSULFAN I	0.006	<LH10	0.006	UGG	07/22/1992
						BETA-BENZENEHEXACHLORIDE	0.003	<LH10	0.003	UGG	07/22/1992
						BETA-ENDOSULFAN/ENDOSULFAN II	0.007	<LH10	0.007	UGG	07/22/1992
						DELTA-BENZENEHEXACHLORIDE	0.006	<LH10	0.006	UGG	07/22/1992
						DIELDRIN	0.006	<LH10	0.006	UGG	07/22/1992
						ENDRIN	0.007	<LH10	0.007	UGG	07/22/1992
						GAMMA-CHLORDANE	0.005	<LH10	0.005	UGG	07/22/1992
						HEPTACHLOR	0.006	<LH10	0.006	UGG	07/22/1992
						HEPTACHLOR EPOXIDE	0.006	<LH10	0.006	UGG	07/22/1992
						ISODRIN	0.005	<LH10	0.005	UGG	07/22/1992
						LINDANE	0.006	<LH10	0.006	UGG	07/22/1992
						METHOXYCHLOR	0.071	<LH10	0.071	UGG	07/22/1992
						PCB 1016	0.067	<LH16	0.067	UGG	07/22/1992
						PCB 1221	0.082	<LH16	0.082	UGG	07/22/1992
						PCB 1232	0.082	<LH16	0.082	UGG	07/22/1992
						PCB 1242	0.082	<LH16	0.082	UGG	07/22/1992
						PCB 1248	0.08	<LH16	0.082	UGG	07/22/1992
						PCB 1254	0.082	<LH16	0.082	UGG	07/22/1992
						PCB 1260	0.082	<LH16	0.082	UGG	07/22/1992
						TOXAPHENE	0.444	<LH10	0.444	UGG	07/22/1992
		R28SS0201	0.5	SO	SEMIVOA	ENDOSULFAN SULFATE	0.008	<LH10	0.008	UGG	07/22/1992
						ENDRIN ALDEHYDE	0.024	<LH10	0.024	UGG	07/22/1992
						ENDRIN KETONE	0.024	<LH10	0.024	UGG	07/22/1992
	R28-SA-02	R28SA0202	1.5	SO	PEST-PCB	2,2-BIS(P-CHLOROPHENYL)-1,1-DI	0.008	<LH10	0.008	UGG	07/22/1992
						2,2-BIS(P-CHLOROPHENYL)-1,1-TR	0.007	<LH10	0.007	UGG	07/22/1992
						2,2-BIS(P-CHOLROPHENYL)-1,1-DI	0.008	<LH10	0.008	UGG	07/22/1992
						ALDRIN	0.007	<LH10	0.007	UGG	07/22/1992
						ALPHA-BENZENEHEXACHLORIDE	0.009	<LH10	0.009	UGG	07/22/1992
						ALPHA-CHLORDANE	0.005	<LH10	0.005	UGG	07/22/1992
						ALPHA-ENDOSULFAN/ENDOSULFAN I	0.006	<LH10	0.006	UGG	07/22/1992
						BETA-BENZENEHEXACHLORIDE	0.003	<LH10	0.003	UGG	07/22/1992
						BETA-ENDOSULFAN/ENDOSULFAN II	0.007	<LH10	0.007	UGG	07/22/1992
						DELTA-BENZENEHEXACHLORIDE	0.006	<LH10	0.006	UGG	07/22/1992
						DIELDRIN	0.006	<LH10	0.006	UGG	07/22/1992
						ENDRIN	0.007	<LH10	0.007	UGG	07/22/1992
						GAMMA-CHLORDANE	0.005	<LH10	0.005	UGG	07/22/1992
						HEPTACHLOR	0.006	<LH10	0.006	UGG	07/22/1992
						HEPTACHLOR EPOXIDE	0.006	<LH10	0.006	UGG	07/22/1992
						ISODRIN	0.005	<LH10	0.005	UGG	07/22/1992
						LINDANE	0.006	<LH10	0.006	UGG	07/22/1992
						METHOXYCHLOR	0.071	<LH10	0.071	UGG	07/22/1992
						PCB 1016	0.067	<LH16	0.067	UGG	07/22/1992

Non Screening Site - IAAPR28 All Data

IAAP-BW All Results

SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	RESULT VALUE	BOOL METHOD	CRL	UNITS	DATE
						PCB 1221	0.082	<LH16	0.082	UGG	07/22/1992
						PCB 1232	0.082	<LH16	0.082	UGG	07/22/1992
						PCB 1242	0.082	<LH16	0.082	UGG	07/22/1992
						PCB 1248	0.08	<LH16	0.082	UGG	07/22/1992
						PCB 1254	0.082	<LH16	0.082	UGG	07/22/1992
						PCB 1260	0.082	<LH16	0.082	UGG	07/22/1992
						TOXAPHENE	0.444	<LH10	0.444	UGG	07/22/1992
		R28SA0202	1.5	SO	SEMIVOA	ENDOSULFAN SULFATE	0.008	<LH10	0.008	UGG	07/22/1992
						ENDRIN ALDEHYDE	0.024	<LH10	0.024	UGG	07/22/1992
						ENDRIN KETONE	0.024	<LH10	0.024	UGG	07/22/1992
	R28-SS-03	R28SS0301	0.5	SO	PEST-PCB	2,2-BIS(P-CHLOROPHENYL)-1,1-DI	0.008	<LH10	0.008	UGG	07/22/1992
						2,2-BIS(P-CHLOROPHENYL)-1,1-TR	0.007	<LH10	0.007	UGG	07/22/1992
						2,2-BIS(P-CHOLROPHENYL)-1,1-DI	0.008	<LH10	0.008	UGG	07/22/1992
						ALDRIN	0.007	<LH10	0.007	UGG	07/22/1992
						ALPHA-BENZENEHEXACHLORIDE	0.009	<LH10	0.009	UGG	07/22/1992
						ALPHA-CHLORDANE	0.005	<LH10	0.005	UGG	07/22/1992
						ALPHA-ENDOSULFAN/ENDOSULFAN I	0.006	<LH10	0.006	UGG	07/22/1992
						BETA-BENZENEHEXACHLORIDE	0.003	<LH10	0.003	UGG	07/22/1992
						BETA-ENDOSULFAN/ENDOSULFAN II	0.007	<LH10	0.007	UGG	07/22/1992
						DELTA-BENZENEHEXACHLORIDE	0.006	<LH10	0.006	UGG	07/22/1992
						DIELDRIN	0.006	<LH10	0.006	UGG	07/22/1992
						ENDRIN	0.007	<LH10	0.007	UGG	07/22/1992
						GAMMA-CHLORDANE	0.005	<LH10	0.005	UGG	07/22/1992
						HEPTACHLOR	0.006	<LH10	0.006	UGG	07/22/1992
						HEPTACHLOR EPOXIDE	0.006	<LH10	0.006	UGG	07/22/1992
						ISODRIN	0.005	<LH10	0.005	UGG	07/22/1992
						LINDANE	0.006	<LH10	0.006	UGG	07/22/1992
						METHOXYCHLOR	0.071	<LH10	0.071	UGG	07/22/1992
						PCB 1016	0.067	<LH16	0.067	UGG	07/22/1992
						PCB 1221	0.082	<LH16	0.082	UGG	07/22/1992
						PCB 1232	0.082	<LH16	0.082	UGG	07/22/1992
						PCB 1242	0.082	<LH16	0.082	UGG	07/22/1992
						PCB 1248	0.08	<LH16	0.082	UGG	07/22/1992
						PCB 1254	0.082	<LH16	0.082	UGG	07/22/1992
						PCB 1260	0.932	=LH16	0.082	UGG	07/22/1992
						TOXAPHENE	0.444	<LH10	0.444	UGG	07/22/1992
		R28SS0301	0.5	SO	SEMIVOA	ENDOSULFAN SULFATE	0.008	<LH10	0.008	UGG	07/22/1992
						ENDRIN ALDEHYDE	0.024	<LH10	0.024	UGG	07/22/1992
						ENDRIN KETONE	0.024	<LH10	0.024	UGG	07/22/1992
	R28-SA-03	R28SA0302	1.5	SO	PEST-PCB	2,2-BIS(P-CHLOROPHENYL)-1,1-DI	0.008	<LH10	0.008	UGG	07/22/1992
						2,2-BIS(P-CHLOROPHENYL)-1,1-TR	0.007	<LH10	0.007	UGG	07/22/1992
						2,2-BIS(P-CHOLROPHENYL)-1,1-DI	0.008	<LH10	0.008	UGG	07/22/1992
						ALDRIN	0.007	<LH10	0.007	UGG	07/22/1992
						ALPHA-BENZENEHEXACHLORIDE	0.009	<LH10	0.009	UGG	07/22/1992
						ALPHA-CHLORDANE	0.005	<LH10	0.005	UGG	07/22/1992
						ALPHA-ENDOSULFAN/ENDOSULFAN I	0.006	<LH10	0.006	UGG	07/22/1992
						BETA-BENZENEHEXACHLORIDE	0.003	<LH10	0.003	UGG	07/22/1992
						BETA-ENDOSULFAN/ENDOSULFAN II	0.007	<LH10	0.007	UGG	07/22/1992
						DELTA-BENZENEHEXACHLORIDE	0.006	<LH10	0.006	UGG	07/22/1992
						DIELDRIN	0.006	<LH10	0.006	UGG	07/22/1992
						ENDRIN	0.007	<LH10	0.007	UGG	07/22/1992
						GAMMA-CHLORDANE	0.005	<LH10	0.005	UGG	07/22/1992
						HEPTACHLOR	0.006	<LH10	0.006	UGG	07/22/1992

