#### Thompson, Matthew A - DNR

From: lverson, Bruce <Blverson@trcsolutions.com>
Sent: Wednesday, February 20, 2019 8:17 AM

**To:** Thompson, Matthew A - DNR

**Subject:** [WARNING: ATTACHMENT(S) MAY CONTAIN MALWARE]FW: 1996 Sanitary Sewer

Inspections and Sealing Communications / Email 2 of 2

**Attachments:** 19960823\_WWSU to MWH\_Logs from Camera Inspection of Sewer.pdf; 19960906\_City

Letter to WDNR.pdf; 19961122\_MPC to WWSU\_Sealing Joints in RCP Wastewater

Pipe.pdf; 19970123\_Wausau Sewer Sealing Costs.pdf; 19970404\_MWH to City Sampling

Prog Post Weco Seals.pdf

From: Iverson, Bruce

**Sent:** Wednesday, February 20, 2019 7:59 AM **To:** 'Eric Lindman' < Eric.Lindman@ci.wausau.wi.us>

**Cc:** Thompson, Matthew A - DNR <MatthewA.Thompson@wisconsin.gov> **Subject:** 1996 Sanitary Sewer Inspections and Sealing Communications

Eric, per your request, I reviewed our file, enclosed are the communications with the City regarding the 1996 sewer inspection and sealing. Because the City contracted for the work, we assume the City would have more specific information regarding what sections of the sewer were sealed. Regards, Bruce

Bruce Iverson, P.E. (WI) Senior Project Manager



708 Heartland Trail, Suite 3000, Madison, WI 53717 T: 608.826.3644 | F: 608.826.3941 | C: 608.235.4963

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#### Thompson, Matthew A - DNR

From: lverson, Bruce <Blverson@trcsolutions.com>
Sent: Wednesday, February 20, 2019 8:16 AM

**To:** Thompson, Matthew A - DNR

**Subject:** FW: 1996 Sanitary Sewer Inspections and Sealing Communications / Email 1 of 2 **Attachments:** 19960423\_WWSU to MWH\_Pentachlorophenol Concerns.pdf; 19960529\_MWH to

WWSU\_Elevated Pentrachlorophenol Concentrations.pdf

From: Iverson, Bruce

**Sent:** Wednesday, February 20, 2019 7:59 AM **To:** 'Eric Lindman' < Eric.Lindman@ci.wausau.wi.us>

**Cc:** Thompson, Matthew A - DNR <MatthewA.Thompson@wisconsin.gov> **Subject:** 1996 Sanitary Sewer Inspections and Sealing Communications

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Wausau Water and Sewerage Utilities Managed by Commission

April 23, 1996

Douglas Bach Montgomery Watson One Science Court PO Box 5385 Madison, WI 53705-0385

Dear Doug:

Thank you for your presentation and the tour of your facility. We appreciate your efforts to work with us and keep us informed on this project.

As you know, we remain concerned about the elevated levels of pentachlorophenol we have occasionally experienced in the effluent from our wastewater treatment plant. Considering the volume treated by our plant and the amount of effluent discharged by the WAULECO operation it would not seem that our problems could be related to your normal discharges. We would appreciate your thoroughly reviewing your operations to be sure there are no unrecognized discharges of the pentachlorophenol to our system.

We have also considered whether untreated groundwater leaking into the sanitary sewer system could be a significant source of the pentachlorophenol. Please let us know if you have any other thoughts on possible sources of contamination.

Finally, we understand from your telephone conversation with Joe Gehin that your chemists will be discussing procedures and methodologies with Enviroscan to determine that the values reported by yourselves are comparable with the results we have obtained from Enviroscan. We would appreciate your passing on any information or ideas originating from those conversations or on the general validity of the laboratory tests. There may also be a benefit to testing split samples of our wastewater treatment plant effluent.

We are looking forward to hearing from you and thank you again for your time and efforts.

Sincerely,

David A. Erickson Environmental Engineer



Bach

May 29, 1996

Mr. Joe Gehin Wausau Water and Sewerage Utilities 407 Grant Street Wausau, Wisconsin 54403-4783

Re: Wauleco Operations and Possible Relationship to Occasional Elevated Pentachlorophenol Concentrations in Wausau Wastewater Treatment Plant Effluent

#### Dear Joe:

This letter is in response to discussions we have had since your visit to the Wauleco facility on April 11, 1996. As noted in Dave Erickson's letter dated April 23, 1996, the Wausau Wastewater Treatment Plant has occasionally experienced elevated concentrations of pentachlorophenol (PCP) in its effluent. The City is aware that the discharge of low volumes of pretreated wastewater from the Wauleco site is unlikely to be the source of elevated PCP concentrations in its effluent. Nevertheless, the Wauleco facility is the only facility identified by the City that is known to handle PCP. Therefore, the City seeks to identify if Wauleco operations may be contributing to the City's occasional elevated PCP concentrations.

During your April 11 site visit, we discussed several actions to further evaluate if a relationship exists between Wauleco's operations and the City's occasional elevated PCP concentrations. These actions included:

- Evaluation of the analytical methods and data from Enviroscan, the City's contract laboratory for PCP analysis.
- Review of Wauleco operations for potential unknown discharge points.
- Possible split sampling of the City wastewater treatment plant effluent.

Attached are three memoranda that address these issues. The key points of the memoranda are discussed below.

#### Evaluation of Analytical Methods

John Dadisman, a Senior Environmental Chemist with Montgomery Watson, reviewed Enviroscan's raw data and quality control information relating to the March 5, 1996 Wausau wastewater treatment plant effluent sample. In the attached May 21, 1996 memorandum, he concludes that the presence and quantity of PCP in the sample appear to be accurate.

#### Review of Wauleco Operations for Unknown Discharge Points

Mike Heyroth, Montgomery Watson's Treatment Plant Operator at the Wauleco site, inspected all known access points to the sanitary sewer for possible inadvertent releases of

PCP. As related in the attached May 14, 1996 memorandum, his inspection identified no potential for previously unknown releases of PCP to the sanitary sewer.

#### Split Sampling of the City's Wastewater Treatment Plant Effluent

As we discussed by telephone, both the April and May sampling results for the City's effluent showed elevated concentrations of PCP. Based on this information, we discussed the need to verify the presence of PCP through a more frequent sampling program. The attached May 23, 1996 memorandum from John Dadisman outlines a week-long sampling program to further evaluate the nature of the elevated PCP levels in the City's discharge. If acceptable to the City, we propose to implement this program in late June. We will coordinate this effort with Jim Riege at the City's wastewater treatment plant.

Wauleco remains committed to continued compliance with its present letter of agreement for discharge to the Wausau sanitary sewer system. We are also willing to assist the City in determining if any relationship exists between Wauleco's operations and the City's occasional elevated PCP concentrations. Please call with any questions or comments.

Sincerely,

MONTGOMERY WATSON

Douglas J. Bach, P.E. Supervising Engineer

Enclosures: May 21, 1996 Memorandum - Wausau POTW Sample Data Review

May 14, 1996 Memorandum - Inspection of Access Points to Sanitary Sewer May 23, 1995 Memorandum - Proposed Wausau Wastewater Sampling Plan

cc: Caroline Fribance - Wauleco Robert Kammer - Wauleco Peter Peshek - DeWitt, Ross, and Stevens

DJB/djd/KJQ J:\4113\0040\WP\LTR\93\_GEHI.DOC 4113.0043-MD

# May 21, 1996 Memorandum

### MEMORANDUM



One Science Court P.O. Box 5385

Madison, Wisconsin 53705-0385

Tel: (608)231-4747 Fax: (608)231-4777

To:

Wauleco Project File

**Date:** May 21, 1996

From:

John Dadisman

Subject:

Wausau POTW Sample Data Review

Montgomery Watson reviewed the raw data and quality control summary for the laboratory analyses of a discharge sample collected on March 5, 1996 from the City of Wausau waste water treatment plant. The sample was analyzed by Enviroscan in Rothschild, Wisconsin on March 11, 1996. The Wausau sample, standards and quality control samples were analyzed using a two column gas chromatography (GC) system for analyte identification, quantitation, and confirmation. The sample was also analyzed by GC-Mass Spectrometry (MS), and met identification criteria for pentachlorophenol (PCP).

The following data information was provided to Mongomery Watson for review:

- Quality control summary for both the GC primary and confirmation columns
- Calibration information for PCP on both the primary and confirmation columns
- GC analysis run sequence for March 8 through 13, 1996
- Chromatograms for the check standards, Wausau sample, and blanks
- Reconstructed ion chromatograms for the GC-MS confirmation
- Mass spectra for the potential interference peak
- GC-MS diagnostic report and quantitation report

Review of this information indicates the laboratory followed acceptable quality control procedures for the analysis of the Wausau sample. The sample quantitation and confirmation on the two column GC system appears acceptable. As noted in the cover letter, there are potential interference peaks in the sample chromatogram, therefore, the sample was confirmed by GCMS analysis.

Based on the review of the GC two column analysis and the GCMS confirmation data, the presence and quantity of PCP in the Wausau sample collected March 5, 1996 appears to be accurate.

jdd J:\4113\0043\WWMEMO.DOC 4113.0043



MAY

ENVIRONMENTAL AND ANALYTICAL SERVICES

May 1, 1996

Doug Bach Montgomery Watson P.O. Box 5385 Madison, WI 53705

Dear Doug:

Attached is the sample information you requested on Enviroscan analytical #61671 for pentachlorophenol. The data pack includes quality control for both the primary and confirmation column, calibration information, analysis run sequence, and chromatograms for the check standards, blanks, and sample.

