FLUOR DANIEL FERNALD
P.O. Box 538704 Cincinnati, Ohio 45253-8704 (513) 648-3000

December 10, 1999

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Fernald Environmental Management Project

Letter No. C: C:SWP:99-0048

Ohio Environmental Protection Agency
Lazarus Government Center
Attention: Division of Surface Water
Permits Processing Unit
122 South Front Street
P.O. Box 1049
1800 WaterMark Drive
Columbus, Ohio 43216-1049

Dear Gentlemen:

COMMENTS ON THE PROPOSED NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT FOR THE FERNALD ENVIRONMENTAL MANAGEMENT PROJECT (FEMP) - OEPA PERMIT NO. 1IO00004*FD - PUBLIC NOTICE NO. 99-11-029

Submitted for your consideration are Fluor Daniel Fernald's (FDF) and U.S. Department of Energy (USDOE) comments on the draft NPDES Permit. FDF is the operating contractor for the USDOE at the Fernald Environmental Management Project.

As a Comprehensive Environmental Response Compensation and Liability Act (CERCLA) remediation site, FDF and USDOE are committed to conducting remediation activities in a manner protective of human health and the environment. It is our desire that all effluent limits, monitoring requirements, and conditions that are eventually established serve to meet OEPA water quality objectives, be conducted in a cost effective, value-added manner, and be aligned with our existing environmental monitoring activities established under CERCLA.

We wish to thank Mr. Raj Chakarbarti for his cooperation and willingness to discuss and consider our concerns throughout this permitting process. Please contact Mr. Frank Johnston of my staff at (513) 648-5294 with any questions relative to the attached comments.

Sincerely,

Dennis J. Carr, Vice President
Soil & Water Projects

DJC:FLJ
Enclosure

c: Dave Brettschneider, FDF, MS52-5
Mark Cherry, FDF, MS12
Terry Hagen, FDF, MS65-2
Ev Henry, FDF, MS52-5
Bill Hertel, FDF, MS52-5
Rob Janke, DOE-FEMP, MS45
Frank Johnston, FDF, MS52-2
Marlene Landrum, FDF, MS52-5
Amy Meyer, FDF, MS35
OEPA, Southwest District Office, Division of Surface Water
Diane Rayer, FDF, MS78
Johnny Reising, DOE-FEMP, MS45
Ed Skintik, DOE-FEMP, MS45
Cindy Tabor, FDF, MS90
Tom Walsh, FDF, MS65-2

Project Number 52700

The following comments are listed by outfall:

Outfall 4001:

1. The concentration limits for CBOD and TSS have been proposed by carrying forward the existing mass limits from the existing permit and dividing these by the new flow rate of 6.173 MGD. Based on our interpretation of the anti-degradation rule, CBOD and TSS are not regulated pollutants per OAC 3745-1-05(A)(20) and need not be subject to antidegradation. We request that existing concentration limits (CBOD 20 & 30; TSS 30 & 45) be continued at Outfall 4001 and the corresponding mass limitation be based on these concentrations.

2. We request a specific condition that relieves the FEMP from the TSS concentration and mass limits during periods of storm water bypassing. Past data (reported in the DMR's) indicate the FEMP cannot comply with these limits when bypassing storm water directly from the Storm Water Retention Basin to Outfall 4001. Per agreements with OEPA and USEPA, formalized in the Operable Unit 5 Record of Decision, and implemented through the *Operations and Maintenance Master Plan for the Aquifer Restoration and Wastewater Project*, the FEMP is allowed to bypass storm water in this manner for a total of 10 days annually. All parties acknowledge that the bypassing of storm water is preferred over allowing the SWRB to overflow to Paddys Run (via Outfall 4002). This strategy serves a net environmental benefit; therefore, the FEMP should not be penalized for noncompliance during these periods of bypassing provided it is conducted consistent with our agreements with OEPA and USEPA. The following language is suggested for Part II, Other Requirements:

   "H. Provided the permittee implements storm water bypassing consistent with the OEPA and USEPA approved Operations and Maintenance Master Plan for the Aquifer Restoration and Wastewater Project, exceeding the daily maximum limits for concentration and mass loading for TSS will not be considered a noncompliance. Data would continue to be reported on the Discharge Monitoring Report with a notation in the comments section of the report for the day(s) the bypass occurred".

3. The proposed limitation for Oil and Grease is set below our current method detection limit of 5.0 mg/l. We request that the existing concentration limit of 10 mg/l (average and maximum) be retained.

4. Establishing effluent limits and monitoring requirements are based on the methodologies in the Fact Sheet, whereby average and maximum preliminary effluent quality (PEQ) are compared with minimum and maximum preliminary effluent limits (PEL) to maintain water quality standards. The FEMP believes the PEQs used are too conservative. It appears OEPA is using the analytical data for the South Plume/Southfield Extraction data and OSDF Leachate data to establish average and maximum PEQs for each parameter. Using these concentrations is appropriate as an estimate to quantify these individual sources. However, the

FEMP believes it is necessary to recognize that these are only a part of the FEMP total discharge and consideration of the other waste streams that combine with these streams are in order. Further, it appears that the PEQs that are actually used in the comparison to PELs were taken exclusively from the OSDF Leachate data. The OSDF Leachate flow is less than one percent of the combined FEMP discharge on an average basis and less than five-percent on a maximum basis.

Attachment 1 provides an estimate of what we believe to be a more appropriate approximation of the maximum PEQ. The average PEQ, in our opinion should be the *Estimate of FEMP Effluent Quality Including Operable Unit 1 Waste Pits Remedial Action Project* listed in the August 31, 1998 Addendum to the NPDES Permit Renewal Application. Using this estimate of effluent quality is allowed by, and consistent with OAC 3745-2-04(D)(5). An estimate of maximum PEQs are also provided in Attachment 1 based on what we believe to be maximum conditions. We believe this is also consistent with OAC 3745-2-04(D)(5).