Non Screening Site - IAAPR28 All Data

IAAP-BW All Results

SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	RESULT VALUE	BOOL METHOD	CRL	UNITS	DATE
						HEPTACHLOR EPOXIDE	0.006	<LH10	0.006	UGG	07/22/1992
						ISODRIN	0.005	<LH10	0.005	UGG	07/22/1992
						LINDANE	0.006	<LH10	0.006	UGG	07/22/1992
						METHOXYCHLOR	0.071	<LH10	0.071	UGG	07/22/1992
						PCB 1016	0.067	<LH16	0.067	UGG	07/22/1992
						PCB 1221	0.082	<LH16	0.082	UGG	07/22/1992
						PCB 1232	0.082	<LH16	0.082	UGG	07/22/1992
						PCB 1242	0.082	<LH16	0.082	UGG	07/22/1992
						PCB 1248	0.08	<LH16	0.082	UGG	07/22/1992
						PCB 1254	0.082	<LH16	0.082	UGG	07/22/1992
						PCB 1260	0.082	<LH16	0.082	UGG	07/22/1992
						TOXAPHENE	0.444	<LH10	0.444	UGG	07/22/1992
		R28SA0302	1.5	SO	SEMIVOA	ENDOSULFAN SULFATE	0.008	<LH10	0.008	UGG	07/22/1992
						ENDRIN ALDEHYDE	0.024	<LH10	0.024	UGG	07/22/1992
						ENDRIN KETONE	0.024	<LH10	0.024	UGG	07/22/1992
	R28-SS-04	R28SS0401	0.5	SO	PEST-PCB	2,2-BIS(P-CHLOROPHENYL)-1,1-DI	0.008	<LH10	0.008	UGG	07/22/1992
						2,2-BIS(P-CHLOROPHENYL)-1,1-TR	0.007	<LH10	0.007	UGG	07/22/1992
						2,2-BIS(P-CHOLROPHENYL)-1,1-DI	0.008	<LH10	0.008	UGG	07/22/1992
						ALDRIN	0.007	<LH10	0.007	UGG	07/22/1992
						ALPHA-BENZENEHEXACHLORIDE	0.009	<LH10	0.009	UGG	07/22/1992
						ALPHA-CHLORDANE	0.005	<LH10	0.005	UGG	07/22/1992
						ALPHA-ENDOSULFAN/ENDOSULFAN I	0.006	<LH10	0.006	UGG	07/22/1992
						BETA-BENZENEHEXACHLORIDE	0.003	<LH10	0.003	UGG	07/22/1992
						BETA-ENDOSULFAN/ENDOSULFAN II	0.007	<LH10	0.007	UGG	07/22/1992
						DELTA-BENZENEHEXACHLORIDE	0.006	<LH10	0.006	UGG	07/22/1992
						DIELDRIN	0.006	<LH10	0.006	UGG	07/22/1992
						ENDRIN	0.007	<LH10	0.007	UGG	07/22/1992
						GAMMA-CHLORDANE	0.005	<LH10	0.005	UGG	07/22/1992
						HEPTACHLOR	0.006	<LH10	0.006	UGG	07/22/1992
						HEPTACHLOR EPOXIDE	0.006	<LH10	0.006	UGG	07/22/1992
						ISODRIN	0.005	<LH10	0.005	UGG	07/22/1992
						LINDANE	0.006	<LH10	0.006	UGG	07/22/1992
						METHOXYCHLOR	0.071	<LH10	0.071	UGG	07/22/1992
						PCB 1016	0.067	<LH16	0.067	UGG	07/22/1992
						PCB 1221	0.082	<LH16	0.082	UGG	07/22/1992
						PCB 1232	0.082	<LH16	0.082	UGG	07/22/1992
						PCB 1242	0.082	<LH16	0.082	UGG	07/22/1992
						PCB 1248	0.08	<LH16	0.082	UGG	07/22/1992
						PCB 1254	0.082	<LH16	0.082	UGG	07/22/1992
						PCB 1260	18.9	=LH16	0.082	UGG	07/22/1992
						TOXAPHENE	0.444	<LH10	0.444	UGG	07/22/1992
		R28SS0401	0.5	SO	SEMIVOA	ENDOSULFAN SULFATE	0.008	<LH10	0.008	UGG	07/22/1992
						ENDRIN ALDEHYDE	0.024	<LH10	0.024	UGG	07/22/1992
						ENDRIN KETONE	0.024	<LH10	0.024	UGG	07/22/1992
	R28-SA-04	R28SA0402	1.5	SO	PEST-PCB	2,2-BIS(P-CHLOROPHENYL)-1,1-DI	0.008	<LH10	0.008	UGG	07/22/1992
						2,2-BIS(P-CHLOROPHENYL)-1,1-TR	0.007	<LH10	0.007	UGG	07/22/1992
						2,2-BIS(P-CHOLROPHENYL)-1,1-DI	0.008	<LH10	0.008	UGG	07/22/1992
						ALDRIN	0.007	<LH10	0.007	UGG	07/22/1992
						ALPHA-BENZENEHEXACHLORIDE	0.009	<LH10	0.009	UGG	07/22/1992
						ALPHA-CHLORDANE	0.005	<LH10	0.005	UGG	07/22/1992
						ALPHA-ENDOSULFAN/ENDOSULFAN I	0.006	<LH10	0.006	UGG	07/22/1992
						BETA-BENZENEHEXACHLORIDE	0.003	<LH10	0.003	UGG	07/22/1992
						BETA-ENDOSULFAN/ENDOSULFAN II	0.007	<LH10	0.007	UGG	07/22/1992