The sample was analyzed twice, once straight and once with a two fold dilution. The sample was diluted because confirmation of the PCP on the second column was not distinct due to the presence of interfering compounds. On the straight sample, a result of 13.2 ug/l was calculated using the information from the one column. The diluted sample concentration produced a result of 13.9 ug/l on the same channel. The second channel in both cases was used for confirmation of the PCP and not quantitation.

Due to the interference, the analyst also had the sample confirmed by GC/MS. All three major ions matched for the identification of PCP. The peak fit was 99.1% positive for PCP. The quantitation for PCP from the GC/MS data was 11.5 ug/l. (The MDL for PCP by GC/MS is 2.1 ug/l).

If you have any questions concerning the information enclosed, please contact me (715) 359-7226. Thank you.

Sincerely,

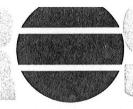
Karla M. Coenen

Quality Assurance Manager, ASQC CQA

## QUALITY ASSURANCE



Analysis	Pentachlorophenol, primary column	Pentachlorophenol, confirmation column
Date Sampled	3/5/96	3/5/96
Date Received by Laboratory	3/6/96	3/6/96
Date of Preparation	3/8/96	3/8/96
Preparation Method	EPA 604	EPA 604
Preparation Batch Id	S241	S241
Date Analyzed	3/11/96	3/11/96
Analysis Method	EPA 604 modified	EPA 604 modified
Analysis Batch Id	S424	S242
Analytical # in Batch	61671	61671
Check Standard, Calibration, and Blanks		
Calibration Date	3/3/96	3/3/96
Calibration Coefficient	0.9999	0.99995
Calibration Criteria	>0.995	>0.995
Check Standard True Concentration, mg/l	25	25
Initial Check Standard Concentration, mg/l	24.98	22.1
% Recovery of Initial Check Standard	99.92	88.4
Final Check Standard Concentration, mg/l	24.99	21.85
% Recovery of Final Check Standard	99.96	87.4
Reagent Blank Concentration, ug/l	<5.0	<5.0
Matrix Spike/Matrix Spike Duplicate		
Analytical # Spiked	60921	60921
Sample Concentration	<2.58	<2.58
Spike Concentration	87.72	87.72
Matrix Spike Concentration	83.72	75.23
Matrix Spike Duplicate Concentration	89.89	80.07
Matrix Spike % Recovery	95.44	85.76
Matrix Spike Duplicate, % Recovery	102.47	91.28
Duplicate, % Difference	7.11	6.23
Control Limits		
Check Standard Control Limits, % Recovery	85-115	85-115
Matrix Spike Control Limits, % Recovery	59.7-161	59.7-161
Duplicate Control Limits, % Difference	0-27.7	0-27.7
Surrogate Control Limits, % Recovery	23.9-65.4	23.9-65.4
Surrogate, 2-Fluorophenol		
Surrogate Recovery on Sample	52	52.4
Surrogate Recovery on Method Blank	36.1	40.9
Surrogate Recovery on Matrix Spike	51.3	44.9
Surrogate Recovery on Matrix Spike Duplicate	92.4	80.4



### Calibration Information for Pentachlorophenol

Primary C	olumn	Confirmation Column			
Standard Conc, mg/l	Area	Standard Conc, mg/l	Area		
2.5	17667	2.5	12108		
5	36939	5	24791 .		
10	79807	10	54184		
12.5	102027	12.5	69681		
20	165952	20	115278		
25	207849	25	146173		
50	415885	50	296135		
62.5	530330	62.5	376351		

Line Equation:

y = mx + b

m (slope)= 8,506.70 b (intercept) = -4,817.70 Correlation Coefficient 0.99992

-5,573.20 0.99995

6,076.20

Sequence: USER\$DISK3:[CHROM.SEMI.GC5]08MAR963PHENOLS.SEQ;14 Date: 14-MAR-1996 11:30:33.36

Spl	Sample Name	Inj	Method File	Calib RT CF	Data File
					Data File
1	2-PROP	1	03MAR96A10PHENOL		3 PHENOLISI 393 6Murab
2	phenol chk.28-575	1	03MAR96A10PHENOL		3PHENOLSL393 8Mar96 3PHENOLSL394
3	PHENOL 1:1000	1	03MAR96A10PHENOL		3PHENOLSL395
4	2-PROP	1	03MAR96A10PHENOL		3PHENOLSL396
5	PHENOL CHK. 28-575	1	03MAR96A10PHENOL		3PHENOLSL397
6	PHENOL 1:1000	1	03MAR96A10PHENOL		3PHENOLSL398
7	2-PROP	1	03MAR96A10PHENOL		.3PHENOLSL399 Mar 96
8	PHENOL CHK. 28-575	1	03MAR96A10PHENOL		3PHENOLSL399 10 Mar 96
9	96-2038 H20 SPK.	1	03MAR96A10PHENOL		3PHENOLSL401
10	96-2039 H20 BLANK	1	03MAR96A10PHENOL		3PHENOLSL402
11	96-2026 (61671) WAUSAU	1	03MAR96A10PHENOL		3PHENOLSL403
12	2-PROP	1	03MAR96A10PHENOL		3PHENOLSL404
13	2-PROP	1	03MAR96A10PHENOL		3PHENOLSL405
14	96-2023 (60921)1:10 QC	1	03MAR96A10PHENOL		3PHENOLSL406
15	96-2024 (60921 MS)1:10	1	03MAR96A10PHENOL		3 PHENOLSL407 UMA(96
16	96-2025 (60921 MSD)1:10	1	03MAR96A10PHENOL		3PHENOLSL407 11 Mar9k 3PHENOLSL408
17	2-PROP	1	03MAR96A10PHENOL		3PHENOLSL409
18	PHENOL CHK.28-575	1	03MAR96A10PHENOL		3PHENOLSL410
19	PHENOL 1:1000	1	03MAR96A10PHENOL		3PHENOLSL411
20	2 2102	-1-	03MAR96A10PHENOL		3PHENOLSL412
21	96-2026 (61671)1:2 WAUSAU	1	03MAR96A10PHENOL		3PHENOLSL413
3.5	2-PROP	1	03MAR96A10PHENOL		3PHENOLSL414
3	PHENOL CHK. 28-575	1	03MAR96A10PHENOL		3PHENOLSL415
24	2-PROP	1	03MAR96A10PHENOL		3 PHENOLSL416 MA(9)
25	PHENOL CHK. 28-575	1	03MAR96A10PHENOL		3PHENOLSL417 12 Margi
26	96-1903 (61393)1:2 WAUSAU	1	03MAR96A10PHENOL		3PHENOLSL418
27	2-PROP	1	03MAR96A10PHENOL		3PHENOLSL419
28	PHENOL CHK. 28-575	1	03MAR96A10PHENOL		3PHENOLSL420
29	2-PROP	1	03MAR96A10PHENOL		3PHENOLSL421 13Md(4)
30 31	PHENOL CHK. 28-575	1	03MAR96A10PHENOL		3 PHENOLSL422
32	PHENOL CHK. 28-575	1	03MAR96A10PHENOL		3PHENOLSL423
32	PHENOL CHK. 28-575	1	03MAR96A10PHENOL		3PHENOLSL424
33 34	PHENOL CHK. 28-575	1	03MAR96A10PHENOL		3PHENOLSL425
34	PHENOL 1:1000	1	03MAR96A10PHENOL		3PHENOLSL426

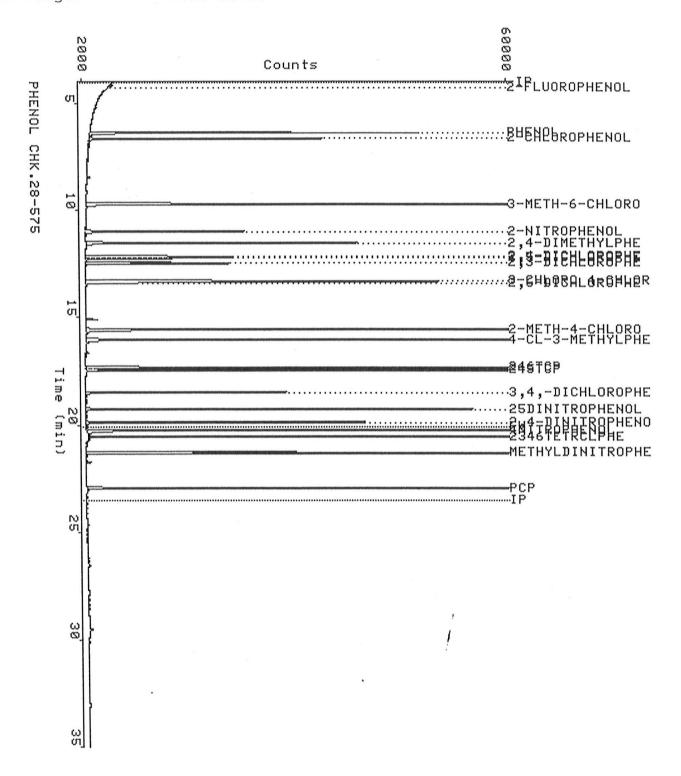
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Direct 1. Calibrate standards and analyze unknowns in order. Report: Acquired: 441976

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Time range:

4.00-35.00



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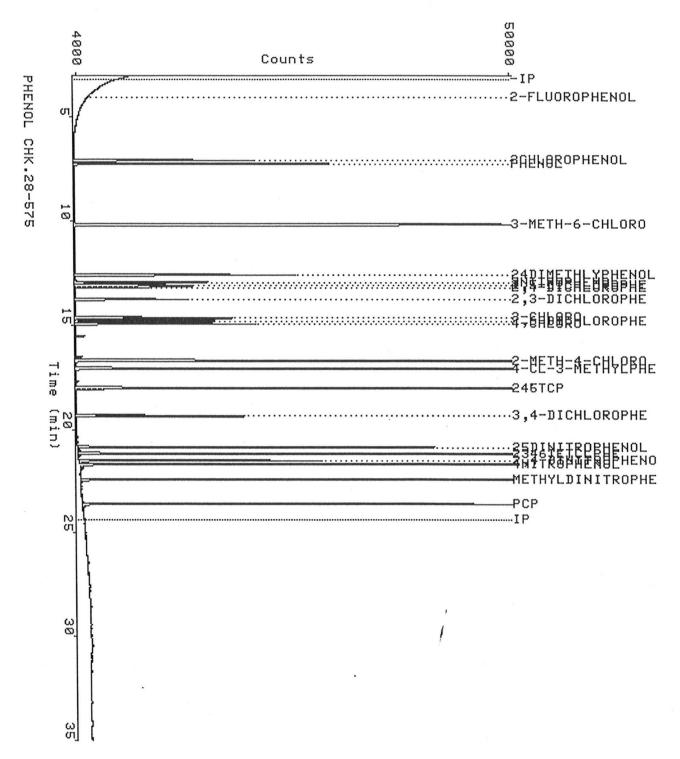
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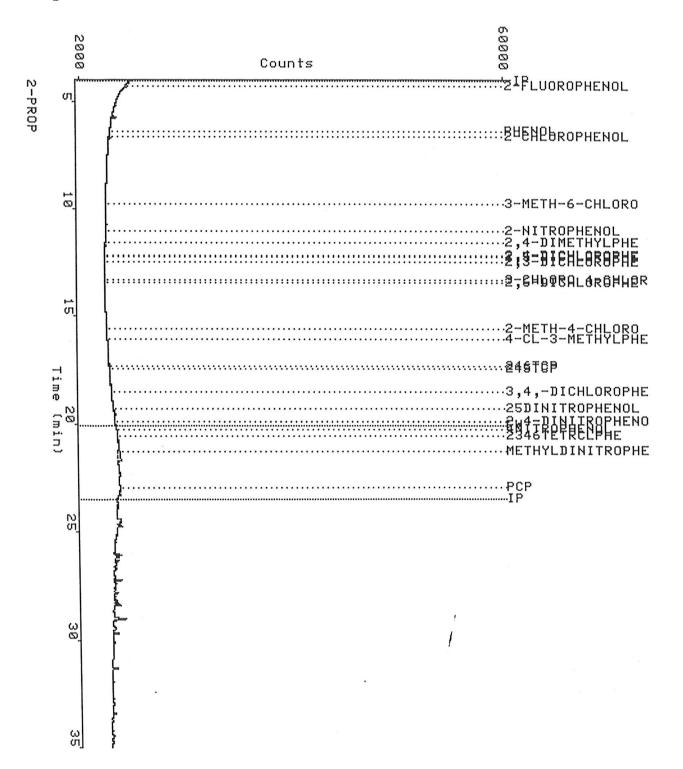
Time range:



Acquired:

Time range:

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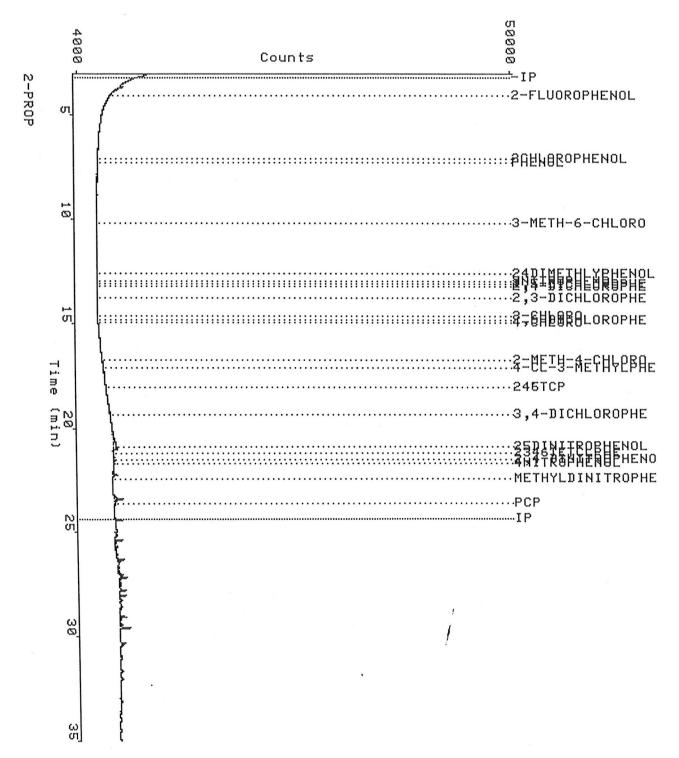
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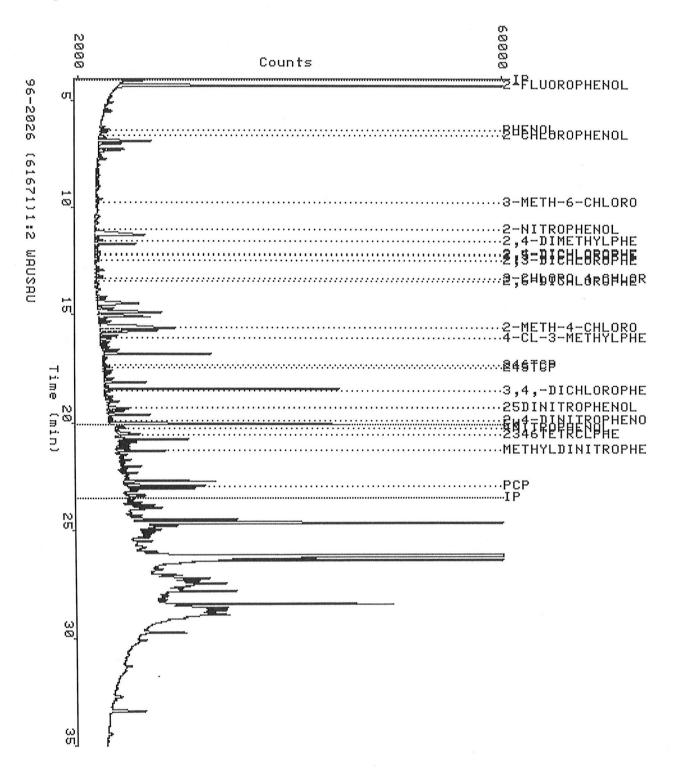
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442163

11-MAR-1996 13:07:00

Time range: 4.00-35.00

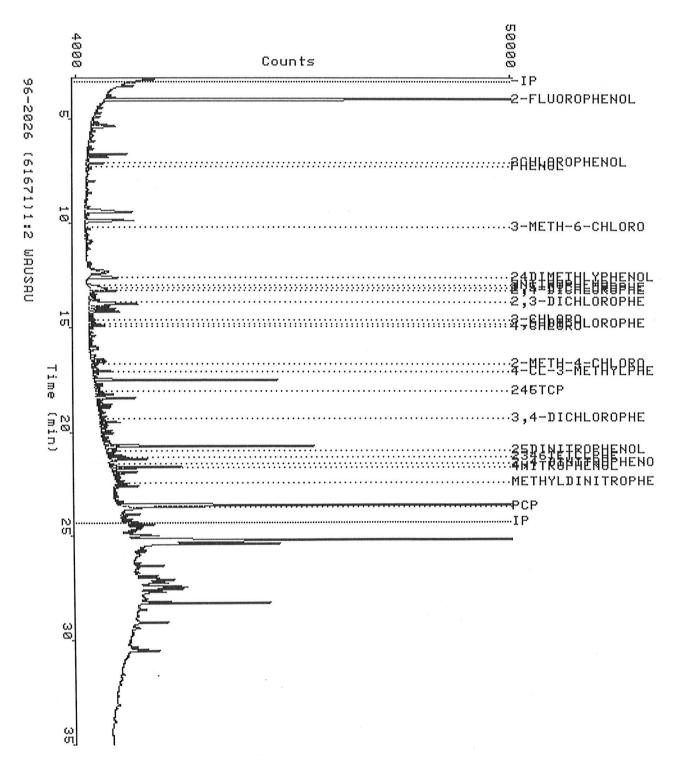


Acquired:

Time range:

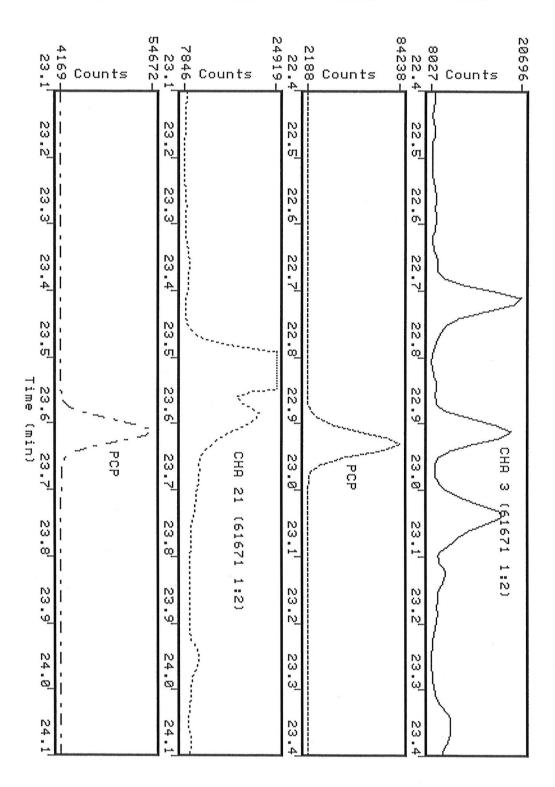
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Report:



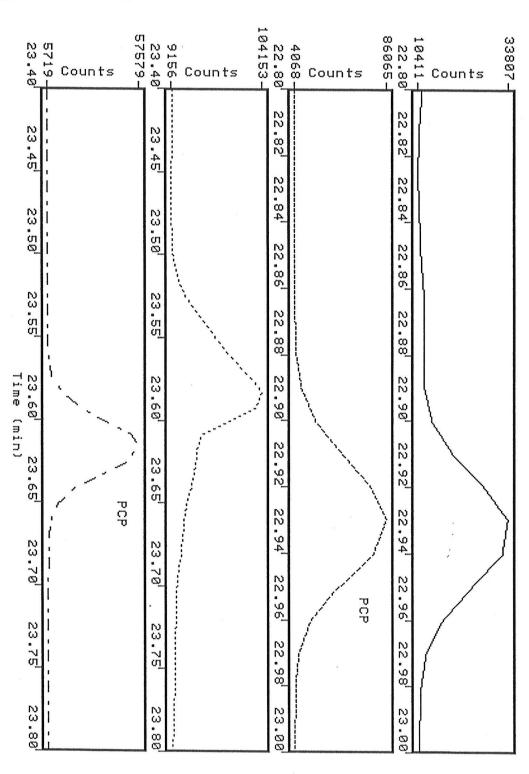
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3PHENOLSL410	22.40	23.40	1.0	0	2						
21PHENOLSL413	23.10	24.10	3.0	0	3						
21PHENOLSL410	23.10	24.10	1.0	0	4						



Date: 11-MAR-1996 10:34:12.47

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21PHENOLSL400	23.40	23.80	1.0	0	4



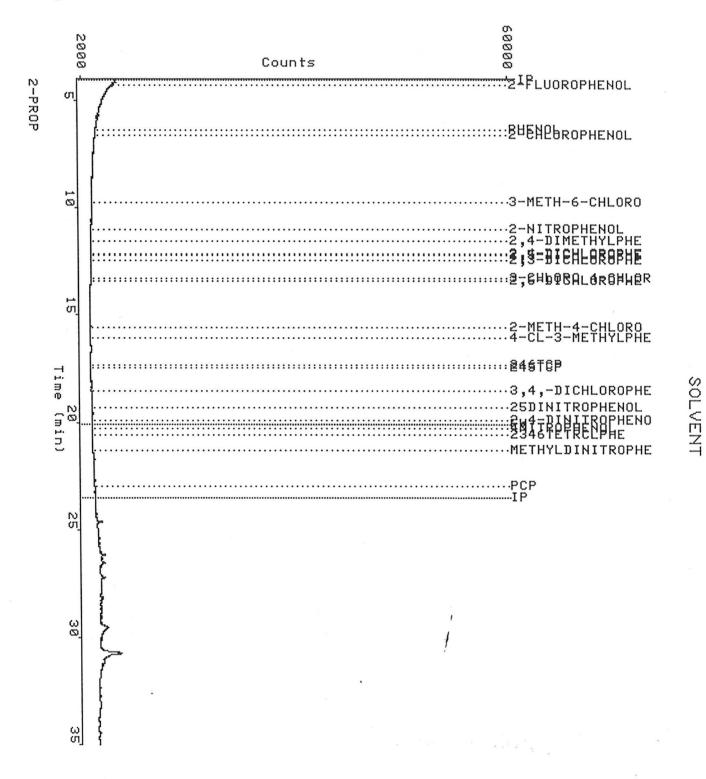
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Time range:



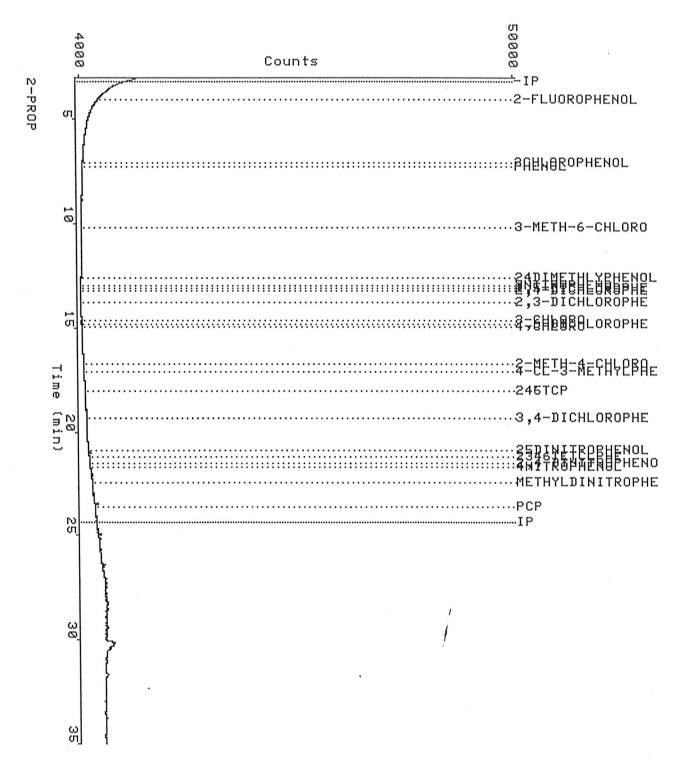
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Time range:

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442180

11-MAR-1996 13:49:43



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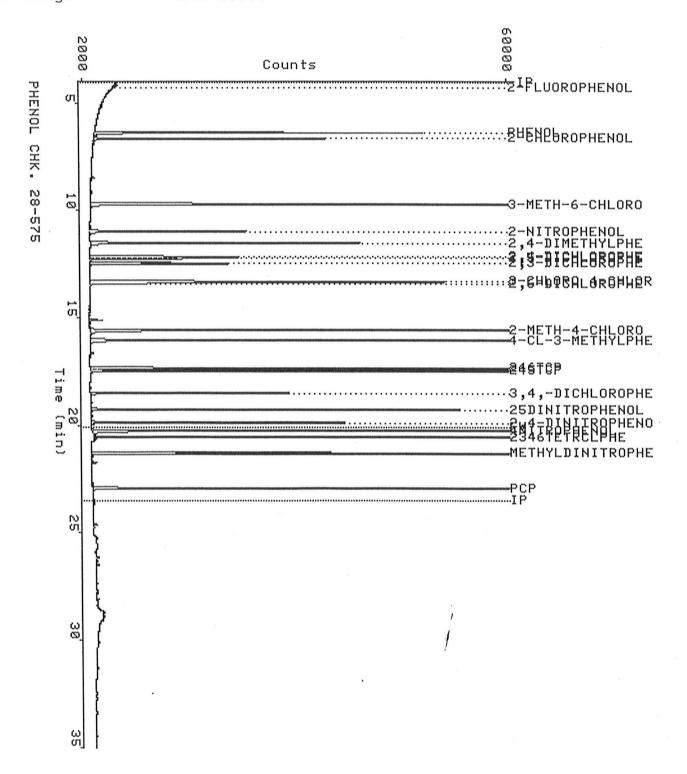
442195

Report:

11-MAR-1996 14:31:37

Acquired: Time range:

4.00-35.00



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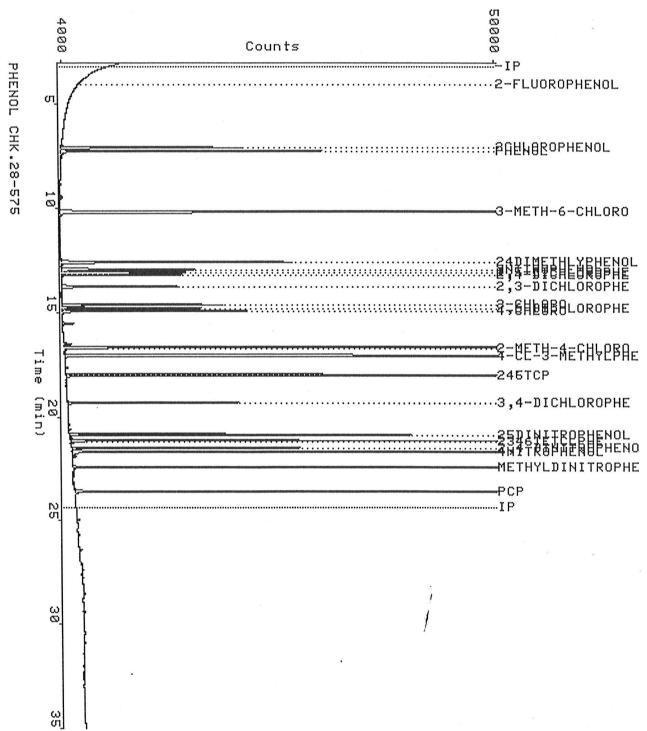
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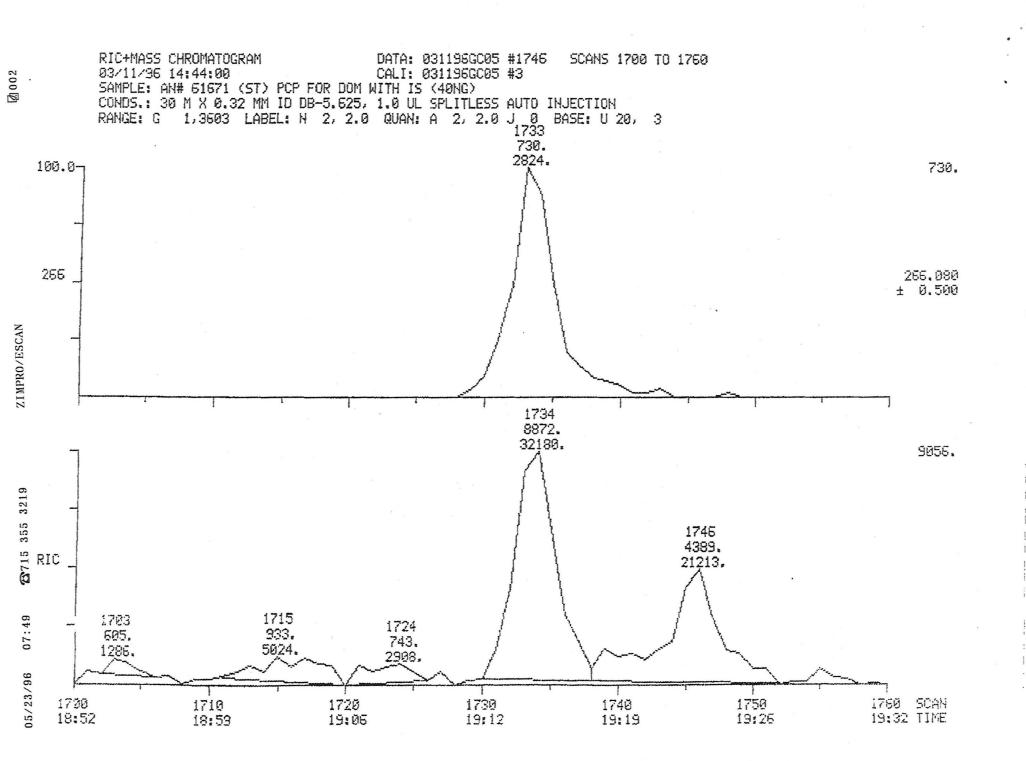
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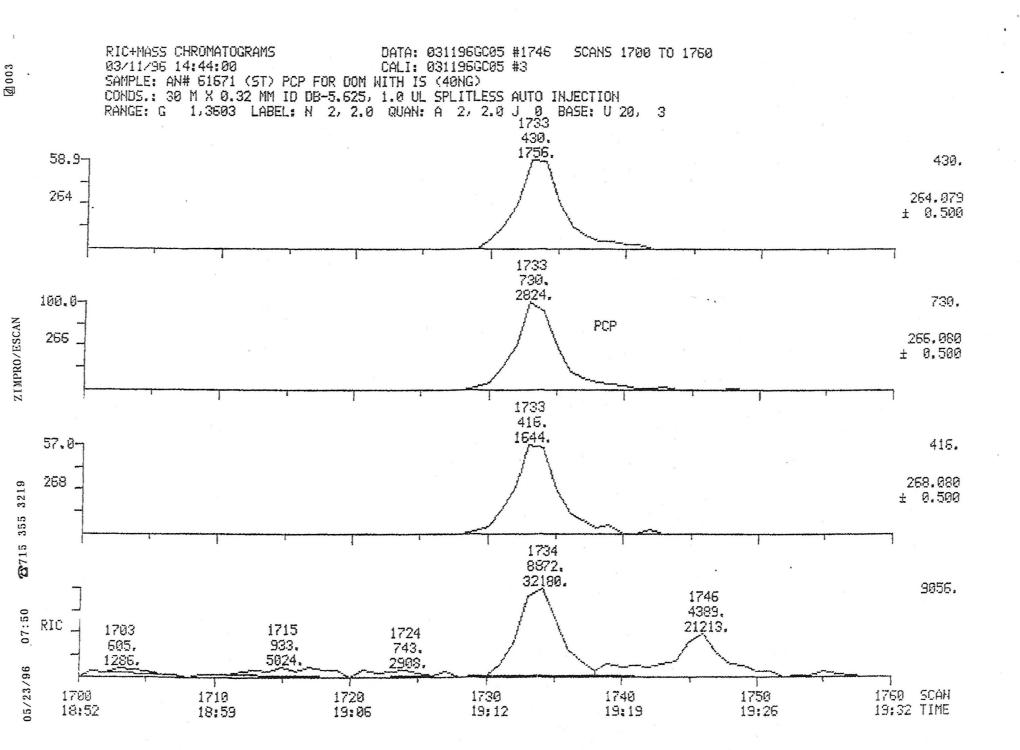
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Time range:







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REFERENCE: TC11TAB
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REPORT: TCRETENT

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PROC	USED	POSS	RMS	PROC	USED	POSS	RMS	STANDARD/UNKNOWN
5	6	16	316	12	9	1	306	TCRETENT/TCSURR
6	6	1	316	12	6	1	316	TCRETENT/TCTARGO1
6	6	1	316	12	7	1	286	TCRETENT/TCTARGO2

#### 24 COMPOUNDS PROCESSED, 10 FOUND

< 0	COMPO	SUND >	<		SEA	ARCH			>< SAT	><	CH	1RO	*
NO		ENTRY	REF	PRED	SEL	DELTA	PEAKS	FIT	PEAKS	M/Z	TOP	DELTA	PEAK
1	LP	1	787	787	791	4		777		152			
5	LP	2	1062	1059	1057			985		136	1057		
3	LP	3	1451	1443	1440			984		164	1440		
4	LP	4	1781	1770	1768			975		188	1768		
5	LP	5	2376	2358	2358		2	973		240	2358		
6	LP	6	2672	2651	2653	2	2	970	•	264	2653		
7	LP	7	912	909						82	911		
8	LP	8	1313	1306	1302		1	940		172	1302	•	
9	LP	9	2154	2138	2138		1	978		244	2138		
10	LP	10	521	522					\.€	112	520		
11	LP	11	743	742		•			. •	99			
12	LP	12	1629	1618	1616	-5	1	954		330	1617	1	
13	£P.	13	869	898		•,	•			108			
14	LP	14	906	904			•	•		108			
15	LP		791	791	•		•			146			
16	LP	16	1510	1502			•	•		165			
17	LP	17	1694	1684	•	•				284			
18			1102	1098	•		•			225			
19			890	888			•	•		117			
50			932	930						77			
21	LP		1746	1735	1734	-1	1	991	•	566	1733	-1	
55			558	234	•	•			•	79			
53			1301	1295				•		196	1295		
24	LP	24	1294	1288						196			

Data: 031194GC05. TI 03/11/96 14:44:00

Sample: AN# 61671 (ST) PCP FOR DOM WITH IS (40NG)

Conds.: 30 M X 0.32 MM ID DB-5.625, 1.0 UL SPLITLESS AUTO INJECTION

Formula: EM 750 V

Instrument: FINN

Weight: Acct. No.: QAQC

Submitted by: ESCAN

Analyst: PDE

AMOUNT=AREA \* REF AMNT/(REF AREA \* RESP FACT) Resp. fac. From average of whole .RL

No	Name	
1	C130	1,4-DICHLOROBENZENE-D4 ** IS1 **
5	C140	NAPHTHALENE-D8 ** IS2 **
3	C150	ACENAPHTHENE-D10 ** IS3 **
4	CISO	PHENANTHRENE-D10 ** IS4 **
5	CIZO	CHRYSENE-D12 ** IS5 **
6	CI75	PERYLENE-D12 ** IS6 **
7	C250	NITROBENZENE-D5 ** BN SURR **
8	CS25	2-FLUOROBIPHENYL ** BN SURR **
9	CS30	TERPHENYL-D14 ** BN SURR **
10	CS50	2-FLUOROPHENOL ** AC SURR **
11	CS45	PHENOL-D6 ** AC SURR **
12	CS55	2, 4, 6-TRIBROMOPHENOL ** AC SURR **
13	C355	2-METHYLPHENOL (O-CRESOL)
14	0365	4-METHYLPHENOL (P-CRESOL)
15	C340	1,4-DICHLOROBENZENE
16	C570	2, 4-DINITROTOLUENE
17	C930	HEXACHLOROBENZENE
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## May 14, 1996 Memorandum

### MEMORANDUM



One Science Court P.O. Box 5385

Madison, Wisconsin 53705-0385

Tel: (608)231-4747 Fax: (608)231-4777

To:

Doug Bach

Date: May 14, 1996

From:

Mike Heyroth

Subject:

Inspection of Access Points to Sanitary Sewer at the Wauleco Project Site

As requested by Joe Gehin during his April 11 visit to the Wauleco site, I have reviewed all of the access points to the sanitary sewer to determine if pentachlorophenol (PCP) could be inadvertently discharged from the site from locations other than the treatment system outfall. This memorandum summarizes my inspection and critique of the access points in consideration of Wauleco site operations.

There are six locations at the Wauleco site that are open to the sanitary sewer system. Each location and the potential for the inadvertent release of PCP are discussed below.

#### **Location 1 - Lab Sink**

We do not clean any parts in this sink and it is only used for lab purposes. We do not dump our process samples into this sink. They go back into the treatment room where they are added at the headworks.