Attachment 1 includes a comparison of FEMP calculated average and maximum PEQs with those in the Fact Sheet and further compares these calculated PEQs to the OEPA established PELs per OEPA methodologies. Our evaluation leads us to believe that chromium, nickel, lead, zinc, trichloroethylene, and 1,1-dichloroethylene may be classified as Group 2 pollutants and cobalt may be classified as a Group 3 pollutant. As such, these seven pollutants are eligible to be eliminated from regulation in accordance with OEPA procedures for establishing effluent limits and monitoring requirements. Therefore, the FEMP requests that effluent limits and monitoring requirements for these seven parameters be eliminated from both the interim and final requirements for 4001 in the final permit.

5. Table 3 of the *Addendum to the Waste Load Allocation* in the Fact Sheet identifies that ammonia limits be established at 18 mg/l during the winter months and 3 mg/l during the summer months. The proposed permit establishes a monthly average of 3 mg/l for the entire year. We believe through adjusting our discharge strategies that we will be able to meet the limitation during the summer months but do not believe we can consistently meet the proposed limit for the entire year. The FEMP requests that the monthly average limitation for ammonia during winter months be established at 18 mg/l.

6. Sampling frequencies for oil and grease, ammonia-nitrogen, cobalt, manganese, dissolved oxygen, and CBOD are proposed at twice per week. The FEMP believes these frequencies may be appropriately set at once per week using OEPA sampling frequency formula; SF=AXBXC. We have used the following factors to arrive at a sampling frequency of 6 which equates to once per week per OEPA policy [OEPA Policy Number DSW-0100.020]. We request that once per week be established as the sampling frequency for these parameters.

Factor A (effluent flow factor) = 8
Basis: FEMP flow rate is greater than 5.0 MGD

Factor B (ratio of effluent flow to stream flow) = 1.5.
Basis: Proposed effluent flow is 9.6 cfs (6.173 MGD). The $Q_{7,10}$ flow is 583 cfs. This ratio is 0.016 equating to 1.5

Factor C (short time variability in flow rate) = 0.5.
Basis: The variability in flow rate at the FEMP is less than 20%. The majority of FEMP discharges are flow equalized and limited by treatment capacity, or in the case of groundwater, established by pump set point.

SF = A X B X C = (8)X(1.5)X(0.5) = 6

7. Monitoring for dioxin (2,3,7,8 TCDD) is proposed as monthly sampling. Dioxin is a very expensive analysis that must be done off-site. OEPA policy allows quarterly sampling for organic priority pollutants if "no significant problem is known or suspected, and the main purpose of the sampling is to confirm this" [OEPA Policy Number DSW-0100.020]. The FEMP has no reason to believe that this parameter is present in the effluent discharge. This parameter is usually present where incineration of municipal waste or manufacturing of certain herbicides have occurred. None of these processes were performed at the FEMP. We request that the sampling frequency be reduced to quarterly consistent with OEPA policy.

Outfall 4002:

8. Clarification is required on page 11 of the proposed permit relative to the description of this outfall. Outfall 4002 is the spillway from the Storm Water Retention Basin to Paddys Run. Discharge through this point occurs only when the hydraulic capacity of the Storm Water Retention Basin and bypass pumping to the Great Miami River is exceeded such that storm water overflows through this spillway. The terminology "bypass monitoring" should be replaced by "Storm Water Retention Basin Overflow to Paddys Run". Storm water bypassing at the FEMP has a specific connotation under the Operable Unit 5 Record of Decision and this change is necessary to ensure the difference between overflow and bypass is maintained. (See comment 2)

Outfalls 4003, 4004, 4005, and 4006:

9. These outfalls are storm water discharges into Paddys Run. They are points of discharge of uncontrolled storm water runoff associated with industrial activity. The existing permit contains a sampling frequency of twice per year. OEPA has proposed a sampling frequency of once per month for Outfalls 4003, 4004, and 4006 and once per day for Outfall 4005 (although based on conversations with OEPA staff in Columbus this daily sampling is likely an error and should have been proposed as once per month).

The FEMP is very concerned with the proposed increase in sampling frequency. We believe there is no current need to increase the sampling frequency based on current conditions within Paddys Run, no additional environmental benefit is gained

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from the increased sampling frequency, and the proposed increase in sampling frequency will result in an inefficient use of our current manpower. We believe that conditions at the FEMP have improved since 1995 due to implementing a variety of controls and eliminating pollutant sources through remediation making this increased frequency unwarranted.

Conversations with OEPA staff indicate a potential concern with some of the analytical detections reported in the Discharge Monitoring Reports. Attachments 2 through 6 include these data from the DMR's (December 1995 through June 1999) and corresponding graphs depicting the pattern of these analytical detections. Additionally, the statistical procedure "Mann-Kendall Test for Trend" has been performed on copper, lead, and silver showing either no trend or trending downward (below). This would indicate that current controls, monitoring, and data review are adequately controlling these constituents and additional monitoring is not justified.

Location	Constituent	Trend
4003	Copper	No Trend
	Lead	Down, Marginal
	Silver	No Trend
4004	Copper	No Trend
	Lead	Down, Marginal
	Silver	Down, Marginal
4005	Copper	No Trend
	Lead	No Trend
	Silver	No Trend
4006	Copper	Down, Marginal
	Lead	No Trend
	Silver	Down, Marginal

Consideration should also be given to the actual environmental quality within Paddys Run. The Fact Sheet indicates that the ICI and IBI indices actually improve comparing locations just upstream of the 4006 monitoring point to points under the influence of FEMP storm water discharges. The IBI just down stream of 4005 was also in attainment. OEPA's stated conclusion in the Fact Sheet states that "impacts to biological condition attributable to the FEMP site were not evident....[s]tream desiccation was the overriding influence on fish community degradation." The FEMP also routinely monitors the Sloans Crayfish (an OEPA threatened species) near Outfall 4006 and have found these populations to be thriving.

The FEMP implements an extensive environmental monitoring program through the *Integrated Environmental Monitoring Plan* (IEMP)(an OEPA and USEPA approved document). This program includes sampling a number of up gradient storm water

locations as well as points within Paddys Run. The results from these sampling efforts are reported quarterly to both OEPA and USEPA and are used to evaluate changing conditions that may warrant specific actions. By implementing the, we believe that the FEMP has the necessary proactive systems in place to evaluate our storm water discharges routinely and take appropriate actions as they are warranted. We believe the IEMP program provides the greatest environmental benefit and monitoring under the NPDES Permit should be for confirmation purposes only.

