

CORRESPONDENCE MEMORANDUM

STATE OF WISCONSIN

DATE: August 24, 1993

TO: Better Brite Files

FROM: Terry Koehn - LMD



SUBJECT: Zinc Shop Groundwater Transfer

This memorandum presents analytical results from samples collected of Zinc Shop groundwater and filter cake generated from that water. The samples were collected by City of De Pere personnel or through EPA. All of the samples were analyzed by Robert E Lee & Assoc, Inc. They were collected at various dates as noted in the tables. Samples collected from Zinc Shop water on 3/16/93 and 3/18/93 indicated the presence of cyanide which was of some concern. Concentrations in the March samples were 4.283 mg/l total cyanide (37,700 ug/l total chromium) in the influent and <0.004 mg/l total cyanide (265 ug/l total chromium) in the effluent which were discussed in a memorandum dated April 14, 1993.

Filter Cake	Concentration	Units
Chromium (total)	65,700.	mg/kg
Cyanide (total)	63.	mg/kg
Zinc	523.	mg/kg
Total Solids	39.8	%

Sampled 4/6/93 (Job#1015090)

Influent (untreated)	Concentration	Units
Cyanide (total)	0.874	mg/l
Cyanide (amenable)	<0.004	mg/l

Sampled 3/24/93 (Job# 1014863)

Effluent (treated)	Concentration	Units
Chromium (total)	1220.	ug/l
Cyanide (total)	<0.004	mg/l
Cyanide (amenable)	<0.004	mg/l

Sampled 3/24/93 (Job# 1014896)

Influent (untreated - from sump)	Concentration	Units
Chromium (total)	32,400.	ug/l
Cyanide (total)	0.743	mg/l
Cyanide (amenable)	0.364	mg/l
Cyanide (reactive)	<0.02	mg/l
Zinc	2740.	ug/l

Sampled 3/29/93 (Job# 1014944 - Sampled by EPA)

Influent (untreated)	Concentration	Units
Cadmium	660.	ug/l
Chromium (total)	95,900.	ug/l
Cyanide (total)	11.7	mg/l
Cyanide (amenable)	1.10	mg/l
Zinc	33,700.	ug/l

Sampled 3/31/93 (Job# 1015034)

Effluent (treated)	Concentration	Units
Cadmium	5.	ug/l
Chromium (total)	111.	ug/l
Cyanide (total)	<0.004	mg/l
Cyanide (amenable)	<0.004	mg/l
Zinc	43.	ug/l

Sampled 4/2/93 (Job# 1015034 - noted as 3/31/93 on lab sheet)

Influent (untreated)	Concentration	Units
Chromium (total)	66,800.	ug/l
Zinc	95.	ug/l

Sampled 5/6/93 (Job# 1015718)

Effluent (treated)	Concentration	Units
Chromium (total)	635.	ug/l
Zinc	6.	ug/l

Sampled 5/6/93 (Job# 1015718)

Influent (untreated)	Concentration	Units
Cadmium	< 3. / < 3.	ug/l
Chromium (total)	60,000. / 58,400.	ug/l
Cyanide (total)	0.878	mg/l
Cyanide (amenable)	< 0.878	mg/l
Zinc	70. / 59.	ug/l

Sampled 6/23/93 Original and Duplicate Concentrations (Job# 1016672)

Effluent (treated)	Concentration	Units
Cadmium	< 3.	ug/l
Chromium (total)	1160.	ug/l
Cyanide (total)	0.094	mg/l
Cyanide (amenable)	< 0.094	mg/l
Zinc	5.	ug/l

Sampled 6/23/93 (Job# 1016672)

Three of the influent samples indicated cyanide concentrations (0.874 & 0.743 & 0.878 mg/l) significantly lower than the sample collected on 3/18/93 (4.283 mg/l). However, the influent sample from 3/31/93 again detected an elevated concentration (11.7 mg/l). This elevated cyanide concentration indicates that continued sampling is needed to determine if

cyanide is going to remain a concern. Amenable cyanide was detected in two of the influent samples (0.364 & 1.10 mg/l).

Cyanide was detected in only one of the effluent samples (0.094 mg/l). It was also identified in the systems filter cake (63 mg/kg). This suggests that a significant portion of the cyanide is probably associated with particulate matter and is being removed from the water prior to discharge.

Air monitoring has not detected cyanide in the pretreatment plant.

Chromium concentrations in the influent ranged from 32,400 to 95,900 ug/l. In the effluent it ranged from 111 to 1,220 ug/l.