Non Screening Site - IAAPR28 All Data

IAAP-BW All Results

SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	RESULT VALUE	BOOL METHOD	CRL	UNITS	DATE
						DELTA-BENZENEHEXACHLORIDE	0.006	<LH10	0.006	UGG	07/22/1992
						DIELDRIN	0.006	<LH10	0.006	UGG	07/22/1992
						ENDRIN	0.007	<LH10	0.007	UGG	07/22/1992
						GAMMA-CHLORDANE	0.005	<LH10	0.005	UGG	07/22/1992
						HEPTACHLOR	0.006	<LH10	0.006	UGG	07/22/1992
						HEPTACHLOR EPOXIDE	0.006	<LH10	0.006	UGG	07/22/1992
						ISODRIN	0.005	<LH10	0.005	UGG	07/22/1992
						LINDANE	0.006	<LH10	0.006	UGG	07/22/1992
						METHOXYCHLOR	0.071	<LH10	0.071	UGG	07/22/1992
						PCB 1016	0.067	<LH16	0.067	UGG	07/22/1992
						PCB 1221	0.082	<LH16	0.082	UGG	07/22/1992
						PCB 1232	0.082	<LH16	0.082	UGG	07/22/1992
						PCB 1242	0.082	<LH16	0.082	UGG	07/22/1992
						PCB 1248	0.08	<LH16	0.082	UGG	07/22/1992
						PCB 1254	0.082	<LH16	0.082	UGG	07/22/1992
						PCB 1260	8.27	=LH16	0.082	UGG	07/22/1992
						TOXAPHENE	0.444	<LH10	0.444	UGG	07/22/1992
		R28SA0402	1.5	SO	SEMIVOA	ENDOSULFAN SULFATE	0.008	<LH10	0.008	UGG	07/22/1992
						ENDRIN ALDEHYDE	0.024	<LH10	0.024	UGG	07/22/1992
						ENDRIN KETONE	0.024	<LH10	0.024	UGG	07/22/1992
	R28-SS-05	R28SS0501	0.5	SO	PEST-PCB	2,2-BIS(P-CHLOROPHENYL)-1,1-DI	0.008	<LH10	0.008	UGG	07/22/1992
						2,2-BIS(P-CHLOROPHENYL)-1,1-TR	0.007	<LH10	0.007	UGG	07/22/1992
						2,2-BIS(P-CHOLROPHENYL)-1,1-DI	0.008	<LH10	0.008	UGG	07/22/1992
						ALDRIN	0.007	<LH10	0.007	UGG	07/22/1992
						ALPHA-BENZENEHEXACHLORIDE	0.009	<LH10	0.009	UGG	07/22/1992
						ALPHA-CHLORDANE	0.005	<LH10	0.005	UGG	07/22/1992
						ALPHA-ENDOSULFAN/ENDOSULFAN I	0.006	<LH10	0.006	UGG	07/22/1992
						BETA-BENZENEHEXACHLORIDE	0.003	<LH10	0.003	UGG	07/22/1992
						BETA-ENDOSULFAN/ENDOSULFAN II	0.007	<LH10	0.007	UGG	07/22/1992
						DELTA-BENZENEHEXACHLORIDE	0.006	<LH10	0.006	UGG	07/22/1992
						DIELDRIN	0.006	<LH10	0.006	UGG	07/22/1992
						ENDRIN	0.007	<LH10	0.007	UGG	07/22/1992
						GAMMA-CHLORDANE	0.005	<LH10	0.005	UGG	07/22/1992
						HEPTACHLOR	0.006	<LH10	0.006	UGG	07/22/1992
						HEPTACHLOR EPOXIDE	0.006	<LH10	0.006	UGG	07/22/1992
						ISODRIN	0.005	<LH10	0.005	UGG	07/22/1992
						LINDANE	0.006	<LH10	0.006	UGG	07/22/1992
						METHOXYCHLOR	0.071	<LH10	0.071	UGG	07/22/1992
						PCB 1016	0.067	<LH16	0.067	UGG	07/22/1992
						PCB 1221	0.082	<LH16	0.082	UGG	07/22/1992
						PCB 1232	0.082	<LH16	0.082	UGG	07/22/1992
						PCB 1242	0.082	<LH16	0.082	UGG	07/22/1992
						PCB 1248	0.08	<LH16	0.082	UGG	07/22/1992
						PCB 1254	0.082	<LH16	0.082	UGG	07/22/1992
						PCB 1260	59.9	=LH16	0.082	UGG	07/22/1992
						TOXAPHENE	0.444	<LH10	0.444	UGG	07/22/1992
		R28SS0501	0.5	SO	SEMIVOA	ENDOSULFAN SULFATE	0.008	<LH10	0.008	UGG	07/22/1992
						ENDRIN ALDEHYDE	0.024	<LH10	0.024	UGG	07/22/1992
						ENDRIN KETONE	0.024	<LH10	0.024	UGG	07/22/1992
	R28-SA-05	R28SA0502	1.5	SO	PEST-PCB	2,2-BIS(P-CHLOROPHENYL)-1,1-DI	0.008	<LH10	0.008	UGG	07/22/1992
						2,2-BIS(P-CHLOROPHENYL)-1,1-TR	0.007	<LH10	0.007	UGG	07/22/1992
						2,2-BIS(P-CHOLROPHENYL)-1,1-DI	0.008	<LH10	0.008	UGG	07/22/1992
						ALDRIN	0.007	<LH10	0.007	UGG	07/22/1992

