de maximis, inc.

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EPA Region 5 Records Ctr.
230984

September 16, 1997

Via Overnight Courier

Bernard J. Schorle (HSRL-6J)
Waste Management Division
U. S. Environmental Protection Agency (Region V)
77 West Jackson Boulevard
Chicago, Illinois 60604

Subject: ***Revised Data Tables for Water Quality Reports***
Marion (Bragg) Landfill Site, Marion, Indiana

Dear Mr. Schorle:

On behalf of the Marion (Bragg) Group, this letter encloses a response prepared by O&M, Inc. enclosing revised tables from the Reports of Water Quality Conditions as the subject Site from 1992 to 1996. Various errors were noted in comments provided by the U.S. Environmental Protection Agency ("USEPA") in correspondence dated April 10, 1997.

Please note that the corrections made to these tables do not change the conclusions presented in the reports or the Revised Compiled Data Tables provided to the USEPA by *de maximis, inc.* in correspondence dated May 8, 1997.

Please contact me or Mark Travers at (630) 443-1940 with any questions on the enclosed revised tables for the Reports on Water Quality Conditions.

Sincerely,
de maximis, inc.

Bruce S. Kennington

Enclosure

cc: Tony Likens, IDEM
John Hanson, Esq.
Mark Travers, *de maximis, inc.*
Robert Autio, O&M, Inc. (cover via facsimile only)

PAPER

O & M, Inc.
Environmental Operations and Maintenance Management

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September 12, 1997

Mr. Mark Travers
de maximis, inc.
Cedar Avenue Business Center
Suite 210
103 North Eleventh Avenue
St. Charles, IL 60174

Subject: Response to USEPA Comments
Marion (Bragg) Dump Site
Marion, IN

Dear Mark:

O&M, Inc. has reviewed comments from the U.S. Environmental Protection Agency (USEPA) dated April 10, 1997. Copies of the USEPA comments are enclosed in Attachment 1 to reference each response. Changes to the data tables from the various reports are provided in Attachment 2. These revised tables are provided in lieu of resubmitting the reports in full. In addition to addressing the specific comments raised in the USEPA letter, the following global revisions were incorporated in O&M, Inc. (O&M) reports.

- Water quality tables were compared to the updated Water Quality Criteria table. Exceedences of the applicable criteria are listed on the revised table titled Sampling Locations Exceeding Applicable Water Quality Criteria. Exceedences not previously noted for dissolved and total iron and for total arsenic have been added to the revised data tables (See Attachment 2).

- The formula for calculating Chronic Aquatic Criteria (CAC) was modified based on the USEPA Water Quality Criteria and Standards Activity Report dated August 1992. The change had the effect of slightly raising the CAC criteria. The new CAC criteria value was compared to unionized ammonia (as nitrogen) concentration in the revised data tables (See Attachment 2).

- The monitoring zone averaging and river mixing formulas were checked and revised, if necessary. One-half (1/2) the detection limit was used within the averaging formulas where a parameter was less than the detection limit. Only one (1) sampling event had parameters which exceeded any criter after applying the river mixing calculation. Total

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arsenic from wells MB-5 and MB-6 exceeded the human health criteria of 0.175 ug/L from monitoring zone II in the third quarter 1995 sampling event. A revised page 2 to the subject report along with the affected data tables are included Attachment 2. Groundwater monitoring data collected before and after this event (i.e., through second quarter 1997 event) indicate that total arsenic in monitoring zone II is below the stipulated human health criteria after the river mixing calculation.

Responses to specific USEPA comments are as follows:

For the third quarter 1995 sampling results for MB-5 and MB-6, concentrations of selected parameters were noted as being outside the historical range of concentrations for metals in these wells. O&M reviewed the field notebook, chain-of-custody forms, and laboratory data sheets to determine if samples may have been switched. Although there is a possibility of switching both in the field or at the laboratory, there is no indication in the documentation that a switch occurred. The field notebook did note elevated dissolved oxygen at both wells.

For the third quarter 1993 sampling results, arsenic was added to Table 6-4 which exceeded the human health and maximum contaminant level (MCL) criteria. Iron was also added to Table 6-4 where it exceeded the acute aquatic criteria (AAC). Please note that iron was below the AAC after application of the mixing calculation.

For the third quarter 1993 sampling results in Table 5-1, cyanide was removed from the dissolved metals heading and placed under a separate total cyanide heading.

For the first quarter 1994 sampling results, a final version of Table 6-3 has been attached. Iron was also added to Table 6-4 where it exceeded the acute aquatic criteria (AAC). The pH and temperature readings for surface water and pond water sample locations were checked against the field notebook and revised accordingly. Please note that iron was below the AAC after application of the mixing calculation.

For the first quarter 1994 sampling results, arsenic was added to Table 6-4 where it exceeded the human health and maximum contaminant level (MCL) criteria. Please note that arsenic was below the applicable criteria after application of the mixing calculation.

For the third quarter 1994 sampling results, MB-7 is the correct duplicate location and Table 11 has been revised accordingly. The SW-5 total and dissolved arsenic exceedences were added to Table 11. Table 7 is correct with a non-detected value for ammonia as nitrogen in the SW-4 duplicate sample and Table 10 has been revised accordingly. The pH and temperature readings

for surface water sample locations were checked against the field notebook and revised accordingly.

For the first quarter 1995 sampling results, MB-4 is the correct duplicate location and Table 11 has been revised accordingly. The pH and temperature readings for pond water sample locations were checked against the field notebook and revised accordingly.

For the third quarter 1995 sampling results, Table 11 was revised to print all columns on a single page as formatted in other reports. After recalculating the unionized ammonia chronic aquatic criteria (CAC) with the revised formula, the unionized ammonia for SW-2 no longer exceeds the CAC. Arsenic was added to Table 11 which exceeded any criteria for the surface water sample locations.

The Water Quality Criteria Table has been updated based on the most recent Indiana regulations (327 IAC 2-1 (filed January 14, 1997)) and maximum contaminant levels. The site is located outside of the Great Lakes Basin. Lead and copper MCLs were not compared to lead and copper water concentrations since the lead and copper MCLs are action levels for samples obtained from residential water taps.

If you have any questions, please contact Robert Autio at (317)-718-3688.

Sincerely,

Robert James Autio, CPG
O&M, Inc.

Attachments

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Attachment 1
USEPA April 10, 1997 Letter

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

April 10, 1997

REPLY TO THE ATTENTION OF:
SR-6J

Mr. Bruce S. Kennington
de maximis, inc.
Cedar Avenue Business Center
103 N Eleventh Ave., Suite 210
St. Charles, Illinois 60174

Re: Marion (Bragg) Dump Site--Water Quality Reports

Dear Mr. Kennington:

While going over some of the revised water quality reports, I have noticed the following items and have a few questions.

Is there anything in the field notes or any of the other information that is available concerning the sampling for the third quarter of 1995 that would indicate that the samples from wells MB-5 and MB-6 might have been switched? I have noticed that the samples from well MB-5 were designated GW06DG and the samples from well MB-6 were designated GW05DG. Of course, this seems to be the regular procedure for sampling. Considering the results for dissolved metals, from the results for arsenic, which is what prompted the consideration of possible switching, manganese in well MB-5, potassium in well MB-6, and possibly calcium and a couple of others, it appears that the samples might have been switched. Unfortunately there are a few R qualified data that reduce the possible comparisons.

For the third quarter of 1993, Table 6-4 appears to be incomplete. Arsenic exceeded human health criteria in all groundwater wells except wells MB-5 and MB-10. Arsenic also exceeded the maximum concentration limit (MCL) in wells MB-2, MB-6, MB-7, and MB-8. Iron exceeded the acute aquatic criteria in all wells except wells MB-5 and MB-10.

For the third quarter of 1993, in Table 5-1 for groundwater results, cyanide is listed under dissolved metals. From the data validation, it appears that total cyanide was analyzed for.

For the first quarter of 1994, Table 6-3 has been marked up and does not appear to be the final version. Table 6-4 does not show any exceedances for dissolved iron, but the samples for all but two wells show an exceedance of the acute aquatic criteria. Table 6-2 shows a pH of 8.2 at all surface water points and a temperature of 18.6°C at all of these points except the duplicate, where the temperature is 29°C. Table 5-3 shows the temperature as 6.0°C and the pH as 7.6 at point SW-4, the only point

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where these were measured. Table 6-2 shows the pH as 7.8 and the temperature as 21°C for the off-site pond and Table 5-2 shows these as 7.9 for the pH and 8.0°C for the temperature. Table 6-2 and Table 5-2 also disagree on these two parameters for the on-site pond.

I don't understand what the basis is for entering data into the table for samples that exceed criteria, like Table 6-4 for the first quarter of 1994. For this sampling, all of the groundwater samples for dissolved arsenic exceeded the human health criteria, which is quite low (in fact, the non-detects would probably exceed this criteria if the detection limit could be lowered enough), but only one exceedance is shown

For the third quarter of 1994, Table 5 says that the duplicate is for well MB-7, which apparently is correct, but Table 11 says it is for well MB-8. Note that sample SW-5 exceeds the human health criteria for dissolved and total arsenic. In Table 10, the duplicate surface water sample (for SW-4) exceeds the chronic aquatic criteria for un-ionized ammonia since this shows a concentration of 7.7 mg/L for ammonia (I assume as nitrogen); however, Table 7 gives an nondetect for ammonia in this sample. In Table 10, the pH for the duplicate surface water sample is 7.4; in Table 7, only one pH is reported for the river, at point SW-4, and it is 7.8.

For the first quarter of 1995, the duplicate identifications in Table 11 and Table 5 are not the same. The values for pH and temperature in Table 9 and Table 6 do not agree for the off-site pond.

For the third quarter of 1995, it would have been better if all the columns of Table 11 had been put on one page, which is usually done. According to Table 9, un-ionized ammonia exceeded the chronic aquatic criteria at SW-2, but this is not shown in Table 11. The total and dissolved arsenic at the bottom of the off-site pond and the total arsenic at point SW-3 exceeded the human health criteria, but this is not shown in Table 11.

I have already pointed out that the MCL for lead has changed. You should check if any other of the criteria have changed. Because of the Great Lakes Water Quality Guidance, Indiana has recently modified 327 IAC 2-1, Indiana's water quality standards for waters outside of the Great Lakes Basin, and 327 IAC 5 and implemented a new rule, 327 IAC 2-1 5 for the Great Lakes Basin. I have obtained the changes off the Internet (an electronic version, in WordPerfect 5.1; it is a lot of pages) and am trying to get a copy of all of 327 IAC, whether before or after the changes. I can send you what I have from the Internet if you want it.

When I found an error, I have not generally checked to see

whether it was done in other places, including the tables that presents the samples that exceeded a criteria. I do not believe that the reports should be revised again. I believe it would be best to just furnish a letter with any necessary corrections that I can place with the reports.

I do need the results quickly for the two major sampling events in 1996 so that I can see what the newest data shows, especially in light of the large changes in the arsenic concentrations in wells MB-5 and MB-6 in the third quarter of 1995.

If you have any questions, please call me (312-886-4746).

Sincerely yours,

Bernard J. Schorle
Remedial Project Manager

cc: Tony Likins, Indiana Department of Environmental Management

Attachment 2
Revised Report Text and Data Tables

Marion Bragg Superfund Site
Sample Designation Key
Second Quarter 1992

Sample Location	Sample Number	
Monitoring Well	O&M	Laboratory
MB-1	GW01DG	499706
MB-2	GW03DG	500188
MB-3	GW09DG	499705
MB-4	GW03DG	499708
MB-5	GW02DG	499719
MB-6	GW08DG	499695
MB-7	GW01DG	500184
MB-8	GW02DG	500187
MB-9	GW02DG	499469
MB-10	GW01DG	499472

(O&M, Inc. started sample numbers at GW01 at the beginning of each day and progressed onward from GW01. Therefore, some samples received the same sample number. The samples were given a unique laboratory number as shown in Table 1 of the Environmental Standards, Inc. Quality Assurance Review, September 2, 1992. The analytical data is listed by O&M sample number, date, and laboratory sample number.)

Pond Water

Onsite Shallow	(PW-1)	PW04DG
Onsite Deep	(PW-2)	PW03DG
Offsite Shallow	(PW-3)	PW01DG
Offsite Deep	(PW-4)	PW02DG

TABLE 6-1: WATER QUALITY CRITERIA - UPDATED

Parameter	Acute Aquatic Criteria		Chronic Aquatic Criteria		Human Health		MCL	
TCL Volatiles (ug/L)								
Acetone	10000	+	222	+	- -		- -	
Benzene	5300	E	118	+	400	I	5	E
Chlorobenzene	1950	+	50	E	2026	+	- -	
1,2-Dichloroethene (total) (1)	- -		- -		- -		70 and 100	E
Methylene Chloride	193000	E	4289	+	157	E	- -	
Toluene	17500	E	389	+	424000	I	1000	E
Trichloroethane	45000	E	21900	E	807	I	5	E
Vinyl Chloride	- -		- -		5246	I	2	E
TCL Semivolatiles (ug/L)								
Phenol	10200	E	2560	E	3500	E	- -	
Phthalate Esters	940	E	3	E	50000	I	- -	
TAL Metals and Cyanide (ug/L)								
Aluminum	- -		- -		- -		- -	
Antimony	- -		- -		45000	I	6	E
Arsenic	360	I	190	I	0.175	I	50	E
Barium	- -		- -		- -		2000	E
Beryllium	- -		- -		1.17	I	4	E
Cadmium*	6.7	I	1.6	I	60	+	5	E
Calcium	- -		- -		- -		- -	
Chromium	16	I	11	I	3389	+	100	E
Cobalt	- -		- -		- -		- -	
Copper* (2)	28	I	18	I	- -		1300	E
Cyanide	22	I	5.2	I	24242	+	200	E
Iron	1000	E	- -		- -		- -	
Lead* (2)	150	I	5.8	I	51	+	15	E
Magnesium	- -		- -		- -		- -	
Manganese	- -		- -		- -		- -	
Mercury	2.4	I	0.012	I	0.15	I	2	E
Nickel*	2100	I	240	I	100	I	100	E
Potassium	- -		- -		- -		- -	
Selenium	130	I	25	I	- -		50	E
Silver*	9.2	I	0.12	E	- -		50	E
Sodium	- -		- -		- -		- -	
Thallium	- -		- -		48	I	2	E
Vanadium	11000	+	100	+	- -		- -	
Zinc*	175	I	160	I	- -		- -	
IDEM Parameters (mg/L)								
Ammonia, Total Unionized**	0.027	I	0 0029	I	- -		- -	
COD	- -		- -		- -		- -	
Chloride	860	I	230	I	- -		- -	
TSS	- -		- -		- -		- -	

Notes:

*Acute and chronic criteria calculated based on worst-case hardness=161 mg/L
**Acute and chronic criteria calculated based on worst-case t=5C, pH=7.0
- - Criteria not developed
MCL - Maximum Contaminant Level (Updated per the Safe Drinking Water Act of 1986 and later revisions known as the Phase I, Phase II, and Phase V rules. Phase I became effective January 9, 1989, Phase II became effective in 1992, and Phase V became effective January 17, 1994.)
Source of Data
E - U.S. EPA
I - IDEM (327 IAC 2)
+ - See section 6.2 of February 1990 report by Beak Consultants Limited Baseline Water Quality Conditions for discussion of sources for the criteria.
(1) The 1,2-Dichloroethene MCL standards are divided into cis-1,2-Dichloroethene at 70 ug/L and trans-1,2 Dichloroethene at 100 ug/L.
(2) - The "MCL" value is an action level for lead and copper (i.e., the lead and copper rule) but it only applies to water supplies as measured at the household tap.

TABLE 7-2: CALCULATED ACUTE AQUATIC CRITERIA AND CHRONIC AQUATIC CRITERIA FOR AMMONIA-NITROGEN June 1992

Sample Matrix	Well Number	pH	Temp (C)	Ammonia (mg/L) Total (mg/L)	Ammonia (mg/L) Unionized (mg/L)*	Calculated Un-Ionized Ammonia Criteria (mg/L)** AAC	Calculated Un-Ionized Ammonia Criteria (mg/L)** CAC	Criteria Exceeded AAC	Criteria Exceeded CAC
Groundwater	MB-1	7.0	15.6	0.5 U	0.001	--	--	--	--
	MB-2	6.8	17.1	4.9	0.01	0.044	0.0042	No	Yes
	MB-3	6.8	20.5	8.3	0.022	0.055	0.0053	No	Yes
	MB-4	7.0	19.9	1.1 J	0.004	0.076	0.0081	No	No
	MB-5	6.7	17.3	0.5 U	--	--	--	--	--
	MB-6	6.7	20.0	0.56	0.001	0.044	0.0041	No	No
	MB-7	6.9	19.2	5.2	0.015	0.061	0.0062	No	Yes
	MB-8	7.3	19.9	4.9	0.038	0.117	0.0162	No	Yes
	MB-9	7.3	17.3	0.5 U	--	--	--	--	--
	MB-10	7.4	17.9	0.98	0.008	0.11	0.0162	No	No
	Duplicate+	7.0	19.9	2.1 J	0.008	0.076	0.0081	No	No
Pond Water(1)	PW-1	8.3	26.2	0.5 U	--	--	--	--	--
	PW-2	8.3	26.2	0.5 U	--	--	--	--	--
	PW-3	7.9	26.1	0.5 U	--	--	--	--	--
	PW-4	7.9	26.1	0.5 U	--	--	--	--	--
	Duplicate++	7.9	26.1	0.70	0.033	0.309	0.0991	No	No

Notes:

* - Values calculated according to the Indiana Register (1990) (327 IAC 2). Unionized values calculated using 1/2 the detection limit for less than detection limit total results.

** - Calculated according to the USEPA Quality Criteria for Water, 1986 EPA 440/5-86-001

AAC- Acute Aquatic Criteria

CAC- Chronic Aquatic Criteria

+- Duplicate taken from well MB-4

++-Duplicate taken at the surface of the on-site pond.

(1) Pond water pH and temperature readings were obtained at only the shallow pond sampling location. Shallow pond pH and temperature readings were used to calculate AAC and for the deep pond sample location and duplicate, if ammonia was detected.

TABLE 7.3: ACUTE AQUATIC CRITERIA AND CHRONIC AQUATIC CRITERIA FOR TAL METALS CONCENTRATIONS DEPENDENT ON HARDNESS, JUNE 1992

					Cadmium (ug/L)			Chromium(ug/L)			Lead (ug/L)		
Sample Matrix	Sample Location	Hardness (mg/L)	Calcium (mg/L)	Magnesium (mg/L)	Sample Conc.**	AAC*	CAC*	Sample Conc.**	AAC*	CAC*	Sample Conc.**	AAC*	CAC*
Pond Water	PW-01	244	51.7	28.0	5.0 U	11	2	6.0 U	3611	430	2.0 U	255	10
	PW-02	149	19.5	24.3	5.0 U	6	2	6.0 U	2404	287	2.0 U	135	5
	PW-03	152	20.0	24.9	5.0 U	6	2	6.0 U	2453	292	2.0 UJ	140	5
	PW-04	297	69.3	30.0	5.0 U	13	3	381 J	4232	504	2.0 UJ	326	13
	Duplicate	252	53.2	28.9	5.0 U	11	2	6.0 U	3701	441	2.0 U	265	10

Notes:

* Values calculated according to the Indiana Register(1990)

** Sample concentrations are ug/L (ppb)

AAC-Acute Aquatic Criteria

CAC-Chronic Aquatic Criteria

Duplicate sample taken from surface of onsite pond (location PW-1)

TABLE 7.3: ACUTE AQUATIC CRITERIA AND CHRONIC AQUATIC CRITERIA FOR TAL METALS CONCENTRATIONS DEPENDENT ON HARDNESS, JUNE 1992

Sample Matrix	Sample Location	Hardness (mg/L)	Calcium (mg/L)	Magnesium (mg/L)	Lead(ug/L) Sample Conc.**	Lead(ug/L) AAC*	Lead(ug/L) CAC*	Nickel(ug/L) Sample Conc.**	Nickel(ug/L) AAC*	Nickel(ug/L) CAC*	Silver(ug/L) Sample Conc.**	Silver(ug/L) AAC*	Silver(ug/L) CAC(1)	Zinc(ug/L) Sample Conc.**	Zinc(ug/L) AAC*	Zinc(ug/L) CAC*
Pond Water	PW-01	244	51.7	28.0	2.0 U	265	10	10.0 U	3021	336	6.0 UJ	9		8.0 U	250	226
	PW-02	149	19.5	24.3	2.0 U	138	8	10.0 U	1984	221	6.0 UJ	4		5.0 U	164	148
	PW-03	152	20.0	24.9	2.0 UJ	140	8	10.0 U	2026	225	6.0 UJ	4		9.9 U	167	152
	PW-04	297	69.3	30.0	2.0 UJ	326	13	233 U	3559	396	6.0 UJ	13		7.9 U	294	266
	Duplicate	252	53.2	28.9	2.0 U	265	10	10.0 U	3099	345	6.0 UJ	10		8.6 U	256	232

Notes:
* Values calculated according to the Indiana Register(1990)
** Sample concentrations are ug/L (ppb)
AAC-Acute Aquatic Criteria
CAC-Chronic Aquatic Criteria
Duplicate sample taken from top of onsite pond
(1) - No CAC standard

TABLE 7.4: SAMPLING LOCATIONS EXCEEDING APPLICABLE WATER QUALITY CRITERIA, JUNE 1992

Parameter	Matrix	Sample Location	Monitoring Well Zone	Sample Concentration (ug/L)	Criterion Exceeded	Criterion Concentration (ug/L)	Source	Average Concentration Of Zone (ug/L)	Exceeds Criterion	Concentration After Mixing (ug /L)	Exceeds Criterion
TCL Semi-volatiles (ug/L)											
Butylbenzylphthalate	Pond Water	On-site(s)	NA	7 J	CAC	3	E	NA	--	--	--
bis(2-ethylhexyl) Phthalate	Pond Water	Off-site(s)	NA	59 J	CAC	3	E	NA	--	--	--
TAL Metals and Cyanide (ug/L)											
Chromium	Pond Water	Off-site(d)	NA	381 J	MCL	100	E	NA	--	--	--
Iron	Pond Water	Off-site(d)	NA	2080 J	AAC	1000	E	NA	--	--	--
Indicator Parameters (mg/L)											
Un-ionized	Ground Water	MB-2	I	0.01	CAC	0.0042	E	0.0093	Yes	0.000005	No
Ammonia (mg/L)	Ground Water	MB-3	I	0.022	CAC	0.0053	E	0.0093	Yes	0.000005	No
	Groundwater	MB-7	III	0.015	CAC	0.0062	E	0.034	Yes	0.000019	No
	Ground Water	MB-8	III	0.038	CAC	0.0162	E	0.034	Yes	0.000019	No

Notes:

AAC - Acute Aquatic Criterria

CAC - Chronic Aquatic Criteria

TABLE 6-1: WATER QUALITY CRITERIA - UPDATED

Parameter	Acute Aquatic Criteria		Chronic Aquatic Criteria		Human Health		MCL	
TCL Volatiles (ug/L)								
Acetone	10000	+	222	+	- -		- -	
Benzene	5300	E	118	+	400	I	5	E
Chlorobenzene	1950	+	50	E	2026	+	- -	
1,2-Dichloroethene (total) (1)	- -		- -		- -		70 and 100	E
Methylene Chloride	193000	E	4289	+	157	E	- -	
Toluene	17500	E	389	+	424000	I	1000	E
Trichloroethane	45000	E	21900	E	807	I	5	E
Vinyl Chloride	- -		- -		5246	I	2	E
TCL Semivolatiles (ug/L)								
Phenol	10200	E	2560	E	3500	E	- -	
Phthalate Esters	940	E	3	E	50000	I	- -	
TAL Metals and Cyanide (ug/L)								
Aluminum	- -		- -		- -		- -	
Antimony	- -		- -		45000	I	6	E
Arsenic	360	I	190	I	0.175	I	50	E
Barium	- -		- -		- -		2000	E
Beryllium	- -		- -		1.17	I	4	E
Cadmium*	6.7	I	1.6	I	60	+	5	E
Calcium	- -		- -		- -		- -	
Chromium	16	I	11	I	3389	+	100	E
Cobalt	- -		- -		- -		- -	
Copper* (2)	28	I	18	I	- -		1300	E
Cyanide	22	I	5.2	I	24242	+	200	E
Iron	1000	E	- -		- -		- -	
Lead* (2)	150	I	5.8	I	51	+	15	E
Magnesium	- -		- -		- -		- -	
Manganese	- -		- -		- -		- -	
Mercury	2.4	I	0.012	I	0.15	I	2	E
Nickel*	2100	I	240	I	100	I	100	E
Potassium	- -		- -		- -		- -	
Selenium	130	I	25	I	- -		50	E
Silver*	9.2	I	0.12	E	- -		50	E
Sodium	- -		- -		- -		- -	
Thallium	- -		- -		48	I	2	E
Vanadium	11000	+	100	+	- -		- -	
Zinc*	175	I	160	I	- -		- -	
IDEM Parameters (mg/L)								
Ammonia, Total Unionized**	0.027	I	0.0029	I	- -		- -	
COD	- -		- -		- -		- -	
Chloride	860	I	230	I	- -		- -	
TSS	- -		- -		- -		- -	

Notes:

*Acute and chronic criteria calculated based on worst-case hardness=161 mg/L
**Acute and chronic criteria calculated based on worst-case t=5C, pH=7.0
- - Criteria not developed
MCL - Maximum Contaminant Level (Updated per the Safe Drinking Water Act of 1986 and later revisions known as the Phase I, Phase II, and Phase V rules. Phase I became effective January 9, 1989, Phase II became effective in 1992, and Phase V became effective January 17, 1994.)
Source of Data
E - U.S. EPA
I - IDEM (327 IAC 2)
+ - See section 6.2 of February 1990 report by Beak Consultants Limited Baseline Water Quality Conditions for discussion of sources for the criteria.
(1) The 1,2-Dichloroethene MCL standards are divided into cis-1,2-Dichloroethene at 70 ug/L and trans-1,2 Dichloroethene at 100 ug/L.
(2) - The "MCL" value is an action level for lead and copper (i.e., the lead and copper rule) but it only applies to water supplies as measured at the household tap.

TABLE 6-2: CALCULATED ACUTE AQUATIC CRITERIA AND CHRONIC AQUATIC CRITERIA FOR AMMONIA-NITROGEN SEPTEMBER 1992

Sample Matrix	Well Number	pH	Temp (C)	Ammonia (mg/L) Total (mg/L)	Ammonia (mg/L) Un-Ionized (mg/L)*	Calculated Un-Ionized Ammonia Criteria(mg/L)** AAC	Calculated Un-Ionized Ammonia Criteria(mg/L)** CAC	Criteria Exceeded AAC	Criteria Exceeded CAC
Ground Water	MB-1	7.1	13.8	0.7 J	0.002	0.058	0.0067	No	No
	MB-2	6.85	15.2	7.3	0.014	0.042	0.0042	No	Yes
	MB-3	6.97	16.4	6.4	0.018	0.056	0.006	No	Yes
	MB-4	7.45	15.0	0.7	0.005	0.1	0.0163	No	No
	MB-5	6.9	17.0	3.9	0.010	0.052	0.0053	No	Yes
	MB-6	6.79	15.8	9.7	0.017	0.039	0.0038	No	Yes
	MB-7	6.95	17.0	9.7	0.027	0.057	0.0059	No	Yes
	MB-8	7.33	15.9	4.8	0.030	0.092	0.0132	No	Yes
	MB-9	7.44	14.8	0.5 U	--	--	--	--	--
	MB-10	7.25	14.1	0.5 U	--	--	--	--	--
	Duplicate++	7.1	13.8	0.5 U	--	--	--	--	--
Pond Water (1)	Off-site (D)	7.98	20.0	0.5 U	--	--	--	--	--
	Off-site (S)	7.98	20.0	0.5 U	--	--	--	--	--
	On-site (D)	7.77	19.4	0.5 U	--	--	--	--	--
	On-site (S)	7.77	19.4	0.5 U	--	--	--	--	--
	Duplicate +	7.77	19.4	0.5 U	--	--	--	--	--
Surface Water (2)	SW-1	8.03	15.0	0.5 U	--	--	--	--	--
	SW-2	8.03	15.0	0.5 U	--	--	--	--	--
	SW-3	8.03	15.0	0.5 U	--	--	--	--	--
	SW-4	8.03	15.0	0.5 U	--	--	--	--	--
	SW-5	8.03	15.0	0.5 U	--	--	--	--	--
	SW-6	8.03	15.0	0.5 U	--	--	--	--	--

Notes:

* Values calculated according to the Indiana Register (1990) (327 IAC 2). Unionized values calculated using 1/2 the detection limit for less than detection limit total results.

** - Calculated according to the USEPA Quality Criteria for Water, 1986 EPA 440/5-86-001

++ - Sample taken from monitoring well MB-1

\+ - Sample taken from pond water sampling location PW-1.

AAC - Acute Aquatic Criteria; CAC Chronic Aquatic Criteria

(1) Pond water pH and temperature readings were obtained at only the shallow pond sampling location. Shallow pond pH and temperature were used to calculate AAC and CAC for the deep pond sampling location, if ammonia was detected.