These discharge points are remote from the former production area and are spread along a 1.5 mile stretch of Paddys Run. Due to the nature of the drainage basins contributing to these outfalls, the flow is intermittent in nature and highly variable dependant on conditions within each watershed. Experience with sampling these points proves that it is extremely unpredictable when flow will actually occur. Conditions such as degree of soil saturation, duration between rainfall events, amount of rainfall, all hamper our ability to reliably sample these outfalls.

These conditions will force an expenditure of manpower for essentially every precipitation event. At the beginning of the month, our sampling crew would need to be ready to mobilize and inspect each outfall during any precipitation event. This coverage would be required until a sample could be collected. While the sampling frequency is proposed as monthly, our manpower would be expended continuously until a sample was collected. Safety issues become important due to the remote nature of these locations and the inherent danger in sampling during storm events. This increased coverage necessary to support monthly sampling increases the risk to sampling personnel.

The FEMP offered many of these same arguments during the negotiation of the permit in 1995 resulting in OEPA accepting our position and agreeing to twice per year sampling.

In summary, the FEMP believes the past data collected and the current conditions within Paddys Run do not warrant this increased sampling frequency. With no additional environmental benefit to be gained, the expenditure of the necessary manpower to support monthly sampling is not warranted. We request that the sampling frequencies at each of these four outfalls be established at twice per year as listed in our current permit.

Outfall 4601:

10: It appears the monitoring months for ammonia should be summer, not winter as proposed

Outfall 4589:

11. Both the existing permit and the proposed permit contains the condition allowing the removal of the sludge monitoring requirement should it be determined that

sludge from the sewage treatment plant be a low-level radioactive waste. The FEMP has determined that sewage sludge is in fact a low-level radioactive waste per US DOE guidelines. A classification as low-level waste is based upon the Economic Discard Limit. Waste below 0.720 percent U-235 and or less than ten-percent total uranium is considered below the Economic Discard Limit and classified and managed as low-level radioactive waste. All uranium residues in the STP sludge are below the Economic Discard Limit and are therefore, low-level radioactive waste per DOE Order 474.1.

After thickening, STP sludge is pumped to the AWWT-Slurry Dewatering Facility where it is conditioned, filtered through a plate and frame filter press, boxed, stored and managed as low level radioactive waste. STP sludge is used for no other purpose and will be dispositioned to either a DOE low-level waste repository or to another Permitted Disposal Facility. For these reasons, and as allowed by existing permit condition (as well as the proposed condition) the FEMP requests that sludge monitoring cease, proposed annual sludge reporting be eliminated, and the outfall be removed from the future NPDES Permit.

Outfall 4801:

12. The draft permit proposes monthly monitoring at this location. We request that this frequency be reduced to quarterly monitoring to be aligned with the FEMP IEMP relative to sampling frequency. Attachment 7 is a Table excerpted from the IEMP indicating the parameters already sampled on a quarterly basis.

Outfall 4902:

13. The draft permit proposes monthly monitoring at this location. We request that this frequency be reduced to quarterly monitoring to be aligned with the FEMP IEMP relative to sampling frequency.

General Comments:

14. The proposed schedule of compliance requires that the FEMP implement EPA Method 1631, Rev. B by January 1, 2000. It is doubtful the permit would be effective on this date, therefore the date would need to be changed.

The FEMP has researched this method and it's provisions and have determined that the FEMP does not have the capability to perform this method in our on-site laboratory. Beyond the actual analytical method, we have identified significant actions that must be undertaken to ensure the proper sampling techniques are implemented properly. Evaluations of automatic sampling devices, procurement of special sampling apparatus, additional training of sampling crews, assessing and revising the FEMP QA/QC program etc. leads us to believe that a significant amount of time will be required to adequately prepare just to collect mercury samples.

Further, our research with commercial laboratories with which we have a relationship indicates that this new analytical method has not been universally implemented. Not knowing the status of commercial laboratories having implemented method 1631, some period of time will be needed to either develop a method internally of contract with a commercial lab. These unknowns indicate a period of time after the effective date of the permit will be required to ensure proper sampling techniques are employed and the necessary contract with a commercial laboratory established. We recommend the following language be included in the schedule of compliance:

> "As soon as possible, but not later than three (3) months after the effective date of this permit, the entity shall initiate the required sampling for mercury."

There are no known sources of mercury at the FEMP. The extensive monitoring conducted during the CERCLA Remedial Investigation/Feasibility Study would confirm this assertion. As such, we believe the monitoring for mercury should be considered confirmatory. This, coupled with the inability to perform this new method on-site makes the three samples per week frequency to be exceedingly onerous with respect to data evaluation and reporting. The FEMP therefore, requests that monthly sampling be conducted at Outfall 4001 and biannual sampling conducted at Outfalls 4003, 4004, 4005, and 4006.

15. Page 20 Section J should be eliminated based on our articulated position of the STP sludge being a low-level waste. (See Comment 11)

16. Fact sheet does not contain the following information:

The $Q_{7,10}$ used in the WLA
The location of the background water quality used in the WLA

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Attachment 1

The methodology for evaluating maximum conditions is the same as presented in the antidegradation section of the 1997 Application. Maximum conditions and average conditions are the same for groundwater sources relative to flow rate as these are established by pump set point. Maximum concentrations for groundwater are as listed in Table 2 of the Fact Sheet. OSDF Leachate maximum conditions are the maximum flow rate (0.288 MGD) and the maximum concentrations listed in Table 2 of the Fact Sheet. Maximum conditions for the WPRAP are as listed in the 1998 Addendum to the Application (0.72 MGD; 500 ppb). The following equation is used:

MAX. RESULTANT CONCENTRATION = [C*(3.005/6.173)]+[D(2.88/6.173)]+[E*(0.288/6.173)]+[F*(0.72/6.173)]