Non Screening Site - IAAPR28 All Data

IAAP-BW All Results

SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	RESULT VALUE	BOOL METHOD	CRL	UNITS	DATE
						ALPHA-BENZENEHEXACHLORIDE	0.009	<LH10	0.009	UGG	07/22/1992
						ALPHA-CHLORDANE	0.005	<LH10	0.005	UGG	07/22/1992
						ALPHA-ENDOSULFAN/ENDOSULFAN I	0.006	<LH10	0.006	UGG	07/22/1992
						BETA-BENZENEHEXACHLORIDE	0.003	<LH10	0.003	UGG	07/22/1992
						BETA-ENDOSULFAN/ENDOSULFAN II	0.007	<LH10	0.007	UGG	07/22/1992
						DELTA-BENZENEHEXACHLORIDE	0.006	<LH10	0.006	UGG	07/22/1992
						DIELDRIN	0.006	<LH10	0.006	UGG	07/22/1992
						ENDRIN	0.007	<LH10	0.007	UGG	07/22/1992
						GAMMA-CHLORDANE	0.005	<LH10	0.005	UGG	07/22/1992
						HEPTACHLOR	0.006	<LH10	0.006	UGG	07/22/1992
						HEPTACHLOR EPOXIDE	0.006	<LH10	0.006	UGG	07/22/1992
						ISODRIN	0.005	<LH10	0.005	UGG	07/22/1992
						LINDANE	0.006	<LH10	0.006	UGG	07/22/1992
						METHOXYCHLOR	0.071	<LH10	0.071	UGG	07/22/1992
						PCB 1016	0.067	<LH16	0.067	UGG	07/22/1992
						PCB 1221	0.082	<LH16	0.082	UGG	07/22/1992
						PCB 1232	0.082	<LH16	0.082	UGG	07/22/1992
						PCB 1242	0.082	<LH16	0.082	UGG	07/22/1992
						PCB 1248	0.08	<LH16	0.082	UGG	07/22/1992
						PCB 1254	0.082	<LH16	0.082	UGG	07/22/1992
						PCB 1260	9.25	=LH16	0.082	UGG	07/22/1992
						TOXAPHENE	0.444	<LH10	0.444	UGG	07/22/1992
		R28SA0502	1.5	SO	SEMIVOA	ENDOSULFAN SULFATE	0.008	<LH10	0.008	UGG	07/22/1992
						ENDRIN ALDEHYDE	0.024	<LH10	0.024	UGG	07/22/1992
						ENDRIN KETONE	0.024	<LH10	0.024	UGG	07/22/1992
	R28-SD-06	R28SD0601	0.5	SD	PEST-PCB	2,2-BIS(P-CHLOROPHENYL)-1,1-DI	0.008	<LH10	0.008	UGG	07/22/1992
						2,2-BIS(P-CHLOROPHENYL)-1,1-TR	0.007	<LH10	0.007	UGG	07/22/1992
						2,2-BIS(P-CHOLROPHENYL)-1,1-DI	0.008	<LH10	0.008	UGG	07/22/1992
						ALDRIN	0.007	<LH10	0.007	UGG	07/22/1992
						ALPHA-BENZENEHEXACHLORIDE	0.009	<LH10	0.009	UGG	07/22/1992
						ALPHA-CHLORDANE	0.005	<LH10	0.005	UGG	07/22/1992
						ALPHA-ENDOSULFAN/ENDOSULFAN I	0.006	<LH10	0.006	UGG	07/22/1992
						BETA-BENZENEHEXACHLORIDE	0.003	<LH10	0.003	UGG	07/22/1992
						BETA-ENDOSULFAN/ENDOSULFAN II	0.007	<LH10	0.007	UGG	07/22/1992
						DELTA-BENZENEHEXACHLORIDE	0.006	<LH10	0.006	UGG	07/22/1992
						DIELDRIN	0.006	<LH10	0.006	UGG	07/22/1992
						ENDRIN	0.007	<LH10	0.007	UGG	07/22/1992
						GAMMA-CHLORDANE	0.005	<LH10	0.005	UGG	07/22/1992
						HEPTACHLOR	0.006	<LH10	0.006	UGG	07/22/1992
						HEPTACHLOR EPOXIDE	0.006	<LH10	0.006	UGG	07/22/1992
						ISODRIN	0.005	<LH10	0.005	UGG	07/22/1992
						LINDANE	0.006	<LH10	0.006	UGG	07/22/1992
						METHOXYCHLOR	0.071	<LH10	0.071	UGG	07/22/1992
						PCB 1016	0.067	<LH16	0.067	UGG	07/22/1992
						PCB 1221	0.082	<LH16	0.082	UGG	07/22/1992
						PCB 1232	0.082	<LH16	0.082	UGG	07/22/1992
						PCB 1242	0.082	<LH16	0.082	UGG	07/22/1992
						PCB 1248	0.08	<LH16	0.082	UGG	07/22/1992
						PCB 1254	0.082	<LH16	0.082	UGG	07/22/1992
						PCB 1260	3.67	=LH16	0.082	UGG	07/22/1992
						TOXAPHENE	0.444	<LH10	0.444	UGG	07/22/1992
		R28SD0601	0.5	SD	SEMIVOA	ENDOSULFAN SULFATE	0.008	<LH10	0.008	UGG	07/22/1992
						ENDRIN ALDEHYDE	0.024	<LH10	0.024	UGG	07/22/1992

Non Screening Site - IAAPR2B All Data

IAAP-BW All Results

SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	RESULT VALUE	BOOL METHOD	CRL	UNITS	DATE
						ENDRIN KETONE	0.024	<LH10	0.024	UGG	07/22/1992

Non Screening Site - IAAPR28 Maximum Background

IAAP-BW Results Above Evaluation Criteria

SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	RESULT VALUE	BOOL METHOD	CRL	UNITS	DATE
IAAPBW	R28-SS-03	R28SS0301	0.5	SO	PEST-PCB	PCB 1260	0.932	=LH16	0.082	UGG	07/22/1992
	R28-SS-04	R28SS0401	0.5	SO	PEST-PCB	PCB 1260	18.9	=LH16	0.082	UGG	07/22/1992
	R28-SA-04	R28SA0402	1.5	SO	PEST-PCB	PCB 1260	8.27	=LH16	0.082	UGG	07/22/1992
	R28-SS-05	R28SS0501	0.5	SO	PEST-PCB	PCB 1260	59.9	=LH16	0.082	UGG	07/22/1992
	R28-SA-05	R28SA0502	1.5	SO	PEST-PCB	PCB 1260	9.25	=LH16	0.082	UGG	07/22/1992
	R28-SD-06	R28SD0601	0.5	SD	PEST-PCB	PCB 1260	3.67	=LH16	0.082	UGG	07/22/1992

PRELIMINARY SITE CHARACTERIZATION
Fly Ash Disposal Area (R30)

SITE DESCRIPTION

- The Fly Ash Disposal Area was operated from the 1940's to the early 1950's for disposal of fly ash, residual coal, clinkers, and other residue from the coal-fired power plant. The disposal area is abandoned and covered by natural vegetation, but has no final soil or clay cover. It is unlikely that the landfill has a liner below.

- Surface runoff flows into an unnamed intermittent stream west of the site, which flows approximately 3000 feet into Mathes Lake.

CONTAMINANT SUMMARY

- Investigations during the SI included four samples taken in the fly ash material and two sediment samples in the intermittent stream west of the disposal area. These samples were taken to assess the presence of contaminants in the fly ash material and to determine whether contaminants were migrating to the intermittent stream. Results indicated that no contaminant migration to the stream has occurred. However, it was determined that additional surface water data be collected before eliminating the site from further consideration.

- During the RI, surface water samples were collected from the intermittent stream west of the site to confirm that the Fly Ash Disposal Area was not impacting the stream. Three surface water samples were collected in the intermittent stream at locations upstream (R30-SW-01), adjacent to the disposal area (R30-SW-02), and downstream of the disposal area (R30-SW-03). The two downstream locations were sampled to determine the impact of any runoff or seepage from the disposal area to the intermittent stream and were collected downstream of seeps from the disposal area that were observed during sampling. No compounds were detected above established MCLs. Only potassium was detected above the maximum background criteria for IAAP surface water. This compound is not a contaminant of concern and was not measured at levels significantly above the on-site background sample (R30-SW-01).