(2) Surface water pH and temperature readings were measured only at SW-4. SW-4 pH and temperature readings were used in AAC and CAC calculations for other surface water locations, if ammonia was detected.

TABLE 6-4: SAMPLING LOCATIONS EXCEEDING APPLICABLE WATER QUALITY CRITERIA, SEPTEMBER 1992

Parameter	Matrix	Sample Location	Monitoring Well Zone	Sample Concentration (ug/L)	Criterion Exceeded	Criterion Concentration (ug/L)	Source	Average Concentration Of Zone (ug/L)	Exceeds Criterion	Concentration After Mixing (ug /L)	Exceeds Criterion
TCL Volatiles (ug/L)											
Trichloroethene	Groundwater	MB-1	I	60	MCL	5	E	19	Yes	0.010	No
	Duplicate	MB-1	I	76	MCL	5	E	23	Yes	0.013	No
TAL Dissolved Metals (ug/L)											
Antimony	Ground Water	MB-8	III	41.2 J	MCL	6	E	30.4	Yes	0.017	No
Arsenic	Ground Water	MB-1	I	9.9 J	HH	0.175	I	21.3	Yes	0.012	No
	Ground Water	MB-2	I	42.2	HH	0.175	I	21.3	Yes	0.012	No
	Ground Water	MB-3	I	17.6 J	HH	0.175	I	21.3	Yes	0.012	No
	Ground Water	MB-4	I	15.4	HH	0.175	I	21.3	Yes	0.012	No
	Ground Water	MB-6	II	181 J	HH	0.175	I	91.5	Yes	0.051	No
	Ground Water	MB-7	III	62.8 J	HH	0.175	I	89.9	Yes	0.050	No
	Ground Water	MB-8	III	117 J	HH	0.175	I	89.9	Yes	0.050	No
	Ground Water	MB-9	III	5.2 J	HH	0.175	I	NA	No	0.000	No
	Duplicate	MB-1	I	9.6	HH	0.175	I	21.3	Yes	0.012	No
	Ground Water	MB-6	II	181 J	MCL	50	E	91.5	Yes	0.051	No
	Ground Water	MB-7	III	62.8 J	MCL	50	E	89.9	Yes	0.050	No
	Ground Water	MB-8	III	117 J	MCL	50	E	89.9	Yes	0.050	No
Iron	Groundwater	MB-1	I	1920	AAC	1000	E	6438	Yes	4	No
	Groundwater	MB-2	I	13100	AAC	1000	E	6438	Yes	4	No
	Groundwater	MB-3	I	7790	AAC	1000	E	6438	Yes	4	No
	Groundwater	MB-4	I	2940	AAC	1000	E	6438	Yes	4	No
	Groundwater	MB-6	II	17900	AAC	1000	E	8973	Yes	5	No
	Groundwater	MB-7	III	5550	AAC	1000	E	5075	Yes	3	No
	Groundwater	MB-8	III	4600	AAC	1000	E	5075	Yes	3	No
	Groundwater	Duplicate*	I	1980	AAC	1000	E	6438	Yes	4	No
	Surface Water	SW-1	NA	2040 J	AAC	1000	E	NA	--	--	--
	Surface Water	SW-2	NA	1990 J	AAC	1000	E	NA	--	--	--
	Surface Water	SW-3	NA	1890 J	AAC	1000	E	NA	--	--	--
	Surface Water	SW-4	NA	2000 J	AAC	1000	E	NA	--	--	--
	Surface Water	SW-5	NA	1950 J	AAC	1000	E	NA	--	--	--
	Surface Water	SW-6	NA	1550 J	AAC	1000	E	NA	--	--	--
Indicator Parameters											
Un-ionized	Groundwater	MB-2	I	0.014	CAC	0.0042	E	0.0098	Yes	0.000005	No
Ammonia (mg/L)	Groundwater	MB-3	I	0.018	CAC	0.006	E	0.0098	Yes	0.000005	No
	Groundwater	MB-5	II	0.01	CAC	0.0053	E	0.0135	Yes	0.000008	No
	Groundwater	MB-6	II	0.017	CAC	0.0038	E	0.0135	Yes	0.000008	No
	Groundwater	MB-7	III	0.027	CAC	0.0059	E	0.0285	Yes	0.000016	No
	Groundwater	MB-8	III	0.03	CAC	0.0132	E	0.0285	Yes	0.000016	No

Notes:

AAC - Acute Aquatic Criteria

CAC - Chronic Aquatic Criteria

* - Sample collected for on-site monitoring well MB-1.

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TABLE 6-1: WATER QUALITY CRITERIA - UPDATED

Parameter	Acute Aquatic Criteria		Chronic Aquatic Criteria		Human Health		MCL	
TCL Volatiles (ug/L)								
Acetone	10000	+	222	+	- -		- -	
Benzene	5300	E	118	+	400	I	5	E
Chlorobenzene	1950	+	50	E	2026	+	- -	
1,2-Dichloroethene (total) (1)	- -		- -		- -		70 and 100	E
Methylene Chloride	193000	E	4289	+	157	E	- -	
Toluene	17500	E	389	+	424000	I	1000	E
Trichloroethane	45000	E	21900	E	807	I	5	E
Vinyl Chloride	- -		- -		5246	I	2	E
TCL Semivolatiles (ug/L)								
Phenol	10200	E	2560	E	3500	E	- -	
Phthalate Esters	940	E	3	E	50000	I	- -	
TAL Metals and Cyanide (ug/L)								
Aluminum	- -		- -		- -		- -	
Antimony	- -		- -		45000	I	6	E
Arsenic	360	I	190	I	0.175	I	50	E
Barium	- -		- -		- -		2000	E
Beryllium	- -		- -		1.17	I	4	E
Cadmium*	6.7	I	1.6	I	60	+	5	E
Calcium	- -		- -		- -		- -	
Chromium	16	I	11	I	3389	+	100	E
Cobalt	- -		- -		- -		- -	
Copper* (2)	28	I	18	I	- -		1300	E
Cyanide	22	I	5.2	I	24242	+	200	E
Iron	1000	E	- -		- -		- -	
Lead* (2)	150	I	5.8	I	51	+	15	E
Magnesium	- -		- -		- -		- -	
Manganese	- -		- -		- -		- -	
Mercury	2.4	I	0.012	I	0.15	I	2	E
Nickel*	2100	I	240	I	100	I	100	E
Potassium	- -		- -		- -		- -	
Selenium	130	I	25	I	- -		50	E
Silver*	9.2	I	0.12	E	- -		50	E
Sodium	- -		- -		- -		- -	
Thallium	- -		- -		48	I	2	E
Vanadium	11000	+	100	+	- -		- -	
Zinc*	175	I	160	I	- -		- -	
IDEM Parameters (mg/L)								
Ammonia, Total Unionized**	0.027	I	0.0029	I	- -		- -	
COD	- -		- -		- -		- -	
Chloride	860	I	230	I	- -		- -	
TSS	- -		- -		- -		- -	

Notes:

*Acute and chronic criteria calculated based on worst-case hardness=161 mg/L
**Acute and chronic criteria calculated based on worst-case t=5C, pH=7.0
- - Criteria not developed
MCL - Maximum Contaminant Level (Updated per the Safe Drinking Water Act of 1986 and later revisions known as the Phase I, Phase II, and Phase V rules.
Phase I became effective January 9, 1989, Phase II became effective in 1992, and Phase V became effective January 17, 1994.)
Source of Data
E - U.S. EPA
I - IDEM (327 IAC 2)
+ - See section 6.2 of February 1990 report by Beak Consultants Limited Baseline Water Quality Conditions for discussion of sources for the criteria.
(1) The 1,2-Dichloroethene MCL standards are divided into cis-1,2-Dichloroethene at 70 ug/L and trans-1,2 Dichloroethene at 100 ug/L.
(2) - The "MCL" value is an action level for lead and copper (i.e., the lead and copper rule) but it only applies to water supplies as measured at the household tap.

TABLE 6-2: CALCULATED ACUTE AQUATIC CRITERIA AND CHRONIC AQUATIC CRITERIA FOR AMMONIA-NITROGEN DECEMBER 1992

Sample Matrix	Well Number	pH	Temp (C)	Ammonia (mg/L) Total (mg/L)	Ammonia (mg/L) Un-Ionized (mg/L)*	Calculated Un-Ionized Ammonia Criteria(mg/L)** AAC	Calculated Un-Ionized Ammonia Criteria(mg/L)** CAC	Criteria Exceeded AAC	Criteria Exceeded CAC
Ground Water	MB-1	7.04	12.9	0.5 U	0.001	--	--	--	--
	MB-2	6.7	13.0	9.5	0.011	0.027	0.0025	No	Yes
	MB-3	6.91	13.7	5.7	0.011	0.042	0.0043	No	Yes
	MB-4	7.48	13.9	0.7	0.005	0.095	0.0162	No	No
	MB-5	6.61	16.1	0.7	0.001	0.028	0.0025	No	No
	MB-6	6.8	15.3	8.4	0.015	0.039	0.0037	No	Yes
	MB-7	6.98	14.4	0.5 U	0.001	--	--	--	--
	MB-8	7.35	14.4	11	0.064	0.085	0.0124	No	Yes
	MB-9	7.19	14.7	0.5 U	--	--	--	--	--
	MB-10	7.41	12.4	0.5 U	--	--	--	--	--
	Duplicate++	7.04	12.9	0.5 U	--	--	--	--	--

Notes:

* - Values calculated according to the Indiana Register(1990)

** - Calculated according to the USEPA Quality Criteria for Water, 1986 EPA 440/5-86-001

++ - Sample taken from monitoring well MB-1.

AAC - Acute Aquatic Criteria; CAC Chronic Aquatic Criteria

TABLE 6-3: SAMPLING LOCATIONS EXCEEDING WATER QUALITY CRITERIA, DECEMBER 1992

Parameter	Matrix	Sample Location	Monitoring Well Zone	Sample Concentration (mg/L)	Criterion Exceeded	Criterion Concentration (mg/L)	Source	Average Concentration Of Zone (mg/L)	Exceeds Criterion	Concentration After Mixing (mg /L)	Exceeds Criterion
Indicator Parameters											
Un-Ionized	Groundwater	MB-2	I	0.011	CAC	0.0025	E	0.0070	Yes	0.000004	No
Ammonia (mg/L)	Groundwater	MB-3	I	0.011	CAC	0.0043	E	0.0070	Yes	0.000004	No
	Groundwater	MB-6	II	0.015	CAC	0.0037	E	0.0080	Yes	0.000004	No
	Groundwater	MB-8	III	0.064	CAC	0.0124	E	0.0325	Yes	0.000018	No

Notes:

AAC - Acute Aquatic Criterria

CAC - Chronic Aquatic Criteria

TABLE 6-1: WATER QUALITY CRITERIA - UPDATED

Parameter	Acute Aquatic Criteria		Chronic Aquatic Criteria		Human Health		MCL	
TCL Volatiles (ug/L)								
Acetone	10000	+	222	+	- -		- -	
Benzene	5300	E	118	+	400	I	5	E
Chlorobenzene	1950	+	50	E	2026	+	- -	
1,2-Dichloroethene (total) (1)	- -		- -		- -		70 and 100	E
Methylene Chloride	193000	E	4289	+	157	E	- -	
Toluene	17500	E	389	+	424000	I	1000	E
Trichloroethane	45000	E	21900	E	807	I	5	E
Vinyl Chloride	- -		- -		5246	I	2	E
TCL Semivolatiles (ug/L)								
Phenol	10200	E	2560	E	3500	E	- -	
Phthalate Esters	940	E	3	E	50000	I	- -	
TAL Metals and Cyanide (ug/L)								
Aluminum	- -		- -		- -		- -	
Antimony	- -		- -		45000	I	6	E
Arsenic	360	I	190	I	0.175	I	50	E
Barium	- -		- -		- -		2000	E
Beryllium	- -		- -		1.17	I	4	E
Cadmium*	6.7	I	1.6	I	60	+	5	E
Calcium	- -		- -		- -		- -	
Chromium	16	I	11	I	3389	+	100	E
Cobalt	- -		- -		- -		- -	
Copper* (2)	28	I	18	I	- -		1300	E
Cyanide	22	I	5.2	I	24242	+	200	E
Iron	1000	E	- -		- -		- -	
Lead* (2)	150	I	5.8	I	51	+	15	E
Magnesium	- -		- -		- -		- -	
Manganese	- -		- -		- -		- -	
Mercury	2.4	I	0.012	I	0.15	I	2	E
Nickel*	2100	I	240	I	100	I	100	E
Potassium	- -		- -		- -		- -	
Selenium	130	I	25	I	- -		50	E
Silver*	9.2	I	0.12	E	- -		50	E
Sodium	- -		- -		- -		- -	
Thallium	- -		- -		48	I	2	E
Vanadium	11000	+	100	+	- -		- -	
Zinc*	175	I	160	I	- -		- -	
IDEM Parameters (mg/L)								
Ammonia, Total Unionized**	0.027	I	0.0029	I	- -		- -	
COD	- -		- -		- -		- -	
Chloride	860	I	230	I	- -		- -	
TSS	- -		- -		- -		- -	

Notes:

*Acute and chronic criteria calculated based on worst-case hardness=161 mg/L

**Acute and chronic criteria calculated based on worst-case t=5C, pH=7.0

- - Criteria not developed

MCL - Maximum Contaminant Level (Updated per the Safe Drinking Water Act of 1986 and later revisions known as the Phase I, Phase II, and Phase V rules. Phase I became effective January 9, 1989, Phase II became effective in 1992, and Phase V became effective January 17, 1994.)

Source of Data

E - U.S. EPA

I - IDEM (327 IAC 2)

+ - See section 6.2 of February 1990 report by Beak Consultants Limited Baseline Water Quality Conditions for discussion of sources for the criteria.

(1) The 1,2-Dichloroethene MCL standards are divided into cis-1,2-Dichloroethene at 70 ug/L and trans-1,2 Dichloroethene at 100 ug/L

(2) - The "MCL" value is an action level for lead and copper (i.e., the lead and copper rule) but it only applies to water supplies as measured at the household tap.

TABLE 6-2: CALCULATED ACUTE AQUATIC CRITERIA AND CHRONIC AQUATIC CRITERIA FOR AMMONIA-NITROGEN MARCH 1993

Sample Matrix	Well Number	pH	Temp (C)	Ammonia (mg/L) Total (mg/L)	Ammonia (mg/L) Un-ionized (mg/L)*	Calculated Un-ionized Ammonia Criteria(mg/L)** AAC	Calculated Un-ionized Ammonia Criteria(mg/L)** CAC	Criteria Exceeded AAC	Criteria Exceeded CAC
Ground Water	MB-1	7.2	13.4	0.5 U	0.001	--	--	--	--
	MB-2	6.8	10.5	10	0.012	0.028	0.0027	No	Yes
	MB-3	6.9	12.6	5.2	0.009	0.038	0.0039	No	Yes
	MB-4	7.4	13.5	0.5 U	0.002	--	--	--	--
	MB-5	6.9	15.7	0.5 U	0.001	--	--	--	--
	MB-6	6.7	16.2	1.4	0.002	0.034	0.0032	No	No
	MB-7	6.9	13.9	5.6	0.011	0.042	0.0043	No	Yes
	MB-8	7.3	14.6	6.9	0.036	0.081	0.0112	No	Yes
	MB-9	7.4	13.0	0.5 U	--	--	--	--	--
	MB-10	7.2	18.0	0.5 U	--	--	--	--	--
	Duplicate++	7.2	13.4	1.3 J	0.005	0.065	0.0082	No	No
Pond Water (1)	Off-site (D)	8.0	20.0	0.5 U	--	--	--	--	--
	Off-site (S)	8.0	20.0	0.5 U	--	--	--	--	--
	On-site (D)	7.8	19.4	0.5 U	--	--	--	--	--
	On-site (S)	7.8	19.4	0.5 U	--	--	--	--	--
	Duplicate ++	7.8	19.4	0.5 U	--	--	--	--	--
Surface Water (2)	SW-1	8.0	15.0	0.5 U	--	--	--	--	--
	SW-2	8.0	15.0	0.5 U	--	--	--	--	--
	SW-3	8.0	15.0	0.5 U	--	--	--	--	--
	SW-4	8.0	15.0	0.5 U	--	--	--	--	--
	SW-5	8.0	15.0	0.5 U	--	--	--	--	--
	SW-6	8.0	15.0	0.5 U	--	--	--	--	--

Notes:

* - Values calculated according to the Indiana Register (1990) (327 IAC 2). Unionized values calculated using 1/2 the detection limit for less than detection limit total results.

** - Calculated according to the USEPA Quality Criteria for Water, 1986 EPA 440/5-86-001

++ - Samples taken from monitoring well MB-4 and PW-01 sampling locations.

AAC - Acute Aquatic Criteria; CAC Chronic Aquatic Criteria

(1) Pond water pH and temperature readings were obtained at only the shallow pond sampling location. Shallow pond pH and temperature were used to calculate AAC and CAC for the deep pond sampling location, if ammonia was detected.

(2) Surface water pH and temperature readings were measured only at SW-4. SW-4 pH and temperature readings were used in AAC and CAC calculations for other surface water locations, if ammonia was detected.

TABLE 6-3: ACUTE AQUATIC CRITERIA AND CHRONIC AQUATIC CRITERIA FOR TAL METALS CONCENTRATIONS DEPENDENT ON HARDNESS, MARCH 1993

Sample Matrix	Sample Location	Hardness (mg/L)	Calcium (mg/L)	Magnesium (mg/L)	Cadmium (ug/L) Sample Conc.**	AAC*	CAC*	Chromium(ug/L) Sample Conc.**	AAC*	CAC*	Copper(ug/L) Sample Conc.**	AAC*	CAC*	Lead(ug/L) Sample Conc.**	AAC*	CAC*	Nickel(ug/L) Sample Conc.**	AAC*	CAC*	Silver(ug/L) Sample Conc.**	AAC*	CAC(1)	Zinc(ug/L) Sample Conc.**	AAC*	CAC*
Ground Water	MB-1	403	109	31.8	5.0U	19	3	8.0U	5442	649	4.0U	66	39	2.0UJ	482	19	17.0U	4618	613	7.0 U	22		4.0U	341	346
(Dissolved)	MB-2	499	148	32.5	5.0U	24	4	8.0U	6476	772	4.0U	81	47	2.0UJ	631	25	17.0U	6523	814	7.0 U	32		20U	437	414
	MB-3	324	83.8	27.8	5.0U	15	3	8.0U	4547	542	4.0U	54	32	2.0UJ	364	14	13.0U	3633	426	5.0 U	15		5.0U	317	287
	MB-4	229	44.2	28.8	5.0U	10	2	8.0U	3423	408	4.0U	39	24	2.0UJ	234	9	17.0U	2858	318	7.0 U	8		4.0U	236	214
	MB-5	427	117	32.7	5.0U	20	4	8.0U	5702	680	4.0U	70	41	2.0UJ	518	20	13.0U	4843	534	5.0 U	25		5.0U	400	363
	MB-6	396	104	33.6	5.0U	19	3	8.0U	5386	642	4.0U	65	39	2.0UJ	474	18	13.0U	4566	508	5.0 U	22		5.0U	377	342
	MB-7	407	87.4	45.8	5.0U	19	3	8.0U	5482	653	4.0U	67	39	2.0UJ	487	19	13.0U	4650	517	5.0 U	23		5.0U	344	348
	MB-8	392	42.8	69.3	5.0U	18	3	8.0U	5312	633	4.0U	64	38	2.0UJ	464	18	13.0U	4502	500	5.0 U	21		5.0U	372	337
	MB-9	249	63.1	22.2	5.0U	11	2	8.0U	3067	437	4.0U	42	26	2.0UJ	261	10	13.0U	3070	341	5.0 U	10		5.0U	254	230
	MB-10	348	94.7	27.0	5.0U	16	3	8.0U	4820	575	4.0U	57	34	2.0UJ	399	16	13.0U	4072	453	5.0 U	17		5.0U	337	306
	Duplicate	227	43.8	28.6	5.0U	10	2	8.0U	3395	405	4.0U	38	24	2.0UJ	231	9	17.0U	2834	315	7.0 U	8		4.0U	234	212
Pond Water	Off-site (D)	222	48.8	24.4	5.0 U	10	2	8.0U	3336	398	4.0U	38	23	2.0UJ	225	9	13.0U	2784	309	5.0 U	8		5.0U	230	208
(Total)	Off-site (S)	218	47.5	24.0	5.0 U	9	2	8.0U	3282	391	4.0U	37	23	4.5J	220	9	13.0U	2737	304	5.0 U	8		5.0U	226	206
	On-site (D)	240	60.9	21.4	5.0 U	11	2	8.0U	3561	424	4.0U	40	25	3.0UJ	249	10	13.0U	2978	331	5.0 U	9		5.0U	246	223
	On-site (S)	233	50.2	20.7	5.0 U	10	2	8.0U	3474	414	4.0U	39	24	2.0UJ	240	9	13.0U	2903	323	5.0 U	9		5.0U	240	217
	Duplicate	232	59.0	20.6	5.0 U	10	2	8.0U	3463	413	4.0U	39	24	3.0UJ	239	9	13.0U	2893	322	5.0 U	9		5.0U	239	216
Surface Water	SW-1	237	61.0	20.5	5.0U	10	2	11.9	3519	419	11.2	40	25	5.4J	245	10	13.0U	2942	327	5.0 U	9		37.8	243	220
(Total)	SW-2	248	63.7	21.6	5.0U	11	2	7.0J	3655	436	9.8	42	26	6.8J	260	10	13.0U	3060	340	5.0 U	10		34.4	253	229
	SW-3	224	57.5	19.4	5.0U	10	2	8.0J	3356	400	8.1	38	24	7.1J	227	9	13.0U	2801	311	5.0 U	8		30.8	231	210
	SW-4	233	59.8	20.3	5.0U	10	2	9.5J	3472	414	9.8	39	24	7.1J	240	9	13.0U	2901	323	5.0 U	9		33.9	240	217
	SW-5	236	61	20.8	5.0U	10	2	10.7	3634	421	10.7	40	25	6.4	248	10	13.0U	2954	328	5.0 U	9		33.9	244	221
	SW-6	220	55.6	19.8	5.0U	10	2	47.3	3318	396	42.1	37	23	19.7	223	9	48.4	2788	308	5.0 U	8		150	229	207

Notes:

* - Vals be calculated according to the Indiana Register(1990)

** - Sample concentrations are ug/L (ppb)

AAC - Acute Aquatic Criteria

CAC - Chronic Aquatic Criteria

Duplicate sample taken from top of onsite pond

TABLE 6-4: SAMPLING LOCATIONS EXCEEDING APPLICABLE WATER QUALITY CRITERIA, MARCH 1993

Parameter	Matrix	Sample Location	Monitoring Well Zone	Sample Concentration (ug/L)	Criterion Exceeded	Criterion Concentration (ug/L)	Source	Average Concentration Of Zone (ug/L)	Exceeds Criterion	Concentration After Mixing (ug /L)	Exceeds Criterion
TCL Volatiles (ug/L)											
Trichloroethene	Groundwater	MB-1	I	76	MCL	5	E	23	Yes	0.0127	No
Vinyl Chloride	Groundwater	MB-2	I	15	MCL	2	E	8	Yes	0.0042	No
TAL Total Metals											
Arsenic	Surface Water	SW-2	NA	7.5	HH	0.175	I	NA	--	--	--
Arsenic	Surface Water	SW-6	NA	11.2	HH	0.175	I	NA	--	--	--
Copper	Surface Water	SW-6	NA	42.1	AAC	37	I	NA	--	--	--
Copper	Surface Water	SW-6	NA	42.1	CAC	23	I	NA	--	--	--
Lead	Surface Water	SW-6	NA	19.7	CAC	9	I	NA	--	--	--
Iron	Surface Water	SW-1	NA	7080 J	AAC	1000	E	NA	--	--	--
Iron	Surface Water	SW-2	NA	6710 J	AAC	1000	E	NA	--	--	--
Iron	Surface Water	SW-3	NA	6190 J	AAC	1000	E	NA	--	--	--
Iron	Surface Water	SW-4	NA	6650 J	AAC	1000	E	NA	--	--	--
Iron	Surface Water	SW-5	NA	7060 J	AAC	1000	E	NA	--	--	--
Iron	Surface Water	SW-6	NA	40500 J	AAC	1000	E	NA	--	--	--
Zinc	Surface Water	SW-5	NA	150	HH	48	I	NA	--	--	--
Arsenic	Pond Water	PW-3	NA	3.1 J	HH	0.175	I	NA	--	--	--
TAL Dissolved Metals											
Arsenic	Groundwater	MB-1	I	10.0	HH	0.175	E	37.2	Yes	0.0207	No
Arsenic	Groundwater	MB-2	I	91.2	HH	0.175	E	37.2	Yes	0.0207	No
Arsenic	Groundwater	MB-3	I	30.4	HH	0.175	E	37.2	Yes	0.0207	No
Arsenic	Groundwater	MB-4	I	17.0	HH	0.175	E	37.2	Yes	0.0207	No
Arsenic	Groundwater	MB-6	II	249	HH	0.175	E	125.3	Yes	0.0699	No
Arsenic	Groundwater	MB-7	III	32.1	HH	0.175	E	85.1	Yes	0.0474	No
Arsenic	Groundwater	MB-8	III	138	HH	0.175	E	85.1	Yes	0.0474	No
Arsenic	Groundwater	MB-9	NA	6.3	HH	0.175	E	NA	--	--	--
Arsenic	Groundwater	Duplicate*	I	17.4	HH	0.175	E	37.2	Yes	0.0207	No
Arsenic	Groundwater	MB-2	I	91.2	MCL	50	E	37.4	No	--	--

TABLE 6-4: SAMPLING LOCATIONS EXCEEDING APPLICABLE WATER QUALITY CRITERIA, MARCH 1993

Parameter	Matrix	Sample Location	Monitoring Well Zone	Sample Concentration (ug/L)	Criterion Exceeded	Criterion Concentration (ug/L)	Source	Average Concentration Of Zone (ug/L)	Exceeds Criterion	Concentration After Mixing (ug /L)	Exceeds Criterion
Arsenic	Groundwater	MB-6	II	249	MCL	50	I	125.3	Yes	0.0699	No
Arsenic	Groundwater	MB-8	III	138	MCL	50	E	85.1	Yes	0.0474	No
Arsenic	Groundwater	MB-6	II	249	CAC	190	I	125.3	No	--	--
Iron	Groundwater	MB-1	I	2160	AAC	1000	E	8963	Yes	5	No
Iron	Groundwater	MB-2	I	21900	AAC	1000	E	8963	Yes	5	No
Iron	Groundwater	MB-3	I	8500	AAC	1000	E	8963	Yes	5	No
Iron	Groundwater	MB-4	I	3290	AAC	1000	E	8963	Yes	5	No
Iron	Groundwater	MB-6	II	16600	AAC	1000	E	8394	Yes	5	No
Iron	Groundwater	MB-7	III	4830	AAC	1000	E	4400	Yes	2	No
Iron	Groundwater	MB-8	III	3970	AAC	1000	E	4400	Yes	2	No
Iron	Groundwater	MB-9	NA	2050	AAC	1000	E	NA	--	--	--
Iron	Groundwater	Duplicate*	I	3210	AAC	1000	E	8963	Yes	5	No
Indicator Parameters											
Un-Ionized	Groundwater	MB-2	I	0.012	CAC	0.0027	I	0.0060	Yes	0.000003	No
Ammonia (mg/L)	Groundwater	MB-3	I	0.009	CAC	0.0039	I	0.0060	Yes	0.000003	No
	Groundwater	MB-7	III	0.011	CAC	0.0043	I	0.0235	Yes	0.000013	No
	Groundwater	MB-8	III	0.036	CAC	0.0112	I	0.0235	Yes	0.000013	No

Notes:

AAC - Acute Aquatic Criterria

CAC - Chronic Aquatic Criteria

Duplicate * - Sample collected for on-site monitoring well MB-4

- Proposed

TABLE 6-1: WATER QUALITY CRITERIA - UPDATED

Parameter	Acute Aquatic Criteria		Chronic Aquatic Criteria		Human Health		MCL	
TCL Volatiles (ug/L)								
Acetone	10000	+	222	+	- -		- -	
Benzene	5300	E	118	+	400	I	5	E
Chlorobenzene	1950	+	50	E	2026	+	- -	
1,2-Dichloroethene (total) (1)	- -		- -		- -		70 and 100	E
Methylene Chloride	193000	E	4289	+	157	E	- -	
Toluene	17500	E	389	+	424000	I	1000	E
Trichloroethane	45000	E	21900	E	807	I	5	E
Vinyl Chloride	- -		- -		5246	I	2	E
TCL Semivolatiles (ug/L)								
Phenol	10200	E	2560	E	3500	E	- -	
Phthalate Esters	940	E	3	E	50000	I	- -	
TAL Metals and Cyanide (ug/L)								
Aluminum	- -		- -		- -		- -	
Antimony	- -		- -		45000	I	6	E
Arsenic	360	I	190	I	0.175	I	50	E
Barium	- -		- -		- -		2000	E
Beryllium	- -		- -		1.17	I	4	E
Cadmium*	6.7	I	1.6	I	60	+	5	E
Calcium	- -		- -		- -		- -	
Chromium	16	I	11	I	3389	+	100	E
Cobalt	- -		- -		- -		- -	
Copper* (2)	28	I	18	I	- -		1300	E
Cyanide	22	I	5.2	I	24242	+	200	E
Iron	1000	E	- -		- -		- -	
Lead* (2)	150	I	5.8	I	51	+	15	E
Magnesium	- -		- -		- -		- -	
Manganese	- -		- -		- -		- -	
Mercury	2.4	I	0.012	I	0.15	I	2	E
Nickel*	2100	I	240	I	100	I	100	E
Potassium	- -		- -		- -		- -	
Selenium	130	I	25	I	- -		50	E
Silver*	9.2	I	0.12	E	- -		50	E
Sodium	- -		- -		- -		- -	
Thallium	- -		- -		48	I	2	E
Vanadium	11000	+	100	+	- -		- -	
Zinc*	175	I	160	I	- -		- -	
IDEM Parameters (mg/L)								
Ammonia, Total Unionized**	0.027	I	0.0029	I	- -		- -	
COD	- -		- -		- -		- -	
Chloride	860	I	230	I	- -		- -	
TSS	- -		- -		- -		- -	

Notes:

*Acute and chronic criteria calculated based on worst-case hardness=161 mg/L
**Acute and chronic criteria calculated based on worst-case t=5C, pH=7.0
- - Criteria not developed
MCL - Maximum Contaminant Level (Updated per the Safe Drinking Water Act of 1986 and later revisions known as the Phase I, Phase II, and Phase V rules. Phase I became effective January 9, 1989, Phase II became effective in 1992, and Phase V became effective January 17, 1994.)
Source of Data
E - U.S. EPA
I - IDEM (327 IAC 2)
+ - See section 6.2 of February 1990 report by Beak Consultants Limited Baseline Water Quality Conditions for discussion of sources for the criteria.
(1) *The 1,2-Dichloroethene MCL standards are divided into cis-1,2-Dichloroethene at 70 ug/L and trans-1,2 Dichloroethene at 100 ug/L.*
(2) - The "MCL" value is an action level for lead and copper (i.e., the lead and copper rule) but it only applies to water supplies as measured at the household tap.