A	B	C	D	E	F	G
		BASELINE MAXIMUM CONC.	MAX GROUND WATER CONC.	MAX OSDF CONC.	MAX WPRAP CONC.	MAX RESULTANT CONC.
		ppb	ppb	ppb	ppb	ppb
Cadmium, total	<	1.40	2	31	500	61.4
Cobalt, total	<	2	18	151	400	63.1
Chromium, total		1.70	39	783	500	113.9
Silver, total	<	0.90	2	114	500	65.0
Nickel, total	<	7.40	44	482	500	104.9
Lead, total		1.10	40	127	500	83.4
Zinc, total		13.60	88	883	500	147.2
Copper, total		5.80	27	353	500	90.2
Trichloroethylene	<	10.00	9	5400	500	319.3
Cyanide, total	<	5.35	5.35	71	500	66.7
1,1-Dichloroethylen	<	5.00	5	243	700	97.7

Parameter	Highest Max. PEQ from Fact Sheet Table 2	Maximum PEQ Calc. Based on FEMP Estimate (Column G above)	Maximum PEL (Maximum WLA) Fact Sheet Table 5	MAX PEQ% of MAX PEL Based on Fact Sheet	MAX PEQ % of MAX PEL Based on FEMP Estimate	Regulate based on MAX. Based on FEMP Estimate
Cobalt	151.0	63.1	130.0	116.15%	48.54%	No
Chromium	783.0	113.9	8713.0	8.99%	1.31%	No
Cadmium	31.0	61.4	36.0	86.11%	170.50%	Yes
Silver	114.0	65.0	26.0	438.46%	250.03%	Yes
Nickel	482.0	104.9	2398.0	20.10%	4.38%	No
Lead	127.0	83.4	1026.0	12.38%	8.13%	No
Zinc	883.0	147.2	680.0	129.85%	21.65%	No
Copper	353.0	90.2	89.0	396.63%	101.36%	Yes
Trichloroethene	5400.0	319.3	3400.0	158.82%	9.39%	No
Cyanide, total	71.0	66.7	92.0	77.17%	72.53%	Yes
,1-Dichloroethylen	243.0	97.7	3000.0	8.10%	3.26%	No

For those parameters not regulated based on a comparison of maximum PEQ's and PEL's evaluate based on comparison of average PEQ's and PEL's.

	Highest Avg. PEQ from Fact Sheet Table 2	Average PEQ Calc. Based on FEMP Estimate 1998 App. Addendum	Average PEL (lowest avg. WLA Fact Sheet Table 5	AVG PEQ % of AVG PEL Based on Fact Sheet	AVG PEQ% of AVG.PEL Based on FEMP Estimate	Regulate based on AVG. Based on FEMP Estimate
Cobalt	110.00	14.70	130.00	84.62%	11.31%	No
Chromium	539.00	16.40	367.00	146.87%	4.47%	No
Cadmium	22.00	6.70	12.00	183.33%	55.83%	
Silver	83.00	7.10	4.80	1729.17%	147.92%	
Nickel	352.00	20.00	288.00	122.22%	6.94%	No
Lead	93.00	6.70	54.00	172.22%	12.41%	No
Zinc	645.00	21.90	553.00	116.64%	3.96%	No
Copper	258.00	12.30	47.00	548.94%	26.17%	
Trichloroethene	3942.00	7.50	3400.00	115.94%	0.22%	No
Cyanide, total	52.00	7.70	92.00	56.52%	8.37%	
,1-Dichloroethylen	177.00	5.01	3000.00	5.90%	0.17%	No

This evaluation reveals that Chromium, Nickel, Lead, Zinc, Trichloroethene, and 1,1-Dichloroethene are classified as Group 2 pollutants and Cobalt is classified as a Group 3 pollutant. As such all are eligible for elimination from regulation based on OEPA procedures.

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OUTFALL	PARAMETER	SAMPLE_DATE		LAB_RESULT_STD	UNITS_STD
4003	Copper	15-Dec-95	<	0.014	mg/L
4003	Copper	4-Jun-96		0.0158	mg/L
4003	Copper	1-Dec-96	<	0.014	mg/L
4003	Copper	16-Jun-97		0.0151	mg/L
4003	Copper	16-Jun-97		0.016	mg/L
4003	Copper	04-Dec-97	<	0.0057	mg/L
4003	Copper	10-Jun-98		0.0074	mg/L
4003	Copper	22-Dec-98		0.0102	mg/L
4003	Copper	26-Jun-99		0.002	mg/L
4003	Lead	15-Dec-95	<	0.0271	mg/L
4003	Lead	4-Jun-96	<	0.0356	mg/L
4003	Lead	1-Dec-96	<	0.0305	mg/L
4003	Lead	16-Jun-97		0.0098	mg/L
4003	Lead	16-Jun-97		0.0149	mg/L
4003	Lead	04-Dec-97		0.0021	mg/L
4003	Lead	10-Jun-98		0.0019	mg/L
4003	Lead	22-Dec-98	<	0.0352	mg/L
4003	Lead	26-Jun-99	<	0.0031	mg/L
4003	Mercury	16-Jun-97	<	0.0001	mg/L
4003	Mercury	16-Jun-97	<	0.0001	mg/L
4003	Silver	15-Dec-95		0.0159	mg/l
4003	Silver	4-Jun-96	<	0.01	mg/L
4003	Silver	1-Dec-96	<	0.01	mg/L
4003	Silver	16-Jun-97	<	0.0009	mg/L
4003	Silver	16-Jun-97	<	0.0009	mg/L
4003	Silver	04-Dec-97	<	0.0005	mg/L
4003	Silver	10-Jun-98	<	0.0011	mg/L
4003	Silver	22-Dec-98	<	0.0032	mg/L
4003	Silver	26-Jun-99	<	0.0035	mg/L
4004	Copper	15-Dec-95		0.0228	mg/L
4004	Copper	3-Jun-96	<	0.014	mg/l
4004	Copper	1-Dec-96	<	0.014	mg/L
4004	Copper	20-Aug-97		0.0249	mg/L
4004	Copper	20-Aug-97		0.0293	mg/L
4004	Copper	11-Jun-98		0.0152	mg/L
4004	Copper	22-Dec-98		0.0081	mg/L
4004	Lead	15-Dec-95		0.0452	mg/L
4004	Lead	3-Jun-96	<	0.0356	mg/L
4004	Lead	1-Dec-96		0.0384	mg/L
4004	Lead	20-Aug-97		0.0142	mg/L
4004	Lead	20-Aug-97		0.0154	mg/L
4004	Lead	11-Jun-98		0.0055	mg/L
4004	Lead	22-Dec-98	<	0.0352	mg/L
4004	Mercury	20-Aug-97	<	0.0001	mg/L
4004	Mercury	20-Aug-97	<	0.0001	mg/L