Water discharge limits have continued to be met for both cyanide and chromium.

cc: G. Edelstein SW/3
D. Rossberg LMD
K. Bro WDOH
D. Linnear U.S. EPA Region V
W. Nied U.S. EPA Region V
D. Benner City of De Pere

ROBERT E. LEE & ASSOCIATES, INC.
Wisconsin Certification No: 405043870

CUSTOMER=> 000404 - De Pere Wastewater Treatment Plant
REPORT DATE=> 04/21/93 PROJECT=> Better Brite Sludge
JOB NUMBER=> 1015090 LOCATION=> Better Brite
BATCH=> 1 SAMPLED=> 04/06/93

Sample #	Sample Id	Result	Analyzed	By
CHROMIUM				
1 ...	Sludge 03/25/93	65700 mg/kg	... 04/20/93	... DB
CYANIDE				
1 ...	Sludge 03/25/93	63.0 mg/kg	... 04/13/93	... DJB
TOTAL SOLIDS				
1 ...	Sludge 03/25/93	39.8 %	... 04/07/93	... SRW
ZINC				
1 ...	Sludge 03/25/93	523 mg/kg	... 04/20/93	... DB

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DE PERE WASTEWATER
TREATMENT PLANT

[END OF BATCH: 1]

DE PERE WASTEWATER TREATMENT PLANT
315 LEONARD STREET
DE PERE, WISCONSIN 54115

Fax. No.: (414) 339-4048

TELECOPY COVER LETTER

Dated: 4/23/93

TO: Terry Koehn

FIRM/COMPANY: Wisconsin DNR

FROM: Al Kardoske

For your information.

For your approval.

Your comments, please.

Per your request.

RE: Results of analysis of Better Brute sludge

COMMENTS: Called Beunen 4/26/93 separate

Total Number of Pages (including cover sheet): 2

IF YOU DO NOT RECEIVE ALL PAGES OR HAVE ANY PROBLEM RECEIVING THIS
TRANSMISSION, PLEASE CALL Al AT (414) 339-4094.

ROBERT E. LEE & ASSOCIATES, INC.
Wisconsin Certification No: 405043870

CUSTOMER=====> 000404 - De Pere Wastewater Treatment Plant
REPORT DATE====> 04/06/93 PROJECT====> Better Brite
JOB NUMBER====> 1014896 LOCATION====> De Pere WWTP
BATCH=====> 1 SAMPLED====> 03/24/93

Sample #	Sample Id	Result	Analyzed	By
CYANIDE				
1	... Treated 03-24-93	<0.004 mg/l	... 03/31/93	... DJB
CYANIDE-AMENABLE				
1	... Treated 03-24-93	<0.004 mg/l	... 04/02/93	... DJB

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DE PERE WASTEWATER
TREATMENT PLANT

[END OF BATCH: 1]

ROBERT E. LEE & ASSOCIATES, INC.
Wisconsin Certification No: 405043870

CUSTOMER====> 000404 - De Pere Wastewater Treatment Plant
REPORT DATE====> 04/06/93 PROJECT====> Better Brite
JOB NUMBER====> 1014896 LOCATION====> De Pere WWTP
BATCH====> 1 SAMPLED====> 03/24/93

Sample #	Sample Id	Result	Analyzed	By
CYANIDE				
1 ...	Treated 03-24-93	<0.004 mg/l	... 03/31/93	... DJB
CYANIDE-AMENABLE				
1 ...	Treated 03-24-93	<0.004 mg/l	... 04/02/93	... DJB

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DE PERE WASTEWATER
TREATMENT PLANT

[END OF BATCH: 1]

K

ROBERT E. LEE & ASSOCIATES, INC.
Wisconsin Certification No: 405043870

CUSTOMER====> 000404 - De Pere Wastewater Treatment Plant
REPORT DATE====> 04/06/93 PROJECT====> Better Brite
JOB NUMBER====> 1014896 LOCATION====> De Pere WWTP
BATCH====> 2 SAMPLED====> 03/24/93

Sample #	Sample Id	Result	Analyzed	By
CHROMIUM				
1	... Treated	1220 ug/l	... 04/05/93	... DB

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[END OF BATCH: 2]

DE PERE WASTEWATER TREATMENT PLANT
315 LEONARD STREET
DE PERE, WISCONSIN 54115

Fax. No.: (414) 339-4048

TELECOPY COVER LETTER

Dated: 4/14/93

TO: Terry Koehn

FIRM/COMPANY: WDNR

FROM: Al Kardoske

For your information.

For your approval.

Your comments, please.

Per your request.

RE: Additional Better Brite results.

COMMENTS: _____

Total Number of Pages (including cover sheet): 3

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TRANSMISSION, PLEASE CALL Al AT (414) 339-4094.

ROBERT E. LEE & ASSOCIATES, INC.
Wisconsin Certification No: 405043870

CUSTOMER=====> 000404 - De Pere Wastewater Treatment Plant
REPORT DATE====> 04/05/93 PROJECT=====> Cyanide
JOB NUMBER=====> 1014863 LOCATION=====> De Pere WWTP
BATCH=====> 1 SAMPLED=====> 03/24/93

Sample #	Sample Id	Result	Analyzed	By
CYANIDE				
1	... Untreated	0.874 mg/l	... 03/31/93	... DJB
CYANIDE-AMENABLE				
1	... Untreated	<0.004 mg/l	... 04/02/93	... DJB

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DE PERE WASTEWATER
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[END OF BATCH: 1]

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DE PERE WASTEWATER TREATMENT PLANT
315 LEONARD STREET
DE PERE, WISCONSIN 54115

Fax. No.: (414) 339-4048

TELECOPY COVER LETTER

Dated: 4/8/93

TO: Terry Koehn

FIRM/COMPANY: LDNE

FROM: Al Kardoske

For your information.