#### Location 2 - Furnace Room Drain

This is located far away from any water that may accidentally enter it and is located in a separate room. The only water to go in the drain is from the condensate from the furnace. No wash water from floor cleaning or otherwise is dumped in this or any other drain.

#### **Location 3 - Treated Water Drain**

This is where the treated water (system effluent) is discharged to. This water is collected by an 24 hour composite sampler and tested every day. The result of this test is located on the monthly report.

#### **Location 4 - Drain by Sand Filters**

This drain is capped by an 6 inch threaded cap with Teflon tape and pipe joint compound. It also has a plate that is silicone sealed over the top of it so no water can enter to the threaded cap. This chamber stays sealed and no water is discharged to it for any reason.

#### Location 5 - Toilet and Sink in Bathroom

We do not discharge any process water into either of these locations.

#### **Location 6 - Drain in Cold Storage Building**

This is a drain on the far side of the cold storage building. It extends up about 1 foot above the ground and is capped.

I also reviewed all of our cleaning and operating procedures. I made sure we do not discharge any PCP containing water to the sewer that is not part of our normal discharge.

If you have any questions, please call.

## May 23, 1996 Memorandum

## MEMORANDUM



One Science Court P.O. Box 5385

Madison, Wisconsin 53705-0385

Tel: (608)231-4747 Fax: (608)231-4777

To:

Doug Bach

Date: May 23, 1996

From:

John Dadisman

Subject:

Proposed Wausau Wastewater Sampling Plan

In response to recent pentachlorophenol (PCP) concentrations detected in effluent samples from the City of Wausau wastewater treatment plant, Montgomery Watson and the City of Wausau have discussed the possibility of performing a joint sampling program to further evaluate the nature of elevated PCP concentrations. As you requested, I have developed the following plan for implementing the joint sampling program.

#### **Purpose of Sampling Program**

The purpose of the proposed sampling program is to gain a better understanding of the nature of the observed elevated PCP concentrations in the City of Wausau Wastewater Treatment Plant. Specifically, the program seeks to evaluate the:

- Consistency of the elevated concentrations
- Appropriateness of sampling methods
- Relation of observed PCP concentrations to treatment plant operating parameters and effluent chemical characteristics

#### Sample Collection

Treatment facility personnel will collect the samples for analysis by both Montgomery Watson Analytical Testing Services (MWATS) and Wausau's laboratory contractor, EnviroScan in Rothschild, Wisconsin. Wauleco will cover analytical costs for samples analyzed at MWATS and the City will cover costs for samples analyzed at Enviroscan. Screening level samples will be collected by the City and analyzed at the Wauleco site in Wausau.

Composite samples for split analysis will be collected at the City's normal effluent collection point (prior to UV treatment). Screening level samples will be collected at various points in the treatment process as described in the following section.

#### Sampling Schedule and Analysis

- Daily composite samples will be collected at the routine effluent collection point (prior to UV treatment) for a seven day period. These samples will be split and laboratory analyzed for PCP by MWATS and Enviroscan. In addition, the MWATS samples will be analyzed for total suspended solids (TSS). During this time period we will obtain pH readings and flow rates from the facility.
- Grab samples for screening level analysis will be collected four times during the
  week long sampling program. The screening level samples will be collected at
  the system influent, the effluent composite sampler point, and after the UV
  treatment system. All screening level samples will be analyzed for PCP using the
  Wauleco on-site screening laboratory.

#### **Historical Data Review**

I will plan on visiting the treatment facility to review sampling locations prior to the start of the sampling program and to collect additional information related to past chemical data and flow rates at the treatment plant. I anticipate we will want to collect historic information on flow rates, pH, TSS, and PCP concentrations over a time period to include one or more PCP effluent concentration exceedance events.

The intent of these activities is to attempt to correlate PCP concentrations in the City of Wausau treatment system effluent to system flow and chemistry conditions.

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Joseph L. Gehin Utilities Director

> Managed by Commission

Wausau Water and Sewerage Utilities

September 6, 1996

Mr. Pete Hubbard Wisconsin DNR 5301 Rib Mountain Drive Wausau, WI 54401

Dear Mr. Hubbard:

Starting in March 1996, the wastewater treatment plant recorded four consecutive monthly effluent discharge violations for pentachlorophenol (PCP). The standard is based on the effluent pH. The general pH range of the effluent stream is between 6.0 and 7.0 pH which correlates to a PCP discharge standard of 12 ug/L. A copy of Wausau's monthly PCP discharge values are shown in table A.

In general, Wausau's discharge of PCP has been incompliance especially for 1992, 1993, 1994 and 1995. However, the recent violations recorded in 1996, prompted the Utility to look for possible sources of the PCP.

Since, WAULECO was the only known source of PCP, Mr. Jim Riege and myself arranged a visit of their treatment building. Initially, we thought inadvertent housekeeping activities at this treatment facility may be contributing to the unusual discharge of PCP. After viewing the facility and discussing the issue with staff at the site, it was quite apparent the unusual discharge of PCP was not originating from the treatment building. As part of that dialogue, lab procedures and QA/QC measures were reviewed regarding our data. All data appeared to be generated under acceptable sample and lab protocol.

With the cooperation of WAULECO and their consultant, samples of each of the four major interceptors was collected and tested for PCP. The four interceptor sewers are shown on the enclosed sketch (I) and receive sewage from the entire Wausau sewer service area. With this approach, any PCP discharge would be detected in the respective interceptor sewer. The result of this survey showed that PCP was only present in the northwest interceptor system. The WAULECO clean up site is served by the northwest interceptor system.

Pete Hubbard September 6, 1996 Page 2

Knowing that the northwest interceptor had higher PCP levels, testing was conducted to confirm the location or locations where the PCP may be entering the main. Numerous samples were collected from the interceptor over a period of time which confirmed that the PCP was originating near Thomas Street. There was sufficient data to suggest that the interceptor sewer was being infiltrated with contaminated groundwater in the Thomas Street area. (See sketch II and supporting data.)

The sewer was constructed in the early 40's and the extent of its general condition was unknown. Utility crews TV'd the sewer from MH27 to MH 4. The 36" sewer was in excellent structural condition. All joints had originally been back plastered to minimize infiltration problems. A copy of our TV report is enclosed. In spite of the fact that the interceptor is partially submerged in the groundwater, there are very few infiltration points. However, near MH11 there are two or three infiltration points which collectively contribute 5 to 8 gpm. One of the inflow points was sampled and tested very high in PCP. Recognizing that PCP was now confirmed to be entering the sewer via the groundwater, additional testing would be necessary to confirm all joint leaks and to grout any leaky joints. I should note sewer TVing would only show leaks above the flow level in the sewer. The current flow is only about 6 to 10 inches deep.

Currently, the Utility is receiving quotes from sewer rehab firms to air test and grout leaking joints. Depending on the extent of the problem, the leaks will be reduced or eliminated. This procedure should resolve this unusual level of PCP entering Wausau's sewer system and eventual discharge to the Wisconsin River.

This letter recaps our efforts to resolve this matter. If you have any questions, please do not hesitate to call.

Sincerely yours,

Joseph L. Gehin Utilities Director

cc: May

Mayor John Hess Mr. Doug Bach

Attorney Konrad Tuchscherer (Commissioner)

JLG/dg

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#### WAUSAU WASTEWATER TREATMENT FACILITY