TABLE 6-2: CALCULATED ACUTE AQUATIC CRITERIA AND CHRONIC AQUATIC CRITERIA FOR AMMONIA-NITROGEN, JUNE 1993

Sample Matrix	Well Number	pH	Temp (C)	Ammonia (mg/L) Total (mg/L)	Ammonia (mg/L) Un-Ionized (mg/L)*	Calculated Un-Ionized Ammonia Criteria(mg/L)** AAC	Calculated Un-Ionized Ammonia Criteria(mg/L)** CAC	Criteria Exceeded AAC	Criteria Exceeded CAC
Ground Water	MB-1	6.9	14.5	0.5 U	0.001	--	--	--	--
	MB-2	6.7	13.0	8.6	0.01	0.027	0.0025	No	Yes
	MB-3	6.8	14.8	5.6	0.01	0.037	0.0036	No	Yes
	MB-4	7.2	15.2	2.5	0.011	0.074	0.0093	No	Yes
	MB-5	6.5	15.3	4.1	0.004	0.022	0.0019	No	Yes
	MB-6	6.6	16.2	4.2	0.005	0.028	0.0025	No	Yes
	MB-7	6.8	15.9	8.6	0.016	0.04	0.0039	No	Yes
	MB-8	7.2	15.7	6.1	0.028	0.077	0.0096	No	Yes
	MB-9	7.2	11.7	0.63	0.002	0.058	0.0073	No	No
	MB-10	7.0	12.4	0.5 U	--	--	--	--	--
Pond Water	Off-site (D)	7.98	20	0.5 U	--	--	--	--	--
	Off-site (S)	7.98	20	0.5 U	--	--	--	--	--
	On-site (D)	7.77	19.4	0.5 U	--	--	--	--	--
	On-site (S)	7.77	19.4	0.5 U	--	--	--	--	--
Surface Water	SW-1	8.03	15	0.5 U	--	--	--	--	--
	SW-2	8.03	15	0.5 U	--	--	--	--	--
	SW-3	8.03	15	0.5 U	--	--	--	--	--
	SW-4	8.03	15	0.5 U	--	--	--	--	--
	SW-5	8.03	15	0.5 U	--	--	--	--	--
	SW-6	8.03	15	0.5 U	--	--	--	--	--

Notes:

* - Values calculated according to the Indiana Register (1990) (327 IAC 2). Unionized values calculated using 1/2 the detection limit for less than detection limit total results.

** - Calculated according to the USEPA Quality Criteria for Water, 1986 EPA 440/5-86-001

AAC - Acute Aquatic Criteria; CAC Chronic Aquatic Criteria

TABLE 6-4: SAMPLING LOCATIONS EXCEEDING APPLICABLE WATER QUALITY CRITERIA, JUNE 1993

Parameter	Matrix	Sample Location	Monitoring Well Zone	Sample Concentration (ug/L)	Criterion Exceeded	Criterion Concentration (ug/L)	Source	Average Concentration Of Zone (ug/L)	Exceeds Criterion	Concentration After Mixing (ug /L)	Exceeds Criterion
Indicator Parameters											
Un-ionized	Groundwater	MB-2	I	0.01	CAC	0.0025	E	0.008	Yes	0.000004	No
Ammonia (mg/L)	Groundwater	MB-3	I	0.01	CAC	0.0036	E	0.008	Yes	0.000004	No
	Groundwater	MB-4	I	0.011	CAC	0.0093	E	0.008	No	--	--
	Groundwater	MB-5	II	0.004	CAC	0.0019	E	0.0045	Yes	0.000003	No
	Groundwater	MB-6	II	0.005	CAC	0.0025	E	0.0045	Yes	0.000003	No
	Groundwater	MB-7	III	0.016	CAC	0.0039	E	0.022	Yes	0.000012	No
	Groundwater	MB-8	III	0.028	CAC	0.0096	E	0.022	Yes	0.000012	No

Notes:

AAC - Acute Aquatic Criterria

CAC - Chronic Aquatic Criteria

TABLE 6-1: WATER QUALITY CRITERIA - UPDATED

Parameter	Acute Aquatic Criteria		Chronic Aquatic Criteria		Human Health		MCL	
TCL Volatiles (ug/L)								
Acetone	10000	+	222	+	- -		- -	
Benzene	5300	E	118	+	400	I	5	E
Chlorobenzene	1950	+	50	E	2026	+	- -	
1,2-Dichloroethene (total) (1)	- -		- -		- -		70 and 100	E
Methylene Chloride	193000	E	4289	+	157	E	- -	
Toluene	17500	E	389	+	424000	I	1000	E
Trichloroethane	45000	E	21900	E	807	I	5	E
Vinyl Chloride	- -		- -		5246	I	2	E
TCL Semivolatiles (ug/L)								
Phenol	10200	E	2560	E	3500	E	- -	
Phthalate Esters	940	E	3	E	50000	I	- -	
TAL Metals and Cyanide (ug/L)								
Aluminum	- -		- -		- -		- -	
Antimony	- -		- -		45000	I	6	E
Arsenic	360	I	190	I	0.175	I	50	E
Barium	- -		- -		- -		2000	E
Beryllium	- -		- -		1.17	I	4	E
Cadmium*	6.7	I	1.6	I	60	+	5	E
Calcium	- -		- -		- -		- -	
Chromium	16	I	11	I	3389	+	100	E
Cobalt	- -		- -		- -		- -	
Copper* (2)	28	I	18	I	- -		1300	E
Cyanide	22	I	5.2	I	24242	+	200	E
Iron	1000	E	- -		- -		- -	
Lead* (2)	150	I	5.8	I	51	+	15	E
Magnesium	- -		- -		- -		- -	
Manganese	- -		- -		- -		- -	
Mercury	2.4	I	0.012	I	0.15	I	2	E
Nickel*	2100	I	240	I	100	I	100	E
Potassium	- -		- -		- -		- -	
Selenium	130	I	25	I	- -		50	E
Silver*	9.2	I	0.12	E	- -		50	E
Sodium	- -		- -		- -		- -	
Thallium	- -		- -		48	I	2	E
Vanadium	11000	+	100	+	- -		- -	
Zinc*	175	I	160	I	- -		- -	
IDEM Parameters (mg/L)								
Ammonia, Total Unionized**	0.027	I	0.0029	I	- -		- -	
COD	- -		- -		- -		- -	
Chloride	860	I	230	I	- -		- -	
TSS	- -		- -		- -		- -	

Notes:

*Acute and chronic criteria calculated based on worst-case hardness=161 mg/L
**Acute and chronic criteria calculated based on worst-case t=5C, pH=7.0
- - Criteria not developed
MCL - Maximum Contaminant Level (Updated per the Safe Drinking Water Act of 1986 and later revisions known as the Phase I, Phase II, and Phase V rules. Phase I became effective January 9, 1989, Phase II became effective in 1992, and Phase V became effective January 17, 1994.)
Source of Data
E - U.S. EPA
I - IDEM (327 IAC 2)
+ - See section 6.2 of February 1990 report by Beak Consultants Limited Baseline Water Quality Conditions for discussion of sources for the criteria.
(1) The 1,2-Dichloroethene MCL standards are divided into cis-1,2-Dichloroethene at 70 ug/L and trans-1,2 Dichloroethene at 100 ug/L.
(2) - The "MCL" value is an action level for lead and copper (i.e., the lead and copper rule) but it only applies to water supplies as measured at the household tap

TABLE 5-1: GROUNDWATER CHEMISTRY DATA
SEPTEMBER 1993

MONITORING WELL	MB-1	MB-2	MB-3	MB-4	MB-5	MB-6	MB-7	MB-8	MB-9	MB-10	DUPLICATE *
LOCATION IN AQUIFER	BOTTOM	TOP	TOP	BOTTOM	TOP	BOTTOM	TOP	BOTTOM	TOP	TOP	
TCL VOLATILES (ug/L)											
Vinyl Chloride	20	15	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acetone	17 U J	10 U	33 U J	17 U J	11 U J	16 U J	10 U	10 U	10 U	10 U	10 U
Methylene Chloride	10 U J	20 U	10 U J	10 U J	10 U J	10 U J	10 U	11 U	10 U	23 U	18 U
Total 1,2-Dichloroethene	30	5 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Trichloroethene	76	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzene	10 U	5 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chlorobenzene	10 U	2 J	10 U	10 U	10 U	3 J	10 U	10 U	10 U	10 U	10 U
Total Xylenes	10 U	10 U	1 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
VOLATILES - TENTATIVELY IDENTIFIED COMPOUNDS											
Unknown (Total Number)	0	0	0	0	0	0	0	0	0	0	0
Unknown (Total Concentration)	0	0	0	0	0	0	0	0	0	0	0
TCL SEMIVOLATILES(ug/L)											
Di-n-butylphthalate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-ethylhexyl)phthalate	10 U	10 U	14 U	16 U J	38 U	10 U	10 U	32 U	22 U	10 U	12 U
Pentachlorophenol	10 U	10 U	2 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Diethylphthalate	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro- 3- Methylphenol	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Phenol	10 U	2 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
SEMIVOLATILES - TENTATIVELY IDENTIFIED COMPOUNDS (Retention Time)											
Cyclohexenone (6.10)						2 J					
Unknown Alkane (7.07)							3 J				
Dimethylethylphenol (8.18)		6 J									
Unknown Siloxane (9.37)											7 J
Benzothiazolone (10.93)							10 J				
Benzothiazolone (10.95)			10 J								
Benzothiazolone (10.97)		26 J									
Unknown Carboxylic Acid (11.25)			5 J								
Benzothiazolone (12.18)						34 J					
Unknown Carboxylic Acid (12.40)			8 J								

TABLE 5-1: GROUNDWATER CHEMISTRY DATA
SEPTEMBER 1993

MONITORING WELL	MB-1	MB-2	MB-3	MB-4	MB-5	MB-6	MB-7	MB-8	MB-9	MB-10	DUPLICATE *
LOCATION IN AQUIFER	BOTTOM	TOP	TOP	BOTTOM	TOP	BOTTOM	TOP	BOTTOM	TOP	TOP	
Unknown carboxylic Acid (13.62)						3 J				2 J	
Unknown Phthalate (14.92)										2 J	
Unknown Phthalate (15.18)										5 J	
Unknown Phthalate (15.22)										3 J	
Unknown Phthalate (15.37)										3 J	
Unknown (Total Number)	0	1	0	0	0	11	3	3	0	0	6
Unknown (Total Concentration)	0	11 J	0	0	0 J	118 J	13 J	80 J	0	0	137 J
DISSOLVED TAL METALS (ug/L)											
Aluminum	37.2 U	38.8 U	38.8 U	37.2 U	38.8 U	38.8 U	38.8 U	38.8 U	37.2 U	38.8 U	37.2 U
Antimony	34.7 U J	51.1 U J	51.1 U J	34.7 U J	51.1 U J	51.1 U J	51.1 U J	51.1 U J	34.7 U J	51.1 U J	34.7 U J
Arsenic	16.1	51.6	34.0	23.5	5.2 U	184	124	132	12.5 J	5.2 U	153
Barium	165	577	669	461	253	260	598	246	67.8	79.6	249
Beryllium	4.2 U	0.40 U	0.40 U	4.2 U	0.40 U	0.40 U	0.40 U	0.40 U	4.2 U	0.40 U	4.2 U
Cadmium	4.8 U	5.0 U	5.0 U	4.8 U	5.0 U	5.0 U	5.0 U	5.0 U	4.8 U	5.0 U	4.8 U
Calcium	123000	127000	89200	51000	92200	104000	83000	59100	68500	98300	61200
Chromium	6.6 U	9.2 U	9.2 U	6.6 U	9.2 U	9.2 U	9.2 U	9.2 U	6.6 U	9.2 U	6.6 U
Cobalt	7.3 U	13.6 U	13.6 U	7.3 U	13.6 U	13.6 U	13.6 U	13.6 U	7.3 U	13.6 U	7.3 U
Copper	12.2 U	11.1 U	11.1 U	12.2 U	11.1 U	11.1 U	11.1 U	11.1 U	12.2 U	11.1 U	12.2 U
Iron	2040	18200	11000	3850	889	14400	10800	5710	1570	25.9	5610
Lead	2.0 U J	2.0 U J	2.0 U J	2.0 U J	2.0 U J	2.0 U J	2.0 U J	2.0 U J	2.0 U J	2.0 U J	2.0 U J
Magnesium	36100	28700	32500	31300	28100	31000	38500	92100	24000	28100	94500
Manganese	717	239	160	188	687	83.1	53.4	65.2	728	1.4 U	73.9
Mercury	R	R	R	R	R	R	R	R	R	R	R R
Nickel	36.6 U	14.2 U	14.2 U	36.6 U	14.2 U	14.2 U	14.2 U	14.2 U	36.6 U	14.2 U	36.6 U
Potassium	1870 U	14500	12900	8270	6470	14200	20600	39600	1870 U	2810 J	39200
Selenium	3.6 U J	36.0 U J	3.6 U J	3.6 U J	3.6 U J	36.0 U	18.0 U	36.0 U	3.6 U J	3.6 U J	3.6 U J
Silver	5.0 U	5.5 U	5.5 U	5.0 U	5.5 U	5.5 U	5.5 U	5.5 U	5.0 U	5.5 U	5.0 U
Sodium	17600	21200	20800	20100	19900	27100	69500	155000	10200	20000	157000
Thallium	4.8 U J	48.0 U J	48.0 U J	4.8 U J	4.8 U J	48.0 U J	4.8 U J	48.0 U J	4.8 U J	4.8 U J	4.8 U J
Vanadium	48.0 U	6.8 U	6.8 U	7.0 U	6.8 U	6.8 U	6.8 U	6.8 U	7.0 U	6.8 U	7.0 U
Zinc	2.8 U	86.0 U	66.3 U	2.8 U	73.5 U	69.4 U	70.1 U	66.9 U	76.6 U	67.6 U	91.5 U
TOTAL CYANIDE (ug/L)											
Cyanide	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U

TABLE 5-1: GROUNDWATER CHEMISTRY DATA
SEPTEMBER 1993

MONITORING WELL	MB-1	MB-2	MB-3	MB-4	MB-5	MB-6	MB-7	MB-8	MB-9	MB-10	DUPLICATE *
LOCATION IN AQUIFER	BOTTOM	TOP	TOP	BOTTOM	TOP	BOTTOM	TOP	BOTTOM	TOP	TOP	
INDICATOR PARAMETERS (mg/L)											
Ammonia-nitrogen	0.5 U	8.7	6.0	2	1.7	3.9	8.3	5.5	0.5 U	0.5 U	4.9
C.O.D.	20 U J	22 J	28 J	20 U J	20 U J	28 J	28 J	100 J	20 U J	20 U J	79 J
Chloride	16	17	16	17	37	20	34	40	11 U	16	39
TSS	150	70	6.8	5.0 U	62	65	36	600	300	180	530

Notes:

* - Duplicate sample collected from monitoring well MB-8

TABLE 6-2: CALCULATED ACUTE AQUATIC CRITERIA AND CHRONIC AQUATIC CRITERIA FOR AMMONIA-NITROGEN, SEPTEMBER 1993

Sample Matrix	Well Number	pH	Temp (C)	Ammonia Total (mg/L)	Calculated Ammonia Un-Ionized (mg/L)*	Calculated Un-Ionized Ammonia Criteria(mg/L)** AAC	CAC	Criteria Exceeded AAC	CAC
Ground Water	MB-1	7	14.2	0.5 U	0.001	--	--	--	--
	MB-2	6.7	15.5	8.7	0.012	0.032	0.003	No	Yes
	MB-3	6.6	16.1	6.0	0.007	0.028	0.0025	No	Yes
	MB-4	7.3	15.7	2.0	0.011	0.068	0.0121	No	No
	MB-5	6.9	14.4	1.7	0.004	0.043	0.0044	No	No
	MB-6	6.8	16.1	3.9	0.007	0.041	0.0039	No	Yes
	MB-7	6.8	16.7	8.3	0.016	0.043	0.0041	No	Yes
	MB-8	6.8	15.9	5.5	0.01	0.04	0.0039	No	Yes
	MB-9	7.3	17.1	0.5 U	--	--	--	--	--
	MB-10	7.1	14.5	0.5 U	--	--	--	--	--
	Duplicate++	6.8	15.9	4.9	0.009	0.04	0.0039	No	Yes
Pond Water (1)	Off-site (D)	7.8	21	0.5 U	--	--	--	--	--
	Off-site (S)	7.8	21	0.5 U	--	--	--	--	--
	On-site (D)	8.2	20	0.5 U	--	--	--	--	--
	On-site (S)	8.2	20	0.5 U	--	--	--	--	--
Surface Water (2)	SW-1	8.2	18.6	0.5 U	--	--	--	--	--
	SW-2	8.2	18.6	0.5 U	--	--	--	--	--
	SW-3	8.2	18.6	0.5 U	--	--	--	--	--
	SW-4	8.2	18.6	0.5 U	--	--	--	--	--
	SW-5	8.2	18.6	0.5 U	--	--	--	--	--
	SW-6	8.2	18.6	0.5 U	--	--	--	--	--
	Duplicate +	8.2	18.6	0.5 U	--	--	--	--	--

Notes:

* - Values calculated according to the Indiana Register (1990) (327 IAC 2). Unionized values calculated using 1/2 the detection limit for less than detection limit total results.

** - Calculated according to the USEPA Quality Criteria for Water, 1986 EPA 440/5-86-001

\+ - Sample collected at the SW-5 sampling location

++ - Sample taken from monitoring well MB-8

AAC - Acute Aquatic Criteria; CAC Chronic Aquatic Criteria

(1) Pond water pH and temperature readings were obtained at only the shallow pond sampling location. Shallow pond pH and temperature were used to calculate AAC and CAC for the deep pond sampling location, if ammonia was detected.

(2) Surface water pH and temperature readings were measured only at SW-4. SW-4 pH and temperature readings were used in AAC and CAC calculations for other surface water locations, if ammonia was detected.

TABLE 6-3: ACUTE AQUATIC CRITERIA AND CHRONIC AQUATIC CRITERIA FOR TAL METALS CONCENTRATIONS DEPENDENT ON HARDNESS, SEPTEMBER 1993

					Cadmium (ug/L)			Chromium(ug/L)			Copper(ug/L)			Lead(ug/L)			Nickel(ug/L)			Silver(ug/L)			Zinc(ug/L)		
Sample Matrix	Sample Location	Hardness (mg/L)	Calcium (mg/L)	Magnesium (mg/L)	Sample Conc.**	AAC*	CAC*	Sample Conc.**	AAC*	CAC*	Sample Conc.**	AAC*	CAC*	Sample Conc.**	AAC*	CAC*	Sample Conc.**	AAC*	CAC*	Sample Conc.**	AAC*	CAC(1)	Sample Conc.**	AAC*	CAC*
Ground Water	MB-1	456	123	36.1	4.8 U	22	4	6.6 U	6018	717	12.2U	74	43	2.0UJ	563	22	36.6 U	5120	569	5.0 U	28		2.8 U	423	383
(Dissolved)	MB-2	436	127	28.7	5.0U	21	4	9.2 U	5796	691	11.1 U	71	42	2.0UJ	531	21	14.2 U	4925	548	5.5 U	26		86.0 U	407	369
	MB-3	357	89.2	32.5	5.0U	16	3	9.2 U	4921	587	11.1 U	59	35	2.0UJ	412	16	14.2 U	4160	462	5.5 U	18		66.3 U	344	311
	MB-4	256	51	31.3	4.8 U	11	2	6.6 U	3754	447	12.2 U	43	26	2.0UJ	271	11	36. 6 U	3145	350	5.0 U	10		2.8 U	260	235
	MB-5	346	92.2	28.1	5.0U	16	3	9.2 U	4801	572	11.1 U	57	34	2.0UJ	397	15	14.2 U	4055	451	5.5 U	17		73.5 U	335	304
	MB-6	388	104	31	5.0U	18	3	9.2 U	5287	628	11.1 U	64	38	2.0UJ	458	18	14.2 U	4462	496	5.5 U	21		89.4 U	369	334
	MB-7	366	83	38.5	5.0U	17	3	9.2 U	5025	599	11.1 U	60	36	2.0UJ	426	17	14.2 U	4250	472	5.5 U	19		70.1 U	351	318
	MB-8	527	59.1	92.1	5.0U	26	4	9.2 U	6771	807	11.1 U	85	49	2.0UJ	677	26	14.2 U	5784	643	5.5 U	35		66.9 U	478	433
	MB-9	270	68.5	24	4.8 U	12	2	6.6 U	3917	467	12.2 U	45	28	2.0UJ	289	11	36.6 U	3286	365	5.0 U	11		76.6 U	272	246
	MB-10	361	98.3	28.1	5.0U	17	3	9.2 U	4973	593	11.1 U	59	35	2.0UJ	419	16	14. 2 U	4205	467	5.5 U	18		67.6 U	348	315
	Duplicate +	542	61.2	94.5	4.8 U	26	4	6.6 U	6930	826	12.2 U	87	50	2.0UJ	702	27	36.6 U	5924	659	5.0 U	37		91.5 U	490	444
Pond Water	Off-site (D)	199	40.0	24	5.0 U	9	2	10.0U	3048	363	15.0U	34	21	4.0	196	8	35.0 U	2536	282	4.0 U	7		75.4 U	209	190
(Total)	Off-site (S)	187	37.1	23.0	5.0 U	8	2	10.0U	2905	346	15.0U	32	20	2.8J	182	7	35.0 U	2413	268	4.0 U	6		80.9	199	180
	On-site (D)	201	41.0	24.0	5.0 U	9	2	10.0U	3079	367	15.0U	34	21	3.7J	199	8	35.0 U	2563	285	4.0 U	7		20 U	212	192
	On-site (S)	196	39.0	24.0	5.0 U	8	2	10.0U	3017	360	15.0U	33	21	4.1	193	8	35.0 U	2509	279	4.0 U	6		R	207	188
Surface Water	SW-1	319	80.4	28.7	5.0 U	15	3	10.0U	4492	535	15.0U	53	32	3.8J	358	14	35.0 U	3785	421	4.0 U	15		10.2	313	283
(Total)	SW-2	318	80.1	28.7	5.0 U	14	3	10.0U	4483	534	15.0U	53	32	8.9	357	14	35.0 U	3778	420	4.0 U	15		7.9J	312	283
	SW-3	324	81.6	29.1	5.0 U	15	3	10.0U	4545	542	15.0U	54	32	2.0U	364	14	35.0 U	3832	426	4.0 U	15		7.3J	317	287
	SW-4	323	81.6	28.9	5.0 U	15	3	10.0U	4536	541	15.0U	53	32	2.0UJ	363	14	35.0 U	3823	425	4.0 U	15		13.6	316	286
	SW-5	329	83	29.5	5.0 U	15	3	10.0U	4604	549	15.0U	54	33	2.0U	372	14	35.0 U	3883	432	4.0 U	16		5.5J	321	291
	SW-6	325	85.3	27.1	5.0 U	15	3	10.0U	4557	543	15.0U	54	32	2.0UJ	366	14	35.0 U	3842	427	4.0 U	15		5.0U	317	288
	Duplicate ++	314	79.1	28.3	5.0 U	14	3	10.0U	4435	529	15.0U	52	31	2.0UJ	351	14	35.0 U	3736	415	4.0 U	15		15.2J	309	280

Notes:

- * - Values calculated according to the Indiana Register(1990)
- ** - Sample concentrations are ug/L (ppb)
- AAC - Acute Aquatic Criteria
- CAC - Chronic Aquatic Criteria
- \+ - Duplicate sample collected from monitoring well MB-8
- ++ - Duplicate sample collected from sampling location SW-5

TABLE 6-4: SAMPLING LOCATIONS EXCEEDING APPLICABLE WATER QUALITY CRITERIA SEPTEMBER 1993

Parameter	Matrix	Sample Location	Monitoring Well Zone	Sample Concentration (ug/L)	Criterion Exceeded	Criterion Concentration (ug/L)	Source	Average Concentration Of Zone (ug/L)	Exceeds Criterion	Concentration After Mixing (ug /L)	Exceeds Criterion
TCL Volatiles (ug/L)											
Trichloroethene	Groundwater	MB-1	I	76	MCL	5	E	23	Yes	0.013	No
Vinyl Chloride	Groundwater	MB-1	I	20	MCL	2	E	11	Yes	0.006	No
	Groundwater	MB-2	I	15	MCL	2	E	11	Yes	0.006	No
TAL Total Metals											
Iron	Surface Water	SW-1	NA	1160	AAC	1000	E	NA	--	--	--
Iron	Surface Water	SW-2	NA	1100	AAC	1000	E	NA	--	--	--
Iron	Surface Water	SW-4	NA	1060	AAC	1000	E	NA	--	--	--
Iron	Surface Water	Duplicate	NA	1020 J	AAC	1000	E	NA	--	--	--
TAL Dissolved Metals											
Arsenic	Groundwater	MB-1	I	16.1	HH	0.175	E	31.3	Yes	0.017	No
Arsenic	Groundwater	MB-2	I	51.6	HH	0.175	E	31.3	Yes	0.017	No
Arsenic	Groundwater	MB-3	I	34.0	HH	0.175	E	31.3	Yes	0.017	No
Arsenic	Groundwater	MB-4	I	23.5	HH	0.175	E	31.3	Yes	0.017	No
Arsenic	Groundwater	MB-6	II	184	HH	0.175	E	93.3	Yes	0.052	No
Arsenic	Groundwater	MB-7	III	124	HH	0.175	E	128	Yes	0.071	No
Arsenic	Groundwater	MB-8	III	132	HH	0.175	E	128	Yes	0.071	No
Arsenic	Groundwater	MB-9	NA	12.5 J	HH	0.175	E	NA	--	--	--
Arsenic	Groundwater	Duplicate*	III	153	HH	0.175	E	128	Yes	0.071	No
Arsenic	Groundwater	MB-2	I	51.6	MCL	50	E	31.3	No	--	--
Arsenic	Groundwater	MB-6	II	184	MCL	50	I	93.3	Yes	0.052	No
Arsenic	Groundwater	MB-7	III	124	MCL	50	E	128	Yes	0.071	No
Arsenic	Groundwater	MB-8	III	132	MCL	50	E	128	Yes	0.071	No
Arsenic	Groundwater	Duplicate*	III	153	MCL	50	E	128	Yes	0.071	No
Iron	Groundwater	MB-1	I	2040	AAC	1000	E	6298	Yes	4	No
Iron	Groundwater	MB-2	I	18200	AAC	1000	E	6298	Yes	4	No
Iron	Groundwater	MB-3	I	11000	AAC	1000	E	6298	Yes	4	No
Iron	Groundwater	MB-4	I	3850	AAC	1000	E	6298	Yes	4	No
Iron	Groundwater	MB-6	II	14400	AAC	1000	E	7645	Yes	4	No
Iron	Groundwater	MB-7	III	10800	AAC	1000	E	8255	Yes	5	No
Iron	Groundwater	MB-8	III	5710	AAC	1000	E	8255	Yes	5	No
Iron	Groundwater	MB-9	NA	1570	AAC	1000	E	NA	--	--	--
Iron	Groundwater	Duplicate*	III	5610	AAC	1000	E	8255	Yes	5	No
Indicator Parameters											
Un-ionized	Groundwater	MB-2	I	0.012	CAC	0.003	E	0.0078	Yes	0.000004	No
Ammonia (mg/L)	Groundwater	MB-3	I	0.007	CAC	0.0025	E	0.0078	Yes	0.000004	No
	Groundwater	MB-6	II	0.007	CAC	0.0039	E	0.0055	Yes	0.000003	No
	Groundwater	MB-7	III	0.016	CAC	0.0041	E	0.0130	Yes	0.000007	No
	Groundwater	MB-8	III	0.01	CAC	0.0039	E	0.0130	Yes	0.000007	No
	Groundwater	Duplicate	III	0.009	CAC	0.0039	E	0.0130	Yes	0.000007	No