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4004	Silver	15-Dec-95		0.0399	mg/L
4004	Silver	3-Jun-96	<	0.01	mg/L
4004	Silver	1-Dec-96	<	0.01	mg/L
4004	Silver	20-Aug-97	<	0.0009	mg/L
4004	Silver	20-Aug-97	<	0.0009	mg/L
4004	Silver	11-Jun-98		0.0012	mg/L
4004	Silver	22-Dec-98		0.0034	mg/L
4005	Copper	14-Dec-95	<	0.014	mg/L
4005	Copper	3-Jun-96	<	0.014	mg/L
4005	Copper	1-Dec-96	<	0.014	mg/L
4005	Copper	22-Jul-97		0.016	mg/L
4005	Copper	22-Jul-97		0.0448	mg/L
4005	Copper	04-Dec-97	<	0.0057	mg/L
4005	Copper	10-Jun-98		0.0074	mg/L
4005	Copper	10-Jun-98		0.0065	mg/L
4005	Copper	18-Dec-98		0.0073	mg/L
4005	Copper	18-Dec-98		0.0071	mg/L
4005	Copper	24-Jun-99		0.0031	mg/L
4005	Lead	14-Dec-95	<	0.0271	mg/L
4005	Lead	3-Jun-96	<	0.0356	mg/L
4005	Lead	1-Dec-96		0.034	mg/L
4005	Lead	22-Jul-97		0.0093	mg/L
4005	Lead	22-Jul-97		0.0259	mg/L
4005	Lead	04-Dec-97	<	0.0011	mg/L
4005	Lead	10-Jun-98		0.0024	mg/L
4005	Lead	10-Jun-98		0.0027	mg/L
4005	Lead	18-Dec-98	<	0.0352	mg/L
4005	Lead	18-Dec-98	<	0.0352	mg/L
4005	Lead	24-Jun-99	<	0.0276	mg/L
4005	Mercury	22-Jul-97		0.00012	mg/L
4005	Mercury	22-Jul-97	<	0.0001	mg/L
4005	Silver	14-Dec-95		0.0276	mg/l
4005	Silver	3-Jun-96	<	0.01	mg/L
4005	Silver	1-Dec-96	<	0.01	mg/L
4005	Silver	22-Jul-97	<	0.0009	mg/L
4005	Silver	22-Jul-97	<	0.0009	mg/L
4005	Silver	04-Dec-97	<	0.0005	mg/L
4005	Silver	10-Jun-98	<	0.0011	mg/L
4005	Silver	10-Jun-98	<	0.0011	mg/L
4005	Silver	18-Dec-98	<	0.0032	mg/L
4005	Silver	18-Dec-98	<	0.0032	mg/L
4005	Silver	24-Jun-99	<	0.0035	mg/L
4006	Copper	14-Dec-95	<	0.014	mg/L
4006	Copper	4-Jun-96	<	0.014	mg/L
4006	Copper	1-Dec-96	<	0.014	mg/L
4006	Copper	24-May-97		0.0081	mg/L
4006	Copper	24-May-97		0.0051	mg/L

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4006	Copper	04-Dec-97	<	0.0057	mg/L
4006	Copper	04-Dec-97	<	0.0057	mg/L
4006	Copper	10-Jun-98		0.0066	mg/L
4006	Copper	17-Dec-98		0.0064	mg/L
4006	Copper	24-Jun-99		0.0055	mg/L
4006	Lead	14-Dec-95	<	0.0271	mg/L
4006	Lead	4-Jun-96	<	0.0356	mg/L
4006	Lead	1-Dec-96		0.0681	mg/L
4006	Lead	24-May-97		0.002	mg/L
4006	Lead	24-May-97		0.0023	mg/L
4006	Lead	04-Dec-97	<	0.0011	mg/L
4006	Lead	04-Dec-97	<	0.0011	mg/L
4006	Lead	10-Jun-98	<	0.0019	mg/L
4006	Lead	17-Dec-98	<	0.0352	mg/L
4006	Lead	24-Jun-99	<	0.0276	mg/L
4006	Mercury	24-May-97	<	0.0001	mg/L
4006	Mercury	24-May-97	<	0.0001	mg/L
4006	Silver	14-Dec-95		0.0344	mg/L
4006	Silver	4-Jun-96	<	0.01	mg/L
4006	Silver	1-Dec-96	<	0.01	mg/L
4006	Silver	24-May-97	<	0.0012	mg/L
4006	Silver	24-May-97	<	0.0012	mg/L
4006	Silver	04-Dec-97	<	0.0005	mg/L
4006	Silver	04-Dec-97	<	0.0005	mg/L
4006	Silver	10-Jun-98	<	0.0011	mg/L
4006	Silver	17-Dec-98	<	0.0032	mg/L
4006	Silver	24-Jun-99	<	0.0035	mg/L