- Basewide surface water and sediment samples were also collected from the intermittent stream west of the disposal area during the RI. Samples were collected upstream (RBW-SW/SD-12) and downstream (RBW-SW/SD-13) in the vicinity of the disposal area. RBW-SW/SD-12 is located approximately 1200 feet upstream of the disposal area and RBW-SW/SD-13 is located approximately 300 feet downstream of the disposal area. Only arsenic was detected in the downstream surface water sample (2.99 µg/l) at a higher level than the upstream sample (2.54 µg/l). However, both were below the maximum background level for IAAP surface water (4.48 µg/l). Sediment samples were also collected at these locations. Only nickel was detected in the downstream sediment sample (17.3 µg/g) at a level slightly higher than the upstream sample (14.9 µg/g). Both samples were below the maximum background level for IAAP sediment (26.0 µg/g).

- Three groundwater samples were collected during the SI at wells 8, 9, 10, which indicated the presence of explosives at just above the detection limit. However, these wells are located upgradient of the disposal area and are not associated with the disposal area. Explosives were not detected in groundwater samples collected during the RI from these wells.

SITE EVALUATION AND RECOMMENDATIONS

- Surface water and sediment samples collected during the RI confirm that off-site migration of contamination has not occurred at the Fly Ash Disposal Area due to surface runoff to the intermittent stream. The absence of contaminants in sediment and surface water samples taken from the intermittent stream indicates that the Fly Ash Disposal Area is stable and that contaminants are not leaching from the disposal area to the stream. The disposal area is stable because it is heavily vegetated, and the slope to the stream bed is fairly gentle and well-vegetated, except for one or two steep bank areas at the north end. Moreover, the intermittent nature of the stream flow would tend to limit the migration of any contaminants that may reach the stream bed.

- It is recommended that no further field work be performed at the Fly Ash Disposal Area due to the lack of any off-site contamination in the intermittent stream adjacent to the disposal area. The migration of contaminants to the groundwater from the fly ash material is not indicated from the results of surface water samples collected downstream of landfill seeps.

Attachments: R30 Site Map
R30 Sample Summary
R30 All Phase I RI Data
R30 Results Above Maximum Background

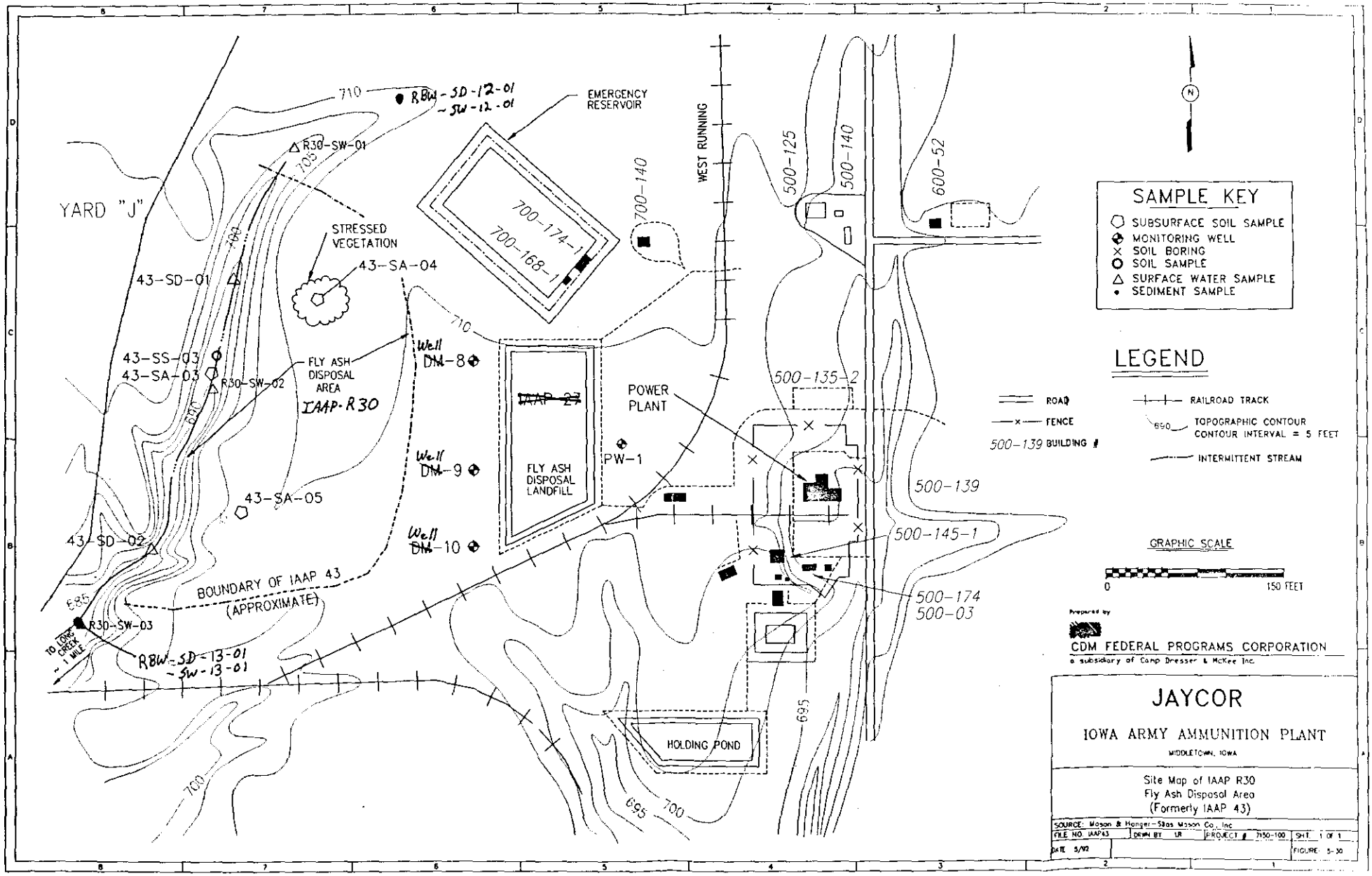
RBW-SD-12-01
SW-12-01
EMERGENCY RESERVOIR
R30-SW-01
YARD "J"
STRESSED VEGETATION
43-SA-04
43-SD-01
43-SS-03
43-SA-03
R30-SW-02
FLY ASH DISPOSAL AREA
IAAP-R30
Well DM-8
Well DM-9
Well DM-10
43-SA-05
43-SD-02
BOUNDARY OF IAAP 43 (APPROXIMATE)
R30-SW-03
TO LONG CREEK ~ 1 MILE
RBW-SD-13-01
SW-13-01
IAAP-23
FLY ASH DISPOSAL LANDFILL
PW-1
POWER PLANT
HOLDING POND
WEST RUNNING
700-174-1
700-168-1
700-140
500-125
500-140
600-52
500-135-2
500-139
500-145-1
500-174
500-03
710
705
700
695
690
685
SAMPLE KEY
SUBSURFACE SOIL SAMPLE
MONITORING WELL
SOIL BORING
SOIL SAMPLE
SURFACE WATER SAMPLE
SEDIMENT SAMPLE
LEGEND
ROAD
FENCE
500-139 BUILDING #
RAILROAD TRACK
TOPOGRAPHIC CONTOUR
CONTOUR INTERVAL = 5 FEET
INTERMITTENT STREAM
GRAPHIC SCALE
0
150 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 R30
Fly Ash Disposal Area
(Formerly IAAP 43)
SOURCE: Mason & Hanger-Silas Mason Co., Inc
FILE NO. IAAP43
DRAWN BY LR
PROJECT # 7150-100
SHT. 1 OF 1
DATE 5/92
FIGURE 5-30