Notes:

AAC - Acute Aquatic Criteria

CAC - Chronic Aquatic Criteria

Duplicate * - Sample collected for on-site monitoring well MB-8

- Proposed

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TABLE 6-1: WATER QUALITY CRITERIA - UPDATED

Parameter	Acute Aquatic Criteria		Chronic Aquatic Criteria		Human Health		MCL	
TCL Volatiles (ug/L)								
Acetone	10000	+	222	+	- -		- -	
Benzene	5300	E	118	+	400	I	5	E
Chlorobenzene	1950	+	50	E	2026	+	- -	
1,2-Dichloroethene (total) (1)	- -		- -		- -		70 and 100	E
Methylene Chloride	193000	E	4289	+	157	E	- -	
Toluene	17500	E	389	+	424000	I	1000	E
Trichloroethane	45000	E	21900	E	807	I	5	E
Vinyl Chloride	- -		- -		5246	I	2	E
TCL Semivolatiles (ug/L)								
Phenol	10200	E	2560	E	3500	E	- -	
Phthalate Esters	940	E	3	E	50000	I	- -	
TAL Metals and Cyanide (ug/L)								
Aluminum	- -		- -		- -		- -	
Antimony	- -		- -		45000	I	6	E
Arsenic	360	I	190	I	0.175	I	50	E
Barium	- -		- -		- -		2000	E
Beryllium	- -		- -		1.17	I	4	E
Cadmium*	6.7	I	1.6	I	60	+	5	E
Calcium	- -		- -		- -		- -	
Chromium	16	I	11	I	3389	+	100	E
Cobalt	- -		- -		- -		- -	
Copper* (2)	28	I	18	I	- -		1300	E
Cyanide	22	I	5.2	I	24242	+	200	E
Iron	1000	E	- -		- -		- -	
Lead* (2)	150	I	5.8	I	51	+	15	E
Magnesium	- -		- -		- -		- -	
Manganese	- -		- -		- -		- -	
Mercury	2.4	I	0.012	I	0.15	I	2	E
Nickel*	2100	I	240	I	100	I	100	E
Potassium	- -		- -		- -		- -	
Selenium	130	I	25	I	- -		50	E
Silver*	9.2	I	0.12	E	- -		50	E
Sodium	- -		- -		- -		- -	
Thallium	- -		- -		48	I	2	E
Vanadium	11000	+	100	+	- -		- -	
Zinc*	175	I	160	I	- -		- -	
IDEM Parameters (mg/L)								
Ammonia, Total Unionized**	0.027	I	0.0029	I	- -		- -	
COD	- -		- -		- -		- -	
Chloride	860	I	230	I	- -		- -	
TSS	- -		- -		- -		- -	

Notes:

*Acute and chronic criteria calculated based on worst-case hardness=161 mg/L
**Acute and chronic criteria calculated based on worst-case t=5C, pH=7.0
- - Criteria not developed
MCL - Maximum Contaminant Level (Updated per the Safe Drinking Water Act of 1986 and later revisions known as the Phase I, Phase II, and Phase V rules. Phase I became effective January 9, 1989, Phase II became effective in 1992, and Phase V became effective January 17, 1994.)
Source of Data
E - U.S. EPA
I - IDEM (327 IAC 2)
+ - See section 6.2 of February 1990 report by Beak Consultants Limited Baseline Water Quality Conditions for discussion of sources for the criteria.
(1) The 1,2-Dichloroethene MCL standards are divided into cis-1,2-Dichloroethene at 70 ug/L and trans-1,2 Dichloroethene at 100 ug/L.
(2) - The "MCL" value is an action level for lead and copper (i.e., the lead and copper rule) but it only applies to water supplies as measured at the household tap.

TABLE 6-2: CALCULATED ACUTE AQUATIC CRITERIA AND CHRONIC AQUATIC CRITERIA FOR AMMONIA-NITROGEN, DECEMBER 1993

Sample Matrix	Well Number	pH	Temp (C)	Ammonia Total (mg/L)	Calculated Ammonia Un-Ionized (mg/L)*	Calculated Un-Ionized Ammonia Criteria(mg/L)** AAC	CAC	Criteria Exceeded AAC	CAC
Ground Water	MB-1	7.0	12.5	0.5 U	0.001	--	--	--	--
	MB-2	6.8	13.4	0.5 U	0.0004	--	--	--	--
	MB-3	6.8	13.8	2.7	0.004	0.035	0.0034	No	Yes
	MB-4	7.1	13.8	0.5 U	0.001	--	--	--	--
	MB-5	6.7	13.6	0.5 U	0.0003	--	--	--	--
	MB-6	6.8	14.4	2.1	0.003	0.036	0.0035	No	No
	MB-7	7.0	14.6	6.3	0.017	0.052	0.0056	No	Yes
	MB-8	7.3	13.8	0.5 U	0.001	--	--	--	--
	MB-9	7.2	16.1	0.5 U	--	--	--	--	--
	MB-10	6.9	13.0	0.5 U	--	--	--	--	--
	Duplicate++	7.2	16.1	0.5 U	--	--	--	--	--

Notes:

* - Values calculated according to the Indiana Register (1990) (327 IAC 2). Unionized values calculated using 1/2 the detection limit for less than detection limit total results.

** - Calculated according to the USEPA Quality Criteria for Water, 1986 EPA 440/5-86-001

++ - Sample taken from monitoring well MB-9

AAC - Acute Aquatic Criteria; CAC Chronic Aquatic Criteria

TABLE 6-3: SAMPLING LOCATIONS EXCEEDING APPLICABLE WATER QUALITY CRITERIA, DECEMBER 1993

Parameter	Matrix	Sample Location	Monitoring Well Zone	Sample Concentration (ug/L)	Criterion Exceeded	Criterion Concentration (ug/L)	Source	Average Concentration Of Zone (ug/L)	Exceeds Criterion	Concentration After Mixing (ug /L)	Exceeds Criterion
Indicator Parameters											
Un-Ionized											
Ammonia (mg/L)	Groundwater	MB-3	I	0.004	CAC	0.0034	E	0.0016	No	0.000001	No
	Groundwater	MB-7	III	0.017	CAC	0.0056	E	0.009	Yes	0.000005	No

Notes:

AAC - Acute Aquatic Criterria

CAC - Chronic Aquatic Criteria

TABLE 6-1: WATER QUALITY CRITERIA - UPDATED

Parameter	Acute Aquatic Criteria		Chronic Aquatic Criteria		Human Health		MCL	
TCL Volatiles (ug/L)								
Acetone	10000	+	222	+	- -		- -	
Benzene	5300	E	118	+	400	I	5	E
Chlorobenzene	1950	+	50	E	2026	+	- -	
1,2-Dichloroethene (total) (1)	- -		- -		- -		70 and 100	E
Methylene Chloride	193000	E	4289	+	157	E	- -	
Toluene	17500	E	389	+	424000	I	1000	E
Trichloroethane	45000	E	21900	E	807	I	5	E
Vinyl Chloride	- -		- -		5246	I	2	E
TCL Semivolatiles (ug/L)								
Phenol	10200	E	2560	E	3500	E	- -	
Phthalate Esters	940	E	3	E	50000	I	- -	
TAL Metals and Cyanide (ug/L)								
Aluminum	- -		- -		- -		- -	
Antimony	- -		- -		45000	I	6	E
Arsenic	360	I	190	I	0.175	I	50	E
Barium	- -		- -		- -		2000	E
Beryllium	- -		- -		1.17	I	4	E
Cadmium*	6.7	I	1.6	I	60	+	5	E
Calcium	- -		- -		- -		- -	
Chromium	16	I	11	I	3389	+	100	E
Cobalt	- -		- -		- -		- -	
Copper* (2)	28	I	18	I	- -		1300	E
Cyanide	22	I	5.2	I	24242	+	200	E
Iron	1000	E	- -		- -		- -	
Lead* (2)	150	I	5.8	I	51	+	15	E
Magnesium	- -		- -		- -		- -	
Manganese	- -		- -		- -		- -	
Mercury	2.4	I	0.012	I	0.15	I	2	E
Nickel*	2100	I	240	I	100	I	100	E
Potassium	- -		- -		- -		- -	
Selenium	130	I	25	I	- -		50	E
Silver*	9.2	I	0.12	E	- -		50	E
Sodium	- -		- -		- -		- -	
Thallium	- -		- -		48	I	2	E
Vanadium	11000	+	100	+	- -		- -	
Zinc*	175	I	160	I	- -		- -	
IDEM Parameters (mg/L)								
Ammonia, Total Unionized**	0.027	I	0.0029	I	- -		- -	
COD	- -		- -		- -		- -	
Chloride	860	I	230	I	- -		- -	
TSS	- -		- -		- -		- -	

Notes:

*Acute and chronic criteria calculated based on worst-case hardness=161 mg/L
**Acute and chronic criteria calculated based on worst-case t=5C, pH=7.0
- - Criteria not developed
MCL - Maximum Contaminant Level (Updated per the Safe Drinking Water Act of 1986 and later revisions known as the Phase I, Phase II, and Phase V rules. Phase I became effective January 9, 1989, Phase II became effective in 1992, and Phase V became effective January 17, 1994.)
Source of Data
E - U.S. EPA
I - IDEM (327 IAC 2)
+ - See section 6.2 of February 1990 report by Beak Consultants Limited Baseline Water Quality Conditions for discussion of sources for the criteria.
(1) The 1,2-Dichloroethene MCL standards are divided into cis-1,2-Dichloroethene at 70 ug/L and trans-1,2 Dichloroethene at 100 ug/L.
(2) - The "MCL" value is an action level for lead and copper (i.e., the lead and copper rule) but it only applies to water supplies as measured at the household tap.

TABLE 6-2: CALCULATED ACUTE AQUATIC CRITERIA AND CHRONIC AQUATIC CRITERIA FOR AMMONIA-NITROGEN, MARCH 1994

Sample Matrix	Well Number	pH	Temp (C)	Ammonia Total (mg/L)	Calculated Ammonia Un-ionized (mg/L)*	Calculated Un-ionized Ammonia Criteria(mg/L)** AAC	CAC	Criteria Exceeded AAC	CAC
Ground Water	MB-1	7	12.0	0.5 U	0.001	--	--	--	--
	MB-2	6.7	11.0	8.8	0.009	0.024	0.0022	No	Yes
	MB-3	6.8	12.0	4.8	0.007	0.031	0.003	No	Yes
	MB-4	7.1	13.0	0.5 U	0.001	--	--	--	--
	MB-5	6.7	12.0	0.5 U	0.0003	--	--	--	--
	MB-6	6.7	14.0	3.8	0.005	0.029	0.0027	No	Yes
	MB-7	7	14.0	8.8	0.022	0.05	0.0054	No	Yes
	MB-8	7.1	13.0	4.3	0.013	0.055	0.0063	No	Yes
	MB-9	7.1	11.0	0.5 U	--	--	--	--	--
	MB-10	6.9	11.0	0.5 U	--	--	--	--	--
	Duplicate++	7	14.0	8	0.02	0.05	0.0054	No	Yes
Pond Water (1)	Off-site (D)	7.9	8.0	0.5 U	--	--	--	--	--
	Off-site (S)	7.9	8.0	0.5 U	--	--	--	--	--
	On-site (D)	6.8	7.5	0.5 U	--	--	--	--	--
	On-site (S)	6.8	7.5	0.5 U	--	--	--	--	--
Surface Water (2)	SW-1	7.6	6.0	0.5 U	--	--	--	--	--
	SW-2	7.6	6.0	0.5 U	--	--	--	--	--
	SW-3	7.6	6.0	0.5 U	--	--	--	--	--
	SW-4	7.6	6.0	0.5 U	--	--	--	--	--
	SW-5	7.6	6.0	0.5 U	--	--	--	--	--
	SW-6	7.6	6.0	0.5 U	--	--	--	--	--
	Duplicate +	7.6	6.0	0.5 U	--	--	--	--	--

Notes:

* - Values calculated according to the Indiana Register (1990) (327 IAC 2). Unionized values calculated using 1/2 the detection limit for less than detection limit total result:

** - Calculated according to the USEPA Quality Criteria for Water, 1986 EPA 440/5-86-001

+ - Duplicate sample collected at the SW-4 sampling location.

++ - Duplicate sample collected from monitoring well MB-7.

AAC - Acute Aquatic Criteria; CAC Chronic Aquatic Criteria

(1) Pond water pH and temperature readings were obtained at only the shallow pond sampling location. Shallow pond pH and temperature were used to calculate AAC and CAC for the deep pond sampling location, if ammonia was detected.

(2) Surface water pH and temperature readings were measured only at SW-4. SW-4 pH and temperature readings were used in AAC and CAC calculations for other surface water locations, if ammonia was detected.

TABLE 6-3: ACUTE AQUATIC CRITERIA AND CHRONIC AQUATIC CRITERIA FOR TAL METALS CONCENTRATIONS DEPENDENT ON HARDNESS, MARCH 1994

Sample Matrix	Sample Location	Hardness (mg/L)	Calcium (mg/L)	Magnesium (mg/L)	Cadmium (ug/L) Sample Conc.**	AAC*	CAC*	Chromium(ug/L) Sample Conc.*	AAC*	CAC*	Copper(ug/L) Sample Conc.*	AAC*	CAC*	Lead(ug/L) Sample Conc.*	AAC*	CAC*	Nickel(ug/L) Sample Conc.**	AAC*	CAC*	Silver(ug/L) Sample Conc.*	AAC*	CAC(1)	Zinc(ug/L) Sample Conc.*	AAC*	CAC*
Ground Water (Dissolved)	MB-1	410	111	32.2	4.3 U	19	3	6.2 U	5515	657	12.7 U	67	39	2.0 UJ	492	19	34.7 U	4679	520	7.7 U	23		20 U	387	350
	MB-2	520	154	32.8	4.3 U	25	4	6.2 U	6700	799	12.7 U	84	48	2.0 U	666	26	34.7 U	5721	636	7.7 U	35		20 U	473	428
	MB-3	382	94.5	35.4	4.3 U	18	3	6.2 U	5204	620	12.7 U	63	37	2.0 U	450	18	34.7 U	4407	490	7.7 U	20		6.0 J	364	330
	MB-4	269	53.2	33.1	4.3 U	12	2	6.2 U	3908	466	12.7 U	45	28	2.0 U	288	11	34.7 U	3278	364	7.7 U	11		6.1 J	271	245
	MB-5	611	168	46.5	4.3 U	30	5	6.2 U	7650	912	12.7 U	98	56	2.0 U	818	32	34.7 U	6561	729	7.7 U	46		20 U	543	491
	MB-6	449	120	36.1	4.3 U	21	4	6.2 U	5936	708	12.7 U	73	43	2.0 UJ	552	21	R	5049	561	7.7 U	27		20 U	417	378
	MB-7	366	80.5	40	4.3 U	17	3	6.2 U	5024	599	12.7 U	60	36	2.0 UJ	426	17	34.7 U	4249	472	7.7 U	19		20 U	351	318
	MB-8	461	55.1	78.6	4.3 U	22	4	6.2 U	6073	724	12.7 U	75	44	2.0 UJ	572	22	34.7 U	5169	575	7.7 U	28		20 U	427	387
	MB-9	245	61.7	22.1	4.3 U	11	2	6.2 U	3620	431	12.7 U	41	25	2.0 U	256	10	34.7 U	3029	337	7.7 U	9		3.4 U	250	227
	MB-10	357	95.6	28.6	4.3 U	16	3	6.2 U	4921	586	12.7 U	59	35	2.0 UJ	412	16	34.7 U	4159	462	7.7 U	18		3.4 U	344	311
	Duplicate ++	359	80.5	38.4	4.3 U	17	3	6.2 U	4950	590	12.7 U	59	35	2.0 U	416	16	34.7 U	4184	465	7.7 U	18		20 U	346	313
Pond Water (Total)	Off-site (D)	201	44.9	21.5	4.8 UJ	9	2	6.0 U	3073	366	25 U	34	22	2.0 U	198	8	34.7 U	2557	284	5.3 U	7		20 U	211	191
	Off-site (S)	203	45.5	21.8	4.8 UJ	9	2	6.0 U	3107	370	2.7 U	35	22	2.0 UJ	202	8	14.3 U	2587	288	5.3 U	7		20 U	214	193
	On-site (D)	237	56.1	23.6	4.8 UJ	10	2	6.0 U	3525	420	20.5	40	25	2 UJ	245	10	14.3 U	2947	328	5.3 U	9		45.2 U	243	220
	On-site (S)	234	55.1	23.4	4.8 UJ	10	2	6.0 U	3484	415	2.7 U	39	24	2 UJ	241	9	14.3 U	2912	324	5.3 U	9		20 U	241	218
Surface Water (Total)	SW-1	279	70.1	25.2	4.8 UJ	12	3	6.0 U	4023	480	2.7 U	47	28	2.0 UJ	301	12	14.3 U	3378	376	5.3 U	12		20 U	279	253
	SW-2	278	70.0	25.0	4.8 UJ	12	3	6.0 U	4010	478	3.1 J	46	28	2.0 UJ	300	12	14.3 U	3367	374	5.3 U	12		7.9 U	278	252
	SW-3	286	71.9	25.8	4.8 UJ	13	3	6.0 U	4105	489	3.7 J	48	29	2.0 UJ	311	12	14.3 U	3449	383	5.3 U	12		20 U	285	258
	SW-4	287	72.2	26.0	4.8 UJ	13	3	6.0 U	4124	492	2.9 J	48	29	3 UJ	313	12	14.3 U	3465	385	5.3 U	12		20 U	286	259
	SW-5	288	71.9	26.4	4.8 UJ	13	3	6.0 U	4134	493	2.9 J	48	29	2.0 UJ	314	12	14.3 U	3475	386	5.3 U	13		22.7 U	287	260
	SW-6	232	62.4	18.4	4.8 UJ	10	2	6.0 U	3456	412	2.7 U	39	24	2.0 UJ	238	9	14.3 U	2887	321	5.3 U	9		20 U	239	216
	Duplicate +	283	70.9	25.7	4.8 UJ	13	3	6.0 U	4071	485	3.1 J	47	29	2.0 UJ	307	12	14.3 U	3420	380	5.3 U	12		20 U	283	256

Notes:

* - Values calculated according to the Indiana Register(1990)

** - Sample concentrations are ug/L (ppb)

AAC - Acute Aquatic Criteria

CAC - Chronic Aquatic Criteria

\+ - Duplicate sample collected at the SW-4 sampling location.

++ - Duplicate sample collected from monitoring well MB-7.

TABLE 6-4: SAMPLING LOCATIONS EXCEEDING APPLICABLE WATER QUALITY CRITERIA, MARCH 1994

Parameter	Matrix	Sample Location	Monitoring Well Zone	Sample Concentration (ug/L)	Criterion Exceeded	Criterion Concentration (ug/L)	Source	Average Concentration Of Zone (ug/L)	Exceeds Criterion	Concentration After Mixing (ug /L)	Exceeds Criterion
TCL Volatiles (ug/L)											
Trichloroethene	Groundwater	MB-1	I	74	MCL	5	E	22.3	Yes	0.0124	No
Vinyl Chloride	Groundwater	MB-2	I	7 J	MCL	2	E	5.5	Yes	0.0031	No
TAL Total Metals											
Arsenic	Groundwater	MB-6	II	256 J	HH	0.175	E	256.0	Yes	0.1428	No
Arsenic	Groundwater	MB-8	III	168 J	HH	0.175	E	127.2	Yes	0.0710	No
Arsenic	Groundwater	MB-9	NA	13.4 J	HH	0.175	E	NA	--	--	--
Arsenic	Groundwater	MB-10	NA	4.5 J	HH	0.175	E	NA	--	--	--
Arsenic	Groundwater	Duplicate*	III	88.4 J	HH	0.175	E	127.2	Yes	0.0710	No
Arsenic	Groundwater	MB-6	II	256 J	MCL	50	E	256.0	Yes	0.1428	No
Arsenic	Groundwater	MB-8	III	168 J	MCL	50	E	127.2	Yes	0.0710	No
Arsenic	Groundwater	Duplicate*	III	88.4 J	MCL	50	E	127.2	Yes	0.0710	No
Arsenic	Groundwater	MB-6	II	256 J	CAC	190	I	256.0	Yes	0.1428	No
Iron	Groundwater	MB-1	I	3730	AAC	1000	E	12418	Yes	7	No
Iron	Groundwater	MB-2	I	23700	AAC	1000	E	12418	Yes	7	No
Iron	Groundwater	MB-3	I	13000	AAC	1000	E	12418	Yes	7	No
Iron	Groundwater	MB-4	I	9240	AAC	1000	E	12418	Yes	7	No
Iron	Groundwater	MB-5	II	3270	AAC	1000	E	14635	Yes	8	No
Iron	Groundwater	MB-6	II	26000 J	AAC	1000	E	14635	Yes	8	No
Iron	Groundwater	MB-7	III	11300	AAC	1000	E	12150	Yes	7	No
Iron	Groundwater	MB-8	III	13000 J	AAC	1000	E	12150	Yes	7	No
Iron	Groundwater	MB-9	NA	15300 J	AAC	1000	E	NA	--	--	--
Iron	Groundwater	MB-10	NA	6490 J	AAC	1000	E	NA	--	--	--
Iron	Groundwater	Duplicate*	III	10900 J	AAC	1000	E	12150	Yes	7	No
TAL Dissolved Metals											
Arsenic	Groundwater	MB-1	I	11.4	HH	0.175	E	37.4	Yes	0.0209	No
Arsenic	Groundwater	MB-2	I	84.2	HH	0.175	E	37.4	Yes	0.0209	No
Arsenic	Groundwater	MB-3	I	32.9	HH	0.175	E	37.4	Yes	0.0209	No
Arsenic	Groundwater	MB-4	I	21.0	HH	0.175	E	37.4	Yes	0.0209	No
Arsenic	Groundwater	MB-5	II	4.0 J	HH	0.175	E	104.5	Yes	0.0583	No
Arsenic	Groundwater	MB-6	II	205	HH	0.175	E	104.5	Yes	0.0583	No
Arsenic	Groundwater	MB-7	III	90.3	HH	0.175	E	117.2	Yes	0.0654	No
Arsenic	Groundwater	MB-8	III	144	HH	0.175	E	117.2	Yes	0.0654	No
Arsenic	Groundwater	MB-9	NA	6.9	HH	0.175	E	NA	--	--	--
Arsenic	Groundwater	MB-10	NA	3.7 J	HH	0.175	E	NA	--	--	--
Arsenic	Groundwater	Duplicate*	III	97.7 J	HH	0.175	E	117.2	Yes	0.0654	No
Arsenic	Groundwater	MB-2	I	84.2	MCL	50	E	37.4	No	--	--

TABLE 6-4: SAMPLING LOCATIONS EXCEEDING APPLICABLE WATER QUALITY CRITERIA, MARCH 1994

Parameter	Matrix	Sample Location	Monitoring Well Zone	Sample Concentration (ug/L)	Criterion Exceeded	Criterion Concentration (ug/L)	Source	Average Concentration Of Zone (ug/L)	Exceeds Criterion	Concentration After Mixing (ug /L)	Exceeds Criterion
Arsenic	Groundwater	MB-6	II	205	CAC	190	I	104.5	No	--	--
Arsenic	Groundwater	MB-7	III	90.3	MCL	50	E	58.6	Yes	0.0327	No
Arsenic	Groundwater	MB-8	III	144	MCL	50	E	58.6	Yes	0.0327	No
Arsenic	Groundwater	Duplicate*	III	97.7 J	MCL	50	E	58.6	Yes	0.0327	No
Iron	Groundwater	MB-1	I	1970	AAC	1000	E	10255	Yes	6	No
Iron	Groundwater	MB-2	I	24200	AAC	1000	E	10255	Yes	6	No
Iron	Groundwater	MB-3	I	10900	AAC	1000	E	10255	Yes	6	No
Iron	Groundwater	MB-4	I	3950	AAC	1000	E	10255	Yes	6	No
Iron	Groundwater	MB-6	II	17900	AAC	1000	E	9214	Yes	5	No
Iron	Groundwater	MB-7	III	9860	AAC	1000	E	7825	Yes	4	No
Iron	Groundwater	MB-8	III	5790	AAC	1000	E	7825	Yes	4	No
Iron	Groundwater	MB-9	NA	2050	AAC	1000	E	NA	--	--	--
Iron	Groundwater	Duplicate*	III	9820	AAC	1000	E	7825	Yes	4	No
Indicator Parameter											
Un-ionized	Groundwater	MB-2	I	0.009	CAC	0.0022	I	0.0045	Yes	0.000003	No
Ammonia (mg/L)	Groundwater	MB-3	I	0.007	CAC	0.003	I	0.0045	Yes	0.000003	No
	Groundwater	MB-6	II	0.005	CAC	0.0027	I	0.0027	No	--	--
	Groundwater	MB-7	III	0.022	CAC	0.0054	I	0.0175	Yes	0.000010	No
	Groundwater	MB-8	III	0.013	CAC	0.0063	I	0.0175	Yes	0.000010	No
	Groundwater	Duplicate*	III	0.020	CAC	0.0054	I	0.0175	Yes	0.000010	No

Notes:

AAC - Acute Aquatic Criteria
CAC - Chronic Aquatic Criteria
Duplicate * - Sample collected for on-site monitoring well MB-7
- Proposed

TABLE 6-1: WATER QUALITY CRITERIA - UPDATED

Parameter	Acute Aquatic Criteria		Chronic Aquatic Criteria		Human Health		MCL	
TCL Volatiles (ug/L)								
Acetone	10000	+	222	+	- -		- -	
Benzene	5300	E	118	+	400	I	5	E
Chlorobenzene	1950	+	50	E	2026	+	- -	
1,2-Dichloroethene (total) (1)	- -		- -		- -		70 and 100	E
Methylene Chloride	193000	E	4289	+	157	E	- -	
Toluene	17500	E	389	+	424000	I	1000	E
Trichloroethane	45000	E	21900	E	807	I	5	E
Vinyl Chloride	- -		- -		5246	I	2	E
TCL Semivolatiles (ug/L)								
Phenol	10200	E	2560	E	3500	E	- -	
Phthalate Esters	940	E	3	E	50000	I	- -	
TAL Metals and Cyanide (ug/L)								
Aluminum	- -		- -		- -		- -	
Antimony	- -		- -		45000	I	6	E
Arsenic	360	I	190	I	0.175	I	50	E
Barium	- -		- -		- -		2000	E
Beryllium	- -		- -		1.17	I	4	E
Cadmium*	6.7	I	1.6	I	60	+	5	E
Calcium	- -		- -		- -		- -	
Chromium	16	I	11	I	3389	+	100	E
Cobalt	- -		- -		- -		- -	
Copper* (2)	28	I	18	I	- -		1300	E
Cyanide	22	I	5.2	I	24242	+	200	E
Iron	1000	E	- -		- -		- -	
Lead* (2)	150	I	5.8	I	51	+	15	E
Magnesium	- -		- -		- -		- -	
Manganese	- -		- -		- -		- -	
Mercury	2.4	I	0.012	I	0.15	I	2	E
Nickel*	2100	I	240	I	100	I	100	E
Potassium	- -		- -		- -		- -	
Selenium	130	I	25	I	- -		50	E
Silver*	9.2	I	0.12	E	- -		50	E
Sodium	- -		- -		- -		- -	
Thallium	- -		- -		48	I	2	E
Vanadium	11000	+	100	+	- -		- -	
Zinc*	175	I	160	I	- -		- -	
IDEM Parameters (mg/L)								
Ammonia, Total Unionized**	0.027	I	0.0029	I	- -		- -	
COD	- -		- -		- -		- -	
Chloride	860	I	230	I	- -		- -	
TSS	- -		- -		- -		- -	

Notes:

*Acute and chronic criteria calculated based on worst-case hardness=161 mg/L
**Acute and chronic criteria calculated based on worst-case t=5C, pH=7.0
- - Criteria not developed
MCL - Maximum Contaminant Level (Updated per the Safe Drinking Water Act of 1986 and later revisions known as the Phase I, Phase II, and Phase V rules
Phase I became effective January 9, 1989, Phase II became effective in 1992, and Phase V became effective January 17, 1994.)
Source of Data
E - U.S. EPA
I - IDEM (327 IAC 2)
+ - See section 6.2 of February 1990 report by Beak Consultants Limited Baseline Water Quality Conditions for discussion of sources for the criteria.
(1) The 1,2-Dichloroethene MCL standards are divided into cis-1,2-Dichloroethene at 70 ug/L and trans-1,2 Dichloroethene at 100 ug/L.
(2) - The "MCL" value is an action level for lead and copper (i.e., the lead and copper rule) but it only applies to water supplies as measured at the household tap.