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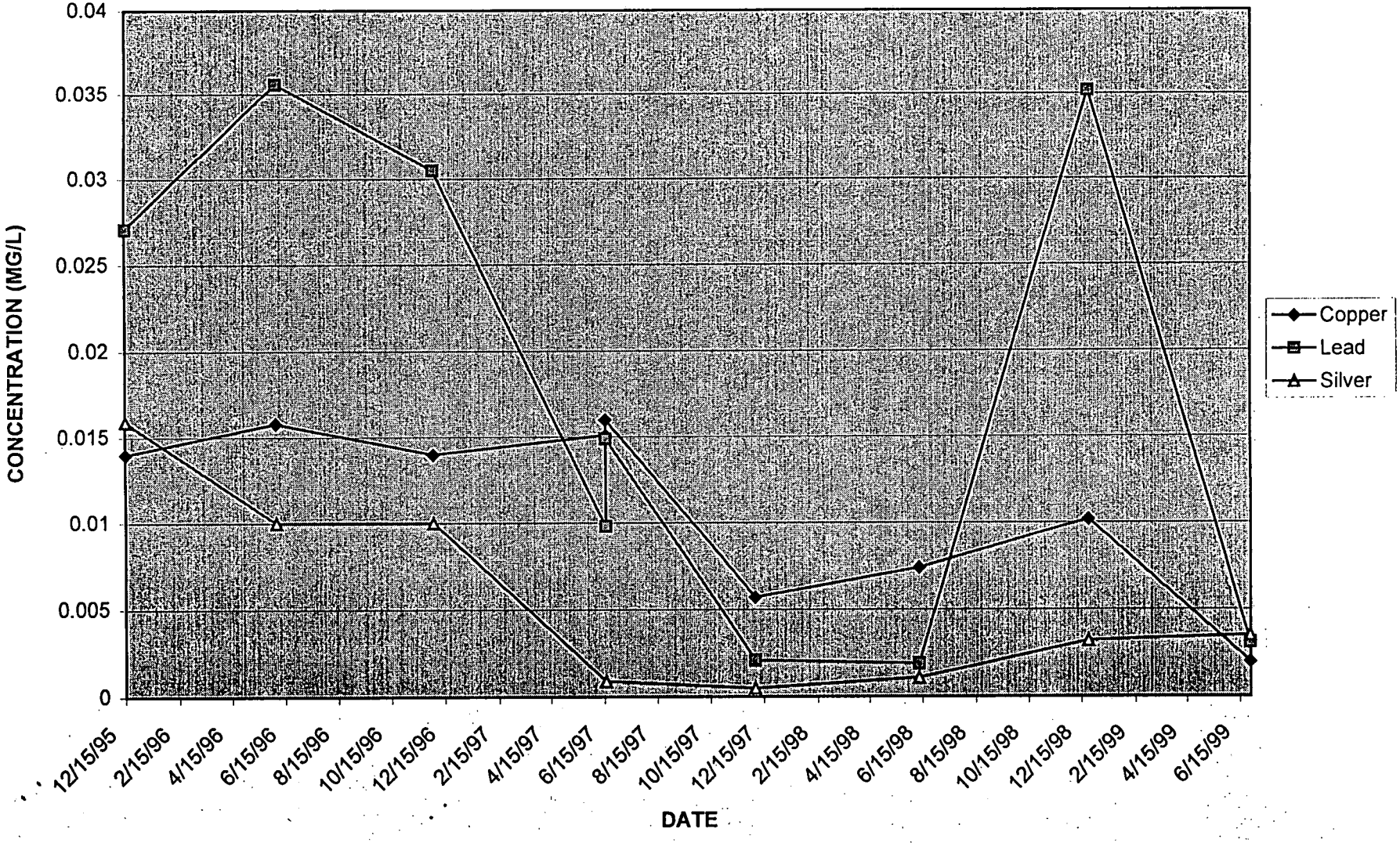
Attachment 3

STORM WATER DATA - OUTFALL 4003



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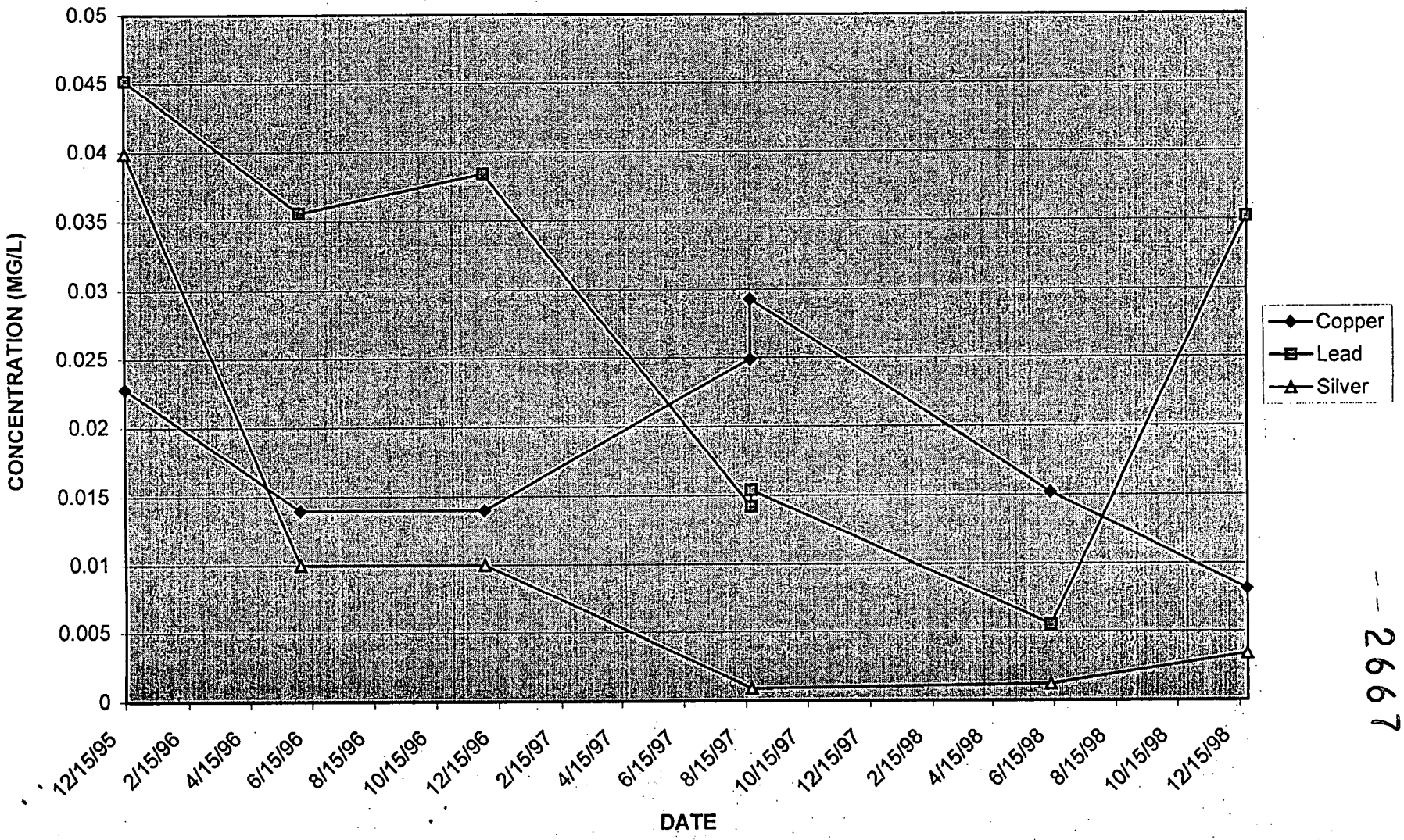
Public Notice No. 99-11-029
Attachment 4