TABLE A

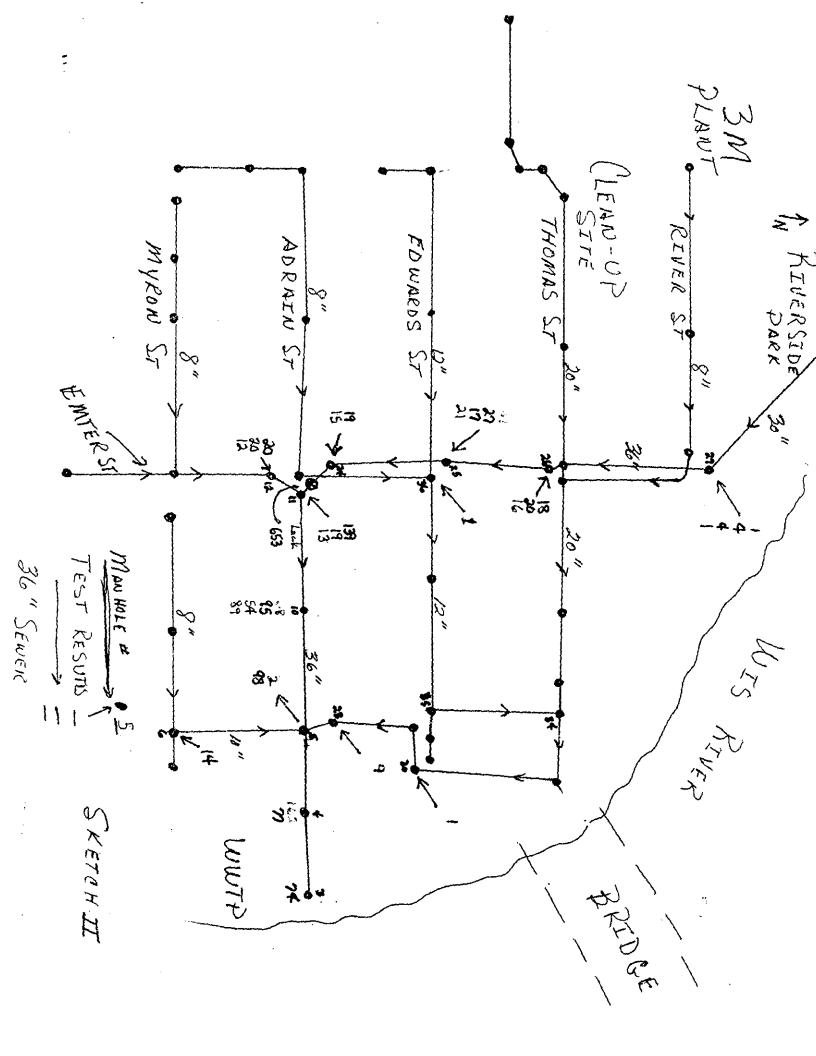
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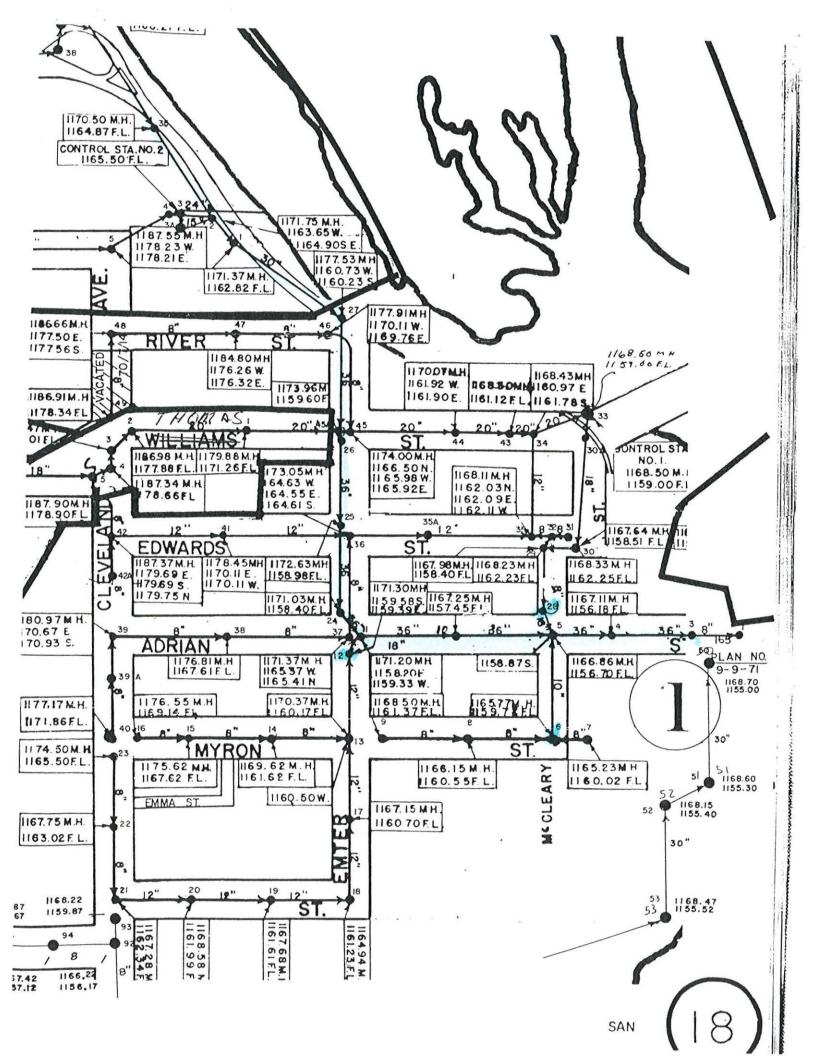
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Sample Date + \$77.96	
Sampling location	Pentachlorophenol, ug/L
Orange Int (Nathwest)	
Manhole # 27  Manhole #25	
I have been a second and the property of the second of the	
Manhole #5	95
Manhole #3	
Manhole #6	
	o the sampling. Manhole 24 was under the blacktop
Samples 3, 5, and 11 were all take	n before the sidestreams entered the manhole

8/9/96 SM	m PLES
Sample Date # 8905	Postachlorophonal was
Sampling location	Pentachlorophenol, ug/L
Manhole # 4	
Merhole # 11	
Marhole # 25	
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P. 02

Sampling location	Pentachlorophenol, ug/L
Orange line (Northwest)  Vanhole # 10	
Manhole # 12	
Manhole #25	
Manhole # 27 [] [] [] [] [] [] [] [] [] [] [] [] [] [	

Sampling location	
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Manhole # 10	
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6248 Lakeland Avenue North • Suite 100 Brooklyn Park, MN 55428

FAX 612/533-4988 • Phone 612/533-4525

MR. JOE GEHIN WAUSAU WATER & SEWERAGE UTILITY 407 GRANT STREET WAUSAU, WI 54403

DEAR MR. GEHIN:

THANK YOU FOR INQUIRING WITH INFRATECH REGARDING RESTORATION OF YOUR 36" SANITARY SEWER LINE. BASED UPON OUR TELEPHONE CONVERSATION AND REVIEW OF THE VIDEO YOU PROVIDED WE OFFER THE FOLLOWING PROPOSAL:

INFRATECH WILL UTILIZE A "PACKER" (COMBINATION JOINT TESTER/SEALER) TO DIAGNOSE THE INTEGRITY OF EACH PIPE JOINT IN THE ABOVE MENTIONED PIPELINE. (PIPE JOINTS THAT ARE ACTIVELY LEAKING WILL NOT BE AIR TESTED). DIAGNOSIS WILL BE ACCOMPLISHED VIA JOINT ISOLATION AND AIR TEST. JOINT INTEGRITY WILL BE DETERMINED VIA A SUSTAINED LOW PRESSURE AIR TEST. JOINTS THAT FAIL THE INITIAL AIR TEST WILL BE SEALED WITH HYDROACTIVE POLYURETHANE GROUT CONTAINING ROOT TREATMENT DESIGNED TO DETER FUTURE ROOT GROWTH. AFTER JOINT SEALING IS PERFORMED A SECONDARY AIR TEST WILL BE PROVIDED TO CERTIFY THAT THE JOINT IS SEALED.

PIPE JOINT AIR TEST\$34.00 EA
PIPE JOINT SEAL AND SECONDARY AIR TEST\$68.00 EA
POLYURETHANE GROUT\$9.50 GAL
MOBILIZATIONNO-CHARGE

TO QUALIFY THIS PROPOSAL WE WILL REQUIRE THE CITY TO PROVIDE, MAINTAIN AND MONITOR BYPASS PUMPING. A JETTER AND OPERATOR MUST ALSO BE MADE AVAILABLE FOR CLEANING PURPOSES.

IN ADDITION TO THOSE SERVICES LISTED ABOVE, INFRATECH WILL PROVIDE ROOT REMOVAL AND ASSIST CITY PERSONNEL IN SETTING UP THE BYPASS.

INFRATECH WILL PROVIDE WRITTEN DOCUMENTATION OF THE TEST AND SEAL PROCEDURE. TEST RESULTS FOR EACH JOINT WILL INCLUDE INFORMATION SUCH AS PASS/FAIL STATUS, VOLUME OF GROUT PUMPED AND SECONDARY AIR TEST OUTCOME. UPON COMPLETION OF TEST AND SEAL OPERATIONS WE WILL TELEVISE THE LINE AND PROVIDE "POST" VIDEO DOCUMENTATION.

JOE, WE SINCERELY APPRECIATE THIS OPPORTUNITY AND LOOK FORWARD TO WORKING WITH YOU. IF YOU HAVE ANY QUESTIONS REGARDING THIS PROPOSAL OR THE ENCLOSED INFORMATION PLEASE CALL ME.

BEST REGARDS,

MATT HUSTON

INFRASTRUCTURE TECHNOLOGIES, INC.

1-800-533-4244

Estimate of Cost to air Test / Grout Leaher 280 joints tested at 34 earl = 9520 10% of 280 need to growted 28 each = 1904-Est of poliperethan growt 30 joint & 5 gals per joint at 9.50/gol= 1425 Total est cont \$12849 Toug Or Guole for besting and grouting. Lyest a second quote from Viou Sever. I am open to suggestion four to proceed.



8850 CRAWFORDSVILLE RD.

P.O. BOX 34141

**INDIANAPOLIS, INDIANA 46234** 

TELEPHONE: (317) 293-0278

FAX: (317) 293-8502

A subsidiary of IWC Resources Corporation

November 22, 1996

Mr. Joseph L. Gehin Utilities Director Wausau Water and Sewerage Utilities 407 Grand Street Wausau, WI 54403

RE: Permanently Sealing the Joints in the Existing 36" RCP Wastewater Pipe with Our Patented and Proprietary Product and Service Known as the AMEX-10/WEKO-SEAL Internal Joint Sealing System

Dear Mr. Gehin:

We are pleased to provide for your consideration the following pre-inspection information and pricing to furnish and install AMEX-10/WEKO-SEALS to eliminate both infiltration and exfiltration in the above referenced pipeline.

As you know, since this is an internal joint seal the pipeline will need to be shutdown with a fail-safe method to protect the safety of the Miller confined-space technicians who gain access into the pipeline to accomplish the joint seal installations. We understand that access will be provided by others.

The joint seal installations would be accomplished by Miller's trained confined-space entry technicians who are not only trained to install the AMEX-10/WEKO-SEALS, but are also trained to comply with all the requirements of 29 CFR 1910.146 Federal OSHA's Permit Required Confined-Space Regulations.