TABLE 7: CALCULATED ACUTE AQUATIC CRITERIA AND CHRONIC AQUATIC CRITERIA FOR AMMONIA-NITROGEN, JUNE 1994

Sample Matrix	Well Number	pH	Temp (C)	Ammonia (mg/L) Total (mg/L)	Ammonia (mg/L) Un-Ionized (mg/L)*	Calculated Ammonia Un-Ionized Criteria(mg/L)** AAC	Calculated Ammonia Un-Ionized Criteria(mg/L)** CAC	Criteria Exceeded AAC	Criteria Exceeded CAC
Groundwater	MB-1	7.1	13.9	0.5 U	0.001	--	--	--	--
	MB-2	6.7	12.8	9.7	0.011	0.027	0.0025	No	Yes
	MB-3	6.9	16.2	5.2	0.012	0.049	0.005	No	Yes
	MB-4	7.1	15.9	2.0	0.007	0.067	0.0078	No	No
	MB-5	6.8	16.6	2.0	0.004	0.042	0.0041	No	No
	MB-6	6.7	16.2	4.6	0.007	0.034	0.0032	No	Yes
	MB-7	6.9	17.6	8.5	0.022	0.054	0.0055	No	Yes
	MB-8	7.0	16.2	3.8	0.011	0.058	0.0063	No	Yes
	MB-9	7.2	11.9	0.5 U	--	--	--	--	--
	MB-10	7.0	13.2	0.5 U	--	--	--	--	--
	Duplicate	7.2	11.9	0.5 U	--	--	--	--	--

Notes:

* - Values calculated according to the Indiana Register (1990) (327 IAC 2). Unionized values calculated using 1/2 the detection limit for less than detection limit total results.

** - Calculated according to the USEPA Quality Criteria for Water, 1986 EPA 440/5-86-001

++ - Sample taken from monitoring well MB-9.

AAC - Acute Aquatic Criteria; CAC Chronic Aquatic Criteria

TABLE 8: SAMPLING LOCATIONS EXCEEDING APPLICABLE WATER QUALITY CRITERIA, JUNE 1994

Parameter	Matrix	Sample Location	Sample Concentration (mg/L)	Criterion Exceeded	Criterion Concentration (mg/L)	Source	Average Concentration Of Zone (mg/L)	Exceeds Criterion	Concentration After Mixing (mg/L)	Exceeds Criterion
Indicator Parameters										
Un-Ionized	Groundwater	MB-2	0.011	CAC	0.0025	E	0.0078	Yes	0.000004	No
Ammonia (mg/L)	Groundwater	MB-3	0.012	CAC	0.005	E	0.0078	Yes	0.000004	No
	Groundwater	MB-6	0.007	CAC	0.0032	E	0.0055	Yes	0.000003	No
	Groundwater	MB-7	0.022	CAC	0.0055	E	0.0165	Yes	0.000009	No
	Groundwater	MB-8	0.011	CAC	0.0063	E	0.0165	Yes	0.000009	No

Notes:

AAC - Acute Aquatic Criterria

CAC - Chronic Aquatic Criteria

TABLE 6-1: WATER QUALITY CRITERIA - UPDATED

Parameter	Acute Aquatic Criteria		Chronic Aquatic Criteria		Human Health		MCL	
TCL Volatiles (ug/L)								
Acetone	10000	+	222	+	- -		- -	
Benzene	5300	E	118	+	400	I	5	E
Chlorobenzene	1950	+	50	E	2026	+	- -	
1,2-Dichloroethene (total) (1)	- -		- -		- -		70 and 100	E
Methylene Chloride	193000	E	4289	+	157	E	- -	
Toluene	17500	E	389	+	424000	I	1000	E
Trichloroethane	45000	E	21900	E	807	I	5	E
Vinyl Chloride	- -		- -		5246	I	2	E
TCL Semivolatiles (ug/L)								
Phenol	10200	E	2560	E	3500	E	- -	
Phthalate Esters	940	E	3	E	50000	I	- -	
TAL Metals and Cyanide (ug/L)								
Aluminum	- -		- -		- -		- -	
Antimony	- -		- -		45000	I	6	E
Arsenic	360	I	190	I	0.175	I	50	E
Barium	- -		- -		- -		2000	E
Beryllium	- -		- -		1.17	I	4	E
Cadmium*	6.7	I	1.6	I	60	+	5	E
Calcium	- -		- -		- -		- -	
Chromium	16	I	11	I	3389	+	100	E
Cobalt	- -		- -		- -		- -	
Copper* (2)	28	I	18	I	- -		1300	E
Cyanide	22	I	5.2	I	24242	+	200	E
Iron	1000	E	- -		- -		- -	
Lead* (2)	150	I	5.8	I	51	+	15	E
Magnesium	- -		- -		- -		- -	
Manganese	- -		- -		- -		- -	
Mercury	2.4	I	0.012	I	0.15	I	2	E
Nickel*	2100	I	240	I	100	I	100	E
Potassium	- -		- -		- -		- -	
Selenium	130	I	25	I	- -		50	E
Silver*	9.2	I	0.12	E	- -		50	E
Sodium	- -		- -		- -		- -	
Thallium	- -		- -		48	I	2	E
Vanadium	11000	+	100	+	- -		- -	
Zinc*	175	I	160	I	- -		- -	
IDEM Parameters (mg/L)								
Ammonia, Total Unionized**	0.027	I	0.0029	I	- -		- -	
COD	- -		- -		- -		- -	
Chloride	860	I	230	I	- -		- -	
TSS	- -		- -		- -		- -	

Notes:

*Acute and chronic criteria calculated based on worst-case hardness=161 mg/L
**Acute and chronic criteria calculated based on worst-case t=5C, pH=7.0
- - Criteria not developed
MCL - Maximum Contaminant Level (Updated per the Safe Drinking Water Act of 1986 and later revisions known as the Phase I, Phase II, and Phase V rules. Phase I became effective January 9, 1989, Phase II became effective in 1992, and Phase V became effective January 17, 1994.)
Source of Data
E - U.S. EPA
I - IDEM (327 IAC 2)
+ - See section 6.2 of February 1990 report by Beak Consultants Limited Baseline Water Quality Conditions for discussion of sources for the criteria.
(1) The 1,2-Dichloroethene MCL standards are divided into cis-1,2-Dichloroethene at 70 ug/L and trans-1,2 Dichloroethene at 100 ug/L.
(2) - The "MCL" value is an action level for lead and copper (i.e., the lead and copper rule) but it only applies to water supplies as measured at the household tap.

Table 6: POND WATER CHEMISTRY DATA, SEPTEMBER 1994

SAMPLING LOCATION	OFFSITE POND	OFFSITE POND	ONSITE POND	ONSITE POND
LOCATION IN MATRIX	BOTTOM	TOP	BOTTOM	TOP
TCL VOLATILES (ug/L)				
Methylene Chloride	10 U	10 U	10 U	10 U
1,2 - Dichloroethene (total)	10 U	10 U	1 J	10 U
VOLATILE TENTATIVELY IDENTIFIED COMPOUNDS (Retention Time)(3)				
Unknown (Total Number)	0	0	0	0
Unknown (Total Concentration)	0	0	0	0
TCL SEMIVOLATILES(ug/L)				
Phenol	1 J	1 J	1 J	10 U
SEMIVOLATILE TENTATIVELY IDENTIFIED COMPOUNDS (Retention Time)(3)				
Unknown (Total Number)	1	1	2	0
Unknown (Total Concentration)	4 J	6 J	8 J	0
TOTAL TAL METALS AND CYANIDE (ug/L)				
Aluminimum	262 UJ	328 UJ	417 UJ	519 UJ
Antimony	1.2 U	1.2 U	1.2 U	1.2 U
Arsenic	3.0 J	10 U	1.9 J	10 U
Barium	50.5	136	142	200 U
Beryllium	0.10 U	0.10 U	0.10 U	0.10 U
Cadmium	0.30 U	0.30 U	0.30 U	0.30 U
Calcium	38100	38700	37300 J	69700
Chromium	0.92 U	1.9 U	4.1 U	1.9 U
Cobalt	0.40 U	0.40 U	0.40 U	0.40 U
Copper	1.8 U	15.4	2.5 U	3.2
Iron	256	332	370	440
Lead	1.1 UJ	1.1 UJ	1.1 UJ	1.1 J
Magnesium	23800	24700	24400 J	29100
Manganese	14.1	30.1	24.2	66.6
Mercury	0.20 U	0.20 U	0.20 U	0.20 U
Nickel	2.0 U	4.3	4.7 U	2.5
Potassium	3200	7020	6890 J	R
Selenium	R	R	R	R
Silver	0.40 UJ	0.40 UJ	0.40 UJ	0.40 UJ
Sodium	10500	19700	19700	33900
Thallium	3.0 U	3.0 U	3.0 U	3.0 U
Vanadium	0.81	0.74	0.88	1.6
Zinc	5.9 U	15.2	5.3 U	10.3
Cyanide	10.0 U	10.0 U	10.0 U	10.0 U

Table 6: POND WATER CHEMISTRY DATA, SEPTEMBER 1994

SAMPLING LOCATION	OFFSITE POND	OFFSITE POND	ONSITE POND	ONSITE POND
LOCATION IN MATRIX	BOTTOM	TOP	BOTTOM	TOP
DISSOLVED TAL METALS (ug/L)				
Aluminium	136	106 U	114 U	107 U
Antimony	1.2 U	1.2 U	1.2 U	1.2 U
Arsenic	2.8 J	10 U	2.3 J	10 U
Barium	47.8	47.4	128	200 U
Beryllium	0.10 U J	0.10 U J	0.10 U J	0.10 U J
Cadmium	0.30 U	0.30 U	0.30 U	0.30 U
Calcium	38700	38500	43100	41400
Chromium	0.50 U J	0.50 U J	0.50 U J	0.50 U J
Cobalt	0.40 U J	0.40 U J	0.40 U J	0.40 U J
Copper	0.30 U J	0.30 U J	0.30 U J	0.30 U J
Iron	4.8 U J	4.8 U J	4.8 U J	4.8 U J
Lead	1.1 J	1.1 U	1.1 U	1.1 U
Magnesium	24000	24100	27800	27400
Manganese	0.1 U	0.1 U	1.2 J	0.1 U
Mercury	0.20 U J	0.20 U J	0.20 U J	0.20 U J
Nickel	0.80 U	0.80 U	1.4 J	1.1 J
Potassium	3020	3380	8280 J	R
Selenium	R	R	R	R
Silver	0.40 U J	0.40 U J	0.40 U J	0.40 U J
Sodium	10600	10600	21700	21700
Thallium	3.0 U	3.0 U	3.0 U	3.0 U
Vanadium	0.30 U	0.30 U	0.30 U	0.30 U
Zinc	1.3 U	2.3	1.0 U	7.5
INDICATOR PARAMETERS (mg/L)				
Ammonia-Nitrogen	0.5 U	0.5 U	0.5 U	0.5 U
C.O.D.	100 U	100 U	100 U	100 U
Chloride	12	13	19	20
TSS	5.0 U	5.0 U	14	9.7
FIELD PARAMETERS				
Temperature (C)	NR	24	NR	21
pH	NR	7.8	NR	7.7
Conductivity (umhos/cm) (1)	NR	420	NR	485
Conductivity (umhos/cm) (2)	NR	1359	NR	1671
Dissolved Oxygen (mg/L)	NR	7.9	NR	8.6

Notes:

(1)-Field measured conductance.

(2) - Value corrected to 25 C.

NR - No reading

(3). Unknown Tentatively Identified Compounds (TICs) are summed or totaled by the number of unknown TICs and by the concentration of unknown TICs. TICs for which a compound class (e.g., unknown phtalate) or individual compound (e.g., 1H-Benzotriazole) are identified, those compounds are listed separately with concentration and dat qualifier and are not included in the total number or total concentration. The unknown TICs were totaled to provide condensed summary information in the data table. Any questions regarding specific unknown TICs can be investig in the data validation report.

TABLE 7: SURFACE WATER CHEMISTRY DATA, SEPTEMBER, 1994

LOCATION	SW-1	SW-2	SW-3	SW-4	SW-5	SW-6	Duplicate *
TCL VOLATILES (ug/L)							
Carbon Disulfide	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Methylene Chloride	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Total Xylenes	10 U	10 U	10 U	10 U	10 U	10 U	10 U
VOLATILE TENTATIVELY IDENTIFIED COMPOUNDS (Retention Time)(3)							
Unknown (Total Number)	0	0	0	0	0	0	0
Unknown (Total Concentration)	0	0	0	0	0	0	0
TCL SEMIVOLATILES(ug/L)							
Diethylphthalate	10 U	10 U	10 U	10 U	10 U	10 U	10 U
SEMIVOLATILE TENTATIVELY IDENTIFIED COMPOUNDS (Retention Time)(3)							
Butoxyethanol (5.48)				3 J			
Unknown (Total Number)	0	1	0	1	0	1	1
Unknown (Total Concentration)	0	2 J	0	3 J	0	2 J	4 J
TOTAL TAL METALS AND CYANIDE (ug/L)							
Aluminium	803 J	796 J	884 J	693 J	598 J	368 UJ	786 J
Antimony	1.2 U	1.2 U	1.2 U	1.2 U	2.0 J	1.2 U	1.2 U
Arsenic	10 U	10 U	10 U	10 U	4.0	10 U	10 U
Barium	91.5	93.5	94.3	86.0	84.9	68.8	82.4
Beryllium	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Cadmium	0.30 U	0.30 U	0.30 U	0.30 U	0.30 U	0.30 U	0.30 U
Calcium	73800	72600	73500	70800	70300	103000	68100 J
Chromium	1.6 U	1.6 U	1.5 U	1.2 U	1.6 U	1.0 U	1.5 U
Cobalt	0.51 J	0.40 U	0.40 U	0.40 U	0.40 U	0.40 U	0.40 U
Copper	2.9	3.4	3.6	2.7	2.8	1.2 U	2.5
Iron	764	800	817	568	519	256	556
Lead	2.7 J	2.4 J	1.7 J	6.3 J	1.3 J	2.4 J	1.3 J
Magnesium	29200	29700	29900	28600	28600	39800	27500 J
Manganese	87.3	90.8	91.8	72.2	68.4	45.4	69.7
Mercury	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Nickel	2.6	2.2	2.8	2.4	2.6	1.4 J	2.5
Potassium	4900 J	5140	5220	4800 J	4680 J	4140 J	4640 J
Selenium	R	R	R	R	R	R	R
Silver	0.40 UJ	0.40 UJ	0.40 UJ	0.40 UJ	0.40 UJ	0.40 UJ	0.40 UJ
Sodium	32800 J	33600	34100	32700	31300 J	22200	31300 J
Thallium	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U
Vanadium	2.3	2.3	2.3	2.0	2.0	1.0 U	1.9
Zinc	11.1	12.4	12.7	5.0 J	5.9 J	4.2	10.3 J
Cyanide	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U

TABLE 7: SURFACE WATER CHEMISTRY DATA, SEPTEMBER, 1994

LOCATION	SW-1	SW-2	SW-3	SW-4	SW-5	SW-6	Duplicate *
DISSOLVED TAL METALS (ug/L)							
Aluminum	99.2 U	105 U	113 U	99.3 U	104 U	104 U	134 U
Antimony	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U
Arsenic	10 U	10 U	10 U	10 U	3.5 J	10 U	10 U
Barium	93.4	92.2	90.2	89.6	89.0	68.6	89.7
Beryllium	0.10 UJ	0.10 UJ	0.10 UJ	0.10 UJ	0.10 UJ	0.10 UJ	0.10 UJ
Cadmium	0.30 U	0.30 U	0.30 U	0.30 UJ	0.30 U	0.30 U	0.30 U
Calcium	78800	77000	75700	76000	74600	102000	75400 J
Chromium	0.50 UJ	0.50 UJ	0.50 UJ	0.50 UJ	0.50 UJ	0.50 UJ	0.50 UJ
Cobalt	0.40 UJ	0.40 UJ	0.40 UJ	0.40 UJ	0.40 UJ	0.40 UJ	0.40 UJ
Copper	0.30 UJ	0.30 UJ	0.30 UJ	0.30 UJ	0.30 UJ	0.30 UJ	0.30 UJ
Iron	4.8 UJ	4.8 UJ	4.8 UJ	4.8 UJ	4.8 UJ	4.8 UJ	4.8 UJ
Lead	1.3 J	1.1 U	1.1 U	1.1 U	1.4 J	2.5 J	1.9 UJ
Magnesium	31500	31500	31100	31300	31100	39700	31200 J
Manganese	11.0 J	13.6 J	7.8 J	6.3 J	5.4 J	28.9 J	6.9 J
Mercury	0.20 UJ	0.20 UJ	0.20 UJ	0.20 UJ	0.20 UJ	0.20 UJ	0.20 UJ
Nickel	0.80 U	0.80 U	0.80 U	0.80 UJ	0.80 U	0.80 U	0.80 U
Potassium	5700 J	5660	5650	5560 J	5650 J	4590 J	5630 J
Selenium	R	R	R	R	R	R	R
Silver	0.40 UJ	0.40 UJ	0.40 UJ	0.40 UJ	0.40 UJ	0.40 UJ	0.40 UJ
Sodium	36300 J	36000	36300	36000	35000 J	22700	36100
Thallium	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U
Vanadium	0.30 U	0.40 J	0.30 U	0.39 J	0.46 J	0.30 U	0.42 J
Zinc	5.8	4.9	3.5	0.30 U	8.0 J	3.5	0.48 U
INDICATOR PARAMETERS (mg/L)							
Ammonia-nitrogen	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
C.O.D	39 J	22 J	110 U	100 U	100 U	100 U	100 U
Chlorides	51	52	53	52	35	50	52
TSS	27	32	20	26	5.0 U	30	26
FIELD PARAMETERS							
Temperature (C)	NR	NR	NR	NR	NR	20	NR
pH	NR	NR	NR	NR	NR	7.8	NR
Conductivity (umhos/cm) (1)	NR	NR	NR	NR	NR	625	NR
Conductivity (umhos/cm) (2)	NR	NR	NR	NR	NR	2049	NR
Dissolved Oxygen (mg/L)	NR	NR	NR	NR	NR	11	NR

Notes:

* - Duplicate collected at sampling location SW-4

(1)-Field measured conductance.

(2) - Value corrected to 25 C.

(3) Unknown Tentatively Identified Compounds (TICs) are summed or totaled by the number of unknown TICs and by the concentration of unknown TICs. TICs for which a compound class (e.g., unknown phtalate) or individual compound (e.g., 1H-Benzotriazole) are identified, those compounds are listed separately with concentration and data qualifier and are not included in the total number or total concentration. The unknown TICs were totaled to provide condensed summary information in the data table. Any questions regarding specific unknown TICs can be investigated in the data validation report.

TABLE 9: ACUTE AQUATIC CRITERIA AND CHRONIC AQUATIC CRITERIA FOR TAL METALS
CONCENTRATIONS DEPENDENT ON HARDNESS, SEPTEMBER 1994

Sample Matrix	Sample Location	Hardness (mg/L)	Calcium (mg/L)	Magnesium (mg/L)		Cadmium (ug/L) Sample Conc.**	AAC*	CAC*	Chromium(ug/L) Sample Conc.**	AAC*	CAC*	Copper(ug/L) Sample Conc.**	AAC*	CAC*		Lead(ug/L) Sample Conc.**	AAC*	CAC*	Nickel(ug/L) Sample Conc.**	AAC*	CAC*	Silver(ug/L) Sample Conc.**	AAC*	CAC(1)	Zinc(ug/L) Sample Conc.**	AAC*	CAC*
Dissolved Metals																											
Ground Water	MB-1	381.8	104.0	29.6		0.30U	16	3	0.50U	5202	620	1.3 U	63	37		1.1 U	449	18	2.6	4405	490	R	20		0.92 U	364	330
	MB-2	330.6	90.6	25.3		0.30U	15	3	0.50U	4624	551	1.2 U	55	33		1.1 U	374	15	1.9	3900	434	R	16		2.2	322	292
	MB-3	306.9	77.5	27.5		0.30U	14	3	0.50U	4351	519	1.6 J	51	31		1.1 U	340	13	4.6	3662	407	R	14		0.3 U	303	274
	MB-4	238.6	49.5	27.9		0.30U	10	2	0.50U	3539	422	1.6 U	40	25		1.1 U	247	10	1.2 J	2959	329	R	9		0.88 U	244	221
	MB-5	301.2	80.3	24.4		0.30U	14	3	0.50U	4284	511	0.3	60	30		3 U	332	13	2	3604	401	R	14		4.1	298	270
	MB-6	371.0	102.0	28.2		0.30U	17	3	0.50U	5082	606	0.30UJ	61	36		2.6 J	433	17	10.3 J	4300	478	R	19		1.2 U	355	322
	MB-7	324.6	73.7	34.1		0.30U	15	3	0.50U	4556	543	25 U	54	32		1.1 U	365	14	1.5 U	3840	427	R	15		1.5 U	317	287
	MB-8	499.3	48.1	92.1	#	0.30U	24	4	0.50U	6481	772	0.30UJ	81	47	#	1.3 J	632	25	1 J	5528	616	R	32		0. 3 U	457	414
	MB-9	241.1	61.7	21.1		0.30U	11	2	0.50U	3570	426	0.76 J	41	25		1.1 U	250	10	1.2 J	2986	332	R	9		0.3 U	247	223
	MB-10	370.4	98.3	30.3	##	0.30U	17	3	0.50U	5075	605	0.30UJ	61	36	##	3 U	432	17	0.80UJ	4294	477	R	19		2.7	355	321
	Duplicate +	573.4	73.8	94.5		0.30U	28	4	0.50U	7259	865	0.30UJ	92	53		2.1 UJ	754	29	0.80UJ	6214	691	R	41		0.44 U	514	465
Pond Water	Off-site (D)	195.1	38.7	23.9		0.30U	8	2	0.92 U	3002	358	0.30UJ	33	21		1.1 J	191	7	0.80U	2496	278	0.40 UJ	6		1.3 U	206	187
	Off-site (S)	195.4	38.5	24.1		0.30U	8	2	1.9 U	3006	358	0.30UJ	33	21		1.1 U	192	7	0.80U	2500	278	0.40 UJ	6		2.3	206	187
	On-site (D)	222.2	43.1	27.8		0.30U	10	2	4.1 U	3339	398	0.30UJ	38	23		1.1 U	226	9	1.4 J	2786	310	0.40 UJ	8		1.0U	230	208
	On-site (S)	216.3	41.4	27.4		0.30U	9	2	1.9 U	3266	389	0.30UJ	37	23		1.1 U	218	8	1.1 J	2724	303	0.40 UJ	8		7.5	225	204
Surface Water	SW-1	321.6	76.8	31.5		0.30U	15	3	0.50U	4521	539	0.30UJ	53	32		1.3 J	361	14	0.80U	3810	424	0.40 UJ	15		5.8	315	285
	SW-2	322.1	77.0	31.5		0.30U	15	3	0.50U	4526	540	0.30UJ	53	32		1.1 U	362	14	0.80U	3815	424	0.40 UJ	15		4.9	315	286
	SW-3	317.2	75.7	31.1		0.30U	14	3	0.50U	4470	533	0.30UJ	53	32		1.1 U	355	14	0.80U	3766	419	0.40 UJ	15		3.5	311	282
	SW-4	318.8	76.0	31.3		0.30U	15	3	0.50U	4488	535	0.30UJ	53	32		1.1 U	357	14	0.80 UJ	3782	420	0.40 UJ	15		0.30U	313	283
	SW-5	314.5	74.6	31.1		0.30U	14	3	0.50U	4438	529	0.30UJ	52	31		1.4 J	351	14	0.80U	3739	416	0.40 UJ	15		8.0J	309	280
	SW-6	418.4	102.0	39.7		0.30U	20	3	0.50U	5607	668	0.30UJ	68	40		2.6 J	505	20	0.80U	4760	529	0.40 UJ	24		3.5	393	356
	Duplicate++	[illegible]	75.4	31.2		0.30U	14	3	0.50U	4466	532	0.30UJ	53	32		1.9 UJ	354	14	0.80U	3763	418	0.40 UJ	15		0.48 U	311	282
Total Metals																											
Ground Water	MB-1	407.5	111.0	31.6		0.30U	19	3	1.2	5488	654	1.8	67	39		1.2 U	488	19	3.9	4655	518	0.40 U	23		4.3 J	385	349
	MB-2	359.6	97.9	27.9		0.30U	17	3	1.4	4953	590	6.5	59	35		1.1 U	416	16	2.9	4187	466	0.40 U	18		9.3 J	346	313
	MB-3	417.7	107.0	36.5		0.30U	20	3	9.4 U	5600	667	9.6	68	40		4.7 UJ	504	20	10.4	4753	528	1.1 J	24		214	393	356
	MB-4	766.5	193.0	69.0		0.52 J	39	6	53.6	9206	1097	114	121	67		47.4	1091	43	76.3	7944	883	0.40 U	67		214	657	595
	MB-5	312.8	83.0	25.6		0.30U	14	3	2.5 U	4419	527	1.6 U	52	31		3 U	349	14	4.8	3722	414	0.40 UJ	14		8.0	308	279
	MB-6	400.8	107.0	32.4		0.30U	19	3	4.7 U	5414	645	10.4	66	39		8.3 J	478	19	9.3 J	4590	510	0.41 UJ	22		43.7	379	344
	MB-7	316.7	71.2	33.7		0.30U	14	3	1.0U	4464	532	.73 J	53	32		1.1 U	354	14	2.5 J	3761	418	1.8 U	15		2.2UJ	311	281
	MB-8	508.0	74.0	78.5	#	0.30U	25	4	1.6 U	6574	784	1.6	82	47	#	6.1 UJ	646	25	2.7	5610	624	0.40 UJ	33		3.0U	464	420
	MB-9	478.4	86.5	63.7		0.51 J	23	4	12.5	6258	746	28.0	77	45		42.4 J	599	23	16.0	5331	593	0.40 UJ	30		86.0	441	399
	MB-10	348.9	104.0	21.6	##	0.30U	16	3	0.66 U	4832	576	2.0	58	34	##	3 U	401	16	1.3 J	4082	454	0.40 UJ	17		7.9	337	306
	Duplicate +	376.4	102.0	29.5		0.30U	17	3	1.7 U	5142	613	3.0J	62	37		3.1 UJ	441	17	15.1 J	4353	484	0.40 UJ	20		6.7U	360	326
Pond Water	Off-site (D)	193.2	38.1	23.8		0.30U	8	2	0.92 U	2978	356	1.8 U	33	21		1.1 UJ	189	7	2.0U	2476	275	0.40 UJ	6		5.9 U	204	185
	Off-site (S)	198.4	38.7	24.7		0.30U	8	2	1.9 U	3043	363	15.4	34	21		1.1 UJ	195	8	4.3	2532	281	0.40 UJ	7		15.2	209	189
	On-site (D)	193.7	37.3	24.4		0.30U	8	2	4.1 U	2984	356	2.6 U	33	21		1.1 UJ	189	7	4.7 U	2481	276	0.40 UJ	6		5.3U	205	186
	On-site (S)	294.0	69.7	29.1		0.30U	13	3	1.9 U	4200	501	3.2	49	30		1.1 J	322	13	2.5	3532	393	0.40 UJ	13		10.3	292	264
Surface Water	SW-1	304.7	73.8	29.2		0.30U	14	3	1.6 U	4324	515	2.9	51	31		2.7 J	337	13	2.6	3640	405	0.40 UJ	14		11.1	301	272
	SW-2	303.7	72.6	29.7		0.30U	14	3	1.6 U	4313	514	3.4	50	31		2.4 J	336	13	2.2	3630	404	0.40 UJ	14		12.4	300	272
	SW-3	306.8	73.5	29.9		0.30U	14	3	1.5 U	4349	518	3.6	51	31		1.7 J	340	13	2.8	3661	407	0.40 UJ	14		12.7	303	274
	SW-4	294.7	70.8	28.6		0.30U	13	3	1.2 U	4208	502	2.7	49	30		6.3 J	323	13	2.4	3539	393	0.40 UJ	13		5.0J	292	265
	SW-5	293.4	70.3	28.6		0.30U	13	3	1.8 U	4194	500	2.8	49	30		1.3 J	321	13	2.6	3526	392	0.40 UJ	13		5.9 J	291	264
	SW-6	421.3	103.0	39.8		0.30U	20	4	1.0U	5639	672	1.2 U	69	40		2.4 J	509	20	1.4 J	4788	532	0.40 UJ	24		4.2	396	358
	Duplicate++	283.4	68.1	27.5		0.30U	13	3	1.5 U	4076	486	2.5	47	29		1.3 J	308	12	2.5	3424	381	0.40 UJ	12		10.3 J	283	256

Notes:

*- Values calculated according to the Indiana Register(1990)

**- Sample concentrations are ug/L (ppb)

AAC - Acute Aquatic Criteria

CAC - Chronic Aquatic Criteria

+- Duplicate sample collected from monitoring well MB-7.