STORM WATER DATA - OUTFALL 4004



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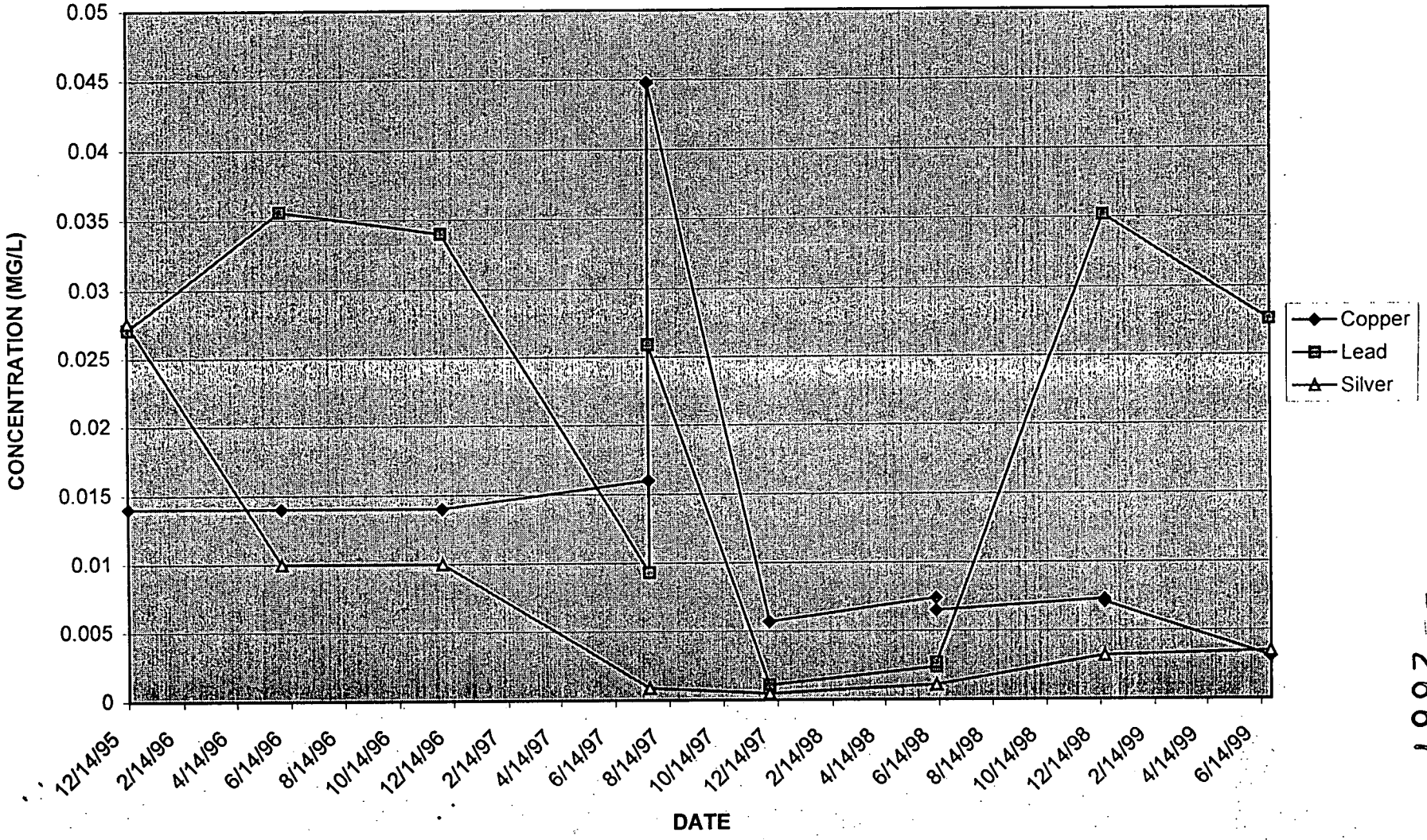
Public Notice No. 99-11-029
Attachment 5