Table R30
Sample Summary
IAAP-R30 (Fly Ash Disposal Area)

RI Sample Number	Analyses	Sample Type	Sample Category	Depth	Location
R30-SW-01-01	Metals Explosives Nitrates/Sulfates	A	G	-	Intermittent stream 150 feet upgradient (north) where it enters the Fly Ash Disposal Area. (Note: PW-4 was pumping at time of sampling; water level in stream measured approximately 1 foot.)
R30-SW-02-01	Metals Explosives Nitrates/Sulfates	A	G	-	Approximately 250 feet downstream from sample location R29-SW-01-01, near main section of Fly Ash Disposal Area.
R30-SW-03-01	Metals Explosives Nitrates/Sulfates	A	G	-	Downstream portion of the intermittent stream where it exits the Fly Ash Disposal Area.

C = Composite S = Screening Sample G = Grab A = Analytical Sample

Non Screening Site - IAAPR30 All Data

IAAP-BW All Results

SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	RESULT VALUE	BOOL METHOD	CRL	UNITS	DATE
IAAPBW	R30-SW-01	R30SW0101	0	SW	ANIONS	NITRITE, NITRATE - NONSPECIFIC	4,990.0	=TF22	10.0	UGL	07/27/1992
						SULFATE	30,800.0	=TT10	10,000.0	UGL	07/27/1992
		R30SW0101	0	SW	EXPLOSIV	1,3,5-TRINITROBENZENE	0.449	<UW32	0.449	UGL	07/27/1992
						1,3-DINITROBENZENE	0.611	<UW32	0.611	UGL	07/27/1992
						2,4,6-TNT	0.635	<UW32	0.635	UGL	07/27/1992
						2,4-DINITROTOLUENE	0.064	<UW32	0.064	UGL	07/27/1992
						2,6-DINITROTOLUENE	0.074	<UW32	0.074	UGL	07/27/1992
						HMX	1.21	<UW32	1.21	UGL	07/27/1992
						NITROBENZENE	0.645	<UW32	0.645	UGL	07/27/1992
						RDX	1.17	<UW32	1.17	UGL	07/27/1992
						TETRYL	1.6	<UW32	1.56	UGL	07/27/1992
		R30SW0101	0	SW	METALS	ALUMINUM	1,850.0	=SS10	141.0	UGL	07/27/1992
						ANTIMONY	38.0	<SS10	38.0	UGL	07/27/1992
						ARSENIC	2.77	=SD22	2.54	UGL	07/27/1992
						BARIUM	128.0	=SS10	5.0	UGL	07/27/1992
						BERYLLIUM	5.0	<SS10	5.0	UGL	07/27/1992
						CADMIUM	4.01	<SS10	4.01	UGL	07/27/1992
						CALCIUM	49,400.0	=SS10	500.0	UGL	07/27/1992
						CHROMIUM	6.02	<SS10	6.02	UGL	07/27/1992
						COBALT	25.0	<SS10	25.0	UGL	07/27/1992
						COPPER	8.09	<SS10	8.09	UGL	07/27/1992
						IRON	2,310.0	=SS10	38.8	UGL	07/27/1992
						LEAD	1.8	=SD20	1.26	UGL	07/27/1992
						MAGNESIUM	16,000.0	=SS10	500.0	UGL	07/27/1992
						MANGANESE	59.1	=SS10	2.75	UGL	07/27/1992
						MERCURY	0.1	=SB01	0.243	UGL	07/27/1992
						NICKEL	34.3	<SS10	34.3	UGL	07/27/1992
						POTASSIUM	3,930.0	=SS10	375.0	UGL	07/27/1992
						SELENIUM	3.0	<SD21	3.02	UGL	07/27/1992
						SILVER	4.6	<SS10	4.6	UGL	07/27/1992
						SODIUM	17,900.0	=SS10	500.0	UGL	07/27/1992
						THALLIUM	7.0	<SD09	6.99	UGL	07/27/1992
						VANADIUM	11.0	<SS10	11.0	UGL	07/27/1992
						ZINC	21.1	<SS10	21.1	UGL	07/27/1992
	R30-SW-02	R30SW0201	0	SW	ANIONS	NITRITE, NITRATE - NONSPECIFIC	4,000.0	=TF22	10.0	UGL	07/27/1992
						SULFATE	84,400.0	=TT10	10,000.0	UGL	07/27/1992
		R30SW0201	0	SW	EXPLOSIV	1,3,5-TRINITROBENZENE	0.449	<UW32	0.449	UGL	07/27/1992
						1,3-DINITROBENZENE	0.611	<UW32	0.611	UGL	07/27/1992
						2,4,6-TNT	0.635	<UW32	0.635	UGL	07/27/1992
						2,4-DINITROTOLUENE	0.064	<UW32	0.064	UGL	07/27/1992
						2,6-DINITROTOLUENE	0.074	<UW32	0.074	UGL	07/27/1992
						HMX	1.21	<UW32	1.21	UGL	07/27/1992
						NITROBENZENE	0.645	<UW32	0.645	UGL	07/27/1992
						RDX	1.17	<UW32	1.17	UGL	07/27/1992
						TETRYL	1.6	<UW32	1.56	UGL	07/27/1992
		R30SW0201	0	SW	METALS	ALUMINUM	448.0	=SS10	141.0	UGL	07/27/1992
						ANTIMONY	38.0	<SS10	38.0	UGL	07/27/1992
						ARSENIC	2.88	=SD22	2.54	UGL	07/27/1992
						BARIUM	71.3	=SS10	5.0	UGL	07/27/1992
						BERYLLIUM	5.0	<SS10	5.0	UGL	07/27/1992
						CADMIUM	4.01	<SS10	4.01	UGL	07/27/1992
						CALCIUM	62,100.0	=SS10	500.0	UGL	07/27/1992
						CHROMIUM	6.02	<SS10	6.02	UGL	07/27/1992