++- Duplicate sample collected from sampling location SW-4.

#- Dissolved magnesium rejected by data validator; magnesium concentration is from 1Q94 event.

##- Dissolved calcium concentration rejected by data validator; calcium concentration is from 1Q94 event.

TABLE 10: CALCULATED ACUTE AQUATIC CRITERIA AND CHRONIC AQUATIC CRITERIA FOR AMMONIA-NITROGEN, SEPTEMBER 1994

Sample Matrix	Well Number	pH	Temp (C)	Ammonia Total (mg/L)	Calculated Ammonia Un-ionized (mg/L)*	Calculated Un-ionized Ammonia Criteria(mg/L)** AAC	CAC	Criteria Exceeded AAC	CAC
Ground Water	MB-1	7.1	14.2	0.5 U	0.001	–	–	–	–
	MB-2	6.9	15.5	5	0.011	0.047	0.0048	No	Yes
	MB-3	7	16.1	4.1	0.012	0.058	0.0062	No	Yes
	MB-4	7.4	15.7	0.7	0.005	0.099	0.0153	No	No
	MB-5	6.9	14.4	1.3	0.003	0.043	0.0044	No	No
	MB-6	6.8	16.1	2.8	0.005	0.041	0.0039	No	Yes
	MB-7	6.7	16.0	7.4	0.011	0.034	0.0031	No	Yes
	MB-8	7.2	15.9	0.5 U	0.001	–	–	–	–
	MB-9	7.2	17.1	0.5 U	–	–	–	–	–
	MB-10	7.2	14.5	0.5 U	–	–	–	–	–
	Duplicate++	6.7	16.0	7.7	0.011	0.034	0.0031	No	Yes
Pond Water (1)	Off-site (D)	7.8	24.0	0.5 U	–	–	–	–	–
	Off-site (S)	7.8	24.0	0.5 U	–	–	–	–	–
	On-site (D)	7.7	21.0	0.5 U	–	–	–	–	–
	On-site (S)	7.7	21.0	0.5 U	–	–	–	–	–
Surface Water (2)	SW-1	7.8	20.0	0.5 U	–	–	–	–	–
	SW-2	7.8	20.0	0.5 U	–	–	–	–	–
	SW-3	7.8	20.0	0.5 U	–	–	–	–	–
	SW-4	7.8	20.0	0.5 U	–	–	–	–	–
	SW-5	7.8	20.0	0.5 U	–	–	–	–	–
	SW-6	7.8	20.0	0.5 U	–	–	–	–	–
	Duplicate+	7.8	20.0	0.5 U	–	–	–	–	–

Notes:

* - Values calculated according to the Indiana Register (1990) (327 IAC 2). Unionized values calculated using 1/2 the detection limit for less than detection limit total results.

** - Calculated according to the USEPA Quality Criteria for Water, 1986 EPA 440/5-86-001

++ - Sample taken from monitoring well MB-7

\+ - Sample taken from surface water sample location SW-4.

AAC - Acute Aquatic Criteria; CAC Chronic Aquatic Criteria

(1) Pond water pH and temperature readings were obtained at only the shallow pond sampling location. Shallow pond pH and temperature were used to calculate AAC and CAC for the deep pond sampling location, if ammonia was detected.

(2) Surface water pH and temperature readings were measured only at SW-4. SW-4 pH and temperature readings were used in AAC and CAC calculations for other surface water locations, if ammonia was detected.

TABLE 11: SAMPLING LOCATIONS EXCEEDING APPLICABLE WATER QUALITY CRITERIA, SEPTEMBER 1994

Parameter	Matrix	Sample Location	Monitoring Well Zone	Sample Concentration (ug/L)	Criterion Exceeded	Criterion Concentration (ug/L)	Source	Average Concentration Of Zone (ug/L)	Exceeds Criterion	Concentration After Mixing (ug/L)	Exceeds Criterion
TCL Volatiles (ug/L)											
Trichloroethene	Groundwater	MB-1	I	61	MCL	5	E	19	Yes	0.0106	No
Vinyl Chloride	Groundwater	MB-1	I	3 J	MCL	2	E	9	Yes	0.0052	No
Vinyl Chloride	Groundwater	MB-2	I	24	MCL	2	E	9	Yes	0.0052	No
TAL Total Metals											
Arsenic	Groundwater	MB-2	I	113	MCL	50	E	80.9	Yes	0.0451	No
Arsenic	Groundwater	MB-4	I	163	MCL	50	E	80.9	Yes	0.0451	No
Arsenic	Groundwater	MB-7	III	95.1 J	MCL	50	E	97.4	Yes	0.0543	No
Arsenic	Groundwater	MB-8	III	99.7 J	MCL	50	E	97.4	Yes	0.0543	No
Arsenic	Groundwater	MB-9	NA	259	MCL	50	E	NA	--	--	--
Arsenic	Groundwater	Duplicate	III	222 J	MCL	50	E	97.4	Yes	0.0543	No
Arsenic	Groundwater	MB-9	NA	259	CAC	190	I	NA	--	--	--
Arsenic	Groundwater	Duplicate	III	222	CAC	190	I	97.4	No	--	--
Arsenic	Groundwater	MB-1	I	14.2	HH	0.175	I	80.9	Yes	0.0451	No
Arsenic	Groundwater	MB-2	I	113	HH	0.175	I	80.9	Yes	0.0451	No
Arsenic	Groundwater	MB-3	I	33.2 J	HH	0.175	I	80.9	Yes	0.0451	No
Arsenic	Groundwater	MB-4	I	163	HH	0.175	I	80.9	Yes	0.0451	No
Arsenic	Groundwater	MB-5	II	11.2	HH	0.175	I	11.2	Yes	0.0062	No
Arsenic	Groundwater	MB-7	III	95.1 J	HH	0.175	I	97.4	Yes	0.0543	No
Arsenic	Groundwater	MB-8	III	99.7 J	HH	0.175	I	97.4	Yes	0.0543	No
Arsenic	Groundwater	MB-9	NA	259	HH	0.175	I	NA	--	--	--
Arsenic	Groundwater	MB-10	NA	2.0 J	HH	0.175	I	NA	--	--	--
Arsenic	Groundwater	Duplicate	III	222 J	HH	0.175	I	97.4	Yes	0.054	No
Iron	Groundwater	MB-1	I	3360	AAC	1000	E	25865	Yes	14	No
Iron	Groundwater	MB-2	I	15400	AAC	1000	E	25865	Yes	14	No
Iron	Groundwater	MB-3	I	13300	AAC	1000	E	25865	Yes	14	No
Iron	Groundwater	MB-4	I	71400	AAC	1000	E	25865	Yes	14	No
Iron	Groundwater	MB-5	II	3440	AAC	1000	E	8370	Yes	5	No
Iron	Groundwater	MB-6	II	13300	AAC	1000	E	8370	Yes	5	No
Iron	Groundwater	MB-7	III	8960 J	AAC	1000	E	9215	Yes	5	No
Iron	Groundwater	MB-8	III	9470 J	AAC	1000	E	9215	Yes	5	No
Iron	Groundwater	MB-9	NA	19900	AAC	1000	E	NA	--	--	--
Iron	Groundwater	Duplicate	III	16200 J	AAC	1000	E	9215	Yes	5	No
Lead	Groundwater	MB-4	I	47.4	CAC	43	I	12.7	No	--	--
Lead	Groundwater	MB-9	NA	42.4 J	CAC	23	I	NA	--	--	--
Copper	Groundwater	MB-4	I	114	CAC	67	I	32.7	No	--	--
Silver	Groundwater	MB-3	I	1.1 J	CAC	0.12	E	0.3	No	--	--
Zinc	Groundwater	MB-4	I	214	CAC	160	I	64.0	No	--	--
Arsenic	Pond Water	PW-4	NA	3.0 J	HH	0.175	I	NA	--	--	--
Arsenic	Pond Water	PW-2	NA	1.9 J	HH	0.175	I	NA	--	--	--
Arsenic	Pond Water	PW-4	NA	2.8 J	HH	0.175	I	NA	--	--	--
Arsenic	Pond Water	PW-2	NA	2.3 J	HH	0.175	I	NA	--	--	--
Arsenic	Surface Water	SW-5	NA	4.0	HH	0.175	I	NA	--	--	--

TABLE 11: SAMPLING LOCATIONS EXCEEDING APPLICABLE WATER QUALITY CRITERIA, SEPTEMBER 1994

TAL Dissolved Metals											
Arsenic	Groundwater	MB-2	I	99.4	MCL	50	E	42.4	No	-	-
Arsenic	Groundwater	MB-7	III	105	MCL	50	E	124	Yes	0.0692	No
Arsenic	Groundwater	MB-8	III	143	MCL	50	E	124	Yes	0.0692	No
Arsenic	Groundwater	Duplicate	III	114	MCL	50	E	124	Yes	0.0692	No
Arsenic	Groundwater	MB-1	I	10.9	HH	0.175	I	42.4	Yes	0.0237	No
Arsenic	Groundwater	MB-2	I	99.4	HH	0.175	I	42.4	Yes	0.0237	No
Arsenic	Groundwater	MB-3	I	36.7 J	HH	0.175	I	42.4	Yes	0.0237	No
Arsenic	Groundwater	MB-4	I	22.7	HH	0.175	I	42.4	Yes	0.0237	No
Arsenic	Groundwater	MB-5	II	11.2	HH	0.175	I	11.2	Yes	0.0062	No
Arsenic	Groundwater	MB-7	III	105	HH	0.175	I	124	Yes	0.0692	No
Arsenic	Groundwater	MB-8	III	143 J	HH	0.175	I	124	Yes	0.0692	No
Arsenic	Groundwater	MB-9	NA	10.8	HH	0.175	I	NA	-	-	-
Arsenic	Groundwater	Duplicate	III	114	HH	0.175	I	124	Yes	0.0692	No
Iron	Groundwater	MB-1	I	1870	AAC	1000	E	7120	Yes	4	No
Iron	Groundwater	MB-2	I	13300	AAC	1000	E	7120	Yes	4	No
Iron	Groundwater	MB-3	I	9310	AAC	1000	E	7120	Yes	4	No
Iron	Groundwater	MB-4	I	4000	AAC	1000	E	7120	Yes	4	No
Iron	Groundwater	MB-5	II	2550	AAC	1000	E	8475	Yes	5	No
Iron	Groundwater	MB-6	II	14400	AAC	1000	E	8475	Yes	5	No
Iron	Groundwater	MB-7	III	9360	AAC	1000	E	7225	Yes	4	No
Iron	Groundwater	MB-8	III	5070	AAC	1000	E	7225	Yes	4	No
Iron	Groundwater	MB-9	NA	1960	AAC	1000	E	NA	-	-	-
Iron	Groundwater	Duplicate	III	9430	AAC	1000	E	7225	Yes	4	No
Arsenic	Surface Water	SW-5	NA	3.5 J	HH	0.175	I	NA	-	-	-
Indicator Parameters	Groundwater	MB-2	I	0.011	CAC	0.0048	E	0.007	Yes	0.000004	No
Unionized	Groundwater	MB-3	I	0.012	CAC	0.0062	E	0.007	Yes	0.000004	No
Ammonia (mg/L)	Groundwater	MB-6	II	0.005	CAC	0.0039	E	0.004	Yes	0.000002	No
	Groundwater	MB-7	III	0.012	CAC	0.0031	E	0.006	Yes	0.000003	No
	Groundwater	Duplicate	III	0.056	CAC	0.0031	E	0.006	Yes	0.000003	No

Notes:

AAC - Acute Aquatic Criteria
CAC - Chronic Aquatic Criteria
Duplicate - Sample collected for on-site monitoring well MB-7
- Proposed

TABLE 6-1: WATER QUALITY CRITERIA - UPDATED

Parameter	Acute Aquatic Criteria		Chronic Aquatic Criteria		Human Health		MCL	
TCL Volatiles (ug/L)								
Acetone	10000	+	222	+	- -		- -	
Benzene	5300	E	118	+	400	I	5	E
Chlorobenzene	1950	+	50	E	2026	+	- -	
1,2-Dichloroethene (total) (1)	- -		- -		- -		70 and 100	E
Methylene Chloride	193000	E	4289	+	157	E	- -	
Toluene	17500	E	389	+	424000	I	1000	E
Trichloroethane	45000	E	21900	E	807	I	5	E
Vinyl Chloride	- -		- -		5246	I	2	E
TCL Semivolatiles (ug/L)								
Phenol	10200	E	2560	E	3500	E	- -	
Phthalate Esters	940	E	3	E	50000	I	- -	
TAL Metals and Cyanide (ug/L)								
Aluminum	- -		- -		- -		- -	
Antimony	- -		- -		45000	I	6	E
Arsenic	360	I	190	I	0.175	I	50	E
Barium	- -		- -		- -		2000	E
Beryllium	- -		- -		1.17	I	4	E
Cadmium*	6.7	I	1.6	I	60	+	5	E
Calcium	- -		- -		- -		- -	
Chromium	16	I	11	I	3389	+	100	E
Cobalt	- -		- -		- -		- -	
Copper* (2)	28	I	18	I	- -		1300	E
Cyanide	22	I	5.2	I	24242	+	200	E
Iron	1000	E	- -		- -		- -	
Lead* (2)	150	I	5.8	I	51	+	15	E
Magnesium	- -		- -		- -		- -	
Manganese	- -		- -		- -		- -	
Mercury	2.4	I	0.012	I	0.15	I	2	E
Nickel*	2100	I	240	I	100	I	100	E
Potassium	- -		- -		- -		- -	
Selenium	130	I	25	I	- -		50	E
Silver*	9.2	I	0.12	E	- -		50	E
Sodium	- -		- -		- -		- -	
Thallium	- -		- -		48	I	2	E
Vanadium	11000	+	100	+	- -		- -	
Zinc*	175	I	160	I	- -		- -	
IDEM Parameters (mg/L)								
Ammonia, Total Unionized**	0.027	I	0.0029	I	- -		- -	
COD	- -		- -		- -		- -	
Chloride	860	I	230	I	- -		- -	
TSS	- -		- -		- -		- -	

Notes:

*Acute and chronic criteria calculated based on worst-case hardness=161 mg/L
**Acute and chronic criteria calculated based on worst-case t=5C, pH=7.0
- - Criteria not developed
MCL - Maximum Contaminant Level (Updated per the Safe Drinking Water Act of 1986 and later revisions known as the Phase I, Phase II, and Phase V rules.
Phase I became effective January 9, 1989, Phase II became effective in 1992, and Phase V became effective January 17, 1994.)
Source of Data
E - U.S. EPA
I - IDEM (327 IAC 2)
+ - See section 6.2 of February 1990 report by Beak Consultants Limited Baseline Water Quality Conditions for discussion of sources for the criteria.
(1) The 1,2-Dichloroethene MCL standards are divided into cis-1,2-Dichloroethene at 70 ug/L and trans-1,2 Dichloroethene at 100 ug/L.
(2) - The "MCL" value is an action level for lead and copper (i.e., the lead and copper rule) but it only applies to water supplies as measured at the household tap.

TABLE 7: CALCULATED ACUTE AQUATIC CRITERIA AND CHRONIC AQUATIC CRITERIA FOR AMMONIA-NITROGEN, DECEMBER 1994

Sample Matrix	Well Number	pH+	Temp (C)	Ammonia (mg/L) Total (mg/L)	Ammonia (mg/L) Un-Ionized (mg/L)*	Calculated Un-Ionized Ammonia Criteria(mg/L)** AAC	Calculated Un-Ionized Ammonia Criteria(mg/L)** CAC	Criteria Exceeded AAC	Criteria Exceeded CAC
Groundwater	MB-1	7.1	12.0	0.5 U	0.001	–	–	–	–
	MB-2	6.7	13.0	5.5	0.006	0.027	0.0025	No	Yes
	MB-3	6.9	14.0	3.1	0.006	0.042	0.0043	No	Yes
	MB-4	7.1	14.0	1.3	0.004	0.059	0.0068	No	No
	MB-5	6.8	13.0	2.2	0.003	0.033	0.0032	No	No
	MB-6	6.7	14.0	2.5	0.003	0.029	0.0027	No	Yes
	MB-7	6.9	15.0	7.0	0.015	0.045	0.0046	No	Yes
	MB-8	7.0	14.0	1.3	0.003	0.05	0.0054	No	No
	MB-9	7.2	14.0	0.5 U	–	–	–	–	–
	MB-10	7.0	12.0	0.5 U	–	–	–	–	–
	Duplicate ++	7.2	12.0	0.5 U	–	–	–	–	–

Notes:

* - Values calculated according to the Indiana Register (1990) (327 IAC 2). Unionized values calculated using 1/2 the detection limit for less than detection limit total results.

** - Calculated according to the USEPA Quality Criteria for Water, 1986 EPA 440/5-86-001

+ - pH values for calculations were collected during the June 1994 event due to instrument malfunction during this event.

++ - Sample taken from monitoring well MB-1

AAC - Acute Aquatic Criteria; CAC Chronic Aquatic Criteria

TABLE 8: SAMPLING LOCATIONS EXCEEDING APPLICABLE WATER QUALITY CRITERIA, DECEMBER 1994

Parameter	Matrix	Sample Location	Monitoring Well Zone	Sample Concentration (mg/L)	Criterion Exceeded	Criterion Concentration (mg/L)	Source	Average Concentration Of Zone (mg/L)	Exceeds Criterion	Concentration After Mixing (mg/L)	Exceeds Criterion
Indicator Parameters											
Un-Ionized	Groundwater	MB-2	I	0.006	CAC	0.0025	E	0.0043	Yes	0.000002	No
Ammonia (mg/L)	Groundwater	MB-3	I	0.006	CAC	0.0043	E	0.0043	No	--	--
	Groundwater	MB-6	II	0.003	CAC	0.0027	E	0.0030	Yes	0.000002	No
	Groundwater	MB-7	III	0.015	CAC	0.0046	E	0.0090	Yes	0.000005	No

Notes:

AAC - Acute Aquatic Criterria

CAC - Chronic Aquatic Criteria

TABLE 8: WATER QUALITY CRITERIA - UPDATED

Parameter	Acute Aquatic Criteria		Chronic Aquatic Criteria		Human Health		MCL	
TCL Volatiles (ug/L)								
Acetone	10000	+	222	+	- -		- -	
Benzene	5300	E	118	+	400	I	5	E
Chlorobenzene	1950	+	50	E	2026	+	- -	
1,2-Dichloroethene (total) (1)	- -		- -		- -		70 and 100	E
Methylene Chloride	193000	E	4289	+	157	E	- -	
Toluene	17500	E	389	+	424000	I	1000	E
Trichloroethane	45000	E	21900	E	807	I	5	E
Vinyl Chloride	- -		- -		5246	I	2	E
TCL Semivolatiles (ug/L)								
Phenol	10200	E	2560	E	3500	E	- -	
Phthalate Esters	940	E	3	E	50000	I	- -	
TAL Metals and Cyanide (ug/L)								
Aluminum	- -		- -		- -		- -	
Antimony	- -		- -		45000	I	6	E
Arsenic	360	I	190	I	0.175	I	50	E
Barium	- -		- -		- -		2000	E
Beryllium	- -		- -		1.17	I	4	E
Cadmium*	6.7	I	1.6	I	60	+	5	E
Calcium	- -		- -		- -		- -	
Chromium	16	I	11	I	3389	+	100	E
Cobalt	- -		- -		- -		- -	
Copper* (2)	28	I	18	I	- -		1300	E
Cyanide	22	I	5.2	I	24242	+	200	E
Iron	1000	E	- -		- -		- -	
Lead* (2)	150	I	5.8	I	51	+	15	E
Magnesium	- -		- -		- -		- -	
Manganese	- -		- -		- -		- -	
Mercury	2.4	I	0.012	I	0.15	I	2	E
Nickel*	2100	I	240	I	100	I	100	E
Potassium	- -		- -		- -		- -	
Selenium	130	I	25	I	- -		50	E
Silver*	9.2	I	0.12	E	- -		50	E
Sodium	- -		- -		- -		- -	
Thallium	- -		- -		48	I	2	E
Vanadium	11000	+	100	+	- -		- -	
Zinc*	175	I	160	I	- -		- -	
IDEM Parameters (mg/L)								
Ammonia, Total Unionized**	0.027	I	0.0029	I	- -		- -	
COD	- -		- -		- -		- -	
Chloride	860	I	230	I	- -		- -	
TSS	- -		- -		- -		- -	

Notes:

*Acute and chronic criteria calculated based on worst-case hardness=161 mg/L
**Acute and chronic criteria calculated based on worst-case t=5C, pH=7.0
- - Criteria not developed
MCL - Maximum Contaminant Level (Updated per the Safe Drinking Water Act of 1986 and later revisions known as the Phase I, Phase II, and Phase V rules. Phase I became effective January 9, 1989, Phase II became effective in 1992, and Phase V became effective January 17, 1994.)
Source of Data
E - U.S. EPA
I - IDEM (327 IAC 2)
+ - See section 6.2 of February 1990 report by Beak Consultants Limited Baseline Water Quality Conditions for discussion of sources for the criteria.
(1) The 1,2-Dichloroethene MCL standards are divided into cis-1,2-Dichloroethene at 70 ug/L and trans-1,2 Dichloroethene at 100 ug/L.
(2) - The "MCL" value is an action level for lead and copper (i.e., the lead and copper rule) but it only applies to water supplies as measured at the household tap.

Table 6: POND WATER CHEMISTRY DATA, MARCH 1995

SAMPLING LOCATION	OFFSITE POND	OFFSITE POND	ONSITE POND	ONSITE POND
LOCATION IN MATRIX	BOTTOM	TOP	BOTTOM	TOP
DISSOLVED TAL METALS (ug/L)				
Aluminium	58.3 U	67.6 U	67.6 U	73.5 U
Antimony	1.9 U	1.9 U	1.9 U	1.9 U
Arsenic	3.5 U	3.5 U	3.5 U	3.5 U
Barium	34.4	34.8	150	147
Beryllium	0.10 U	0.10 U	0.10 U	0.10 U
Cadmium	0.50 U	0.50 U	0.50 U	0.50 U
Calcium	32500	32500	52700	52400
Chromium	2.2 U	2.2 U	2.2 U	2.2 U
Cobalt	0.50 U	0.50 U	0.50 U	0.50 U
Copper	0.80 U	0.80 U	0.86 J	0.80 U
Iron	27.2 U	27.2 U	27.2 U	27.2 U
Lead	1.6 U	1.6 U	1.6 U	R
Magnesium	22800	22800	26500	26400
Manganese	0.40 U	0.40 U	2.9	1.0
Mercury	0.20 U	0.20 U	0.20 U	0.20 U
Nickel	1.5 U	1.5 U	3.9	3.7
Potassium	1020 J	1070 J	6070 J	6020 J
Selenium	2.7 U	2.7 U	2.7 U	2.7 U
Silver	0.60 U	0.60 U	0.60 U	0.60 U
Sodium	9870	9940	19100	19100 U
Thallium	5.5 U	5.5 U	5.5 U	5.5 U
Vanadium	0.50 U	0.50 U	0.50 U	0.50
Zinc	4.4 U	5.5 U	4.8 U	5.4 U
INDICATOR PARAMETERS (mg/L)				
Ammonia-Nitrogen	0.5 U	0.5 U	0.5 U	0.5 U
C.O.D.	20 U	20 U	20 U	20 U
Chloride	9.9	11	16	18
TSS	5.0 U	5.0 U	18	20
FIELD PARAMETERS				
Temperature (C)	NR	8	NR	10
pH	NR	NR	NR	8.7
Conductivity (umhos/cm) (1)	NR	260	NR	385
Conductivity (umhos/cm) (2)	NR	981	NR	1502
Dissolved Oxygen (mg/L)	NR	12	NR	8.5

Notes:

NR - No reading recorded.

(1)-Field measured conductance.

(2) - Value corrected to 25 C.

Table 6: POND WATER CHEMISTRY DATA, MARCH 1995

SAMPLING LOCATION	OFFSITE POND	OFFSITE POND	ONSITE POND	ONSITE POND
LOCATION IN MATRIX	BOTTOM	TOP	BOTTOM	TOP
TCL VOLATILES (ug/L)				
Methylene Chloride	10 U	10 U	10 U	10 U
1,2 - Dichloroethene (total)	10 U	10 U	1 J	10 U
VOLATILE TENTATIVELY IDENTIFIED COMPOUNDS (Retention Time) (3)				
Unknown (Total Number)	0	0	0	0
Unknown (Total Concentration)	0	0	0	0
TCL SEMIVOLATILES(ug/L)				
bis (2-ethylhexyl)phthalate	10 U	6 J	10 U	10 U
SEMIVOLATILE TENTATIVELY IDENTIFIED COMPOUNDS (Retention Time) (3)				
Unknown (Total Number)	0	0	1	1
Unknown (Total Concentration)	0	0	4 J	2 J
TOTAL TAL METALS AND CYANIDE (ug/L)				
Aluminum	104 U	150 U	232 U	180 U
Antimony	1.9 U	2.3 J	1.9 U	1.9 U
Arsenic	3.5 U	3.5 U	3.5 U	3.5 U
Barium	35.2	35.0	147	148
Beryllium	0.10 U	0.10 U	0.10 U	0.10 U
Cadmium	0.50 U	0.50 U	0.50 U	0.50 U
Calcium	33300	32100	52700	52700
Chromium	2.2 U	2.2 U	2.2 U	2.2 U
Cobalt	0.50 U	0.50 U	0.50 U	0.50 U
Copper	0.80 UJ	0.80 UJ	3.1 J	0.80 UJ
Iron	103	134	442	342
Lead	1.6 U	1.6 U	1.6 U	1.6 U
Magnesium	23500	22900	26300	26700
Manganese	8.1	8.3	40.5	35.6
Mercury	0.20 U	0.20 U	0.20 U	0.44
Nickel	5.6 U	2.3 J	11.6	5.6
Potassium	976	967 J	5180 J	5320 J
Selenium	4.4 U	4.4 U	4.4 U	4.4 U
Silver	0.60 U	0.61 J	0.60 U	0.77 J
Sodium	9820 J	9530 J	17900 J	18200 J
Thallium	5.5 U	5.5 U	5.5 U	5.5 U
Vanadium	0.50 U	0.50 U	0.60 J	0.68 J
Zinc	16.6 UJ	20.8 J	20.4 UJ	8.9 J
Cyanide	10.0 U	10.0 U	10.0 U	10.0 U

'able 6: POND WATER CHEMISTRY DATA, MARCH 1995

(3) Unknown Tentatively Identified Compounds (TICs) are summed or totaled by the number of unknown TICs and by the concentration of unknown TICs. TICs for which a compound class (e.g., unknown phtalate) or individual compound (e.g., 1H-Benzotriazole) are identified, those compounds are listed separately with concentration and data qualifier and are not included in the total number or total concentration. The unknown TICs were totaled to provide condensed summary information in the data table. Any questions regarding specific unknown TICs can be investigated in the data validation report.

TABLE 7: CALCULATED ACUTE AQUATIC CRITERIA AND CHRONIC AQUATIC CRITERIA FOR AMMONIA-NITROGEN, June 1995

Sample Matrix	Well Number	pH	Temp (C)	Ammonia (mg/L) Total (mg/L)	Ammonia (mg/L) Un-Ionized (mg/L)*	Calculated Un-Ionized Ammonia Criteria(mg/L)** AAC	Calculated Un-Ionized Ammonia Criteria(mg/L)** CAC	Criteria Exceeded AAC	Criteria Exceeded CAC
Groundwater	MB-1	7.1	13.0	NR	–	–	–	–	–
	MB-2	6.8	14.0	NR	–	–	–	–	–
	MB-3	6.9	15.0	NR	–	–	–	–	–
	MB-4	7.3	17.0	0.98	0.006	0.096	0.0133	No	No
	MB-5	7.8	16.0	0.5 U	–	–	–	–	–
	MB-6	8.3	15.0	0.5 U	–	–	–	–	–
	MB-7	8.2	15.0	5.9	0.245	0.163	0.0918	No	Yes
	MB-8	8.4	15.0	0.7	0.045	0.171	0.1454	No	No
	MB-9	8.8	14.0	0.5 U	–	–	–	–	–
	MB-10	7.4	14.0	0.5 U	–	–	–	–	–
	Duplicate ++	7.3	17.0	1.4	0.009	0.096	0.0133	No	No

Notes:

* - Values calculated according to the Indiana Register(1990)

** - Calculated according to the USEPA Quality Criteria for Water, 1986 EPA 440/5-86-001

AAC - Acute Aquatic Criteria; CAC Chronic Aquatic Criteria

Duplicate sample collected from monitoring well MB-4

NR - Not Requested. These samples were lost by the Laboratory. When the samples were located, they were too far outside of holding times to warrant analysis.