Miller would be pleased to mobilize our experienced confined-space entry AMEX-10/WEKO-SEAL installation crew with all necessary confined-space internal safety apparatus including atmosphere monitors, air movers, intrinsically safe lighting, rescue and retrieval equipment, and other relevant safety and installation equipment to safely enter the already dewatered and isolated pipeline to prepare joints, furnish and install AMEX-10/WEKO-SEALS at the following price.

Mr. Joseph Gehin Wausau Water and Sewerage Utilities November 22, 1996 Page 2

Ouantity Description Price

10-15 36" AMEX-10/WEKO-SEALS \$1,111.00 ea.

Cleaning of the pipe including root removal and removal of debris and deposits can be accomplished at \$1.75 per foot.

In order to protect the safety of our confined-space entrants, please understand that because of the fact that inflatable plugs can fail without warning, we do not like to work against them. We prefer an alternative means of stopping flow and, therefore, request the opportunity to evaluate options such as sand bags exclusively or a stop gate or other means of diverting flow and renegotiate pricing if additional costs are involved.

Miller would furnish all internal materials which become a permanent part of the pipeline including EPDM AMEX-10/WEKO-SEALS, Type 316 stainless steel retaining bands, wedges, shims and clips, equipment and tools needed for installation, and all internal confined-space safety apparatus except water pumps.

Infiltrating water with mineral spirts and pentachlorophenol in concentrations identified to us (10,000 ppb) will not adversely affect the performance of AMEX-10/WEKO-SEALS.

Any required pipeline shutdown, isolation, excavations, cutouts, dewatering, by-pass pumping, and traffic control would be provided by others.

Any additional work beyond the AMEX-10/WEKO-SEAL pricing above could be accomplished at the following time and material rates.

CLASSIFICATION	STRAIGHT TIME	TIME AND ONE-HALF	DOUBLE TIME
Foreman	\$62.00	\$93.00	\$124.00
Technician	\$60.00	\$90.00	\$120.00
Operator	\$62.00	\$93.00	\$124.00
Truck	\$10.00	\$10.00	\$10.00
Miscellaneous Tools	\$18.00	\$18.00	\$18.00
Air Compressor	\$21.00	\$21.00	\$21.00
Special Confined-Space Tools and Equipment	\$24.00	\$24.00	\$24.00

In the unlikely event any standby time would be necessitated

Mr. Joseph Gehin Wausau Water and Sewerage Utilities November 22, 1996 Page 3

The above pricing does not include any taxes. All applicable taxes would be added to the pricing unless we were provided with a tax exempt statement from the buyer.

Please allow two to three weeks from receipt of purchase order before work commences. We would expect the work to take about three (3) days to complete.

As you may know, Miller has installed over 115,000 AMEX-10/WEKO-SEALS ranging in size from 16" up to 210" diameter pipelines providing the customer with a permanent, flexible, noncorrodible, bottle-tight joint seal.

We would like to thank you for the opportunity to offer this estimated project pricing and look forward to providing this service. We are certain that you will be most pleased with the results.

If we can be of any further assistance, please do not hesitate to contact us.

Respectfully submitted,

Ralph Miller

Manager of Technical Services

RM:elb

cc: John Cianci



Joseph L. Gehin Utilities Director

Managed by Commission

Wausau Water and Sewerage Utilities

January 23, 1997

Mr. Doug Bach Montgomery Watson One Science Court PO Box 5385 Madison, WI 53705-0385

Dear Mr. Bach:

I hereby submit a statement regarding cost recovery associated with sealing the 36" interceptor sewer to prevent PCP infiltration. It is our understanding that the Wausau Sewerage Utility would be reimbursed 95% of all expenses with this project except staff time and Utility equipment rental. Enclosed is a copy of Utility payments made concerning this project to-date. The majority of the expense is for the installation of the joint seals.

A copy of the Miller Pipeline invoice is also enclosed. There are delay costs on Miller's statement due to the pump problems, some of which are weather related. I was able to reduce Miller's statement by \$458.00 and Fabco Equipment pump rental fee as problems were beyond our control.

The total project costs to date are \$22,870.79 with WAULECO's share at \$21,727.25.

Needless, to say, the Wausau Sewerage Utility has invested a great deal of resources to resolve this issue which are not reflected in the \$22,870.79. Our current estimate on staff time would approach 150 man-hours with the use of Utility equipment.

As we discussed, our preliminary test data would support that additional corrective measures may be needed. However, additional testing over a longer time frame may demonstrate that PCP infiltration is adequately under control. At this time, I will delay any written reports to the DNR until further testing can be completed.

If you have any questions, please do not hesitate to call.

Sincerely yours,

Joseph L. Gehin Utilities Director

JLG/dg

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### 407 GRANT STREET - CITY HALL WAUSAU, WI 54403-4783

715 843-1130

WAULECO c/o Montgomery Watson One Science Court	January 23, 1997
PO Box 5385 Madison, WI 53705-0385	Invoice No. SWR-1551
Clean-up Costs - Interceptor Sewer	\$ 22,870.79
Less 5% (Utility share of costs)	1,143.54
AMOUNT DUE	\$ 21,727.25

MAKE CHECKS PAYABLE TO: WAUSAU CITY TREASURER



**REMIT TO: P.O. BOX 34141** 

**INDIANAPOLIS, INDIANA 46234** 

TELEPHONE: (317) 293-0278

259 3ILL TO:

WAUSAU SEWERAGE UTILITY

407 GRANT STREET

WAUSAU

WI 544014783

259 149 90

REFERENCE ONLY

UNITS

SALES TAX AMT:

INVOICE NET:

7000 CR7 ITCE

RATE

EXTENSION

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15390.00

700 131

IOB SITE: WAUSAU SEWERAGE UTILITY

ATTN: JOE GEHIN 407 GRANT STREET

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DATE	REFERENCE	CONTRACT NO.	SLSMN.	ST.	CTY.		TERMS	INV. NO.
1/08/97		PD#2750	01	LW	10	NET 3	DAYS	6390

PRODUCT

LOCATION:

WAUSAU, WI

FOREMAN: CREW TYPE: TERRY SMITH WEKO SEAL CREW

BILLING PERIOD: 12/17/96 ~ 12/18/96

STALLED 36" EXTRA WIDE WEKO SEALS	03622200	12.00	1111.00	13332.00
AND BY TIME AS FOLLOWS:		,		
REMAN TECHS @ 7 HRS EACH UCK BC. TOOLS ECIAL CONFINED SPACE TOOLS & EQUIPMENT		7.00 21.00 7.00 7.00 7.00	62.00 60.00 10.00 18.00 24.00	434.00 1250.00 70.00 125.00 168.00
		SUB TOTAL		15390.00



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שודרבע נונברואב

GL789

Transaction Detail Report - Actuals

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City of Wausau January 22 1997 Page 1 Transaction Detail Report - Actuals . Status 1 For Date Range 01/01/96 to 01/22/97 SS ----- Ident ----- Trans Amount Bal Forward WAULECO CLEAN-UP PROJECT 0.00 6459 38 1 2 1 1/15/97 AMEX WEKO SEALS Period Total 01 AP 110153 02004 MILLER PIPELINE 15390.00 15390.00 15390.00 Total Debits 15,390.00 Total Credits 0,00



Back

April 4, 1997

Mr. Joe Gehin Wausau Water and Sewerage Utilities 407 Grant Street Wausau, Wisconsin 54403-4783

Re: Wausau Sewer Sampling Program

Dear Mr. Gehin:

This letter outlines a sewer sampling program designed to monitor the effectiveness of the installation of WECO seals to prevent infiltration of groundwater contaminated with pentachlorophenol (PCP). Since installation of the WECO seals in December 1996, the Wausau wastewater treatment plant has had no PCP exceedences in its effluent. However, samples collected within the sewer approximately one month after installation of the seals indicated elevated levels of PCP. The following routine sewer sampling and analysis plan is proposed to provide a consistent means to evaluate the effectiveness of the WECO seals over a longer time frame.

To identify possible PCP infiltration points along the 36-in sewer main that runs down Emter and Adrian Streets we are proposing weekly sampling at manholes No. 3, 4, 5, 10, 11, 24, 25, 26, and 27. A weekly sample should also be collected at the WWTP influent point. In order to minimize the effect of sewer flow rate variables, an attempt should be made to collected the samples at the same hour and day each week. In addition, to further minimize variables, samples should be collected from approximately the same location within each manhole (relative to incoming laterals).

To assess the contribution from smaller laterals (if any) weekly samples will also be collected for a three-week period from the following locations:

- Manhole No. 6 to monitor flow and PCP concentration from the 10-in lateral that originates along Myron Street, and runs along McCleary Street.
- Manhole No 28 to monitor flow and concentration in the 18-in lateral from McCleary Street
- Manhole No 12 to monitor flow and concentration in the 12-in lateral from Emter Street South.

If sewer flow rates, and/or PCP concentrations are so low as to be insignificant, the sampling of one or all of the lateral locations will be discontinued after the three week period.

All samples will be analyzed by Montgomery Watson's on-site laboratory at the Wauleco facility. The weekly samples will be collected for at least eight weeks, after which time the data will be evaluated, and recommendations made for program modification or additional infiltration reduction measures.

If the proposed sampling program is acceptable, we will work with you to select a mutually convenient weekly sample collection day and time. Please call if you have any questions or comments.

Sincerely,

MONTGOMERY WATSON

John D. Dadisman Senior Chemist Douglas J. Bach, P.E. Supervising Engineer

cc: Ms. Caroline Fribance - Wauleco Mr. Robert Kammer - Wauleco

Mr. Peter Peshek - DeWitt, Ross, and Stevens

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