Non Screening Site - IAAPR30 All Data

IAAP-BW All Results

SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	RESULT VALUE	BOOL METHOD	CRL	UNITS	DATE
						COBALT	25.0	<SS10	25.0	UGL	07/27/1992
						COPPER	8.09	<SS10	8.09	UGL	07/27/1992
						IRON	511.0	=SS10	38.8	UGL	07/27/1992
						LEAD	1.3	<SD20	1.26	UGL	07/27/1992
						MAGNESIUM	17,000.0	=SS10	500.0	UGL	07/27/1992
						MANGANESE	20.2	=SS10	2.75	UGL	07/27/1992
						MERCURY	0.1	=SB01	0.243	UGL	07/27/1992
						NICKEL	34.3	<SS10	34.3	UGL	07/27/1992
						POTASSIUM	5,760.0	=SS10	375.0	UGL	07/27/1992
						SELENIUM	3.0	<SD21	3.02	UGL	07/27/1992
						SILVER	4.6	<SS10	4.6	UGL	07/27/1992
						SODIUM	13,900.0	=SS10	500.0	UGL	07/27/1992
						THALLIUM	7.0	<SD09	6.99	UGL	07/27/1992
						VANADIUM	11.0	<SS10	11.0	UGL	07/27/1992
						ZINC	21.1	<SS10	21.1	UGL	07/27/1992
	R30-SW-03	R30SW0301	0.0	SW	ANIONS	NITRITE, NITRATE - NONSPECIFIC	4,240.0	=TF22	10.0	UGL	07/27/1992
						SULFATE	90,900.0	=TT10	10,000.0	UGL	07/27/1992
		R30SW0301	0.0	SW	EXPLOSIV	1,3,5-TRINITROBENZENE	0.449	<UW32	0.449	UGL	07/27/1992
						1,3-DINITROBENZENE	0.611	<UW32	0.611	UGL	07/27/1992
						2,4,6-TNT	0.635	<UW32	0.635	UGL	07/27/1992
						2,4-DINITROTOLUENE	0.064	<UW32	0.064	UGL	07/27/1992
						2,6-DINITROTOLUENE	0.074	<UW32	0.074	UGL	07/27/1992
						HMX	1.21	<UW32	1.21	UGL	07/27/1992
						NITROBENZENE	0.645	<UW32	0.645	UGL	07/27/1992
						RDX	1.17	<UW32	1.17	UGL	07/27/1992
						TETRYL	1.6	<UW32	1.56	UGL	07/27/1992
		R30SW0301	0.0	SW	METALS	ALUMINUM	348.0	=SS10	141.0	UGL	07/27/1992
						ANTIMONY	38.0	<SS10	38.0	UGL	07/27/1992
						ARSENIC	2.54	<SD22	2.54	UGL	07/27/1992
						BARIUM	71.3	=SS10	5.0	UGL	07/27/1992
						BERYLLIUM	5.0	<SS10	5.0	UGL	07/27/1992
						CADMIUM	4.01	<SS10	4.01	UGL	07/27/1992
						CALCIUM	66,400.0	=SS10	500.0	UGL	07/27/1992
						CHROMIUM	6.02	<SS10	6.02	UGL	07/27/1992
						COBALT	25.0	<SS10	25.0	UGL	07/27/1992
						COPPER	8.09	<SS10	8.09	UGL	07/27/1992
						IRON	399.0	=SS10	38.8	UGL	07/27/1992
						LEAD	2.3	=SD20	1.26	UGL	07/27/1992
						MAGNESIUM	17,900.0	=SS10	500.0	UGL	07/27/1992
						MANGANESE	18.6	=SS10	2.75	UGL	07/27/1992
						MERCURY	0.1	=SB01	0.243	UGL	07/27/1992
						NICKEL	34.3	<SS10	34.3	UGL	07/27/1992
						POTASSIUM	5,530.0	=SS10	375.0	UGL	07/27/1992
						SELENIUM	3.0	<SD21	3.02	UGL	07/27/1992
						SILVER	4.6	<SS10	4.6	UGL	07/27/1992
						SODIUM	14,000.0	=SS10	500.0	UGL	07/27/1992
						THALLIUM	7.0	<SD09	6.99	UGL	07/27/1992
						VANADIUM	11.0	<SS10	11.0	UGL	07/27/1992
						ZINC	21.1	<SS10	21.1	UGL	07/27/1992

Non Screening Site - IAAPR30 All Data

IAAP-BW All Results

SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	RESULT VALUE	BOOL METHOD	CRL	UNITS	DATE
						COBALT	25.0	<SS10	25.0	UGL	07/27/1992
						COPPER	8.09	<SS10	8.09	UGL	07/27/1992
						IRON	511.0	=SS10	38.8	UGL	07/27/1992
						LEAD	1.3	<SD20	1.26	UGL	07/27/1992
						MAGNESIUM	17,000.0	=SS10	500.0	UGL	07/27/1992
						MANGANESE	20.2	=SS10	2.75	UGL	07/27/1992
						MERCURY	0.1	=SB01	0.243	UGL	07/27/1992
						NICKEL	34.3	<SS10	34.3	UGL	07/27/1992
						POTASSIUM	5,760.0	=SS10	375.0	UGL	07/27/1992
						SELENIUM	3.0	<SD21	3.02	UGL	07/27/1992
						SILVER	4.6	<SS10	4.6	UGL	07/27/1992
						SODIUM	13,900.0	=SS10	500.0	UGL	07/27/1992
						THALLIUM	7.0	<SD09	6.99	UGL	07/27/1992
						VANADIUM	11.0	<SS10	11.0	UGL	07/27/1992
						ZINC	21.1	<SS10	21.1	UGL	07/27/1992
	R30-SW-03	R30SW0301	0.0	SW	ANIONS	NITRITE, NITRATE - NONSPECIFIC	4,240.0	=TF22	10.0	UGL	07/27/1992
						SULFATE	90,900.0	=TT10	10,000.0	UGL	07/27/1992
		R30SW0301	0.0	SW	EXPLOSIV	1,3,5-TRINITROBENZENE	0.449	<UW32	0.449	UGL	07/27/1992
						1,3-DINITROBENZENE	0.611	<UW32	0.611	UGL	07/27/1992
						2,4,6-TNT	0.635	<UW32	0.635	UGL	07/27/1992
						2,4-DINITROTOLUENE	0.064	<UW32	0.064	UGL	07/27/1992
						2,6-DINITROTOLUENE	0.074	<UW32	0.074	UGL	07/27/1992
						HMX	1.21	<UW32	1.21	UGL	07/27/1992
						NITROBENZENE	0.645	<UW32	0.645	UGL	07/27/1992
						RDX	1.17	<UW32	1.17	UGL	07/27/1992
						TETRYL	1.6	<UW32	1.56	UGL	07/27/1992
		R30SW0301	0.0	SW	METALS	ALUMINUM	348.0	=SS10	141.0	UGL	07/27/1992
						ANTIMONY	38.0	<SS10	38.0	UGL	07/27/1992
						ARSENIC	2.54	<SD22	2.54	UGL	07/27/1992
						BARIUM	71.3	=SS10	5.0	UGL	07/27/1992
						BERYLLIUM	5.0	<SS10	5.0	UGL	07/27/1992
						CADMIUM	4.01	<SS10	4.01	UGL	07/27/1992
						CALCIUM	66,400.0	=SS10	500.0	UGL	07/27/1992
						CHROMIUM	6.02	<SS10	6.02	UGL	07/27/1992
						COBALT	25.0	<SS10	25.0	UGL	07/27/1992
						COPPER	8.09	<SS10	8.09	UGL	07/27/1992
						IRON	399.0	=SS10	38.8	UGL	07/27/1992
						LEAD	2.3	=SD20	1.26	UGL	07/27/1992
						MAGNESIUM	17,900.0	=SS10	500.0	UGL	07/27/1992
						MANGANESE	18.6	=SS10	2.75	UGL	07/27/1992
						MERCURY	0.1	=SB01	0.243	UGL	07/27/1992
						NICKEL	34.3	<SS10	34.3	UGL	07/27/1992
						POTASSIUM	5,530.0	=SS10	375.0	UGL	07/27/1992
						SELENIUM	3.0	<SD21	3.02	UGL	07/27/1992
						SILVER	4.6	<SS10	4.6	UGL	07/27/1992
						SODIUM	14,000.0	=SS10	500.0	UGL	07/27/1992
						THALLIUM	7.0	<SD09	6.99	UGL	07/27/1992
						VANADIUM	11.0	<SS10	11.0	UGL	07/27/1992
						ZINC	21.1	<SS10	21.1	UGL	07/27/1992