TABLE 8: SAMPLING LOCATIONS EXCEEDING APPLICABLE WATER QUALITY CRITERIA, JUNE 1995

Parameter	Matrix	Sample Location	Monitoring Well Zone	Sample Concentration (mg/L)	Criterion Exceeded	Criterion Concentration (mg/L)	Source	Average Concentration Of Zone (mg/L)	Exceeds Criterion	Concentration After Mixing (mg /L)	Exceeds Criterion
Indicator Parameters											
Un-Ionized Ammonia (mg/L)	Groundwater	MB-7	III	0.245	CAC	0.0918	E	0.1450	Yes	0.000081	No

Notes:

AAC - Acute Aquatic Criteria

CAC - Chronic Aquatic Criteria

ABLE 9: CALCULATED ACUTE AQUATIC CRITERIA AND CHRONIC AQUATIC CRITERIA FOR AMMONIA-NITROGEN, MARCH 1995

ample atrix	Well Number	pH	Temp (C)	Ammonia Total (mg/L)	Calculated Ammonia Un-Ionized (mg/L)*	Calculated Un-Ionized Ammonia Criteria(mg/L)** AAC	CAC	Criteria Exceeded AAC	CAC
round Water	MB-1	7.7	12.0	0.5 U	0.003	--	--	--	--
	MB-2	7.3	12.0	6.9	0.03	0.068	0.0094	No	Yes
	MB-3	7.3	13.0	3.4	0.016	0.073	0.0101	No	Yes
	MB-4	7.9	13.0	1.3	0.024	0.125	0.0401	No	No
	MB-5	7.4	12.0	0.5 U	0.001	--	--	--	--
	MB-6	7.8	14.0	3.9	0.061	0.126	0.0341	No	Yes
	MB-7	7.8	13.0	5.2	0.038	0.117	0.0318	No	Yes
	MB-8	7.9	14.0	0.5 U	0.005	--	--	--	--
	MB-9	8.8	14.7	0.5 U	0.036	--	--	--	--
	MB-10	7.2	14.5	0.5 U	0.002	--	--	--	--
	Duplicate++	7.9	13.0	1.5	0.028	0.125	0.0401	No	No
ond Water (1)	Off-sit . (D)	NR	8.0	0.5 U	--	--	--	--	--
	Off-site (S)	NR	8.0	0.5 U	--	--	--	--	--
	On-site (D)	8.7	10.0	0.5 U	--	--	--	--	--
	On-site (S)	8.7	10.0	0.5 U	--	--	--	--	--
urface Water (2)	SW-1	8.7	7.0	0.5 U	--	--	--	--	--
	SW-2	8.7	7.0	0.5 U	--	--	--	--	--
	SW-3	8.7	7.0	0.5 U	--	--	--	--	--
	SW-4	8.7	7.0	0.5 U	--	--	--	--	--
	SW-5	8.7	7.0	0.5 U	--	--	--	--	--
	SW-6	8.7	7.0	0.5 U	--	--	--	--	--
	Duplicate+	8.7	7.0	0.5 U	--	--	--	--	--

Notes:

* - Values calculated according to the Indiana Register (1990) (Using 1/2 detection limit to calculate union. ammonia for values less than detection limits)

** - Calculated according to the USEPA Quality Criteria for Water, 1986 EPA 440/5-86-001

++ - Sample taken from monitoring well MB-4

\+ - Sample taken from surface water sample location SW-4.

AAC - Acute Aquatic Criteria; CAC Chronic Aquatic Criteria

(1) Pond water pH and temperature readings were obtained at only the shallow pond sampling location. Shallow pond pH and temperature were used to calculate AAC and CAC for the deep pond sampling location, if ammonia was detected.

(2) Surface water pH and temperature readings were measured only at SW-4. SW-4 pH and temperature readings were used in AAC and CAC calculations for other surface water locations, if ammonia was detected.

NR - Not Recorded

ABLE 10: ACUTE AQUATIC CRITERIA AND CHRONIC AQUATIC CRITERIA FOR TAL METALS CONCENTRATIONS DEPENDENT ON HARDNESS, MARCH 1995

Sample Matrix	Sample Location	Hardness (mg/L)	Calcium (mg/L)	Magnesium (mg/L)	Cadmium (ug/L) Sample Conc.**	AAC*	CAC*	Chromium(ug/L) Sample Conc.**	AAC*	CAC*	Copper(ug/L) Sample Conc.**	AAC*	CAC*	Lead(ug/L) Sample Conc.**	AAC*	CAC*	Nickel(ug/L) Sample Conc.**	AAC*	CAC*	Silver(ug/L) Sample Conc.**	AAC*	CAC(1)	Zinc(ug/L) Sample Conc.**	AAC*	CAC*
ssolved Metals	MB-1	393.5	108.0	30.0	0.50 U	18	3	2.2 U	5332	636	9.8	64	38	R	467	18	3.2	4519	502	R	21		4.5 U	374	338
ound Water	MB-2	434.2	123.0	30.8	0.50 U	21	4	2.2 U	5781	689	R	71	41	R	529	21	3.2	4912	546	R	25		8.4 U	406	368
	MB-3	404.9	106.0	34.0	0.50 U	19	3	2.2 U	5459	651	R	66	39	R	484	19	2.3 J	4630	515	R	22		7.7 U	383	347
	MB-4	231.2	49.6	26.1	0.50 U	10	2	2.2 U	3449	411	0.80 U J	39	24	1.7 U	237	9	1.5 U	2881	320	R	9		2.8 U	238	216
	MB-5	363.3	93.8	31.3	0.50 U	17	3	2.2 U	4995	595	R	60	36	R	422	16	4.6	4224	470	R	19		8.4 U	349	316
	MB-6	425.9	118.0	31.8	0.50 U	20	4	2.2 U	5689	678	0.80 U J	69	41	4.3	516	20	14.2	4832	537	R	25		8.4 U	399	362
	MB-7	326.4	75.1	33.7	0.50 U	15	3	2.2 U	4576	545	0.80 U J	54	32	R	368	14	1.5 U	3859	429	R	16		7.4 U	319	289
	MB-8	318.8	49.0	47.7	0.50 U	15	3	2.2 U	4488	535	0.8 U J	53	32	3.1	357	14	1.9 J	3782	420	R	15		7.4 U	313	283
	MB-9	241.2	62.4	20.7	0.50 U	11	2	2.2 U	3571	426	2.1 J	41	25	1.7 J	250	10	6.9	2987	332	R	9		9.0 U	247	223
	MB-10	400.9	109.0	31.2	0.50 U	19	3	2.2 U	5415	645	1.4 J	66	39	2.0 J	478	19	1.5 U	4591	510	R	22		4.1 U	380	344
	Duplicate +	229.4	49.8	25.5	0.50 U	10	2	2.2 U	3428	409	0.80 U J	39	24	1.6 U	235	9	2.0 U	2863	318	R	8		6.4 U	237	214
nd Water	Off-site (D)	175.1	32.5	22.8	0.50 U	7	2	2.2 U	2747	327	0.80 U	30	19	1.6 U	167	6	1.5 U	2278	253	0.60 U	5		4.4 U	188	170
	Off-site (S)	175.1	32.5	22.8	0.50 U	7	2	2.2 U	2747	327	0.80 U	30	19	1.6 U	167	6	1.5 U	2278	253	0.60 U	5		5.5 U	188	170
	On-site (D)	240.8	52.7	26.5	0.50 U	11	2	2.2 U	3567	425	0.86 J	41	25	1.6 U	250	10	3.9	2983	332	0.60 U	9		4.8 U	246	223
	On-site (S)	239.6	52.4	26.4	0.50 U	11	2	2.2 U	3553	423	0.80 U	40	25	R	248	10	3.7	2971	330	0.60 U	9		5.4 U	245	222
rface Water	SW-1	330.4	82.6	30.1	0.50 U	15	3	2.2 U	4621	551	0.80 U	55	33	1.6 U	374	15	1.5 U	3898	433	0.60 U	16		4.6 U	322	292
	SW-2	329.8	82.2	30.2	0.50 U	15	3	2.2 U	4614	550	0.80 U	55	33	R	373	15	1.5 U	3892	433	0.60 U	16		9.0 U	322	291
	SW-3	331.0	82.7	30.2	0.50 U	15	3	2.2 U	4629	552	0.96 J	55	33	1.6 U	375	15	1.5 U	3904	434	0.60 U	16		6.2 U	323 -	292
	SW-4	329.4	82.2	30.1	0.50 U	15	3	2.2 U	4610	549	0.80 U	54	33	1.6 U	372	15	1.6 U	3888	432	0.60 U	16		4.1 U	321	291
	SW-5	328.2	81.9	30.0	0.50 U	15	3	2.2 U	4596	548	0.80 U	54	33	1.6 U	371	14	1.5 U	3876	431	0.60 U	16		4.1 U	320	290
	SW-6	326.8	81.5	29.9	0.50 U	15	3	2.2 U	4580	546	0.80 U	54	33	1.6 U	369	14	1.5 U	3862	429	0.60 U	16		4.7 U	319	289
	Duplicate++	328.2	81.9	30.0	0.50 U	15	3	2.2 U	4596	548	0.80 U	54	33	1.6 U	371	14	1.5 U	3876	431	0.60 U	16		5.2 U	320	290
tal Metals																									
ound Water	MB-1	413.7	112.0	32.5	5 U	19	3	2.2 U	5556	662	11.3	68	40	1.6 U	498	19	4.4	4715	524	0.60 U	23		6.2 J	390	353
	MB-2	459.1	126.0	33.8	0.66 J	22	4	2.2 U	6050	721	R	75	43	1.6 U	568	22	6.0	5149	572	0.60 U	28		26.7 J	426	386
	MB-3	455.5	117.0	39.6	0.50 U	22	4	4.3 J	6011	716	R	74	43	1.6 U	563	22	4.4	5114	569	0.60 U	28		17.3 U J	423	383
	MB-4	257.2	55.3	28.9	0.50 U	11	2	2.2 J	3764	449	3.9 J	43	27	2.3 J	272	11	4.5	3154	351	0.60 U	10		R	261	236
	MB-5	355.6	89.9	31.8	0.50 U	16	3	2.2 U	4908	585	R	59	35	1.6 U	411	16	4.4	4148	461	0.60 U	18		12.5 U J	343	311
	MB-6	218.1	14.8	44.0	1.4	9	2	6.6	3288	392	22.1	37	23	8.3	220	9	25.4	2743	305	0.60 U	8		69.8 J	227	205
	MB-7	331.5	75.5	34.7	0.50 U	15	3	3.0 J	4635	552	1.9	55	33	1.6 U	375	15	2.9 J	3910	435	0.60 U	16		16.0 U J	323	293
	MB-8	642.0	135.0	74.0	1.1	32	5	15.0	7963	949	45.0	102	58	64.3	871	34	21.8	6838	760	0.60 U	50		180 J	566	512
	MB-9	324.0	80.4	29.9	.95 J	15	3	16.3	4548	542	43.5	54	32	17.1	365	14	21.2	3835	426	0.60 U	15		95.3 J	317	287
	MB-10	422.8	113.0	34.1	0.50 U	20	4	2.8 J	5656	674	4.4	69	41	6.1	512	20	5.1	4803	534	0.60 U	24		24.8 U J	397	360
	Duplicate +	218.7	48.3	23.8	0.50 U	9	2	2.2 U	3296	393	16.5 J	37	23	3.6 J	221	9	6.1	2749	306	0.60 UJ	8		R	227	206
nd Water	Off-site (D)	180.0	33.3	23.6	0.50 U	8	2	2.2 U	2810	335	0.80 U J	31	20	1.6 U	172	7	5.6 U	2331	259	0.60 U	6		18.6 U J	193	174
	Off-site (S)	174.5	32.1	22.9	0.50 U	7	2	2.2 U	2740	327	0.80 U	30	19	1.6 U	168	6	2.3 J	2271	253	0.61J	5		20.8 J	188	170
	On-site (D)	240.0	52.7	26.3	0.50 U	11	2	2.2 U	3557	424	3.1 J	40	25	1.6 U	249	10	11.6	2974	331	0.60 U	9		20.4 U J	246	223
	On-site (S)	241.6	52.7	26.7	0.50 U	11	2	2.2 U	3577	426	0.80 U J	41	25	1.6 U	251	10	5.6	2992	333	0.77 J	9		8.9 J	247	224
rface Water	SW-1	315.7	77.9	29.4	0.50 U	14	3	2.2 U	4453	531	1.7 J	52	32	1.6 U	353	14	5.1	3751	417	0.60 U	15		15.9 J	310	281
	SW-2	326.4	80.7	30.3	0.50 U	15	3	2.2 U	4576	545	1.6 J	54	32	1.6 U	368	14	5.6	3859	429	0.60 U	16		14.4 J	319	289
	SW-3	327.9	81.1	30.4	0.50 U	15	3	2.2 U	4592	547	1.5 J	54	33	1.6 U	370	14	9.6	3873	431	0.60 U	16		23.5 J	320	290
	SW-4	325.4	80.1	30.4	0.50 U	15	3	2.2 U	4563	544	4.5 J	54	32	1.6 U	367	14	8.8	3846	428	2.00 U	15		22.1 J	318	288
	SW-5	340.8	84.8	31.3	0.50 U	16	3	2.2 U	4740	565	0.88 J	56	34	1.6 U	389	15	4.2	4002	445	0.60 U	17		14.7 J	331	300
	SW-6	331.4	82.7	30.3	0.50 U	15	3	2.2 U	4633	552	0.89 J	55	33	1.6 U	376	15	3.0	3909	435	0.60 U	16		18.3 J	323	293
	Duplicate++	344.7	85.2	32.0	0.50 U	16	3	2.2 U	4784	570	1.60 J	57	34	1.6 U	395	15	6.9	4040	449	0.60 U	17		14.9 J	334	302

ites:
* - Values calculated according to the Indiana Register(1990)
** - Sample concentrations are ug/L (ppb)
AAC - Acute Aquatic Criteria
CAC - Chronic Aquatic Criteria
+ - Duplicate sample collected from monitoring well MB-4.
++ - Duplicate sample collected from sampling location SW-4.

LE 11: SAMPLING LOCATIONS EXCEEDING APPLICABLE WATER QUALITY CRITERIA, MARCH 1995

meter	Matrix	Sample Location	Monitoring Well Zone	Sample Concentration (ug/L)	Criterion Exceeded	Criterion Concentration (ug/L)	Source	Average Concentration Of Zone (ug/L)	Exceeds Criterion	Concentration After Mixing (ug /L)	Exceeds Criterion
Volatiles (ug/L)											
loroethene	Groundwater	MB-1	I	38	MCL	5	E	13.3	Yes	0.007	No
Dichoroethene(total)	Groundwater	MB-1	I	95	MCL	70	E	27	No	–	–
Total Metals											
nic	Groundwater	MB-2	I	129	MCL	50	E	47.7	No	–	–
nic	Groundwater	MB-6	II	262	MCL	50	E	135.3	Yes	0.08	No
nic	Groundwater	MB-7	III	118	MCL	50	E	130	Yes	0.07	No
nic	Groundwater	MB-8	III	142	MCL	50	E	130	Yes	0.07	No
nic	Groundwater	MB-2	I	129	HH	0.175	I	47.7	Yes	0.03	No
nic	Groundwater	MB-3	I	36.5	HH	0.175	I	47.7	Yes	0.03	No
nic	Groundwater	MB-4	I	21.2 J	HH	0.175	I	47.7	Yes	0.03	No
nic	Groundwater	MB-5	II	8.6 J	HH	0.175	I	135.3	Yes	0.08	No
nic	Groundwater	MB-6	II	262	HH	0.175	I	135.3	Yes	0.08	No
nic	Groundwater	MB-7	III	118	HH	0.175	I	130	Yes	0.07	No
nic	Ground ater	MB-8	III	142	HH	0.175	I	130	Yes	0.07	No
nic	Groundwater	MB-9	NA	20.9	HH	0.175	I	NA	–	–	–
nic	Groundwater	Duplicate	I	18.0	HH	0.175	I	47.7	Yes	0.03	No
nic	Groundwater	MB-6	II	262	CAC	190	I	135.3	No	–	–
per	Groundwater	MB-9	NA	43.5	CAC	32	I	NA	–	–	–
	Groundwater	MB-1	I	1830	AAC	1000	I	11755	Yes	6.6	No
	Groundwater	MB-2	I	25000	AAC	1000	I	11755	Yes	6.6	No
	Groundwater	MB-3	I	15100	AAC	1000	I	11755	Yes	6.6	No
	Groundwater	MB-4	I	5090	AAC	1000	I	11755	Yes	6.6	No
	Groundwater	MB-5	II	2430	AAC	1000	I	13665	Yes	7.6	No
	Groundwater	MB-6	II	24900	AAC	1000	I	13665	Yes	7.6	No
	Groundwater	MB-7	III	9020	AAC	1000	I	14710	Yes	8.2	No
	Groundwater	MB-8	III	20400	AAC	1000	I	14710	Yes	8.2	No
	Groundwater	MB-9	NA	17300	AAC	1000	I	NA	–	–	–
	Groundwater	MB-10	NA	5110	AAC	1000	I	NA	–	–	–
	Groundwater	Duplicate	I	5240	AAC	1000	I	11755	Yes	6.6	No
d	Groundwater	MB-6	II	8.3	CAC	9	I	4.6	No	–	–
d	Groundwater	MB-8	III	64.3	CAC	34	I	32.6	No	–	–
d	Groundwater	MB-9	NA	17.1	CAC	14	I	NA	–	–	–
:	Groundwater	MB-8	III	180 J	CAC	175	I	98	No	–	–
:	Groundwater	MB-8	III	180 J	AAC	160	I	98	No	–	–
cury	Pond Water	PW-1	NA	0.44	HH	0.15	I	NA	–	–	–
cury	Pond Water	PW-1	NA	0.44	CAC	0.012	I	NA	–	–	–
er	Pond Water	PW-1	NA	0.77 J	CAC	0.12	E	NA	–	–	–
er	Pond Water	PW-3	NA	0.61 J	CAC	0.12	E	NA	–	–	–
enic	River Water	SW-6	NA	3.9 J	HH	0.175	I	NA	–	–	–

LE 11: SAMPLING LOCATIONS EXCEEDING APPLICABLE WATER QUALITY CRITERIA, MARCH 1995

meter	Matrix	Sample Location	Monitoring Well Zone	Sample Concentration (ug/L)	Criterion Exceeded	Criterion Concentration (ug/L)	Source	Average Concentration Of Zone (ug/L)	Exceeds Criterion	Concentration After Mixing (ug /L)	Exceeds Criterion
Dissolved Metals											
nic	Groundwater	MB-2	I	133	MCL	50	E	51.1	Yes	0.03	No
nic	Groundwater	MB-6	II	214	MCL	50	E	113.4	Yes	0.06	No
nic	Groundwater	MB-7	III	91.2	MCL	50	E	107.6	Yes	0.06	No
nic	Groundwater	MB-8	III	124	MCL	50	E	107.6	Yes	0.06	No
nic	Groundwater	MB-1	I	10.4 J	HH	0.175	I	51.1	Yes	0.03	No
nic	Groundwater	MB-2	I	133	HH	0.175	I	51.1	Yes	0.03	No
nic	Groundwater	MB-3	I	36.6	HH	0.175	I	51.1	Yes	0.03	No
nic	Groundwater	MB-4	I	24.5 J	HH	0.175	I	51.1	Yes	0.03	No
nic	Groundwater	MB-5	II	12.8 J	HH	0.175	I	113.4	Yes	0.06	No
nic	Groundwater	MB-6	II	214	HH	0.175	I	113.4	Yes	0.06	No
nic	Groundwater	MB-7	III	91.2	HH	0.175	I	107.6	Yes	0.06	No
nic	Groundwater	MB-8	III	124	HH	0.175	I	107.6	Yes	0.06	No
nic	Groundwater	MB-9	NA	8.9	HH	0.175	I	NA	–	–	–
nic	Groundwater	Duplicate	I	18.7	HH	0.175	I	51.1	Yes	0.03	No
nic	Groundwater	MB-6	II	214	CAC	190	I	113.4	No	–	–
	Groundwater	MB-1	I	1730	AAC	1000	I	10110	Yes	6	No
	Groundwater	MB-2	I	22000	AAC	1000	I	10110	Yes	6	No
	Groundwater	MB-3	I	13100	AAC	1000	I	10110	Yes	6	No
	Groundwater	MB-4	I	3610	AAC	1000	I	10110	Yes	6	No
	Groundwater	MB-5	II	2450	AAC	1000	I	9625	Yes	5	No
	Groundwater	MB-6	II	16800	AAC	1000	I	9625	Yes	5	No
	Groundwater	MB-7	III	7550	AAC	1000	I	3010	Yes	2	No
	Groundwater	MB-8	III	4490	AAC	1000	I	3010	Yes	2	No
	Groundwater	MB-9	NA	1730	AAC	1000	I	NA	–	–	–
	Groundwater	Duplicate	I	3600	AAC	1000	I	10110	Yes	6	No
				(mg/L)		(mg/L)		(mg/L)		(mg/L)	
cator Parameters	Groundwater	MB-2	I	0.03	CAC	0.0094	E	0.018	Yes	0.00001	No
nized	Groundwater	MB-3	I	0.016	CAC	0.0101	E	0.018	Yes	0.00001	No
nonia (mg/L)	Groundwater	MB-6	II	0.061	CAC	0.0341	E	0.031	No	–	–
	Groundwater	MB-7	III	0.038	CAC	0.0318	E	0.043	Yes	0.00002	No

es:

AAC - Acute Aquatic Criteria
CAC - Chronic Aquatic Criteria
Duplicate - Sample collected for on-site monitoring well MB-4
- Proposed
NA - Not Applicable

TABLE 6-1: WATER QUALITY CRITERIA - UPDATED

Parameter	Acute Aquatic Criteria		Chronic Aquatic Criteria		Human Health		MCL	
TCL Volatiles (ug/L)								
Acetone	10000	+	222	+	- -		- -	
Benzene	5300	E	118	+	400	I	5	E
Chlorobenzene	1950	+	50	E	2026	+	- -	
1,2-Dichloroethene (total) (1)	- -		- -		- -		70 and 100	E
Methylene Chloride	193000	E	4289	+	157	E	- -	
Toluene	17500	E	389	+	424000	I	1000	E
Trichloroethane	45000	E	21900	E	807	I	5	E
Vinyl Chloride	- -		- -		5246	I	2	E
TCL Semivolatiles (ug/L)								
Phenol	10200	E	2560	E	3500	E	- -	
Phthalate Esters	940	E	3	E	50000	I	- -	
TAL Metals and Cyanide (ug/L)								
Aluminum	- -		- -		- -		- -	
Antimony	- -		- -		45000	I	6	E
Arsenic	360	I	190	I	0.175	I	50	E
Barium	- -		- -		- -		2000	E
Beryllium	- -		- -		1.17	I	4	E
Cadmium*	6.7	I	1.6	I	60	+	5	E
Calcium	- -		- -		- -		- -	
Chromium	16	I	11	I	3389	+	100	E
Cobalt	- -		- -		- -		- -	
Copper* (2)	28	I	18	I	- -		1300	E
Cyanide	22	I	5.2	I	24242	+	200	E
Iron	1000	E	- -		- -		- -	
Lead* (2)	150	I	5 8	I	51	+	15	E
Magnesium	- -		- -		- -		- -	
Manganese	- -		- -		- -		- -	
Mercury	2 4	I	0.012	I	0.15	I	2	E
Nickel*	2100	I	240	I	100	I	100	E
Potassium	- -		- -		- -		- -	
Selenium	130	I	25	I	- -		50	E
Silver*	9.2	I	0 12	E	- -		50	E
Sodium	- -		- -		- -		- -	
Thallium	- -		- -		48	I	2	E
Vanadium	11000	+	100	+	- -		- -	
Zinc*	175	I	160	I	- -		- -	
IDEM Parameters (mg/L)								
Ammonia, Total Unionized**	0.027	I	0 0029	I	- -		- -	
COD	- -		- -		- -		- -	
Chloride	860	I	230	I	- -		- -	
TSS	- -		- -		- -		- -	

Notes

*Acute and chronic criteria calculated based on worst-case hardness=161 mg/L
**Acute and chronic criteria calculated based on worst-case t=5C, pH=7.0
- - Criteria not developed
MCL - Maximum Contaminant Level (Updated per the Safe Drinking Water Act of 1986 and later revisions known as the Phase I, Phase II, and Phase V rules
Phase I became effective January 9, 1989, Phase II became effective in 1992, and Phase V became effective January 17, 1994)
Source of Data
E - U.S. EPA
I - IDEM (327 IAC 2)
+ - See section 6.2 of February 1990 report by Beak Consultants Limited Baseline Water Quality Conditions for discussion of sources for the criteria.
(1) The 1,2-Dichloroethene MCL standards are divided into cis-1,2-Dichloroethene at 70 ug/L and trans-1,2 Dichloroethene at 100 ug/L
(2) - The "MCL" value is an action level for lead and copper (i.e., the lead and copper rule) but it only applies to water supplies as measured at the household tap

TABLE 7: CALCULATED ACUTE AQUATIC CRITERIA AND CHRONIC AQUATIC CRITERIA FOR AMMONIA-NITROGEN, June 1995

Sample Matrix	Well Number	pH	Temp (C)	Ammonia (mg/L) Total (mg/L)	Ammonia (mg/L) Un-ionized (mg/L)*	Calculated Ammonia Un-ionized Criteria(mg/L)** AAC	Calculated Ammonia Un-ionized Criteria(mg/L)** CAC	Criteria Exceeded AAC	Criteria Exceeded CAC
Groundwater	MB-1	7.1	13.0	NR	--	--	--	--	--
	MB-2	6.8	14.0	NR	--	--	--	--	--
	MB-3	6.9	15.0	NR	--	--	--	--	--
	MB-4	7.3	17.0	0.98	0.006	0.096	0.0133	No	No
	MB-5	7.8	16.0	0.5 U	--	--	--	--	--
	MB-6	8.3	15.0	0.5 U	--	--	--	--	--
	MB-7	8.2	15.0	5.9	0.245	0.163	0.0918	No	Yes
	MB-8	8.4	15.0	0.7	0.045	0.171	0.1454	No	No
	MB-9	8.8	14.0	0.5 U	--	--	--	--	--
	MB-10	7.4	14.0	0.5 U	--	--	--	--	--
	Duplicate ++	7.3	17.0	1.4	0.009	0.096	0.0133	No	No

Notes:

* - Values calculated according to the Indiana Register(1990)

** - Calculated according to the USEPA Quality Criteria for Water, 1986 EPA 440/5-86-001

AAC - Acute Aquatic Criteria; CAC Chronic Aquatic Criteria

++ - Duplicate sample collected from monitoring well MB-4

NR - Not Requested. These samples were lost by the Laboratory. When the samples were located, they were too far outside of holding times to warrant analysis.

TABLE 8: SAMPLING LOCATIONS EXCEEDING APPLICABLE WATER QUALITY CRITERIA, JUNE 1995

Parameter	Matrix	Sample Location	Monitoring Well Zone	Sample Concentration (mg/L)	Criterion Exceeded	Criterion Concentration (mg/L)	Source	Average Concentration Of Zone (mg/L)	Exceeds Criterion	Concentration After Mixing (mg /L)	Exceeds Criterion
Indicator Parameters											
Un-ionized Ammonia (mg/L)	Groundwater	MB-7	III	0.245	CAC	0.0918	E	0.1450	Yes	0.000081	No

Notes:

AAC - Acute Aquatic Criteria

CAC - Chronic Aquatic Criteria

TABLE 6-1: WATER QUALITY CRITERIA - UPDATED

Parameter	Acute Aquatic Criteria		Chronic Aquatic Criteria		Human Health		MCL	
TCL Volatiles (ug/L)								
Acetone	10000	+	222	+	- -		- -	
Benzene	5300	E	118	+	400	I	5	E
Chlorobenzene	1950	+	50	E	2026	+	- -	
1,2-Dichloroethene (total) (1)	- -		- -		- -		70 and 100	E
Methylene Chloride	193000	E	4289	+	157	E	- -	
Toluene	17500	E	389	+	424000	I	1000	E
Trichloroethane	45000	E	21900	E	807	I	5	E
Vinyl Chloride	- -		- -		5246	I	2	E
TCL Semivolatiles (ug/L)								
Phenol	10200	E	2560	E	3500	E	- -	
Phthalate Esters	940	E	3	E	50000	I	- -	
TAL Metals and Cyanide (ug/L)								
Aluminum	- -		- -		- -		- -	
Antimony	- -		- -		45000	I	6	E
Arsenic	360	I	190	I	0.175	I	50	E
Barium	- -		- -		- -		2000	E
Beryllium	- -		- -		1.17	I	4	E
Cadmium*	6.7	I	1.6	I	60	+	5	E
Calcium	- -		- -		- -		- -	
Chromium	16	I	11	I	3389	+	100	E
Cobalt	- -		- -		- -		- -	
Copper* (2)	28	I	18	I	- -		1300	E
Cyanide	22	I	5.2	I	24242	+	200	E
Iron	1000	E	- -		- -		- -	
Lead* (2)	150	I	5.8	I	51	+	15	E
Magnesium	- -		- -		- -		- -	
Manganese	- -		- -		- -		- -	
Mercury	2.4	I	0.012	I	0.15	I	2	E
Nickel*	2100	I	240	I	100	I	100	E
Potassium	- -		- -		- -		- -	
Selenium	130	I	25	I	- -		50	E
Silver*	9.2	I	0.12	E	- -		50	E
Sodium	- -		- -		- -		- -	
Thallium	- -		- -		48	I	2	E
Vanadium	11000	+	100	+	- -		- -	
Zinc*	175	I	160	I	- -		- -	
IDEM Parameters (mg/L)								
Ammonia, Total Unionized**	0.027	I	0.0029	I	- -		- -	
COD	- -		- -		- -		- -	
Chloride	860	I	230	I	- -		- -	
TSS	- -		- -		- -		- -	

Notes

*Acute and chronic criteria calculated based on worst-case hardness=161 mg/L
**Acute and chronic criteria calculated based on worst-case t=5C, pH=7.0
- - Criteria not developed
MCL - Maximum Contaminant Level (Updated per the Safe Drinking Water Act of 1986 and later revisions known as the Phase I, Phase II, and Phase V rules
Phase I became effective January 9, 1989, Phase II became effective in 1992, and Phase V became effective January 17, 1994)
Source of Data
E - U.S. EPA
I - IDEM (327 IAC 2)
+ - See section 6.2 of February 1990 report by Beak Consultants Limited Baseline Water Quality Conditions for discussion of sources for the criteria
(1) The 1,2-Dichloroethene MCL standards are divided into cis-1,2-Dichloroethene at 70 ug/L and trans-1,2 Dichloroethene at 100 ug/L
(2) - The "MCL" value is an action level for lead and copper (i.e., the lead and copper rule) but it only applies to water supplies as measured at the household tap

- No change in the groundwater flow direction was observed;

- No methane was detected at any site monitoring locations;

- All groundwater analytical data are within range of measured historical concentrations.