STORM WATER DATA - OUTFALL 4005



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Attachment 6

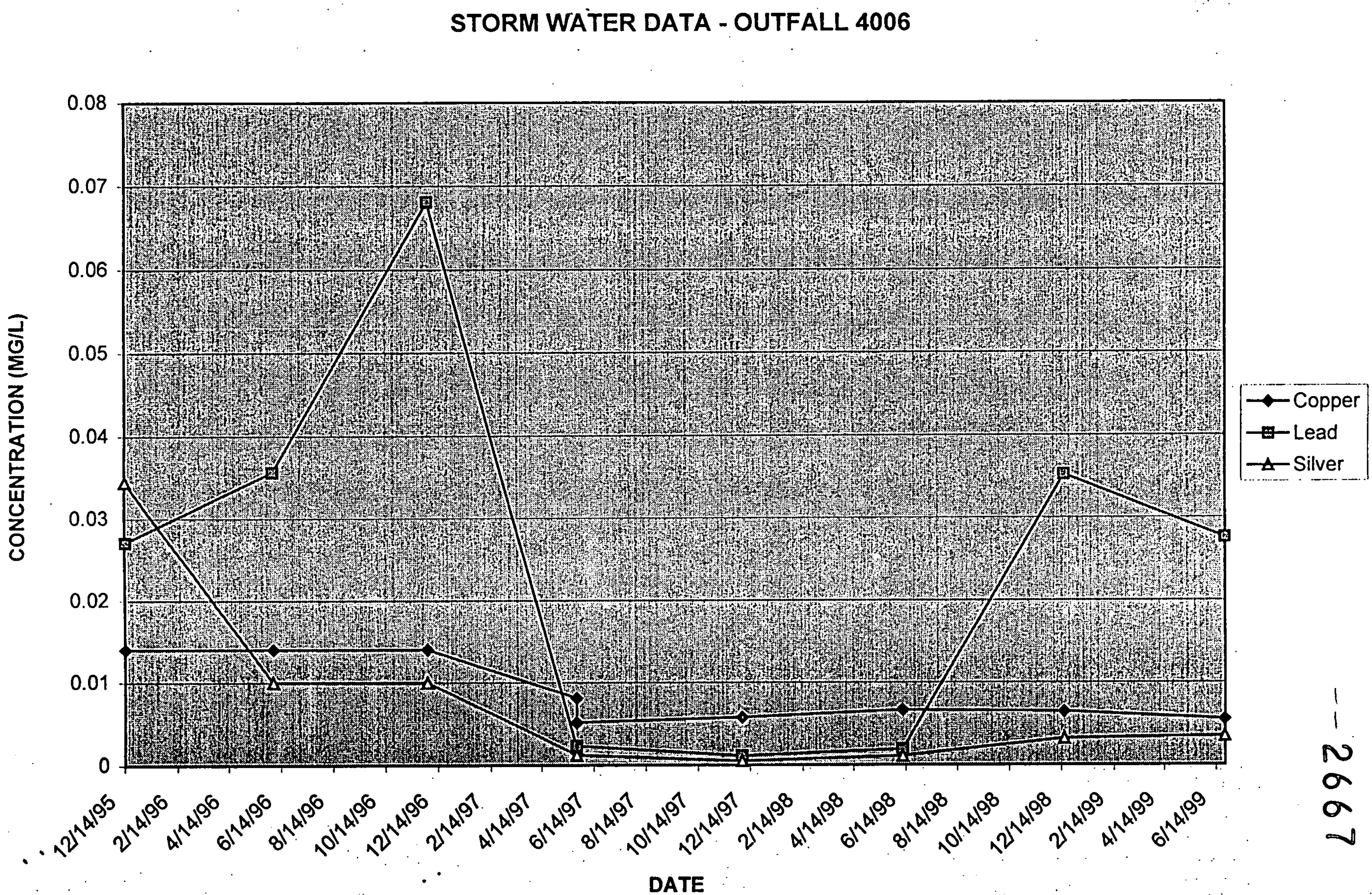

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TABLE 4-3

SUMMARY OF SURFACE WATER AND TREATED EFFLUENT SAMPLING REQUIREMENTS BY LOCATION

Location	Constituent[a]	Basis for Selection of Constituents: IEMP Characterization: Potential Surface Water or Groundwater FRL or Surface Water BTV Exceedance Based on Modeling	Sporadic Exceedances of FRLs and BTVs	Insufficient Number of Historical Analyses	Background Evaluation	Continue to Fulfill NPDES Requirements	Continue to Fulfill FFCA Requirements
	Frequency:	Quarterly	Quarterly	Quarterly	Quarterly	Various	Various
SWP-01 and SWR-01 (Paddys Run and Great Miami River Background)	**General Chemistry:**						
	Fluoride				♦		
	Nitrate/Nitrite				♦		
	Inorganics:						
	Antimony				♦		
	Arsenic				♦		
	Barium				♦		
	Beryllium				♦		
	Cadmium				♦		
	Chromium, Total				♦		
	Copper				♦		
	Cyanide				♦		
	Lead				♦		
	Manganese				♦		
	Mercury				♦		
	Molybdenum				♦		
	Nickel				♦		
	Selenium				♦		
	Silver				♦		
	Vanadium				♦		
	Zinc				♦		
	Radionuclides:						
	Cesium-137				♦		
	Lead-210				♦		
	Neptunium-237				♦		
	Plutonium-238				♦		
	Plutonium-239/240				♦		
	Radium-226				♦		
	Radium-228				♦		
	Strontium-90				♦		
	Technetium-99				♦		
	Thorium-228				♦		
	Thorium-230				♦		
	Thorium-232				♦		
	Uranium, Total				♦		

TABLE 4-3
(Continued)

Location	Constituent[a]	Basis for Selection of Constituents: IEMP Characterization: Potential Surface Water or Groundwater FRL or Surface Water BTV Exceedance Based on Modeling	Sporadic Exceedances of FRLs and BTVs	Insufficient Number of Historical Analyses	Background Evaluation	Continue to Fulfill NPDES Requirements	Continue to Fulfill FFCA Requirements
	Frequency:	Quarterly	Quarterly	Quarterly	Quarterly	Various	Various
SWP-01 and SWR-01 (Paddys Run and Great Miami River Background) - Contd.	**Pesticides/PCBs:**						
	alpha-Chlordane				♦		
	Aroclor-1254				♦		
	Aroclor-1260				♦		
	Dieldrin				♦		
	Semi-Volatiles:						
	Benzo(a)anthracene				♦		
	Benzo(a)pyrene				♦		
	bis(2-Chloroisopropyl)ether				♦		
	bis(2-Ethylhexyl)phthalate				♦		
	Dibenzo(a,h)anthracene				♦		
	3,3'-Dichlorbenzidine				♦		
	Di-n-butylphthalate				♦		
	Di-n-octylphthalate				♦		
	p-Methylphenol				♦		
	4-Nitrophenol				♦		
	Volatiles:						
	Benzene				♦		
	Bromodichloromethane				♦		
	Bromomethane				♦		
	Chloroform				♦		
	1,1-Dichloroethene				♦		
	Methylene chloride				♦		
	Tetrachloroethene				♦		
	1,1,1-Trichloroethane				♦		
	1,1,2-Trichloroethane				♦		