Non Screening Site - IAAPR30 All Data

IAAP-BW All Results

SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	RESULT VALUE	BOOL METHOD	CRL	UNITS	DATE
IAAPBW	R30-SW-01	R30SW0101	0	SW	ANIONS	NITRITE, NITRATE - NONSPECIFIC	4,990.0	=TF22	10.0	UGL	07/27/1992
						SULFATE	30,800.0	=TT10	10,000.0	UGL	07/27/1992
		R30SW0101	0	SW	EXPLOSIV	1,3,5-TRINITROBENZENE	0.449	<UW32	0.449	UGL	07/27/1992
						1,3-DINITROBENZENE	0.611	<UW32	0.611	UGL	07/27/1992
						2,4,6-TNT	0.635	<UW32	0.635	UGL	07/27/1992
						2,4-DINITROTOLUENE	0.064	<UW32	0.064	UGL	07/27/1992
						2,6-DINITROTOLUENE	0.074	<UW32	0.074	UGL	07/27/1992
						HMX	1.21	<UW32	1.21	UGL	07/27/1992
						NITROBENZENE	0.645	<UW32	0.645	UGL	07/27/1992
						RDX	1.17	<UW32	1.17	UGL	07/27/1992
						TETRYL	1.6	<UW32	1.56	UGL	07/27/1992
		R30SW0101	0	SW	METALS	ALUMINUM	1,850.0	=SS10	141.0	UGL	07/27/1992
						ANTIMONY	38.0	<SS10	38.0	UGL	07/27/1992
						ARSENIC	2.77	=SD22	2.54	UGL	07/27/1992
						BARIUM	128.0	=SS10	5.0	UGL	07/27/1992
						BERYLLIUM	5.0	<SS10	5.0	UGL	07/27/1992
						CADMIUM	4.01	<SS10	4.01	UGL	07/27/1992
						CALCIUM	49,400.0	=SS10	500.0	UGL	07/27/1992
						CHROMIUM	6.02	<SS10	6.02	UGL	07/27/1992
						COBALT	25.0	<SS10	25.0	UGL	07/27/1992
						COPPER	8.09	<SS10	8.09	UGL	07/27/1992
						IRON	2,310.0	=SS10	38.8	UGL	07/27/1992
						LEAD	1.8	=SD20	1.26	UGL	07/27/1992
						MAGNESIUM	16,000.0	=SS10	500.0	UGL	07/27/1992
						MANGANESE	59.1	=SS10	2.75	UGL	07/27/1992
						MERCURY	0.1	=SB01	0.243	UGL	07/27/1992
						NICKEL	34.3	<SS10	34.3	UGL	07/27/1992
						POTASSIUM	3,930.0	=SS10	375.0	UGL	07/27/1992
						SELENIUM	3.0	<SD21	3.02	UGL	07/27/1992
						SILVER	4.6	<SS10	4.6	UGL	07/27/1992
						SODIUM	17,900.0	=SS10	500.0	UGL	07/27/1992
						THALLIUM	7.0	<SD09	6.99	UGL	07/27/1992
						VANADIUM	11.0	<SS10	11.0	UGL	07/27/1992
						ZINC	21.1	<SS10	21.1	UGL	07/27/1992
	R30-SW-02	R30SW0201	0	SW	ANIONS	NITRITE, NITRATE - NONSPECIFIC	4,000.0	=TF22	10.0	UGL	07/27/1992
						SULFATE	84,400.0	=TT10	10,000.0	UGL	07/27/1992
		R30SW0201	0	SW	EXPLOSIV	1,3,5-TRINITROBENZENE	0.449	<UW32	0.449	UGL	07/27/1992
						1,3-DINITROBENZENE	0.611	<UW32	0.611	UGL	07/27/1992
						2,4,6-TNT	0.635	<UW32	0.635	UGL	07/27/1992
						2,4-DINITROTOLUENE	0.064	<UW32	0.064	UGL	07/27/1992
						2,6-DINITROTOLUENE	0.074	<UW32	0.074	UGL	07/27/1992
						HMX	1.21	<UW32	1.21	UGL	07/27/1992
						NITROBENZENE	0.645	<UW32	0.645	UGL	07/27/1992
						RDX	1.17	<UW32	1.17	UGL	07/27/1992
						TETRYL	1.6	<UW32	1.56	UGL	07/27/1992
		R30SW0201	0	SW	METALS	ALUMINUM	448.0	=SS10	141.0	UGL	07/27/1992
						ANTIMONY	38.0	<SS10	38.0	UGL	07/27/1992
						ARSENIC	2.88	=SD22	2.54	UGL	07/27/1992
						BARIUM	71.3	=SS10	5.0	UGL	07/27/1992
						BERYLLIUM	5.0	<SS10	5.0	UGL	07/27/1992
						CADMIUM	4.01	<SS10	4.01	UGL	07/27/1992
						CALCIUM	62,100.0	=SS10	500.0	UGL	07/27/1992
						CHROMIUM	6.02	<SS10	6.02	UGL	07/27/1992

Non Screening Site - IAAPR30 Maximum Background

IAAP-BW Results Above Evaluation Criteria

SWMU	SAMPLE LOCATION	SAMPLE ID	DEPTH	MEDIA	PARAMETER GROUP	COMPOUND	RESULT VALUE	BOOL METHOD	CRL	UNITS	DATE
IAAPBW	R30-SW-01	R30SW0101	0	SW	ANIONS	NITRITE, NITRATE - NONSPECIFIC	4,990.0	=TF22	10.0	UGL	07/27/1992
						SULFATE	30,800.0	=TT10	10,000.0	UGL	07/27/1992
		R30SW0101	0	SW	METALS	POTASSIUM	3,930.0	=SS10	2,840.0	UGL	07/27/1992
						SODIUM	17,900.0	=SS10	17,500.0	UGL	07/27/1992
	R30-SW-02	R30SW0201	0	SW	ANIONS	NITRITE, NITRATE - NONSPECIFIC	4,000.0	=TF22	10.0	UGL	07/27/1992
						SULFATE	84,400.0	=TT10	10,000.0	UGL	07/27/1992
		R30SW0201	0	SW	METALS	POTASSIUM	5,760.0	=SS10	2,840.0	UGL	07/27/1992
	R30-SW-03	R30SW0301	0.0	SW	ANIONS	NITRITE, NITRATE - NONSPECIFIC	4,240.0	=TF22	10.0	UGL	07/27/1992
						SULFATE	90,900.0	=TT10	10,000.0	UGL	07/27/1992
		R30SW0301	0.0	SW	METALS	POTASSIUM	5,530.0	=SS10	2,840.0	UGL	07/27/1992