- Ammonia-nitrogen was detected in on-site monitoring wells MB-2, MB -3, MB -5, MB -6 and MB-7. The calculated un-ionized ammonia-nitrogen concentrations exceeded chronic aquatic criteria (CAC), but were calculated to be significantly below criteria after mixing with the river water; and

- TCL volatiles trichloroethene 1,2-dichloroethene (total), vinyl chloride and TAL metals arsenic, cadmium, chromium, copper, iron, lead, silver, and zinc were detected in on-site monitoring wells at concentrations which exceeded water quality criteria. Total arsenic from monitoring zone II (wells MB-5 and MB-6) were calculated to exceed the applicable water quality criteria after mixing with the river water except for. All other monitoring wells were below the applicable criteria after mixing calculation was applied.

TABLE 8: WATER QUALITY CRITERIA - UPDATED

Parameter	Acute Aquatic Criteria		Chronic Aquatic Criteria		Human Health		MCL	
TCL Volatiles (ug/L)								
Acetone	10000	+	222	+	- -		- -	
Benzene	5300	E	118	+	400	I	5	E
Chlorobenzene	1950	+	50	E	2026	+	- -	
1,2-Dichloroethene (total) (1)	- -		- -		- -		70 and 100	E
Methylene Chloride	193000	E	4289	+	157	E	- -	
Toluene	17500	E	389	+	424000	I	1000	E
Trichloroethane	45000	E	21900	E	807	I	5	E
Vinyl Chloride	- -		- -		5246	I	2	E
TCL Semivolatiles (ug/L)								
Phenol	10200	E	2560	E	3500	E	- -	
Phthalate Esters	940	E	3	E	50000	I	- -	
TAL Metals and Cyanide (ug/L)								
Aluminum	- -		- -		- -		- -	
Antimony	- -		- -		45000	I	6	E
Arsenic	360	I	190	I	0.175	I	50	E
Barium	- -		- -		- -		2000	E
Beryllium	- -		- -		1.17	I	4	E
Cadmium*	6.7	I	1.6	I	60	+	5	E
Calcium	- -		- -		- -		- -	
Chromium	16	I	11	I	3389	+	100	E
Cobalt	- -		- -		- -		- -	
Copper* (2)	28	I	18	I	- -		1300	E
Cyanide	22	I	5.2	I	24242	+	200	E
Iron	1000	E	- -		- -		- -	
Lead* (2)	150	I	5.8	I	51	+	15	E
Magnesium	- -		- -		- -		- -	
Manganese	- -		- -		- -		- -	
Mercury	2.4	I	0.012	I	0.15	I	2	E
Nickel*	2100	I	240	I	100	I	100	E
Potassium	- -		- -		- -		- -	
Selenium	130	I	25	I	- -		50	E
Silver*	9.2	I	0.12	E	- -		50	E
Sodium	- -		- -		- -		- -	
Thallium	- -		- -		48	I	2	E
Vanadium	11000	+	100	+	- -		- -	
Zinc*	175	I	160	I	- -		- -	
IDEM Parameters (mg/L)								
Ammonia, Total Unionized**	0.027	I	0.0029	I	- -		- -	
COD	- -		- -		- -		- -	
Chloride	860	I	230	I	- -		- -	
TSS	- -		- -		- -		- -	

Notes:

*Acute and chronic criteria calculated based on worst-case hardness=161 mg/L
**Acute and chronic criteria calculated based on worst-case t=5C, pH=7.0
- - Criteria not developed
MCL - Maximum Contaminant Level (Updated per the Safe Drinking Water Act of 1986 and later revisions known as the Phase I, Phase II, and Phase V rules. Phase I became effective January 9, 1989, Phase II became effective in 1992, and Phase V became effective January 17, 1994.)
Source of Data
E - U.S. EPA
I - IDEM (327 IAC 2)
+ - See section 6.2 of February 1990 report by Beak Consultants Limited Baseline Water Quality Conditions for discussion of sources for the criteria.
(1) The 1,2-Dichloroethene MCL standards are divided into cis-1,2-Dichloroethene at 70 ug/L and trans-1,2 Dichloroethene at 100 ug/L.
(2) - The "MCL" value is an action level for lead and copper (i.e., the lead and copper rule) but it only applies to water supplies as measured at the household tap.

TABLE 9: CALCULATED ACUTE AQUATIC CRITERIA AND CHRONIC AQUATIC CRITERIA FOR AMMONIA-NITROGEN, September 1995

Sample Matrix	Well Number	pH	Temp (C)	Ammonia Total (mg/L)	Calculated Ammonia Un-ionized (mg/L)*	Calculated Un-ionized Ammonia Criteria (mg/L)** AAC	CAC	Criteria Exceeded AAC	CAC
Ground Water	MB-1	7.3	14.0	0.5 U	0.001	–	–	–	–
	MB-2	6.9	14.5	8.4	0.018	0.044	0.0044 *	No	Yes
	MB-3	7.1	15.2	5.3	0.018	0.064	0.0074	No	Yes
	MB-4	7.4	15.6	1.3	0.009	0.098	0.0152	No	No
	MB-5	7.1	16.1	0.5 U	0.001	–	–	–	–
	MB-6	7	15.7	3.2	0.009	0.056	0.0061	No	Yes
	MB-7	7.1	16.1	3.9	0.015	0.068	0.0079	No	Yes
	MB-8	7.4	15.1	0.5 U	0.002	–	–	–	–
	MB-9	7.5	15.2	0.5 U	–	–	–	–	–
	MB-10	7.3	15.8	0.5 U	–	–	–	–	–
	Duplicate++	7.4	15.6	0.5 U	–	–	–	–	–
Pond Water(1)	Off-site (D)	8.3	23.4	0.5 U	–	–	–	–	–
	Off-site (S)	8.3	23.4	0.5 U	–	–	–	–	–
	On-site (D)	8.3	22.2	0.5 U	–	–	–	–	–
	On-site (S)	8.3	22.2	0.5 U	–	–	–	–	–
Surface Water (2)	SW-1	8.3	18.2	0.5 U	–	–	–	–	–
	SW-2	8.3	18.2	2.0	0.13	0.209	0.1441	No	No
	SW-3	8.3	18.2	0.5 U	–	–	–	–	–
	SW-4	8.3	18.2	0.5 U	–	–	–	–	–
	SW-5	8.3	18.2	0.5 U	–	–	–	–	–
	SW-6	8.3	18.2	0.5 U	–	–	–	–	–
	Duplicate+	8.3	18.2	0.5 U	–	–	–	–	–

Notes:

(1) Pond water pH and temperature readings were obtained at only the shallow pond sampling location. Shallow pond pH and temper
Shallow pond pH and temperature readings were used to calculate AAC ans CAC for the deep pond sample location, if ammonia was detected.

(2) Surface water pH and temperature readings were obtained at only the SW-4 sampling location. "
SW-4 pH and temperature readings were used to calculate AAC ans CAC for SW sample locations, if ammonia was detected.

* - Values calculated according to the Indiana Register (1990) (Used 1/2 detection limit to calculate union. ammonia for values less than detection limits)

** - Calculated according to the USEPA Quality Criteria for Water, 1986 EPA 440/5-86-001

++ - Sample taken from monitoring well MB-4

\+ - Sample taken from surface water sample location SW-4.

AAC - Acute Aquatic Criteria; CAC Chronic Aquatic Criteria

NR - No Reading

TABLE 10: ACUTE AQUATIC CRITERIA AND CHRONIC AQUATIC CRITERIA FOR TAL METALS CONCENTRATIONS DEPENDENT ON HARDNESS, SEPTEMBER 1995

Sample Matrix	Sample Location	Hardness (mg/L)	Calcium (mg/L)	Magnesium (mg/L)	Cadmium (ug/L) Sample Conc.**		AAC*	CAC*	Chromium (ug/L) Sample Conc.**		AAC*	CAC*	Copper (ug/L) Sample Conc.**		AAC*	CAC*	Lead (ug/L) Sample Conc.**		AAC*	CAC*	Nickel (ug/L) Sample Conc.**		AAC*	CAC*	Silver (ug/L) Sample Conc.**		AAC*	CAC(1)	Zinc (ug/L) Sample Conc.**		AAC*	CAC*
Dissolved Metals																																
Ground Water	MB-1	349.7	96.1	26.6	0.50	U	16	3	0.70	UJ	4842	577	0.96	UJ	58	34	1.6	U	402	16	2.4	U	4090	455	0.60	U	17		7.8	UJ	338	306
	MB-2	346.8	96.1	25.9	0.50	U	16	3	0.70	UJ	4809	573	1.0	UJ	57	34	1.6	U	398	15	2.4	U	4062	452	0.60	U	17		1.5	UJ	336	304
	MB-3	300.3	80.3	24.2	0.50	U	14	3	0.70	U	4274	509	1.9	U	50	30	1.6	U	331	13	2.4	U	3596	400	0.60	U	13		1.2	UJ	297	269
	MB-4	212.0	45.8	23.7	0.50	U	9	2	0.70	UJ	3214	363	0.70	UJ	36	22	1.6	U	213	8	2.4	U	2678	298	0.60	U	7		1.2	UJ	221	200
	MB-5	394.3	108.0	30.2	0.50	U	18	3	0.70	U	5341	637	0.50	U	65	38	1.6	U	468	18	12.4	J	4527	503	0.60	U	21		1.2	UJ	374	339
	MB-6	292.0	75.8	24.9	0.50	U	13	3	0.70	U	4178	498	2.6	U	49	30	1.6	U	319	12	3.9	J	3511	390	0.60	U	13		10.0	UJ	290	263
	MB-7	348.1	80.0	36.0	0.50	U	16	3	0.70	U	4624	575	0.60	U	57	34	1.6	U	400	16	2.4	U	4075	453	0.60	U	17		1.2	UJ	337	305
	MB-8	319.4	52.2	45.9	0.50	U	15	3	0.72	J	4495	536	1.1	U	53	32	1.6	U	358	14	3.2	J	3788	421	0.60	U	15		1.2	UJ	313	284
	MB-9	222.0	57.7	18.9	0.50	U	10	2	0.70	U	3337	398	1.9	U	36	23	1.6	U	225	9	2.4	U	2765	310	0.60	U	8		1.2	UJ	230	208
	MB-10	400.9	109.0	31.2	0.50	U	19	3	0.70	U	5415	645	0.50	U	66	39	1.6	U	478	19	2.4	U	4591	510	0.60	U	22		12.0	UJ	380	344
	Duplicate +	220.5	47.7	24.6	0.50	U	10	2	0.87	UJ	3318	396	0.87	UJ	37	23	1.6	U	223	9	2.4	U	2769	308	0.60	U	8		1.2	UJ	229	207
Pond Water	Off-site (D)	193.0	37.7	24.0	0.50	U	8	2	0.70	U	2978	355	0.50	U	33	21	1.6	U	189	7	2.4	U	2474	275	0.60	U	6		1.6	UJ	204	185
	Off-site (S)	191.4	37.2	23.9	0.50	U	8	2	0.70	U	2955	352	0.50	U	33	21	1.6	U	187	7	2.4	U	2456	273	0.60	U	6		2.1	UJ	203	184
	On-site (D)	210.6	39.2	27.4	0.50	U	9	2	0.70	U	3198	381	0.85	U	36	22	1.6	U	211	8	2.6	J	2665	296	0.60	U	7		1.2	UJ	220	199
	On-site (S)	211.1	38.5	27.9	0.50	U	9	2	0.70	U	3202	382	0.50	U	36	22	1.6	U	211	8	2.4	U	2666	297	0.60	U	7		1.2	UJ	220	200
Surface Water	SW-1	331.6	78.0	33.2	0.50	U	15	3	0.84	J	4635	553	3.1		55	33	1.6	U	376	15	2.6	J	3910	435	0.60	U	16		1.2	UJ	323	293
	SW-2	304.4	71.4	30.6	0.50	U	14	3	0.70	U	4322	515	4.5	J	51	31	1.6	U	337	13	3.5	J	3637	404	0.60	U	14		9.6	J	301	272
	SW-3	288.0	67.0	28.8	0.50	U	13	3	0.70	U	4106	489	2.8		48	29	1.6	U	311	12	2.4	U	3450	384	0.60	U	12		2.7	J	285	258
	SW-4	297.0	69.6	29.9	0.50	U	13	3	0.70	U	4236	505	4.1		49	30	1.6	U	326	13	4.9	U	3563	396	0.60	U	13		1.2	UJ	294	267
	SW-5	295.1	69.3	29.6	0.50	U	13	3	0.70	U	4212	502	2.5		49	30	1.6	U	324	13	3.0	J	3542	394	0.60	U	13		3.0	J	293	265
	SW-6	429.2	105.0	40.5	0.50	U	20	4	0.70	U	5725	682	0.68	J	70	41	1.6	U	522	20	2.4	U	4864	541	0.60	U	25		1.2	UJ	402	364
	Duplicate**	328.0	78.4	32.8	0.50	U	15	3	0.70	U	4571	545	2.5		54	32	1.6	U	367	14	3.5	U	3854	428	0.60	U	15		1.2	UJ	318	288
Total Metals																																
Ground Water	MB-1	368.0	100.0	28.2	0.50	J	17	3	2.70		5026	599	7.8		60	36	3.6	J	426	17	6.8		4251	473	0.60	U	19		48.9		351	318
	MB-2	361.9	100.0	27.2	0.50	J	17	3	2.00		4980	594	3.9	U	60	35	1.7	J	420	16	12.2		4211	468	0.60	U	19		26.0		348	315
	MB-3	406.7	109.0	32.6	0.50	UJ	19	3	3.30	J	5476	653	7.2		66	39	4.4	J	467	19	6.7		4647	517	0.60	U	23		R		384	348
	MB-4	247.5	53.4	27.7	0.50	J	11	2	0.99	U	3648	435	0.99	U	42	26	1.6	U	259	10	2.6	U	3053	339	0.60	U	10		4.6	UJ	252	228
	MB-5	295.5	76.4	25.4	121	J	13	3	1420	J	4218	503	2.6		49	30	69.5	J	324	13	2.9		3547	394	48.3		13		8.9	J	293	265
	MB-6	369.0	101.0	28.3	0.50	J	17	3	0.85	J	5059	603	3.5		61	36	1.6	UJ	430	17	13.5	J	4280	476	0.60	U	19		8.5	J	354	320
	MB-7	346.7	79.6	35.9	0.50	UJ	16	3	0.80	J	4808	573	2.6		57	34	1.6	UJ	398	15	2.4	UJ	4061	451	0.60	U	17		2.9	J	336	304
	MB-8	346.7	61.6	46.7	0.50	UJ	16	3	4.70	J	4807	573	13.0		57	34	14.1	J	397	15	7.6	J	4060	451	0.60	U	17		R		336	304
	MB-9	428.8	107.0	39.2	0.59	J	20	4	29.8	J	5721	682	98.6		70	41	38.0	J	521	20	39.7	J	4880	540	0.60	U	25		R		402	364
	MB-10	771.2	199.0	66.5	0.50	UJ	39	6	20.1	J	9252	1103	53.5		121	68	34.1	J	1100	43	45.4	J	7985	888	0.60	U	68		R		661	596
	Duplicate +	240.9	51.9	27.0	0.50	J	11	2	0.70	U	3567	425	0.50	U	41	25	1.6	U	250	10	2.4	U	2983	332	0.60	U	9		1.8	UJ	248	223
Pond Water	Off-site (D)	188.8	36.6	23.1	0.50	UJ	8	2	0.70	UJ	2894	345	2.3	U	32	20	1.6	UJ	181	7	2.4	UJ	2404	267	0.60	U	6		7.8	J	198	180
	Off-site (S)	180.3	34.9	22.6	0.50	UJ	8	2	0.70	UJ	2814	335	2.5		31	20	1.6	UJ	173	7	2.4	UJ	2335	260	0.60	U	6		1.2	UJ	193	175
	On-site (D)	200.1	37.9	25.6	0.50	UJ	9	2	0.76	J	3065	365	2.2	U	34	21	1.6	UJ	197	8	3.0	J	2550	284	0.60	U	7		11.6	J	211	191
	On-site (S)	194.3	35.9	25.4	0.50	UJ	8	2	1.0	J	2992	357	2.5		33	21	1.6	UJ	190	7	2.8	J	2487	277	0.60	U	6		R		205	186
Surface Water	SW-1	293.2	69.2	29.2	0.50	UJ	13	3	1.2	J	4190	499	3.5	U	49	30	8.0	J	321	13	2.5	J	3523	392	0.60	U	13		4.9	J	291	264
	SW-2	296.4	70.0	29.5	0.50	UJ	13	3	1.2	J	4228	504	3.9	J	49	30	1.6	UJ	326	13	2.7	J	3556	395	0.60	U	13		10.7	J	294	266
	SW-3	304.1	72.1	30.1	0.50	UJ	14	3	1.3	J	4318	515	3.4	U	51	31	1.6	UJ	336	13	3	J	3634	404	0.60	U	14		4.7	J	300	272
	SW-4	335.8	79.5	33.3	0.50	UJ	15	3	1.7	J	4683	558	5.1		55	33	1.6	UJ	382	15	6.6	J	3952	439	0.60	U	16		R		327	296
	SW-5	399.9	97.9	37.7	0.50	UJ	19	3	0.70	UJ	5403	644	2.0	U	65	39	1.6	UJ	170	7	2.4	J	2313	257	0.60	U	5		R		191	174
	SW-6	302.5	71.3	30.2	0.50	UJ	14	3	1.5	J	4300	512	8.0		50	30	1.6	UJ	255	10	2.4	UJ	3024	336	0.60	U	9		1.2	UJ	250	226
	Duplicate**	304.6	71.8	30.4	0.50	UJ	14	3	1.5	J	4324	515	4.3		51	31	3.0	UJ	337	13	3.3	J	3639	405	0.60	U	14		R		301	272

* - Values calculated according to the Indiana Register(1990)

** - Sample concentrations are ug/L (ppb)

AAC - Acute Aquatic Criteria

CAC - Chronic Aquatic Criteria

\+ -Duplicate sample collected from monitoring well MB-4.

** -Duplicate sample collected from sampling location SW-4.

(1) - No standard for CAC presented in water quality criteria for specific substances.

TABLE 11: SAMPLING LOCATIONS EXCEEDING APPLICABLE WATER QUALITY CRITERIA, SEPTEMBER, 1995

Parameter	Matrix	Sample Location	Monitoring Well Zone	Sample Concentration (ug/L)	Criterion Exceeded	Criterion Concentration (ug/L)	Source	Average Concentration Of Zone (ug/L)	Exceeds Criterion	Concentration After Mixing (ug /L)	Exceeds Criterion
TCL Volatiles (ug/L)											
Trichloroethene	Groundwater	MB-1	I	36	MCL	5	E	13	Yes	0.01	No
1,2-Dichloroethene(total)	Groundwater	MB-1	I	110	MCL	70	E	31	No	–	–
Vinyl chloride	Groundwater	MB-1	I	5 J	MCL	2	E	5	Yes	0.003	No
TAL Total Metals											
Arsenic	Groundwater	MB-2	I	120	MCL	50	E	47.3	No	0.03	No
Arsenic	Groundwater	MB-5	II	1590 J	MCL	50	E	978	Yes	0.55	No
Arsenic	Groundwater	MB-6	II	365 J	MCL	50	E	978	Yes	0.55	No
Arsenic	Groundwater	MB-7	III	128 J	MCL	50	E	136	Yes	0.08	No
Arsenic	Groundwater	MB-8	III	143 J	MCL	50	E	136	Yes	0.08	No
Arsenic	Groundwater	MB-5	II	1590 J	AAC	360	I	978	Yes	0.55	No
Arsenic	Groundwater	MB-5	II	1590 J	CAC	190	I	978	Yes	0.55	No
Arsenic	Groundwater	MB-6	II	365 J	AAC	360	I	978	Yes	0.55	No
Arsenic	Groundwater	MB-6	II	365 J	CAC	190	I	978	Yes	0.55	No
Arsenic	Groundwater	MB-1	I	12.9	HH	0.175	I	47.3	Yes	0.03	No
Arsenic	Groundwater	MB-2	I	120	HH	0.175	I	47.3	Yes	0.03	No
Arsenic	Groundwater	MB-3	I	33.0 J	HH	0.175	I	47.3	Yes	0.03	No
Arsenic	Groundwater	MB-4	I	23.1	HH	0.175	I	47.3	Yes	0.03	No
Arsenic	Groundwater	MB-5	II	1590 J	HH	0.175	I	978	Yes	0.55	Yes
Arsenic	Groundwater	MB-6	II	365 J	HH	0.175	I	978	Yes	0.55	Yes
Arsenic	Groundwater	MB-7	III	128 J	HH	0.175	I	136	Yes	0.08	No
Arsenic	Groundwater	MB-8	III	143 J	HH	0.175	I	136	Yes	0.08	No
Arsenic	Groundwater	MB-9	NA	45.7 J	HH	0.175	I	NA	–	–	–
Arsenic	Groundwater	MB-10	NA	37.3 J	HH	0.175	I	NA	–	–	–
Arsenic	Groundwater	Duplicate	I	20.3	HH	0.175	I	47.3	Yes	0.03	No
Arsenic	Surface Water	SW-3	NA	2.9 J	HH	0.175	I	NA	–	–	–
Cadmium	Groundwater	MB-5	II	121 J	MCL	5	E	61	Yes	0.03	No
Cadmium	Groundwater	MB-5	II	121 J	HH	60	+	61	Yes	0.03	No
Cadmium	Groundwater	MB-5	II	121 J	AAC	13	I	61	Yes	0.03	No
Cadmium	Groundwater	MB-5	II	121 J	CAC	3	I	61	Yes	0.03	No
Chromium	Groundwater	MB-5	II	1420 J	MCL	100	E	61	No	–	–
Chromium	Groundwater	MB-5	II	1420 J	CAC	503	I	61	No	–	–
Copper	Groundwater	MB-9	NA	98.6	AAC	70	I	NA	–	–	–
Copper	Groundwater	MB-9	NA	98.6	CAC	41	I	NA	–	–	–
Iron	Groundwater	MB-1	I	4670 J	AAC	1000	E	11463	Yes	6	No
Iron	Groundwater	MB-2	I	24200 J	AAC	1000	E	11463	Yes	6	No
Iron	Groundwater	MB-3	I	12300 J	AAC	1000	E	11463	Yes	6	No
Iron	Groundwater	MB-4	I	4660 J	AAC	1000	E	11463	Yes	6	No
Iron	Groundwater	MB-6	II	17900 J	AAC	1000	E	17900	Yes	10	No
Iron	Groundwater	MB-7	III	10000 J	AAC	1000	E	9675	Yes	5	No
Iron	Groundwater	MB-8	III	9350 J	AAC	1000	E	9675	Yes	5	No
Iron	Groundwater	MB-9	NA	37500 J	AAC	1000	E	NA	–	–	–
Iron	Groundwater	MB-10	NA	66800 J	AAC	1000	E	NA	–	–	–
Iron	Groundwater	Duplicate	I	4510 J	AAC	1000	E	11463	Yes	6	No
Lead	Groundwater	MB-5	II	89.5 J	HH	51	+	45.2	No	–	–
Lead	Groundwater	MB-5	II	89.5 J	CAC	13	I	45.2	Yes	0.03	No
Lead	Groundwater	MB-9	NA	38.0 J	CAC	20	I	NA	–	–	–
Silver	Groundwater	MB-5	II	48.3	AAC	13	I	24.3	Yes	0.01	No
Silver	Groundwater	MB-5	II	48.3	CAC	0.12	E	24.3	Yes	0.01	No

TABLE 11: SAMPLING LOCATIONS EXCEEDING APPLICABLE WATER QUALITY CRITERIA, SEPTEMBER, 1996

Parameter	Matrix	Sample Location	Monitoring Well Zone	Sample Concentration (ug/L)	Criterion Exceeded	Criterion Concentration (ug/L)	Source	Average Concentration Of Zone (ug/L)	Exceeds Criterion	Concentration After Mixing (ug/L)	Exceeds Criterion
TAL Dissolved Metals											
Arsenic	Groundwater	MB-2	I	91.9	MCL	50	E	35.6	No	–	–
Arsenic	Groundwater	MB-5	II	173	MCL	50	E	95.0	Yes	0.05	No
Arsenic	Groundwater	MB-7	III	120	MCL	50	E	120	Yes	0.07	No
Arsenic	Groundwater	MB-8	III	120	MCL	50	E	120	Yes	0.07	No
Arsenic	Groundwater	MB-1	I	7.7	HH	0.175	I	35.6	Yes	0.02	No
Arsenic	Groundwater	MB-2	I	91.9	HH	0.175	I	35.6	Yes	0.02	No
Arsenic	Groundwater	MB-3	I	27.7	HH	0.175	I	35.6	Yes	0.02	No
Arsenic	Groundwater	MB-4	I	15.1	HH	0.175	I	35.6	Yes	0.02	No
Arsenic	Groundwater	MB-5	II	173	HH	0.175	I	95.0	Yes	0.05	No
Arsenic	Groundwater	MB-6	II	16.9	HH	0.175	I	95.0	Yes	0.05	No
Arsenic	Groundwater	MB-7	III	120	HH	0.175	I	120	Yes	0.07	No
Arsenic	Groundwater	MB-8	III	120	HH	0.175	I	120	Yes	0.07	No
Arsenic	Groundwater	MB-9	NA	5.6	HH	0.175	I	NA	–	–	–
Arsenic	Groundwater	Duplicate	I	17.6	HH	0.175	I	35.6	Yes	0.02	No
Iron	Groundwater	MB-1	I	1710	AAC	1000	E	7193	Yes	4	No
Iron	Groundwater	MB-2	I	14000	AAC	1000	E	7193	Yes	4	No
Iron	Groundwater	MB-3	I	9400	AAC	1000	E	7193	Yes	4	No
Iron	Groundwater	MB-4	I	3660	AAC	1000	E	7193	Yes	4	No
Iron	Groundwater	MB-6	II	4170	AAC	1000	E	2087	Yes	1	No
Iron	Groundwater	MB-7	III	9520	AAC	1000	E	7200	Yes	4	No
Iron	Groundwater	MB-8	III	4880	AAC	1000	E	7200	Yes	4	No
Iron	Groundwater	MB-9	NA	1570	AAC	1000	E	NA	–	–	–
Iron	Groundwater	Duplicate	I	3850	AAC	1000	E	7193	Yes	4	No
				(mg/L)		(mg/L)		(mg/L)		(mg/L)	
Indicator Parameters	Groundwater	MB-2	I	0.018	CAC	0.0044	E	0.012	Yes	0.00001	No
Unionized	Groundwater	MB-3	I	0.018	CAC	0.0074	E	0.012	Yes	0.00001	No
Ammonia (mg/L)	Groundwater	MB-6	II	0.009	CAC	0.0061	E	0.005	No	–	–
	Groundwater	MB-7	II	0.015	CAC	0.0079	E	0.009	Yes	0.000005	No

Notes:

AAC - Acute Aquatic Criteria
CAC - Chronic Aquatic Criteria
Duplicate - Sample collected for on-site monitoring well MB-4.
- Proposed