For your approval.

Your comments, please.

Per your request.

RE: Additional cyanide analysis results

COMMENTS: _____

Total Number of Pages (including cover sheet): 2

IF YOU DO NOT RECEIVE ALL PAGES OR HAVE ANY PROBLEM RECEIVING THIS
TRANSMISSION, PLEASE CALL Al AT (414) 339-4094.

ROBERT E. LEE & ASSOCIATES, INC.
 LABORATORY SERVICES
 P.O. BOX 2100, 2825 S. WEBSTER AVE.
 GREEN BAY, WI 54306-2100
 TEL NO: (414) 336-6338
 FAX NO: (414) 336-9141
 Wisconsin Certification No: 405043870

Client: KINGS ENVIRONMENTAL
 Date Received: 03/29/93
 Date of Samples: 03/29/93
 Report Date: 04/06/93
 Client Project: Better Brite Plating
 Client Project Number: Better Brite Plating
 REL Job Number: 1014944 Batch: 1

TERRY Koehn

THE FOLLOWING DATA HAS BEEN REVIEWED AND MEETS THE QA/QC REQUIREMENTS FOR BLANKS, STANDARDS, DUPLICATE ANALYSES AND SPIKED SAMPLES.

TEST PARAMETER	CHROMIUM		CYANIDE		CYANIDE-AMENABLE		REACTIVE CYANIDE	
MDL	7 ug/l		0.003 mg/l		3 ug/l		0.02 mg/l	
WONR NUMBER	00122		00720		81208		None	
ANALYZED BY	DEENA BELLIN		DOUG BASTEN		DOUG BASTEN		DOUG BASTEN	
ANALYTICAL METHOD	6010 [1]		9010 [1]		335.1 [2]		Ch.7 Sec7.3.3.2	
EXTRACTED/DIGESTED								

SAMPLE NAME	RESULT	DATE	RESULT	DATE	RESULT	DATE	RESULT	DATE
	ug/l	ANALYZED	mg/l	ANALYZED	mg/l mg/l TYP0	ANALYZED	mg/l	ANALYZED
BBZ Slump 02	32400	04/05/93	0.743	03/31/93	0.364	04/02/93	ND	03/31/93

COMMENTS:

ND = COMPOUND NOT DETECTED
 MDL = METHOD DETECTION LIMIT WITH NO DILUTION
 D = DETECTED BUT BELOW MDL
 * = MDL CHANGED DUE TO DILUTION

ANALYTICAL METHODS

[1] TEST METHODS FOR EVALUATING SOLID WASTE, SW-846
 [2] METHODS OF CHEMICAL ANALYSIS OF WATER AND WASTES
 [3] STANDARD METHODS, FOR THE EXAMINATION OF WATER & WASTES, 16th Ed.

ATTEST _____

ROBERT E. LEE & ASSOCIATES, INC.
 LABORATORY SERVICES
 P.O. BOX 2100, 2825 S. WEBSTER AVE.
 GREEN BAY, WI 54306-2100
 TEL NO: (414) 336-6338
 FAX NO: (414) 336-9141
 Wisconsin Certification No: 405043870

Client: Riedel Environmental
 Date Received: 03/29/93
 Date of Samples: 03/29/93
 Report Date: 04/06/93
 Client Project: Better Brite Plating
 Client Project Number: Better Brite Plating
 REL Job Number: 1014944 Batch: 1

THE FOLLOWING DATA HAS BEEN REVIEWED AND MEETS THE QA/QC REQUIREMENTS FOR BLANKS, STANDARDS, DUPLICATE ANALYSES AND SPIKED SAMPLES.

TEST PARAMETER		ZINC						
MDL	2 ug/l							
WDNR NUMBER	00275							
ANALYZED BY	DEENA BELLIN							
ANALYTICAL METHOD	6010 [1]							
EXTRACTED/DIGESTED								
SAMPLE NAME	RESULT ug/l	DATE ANALYZED	RESULT	DATE ANALYZED	RESULT	DATE ANALYZED	RESULT	DATE ANALYZED
BBZ Sump 02	2740	04/05/93						

COMMENTS:

ND = COMPOUND NOT DETECTED
 MDL = METHOD DETECTION LIMIT WITH NO DILUTION
 D = DETECTED BUT BELOW MDL
 * = MDL CHANGED DUE TO DILUTION

ANALYTICAL METHODS

[1] TEST METHODS FOR EVALUATING SOLID WASTE, SW-846
 [2] METHODS OF CHEMICAL ANALYSIS OF WATER AND WASTES
 [3] STANDARD METHODS, FOR THE EXAMINATION OF WATER & WASTES, 16th Ed.

ATTEST _____

ROBERT E. LEE & ASSOCIATES, INC.
Wisconsin Certification No: 405043870

CUSTOMER====> 009056 - Riedel Environmental
REPORT DATE==> 04/06/93 PROJECT====> Better Brite Plating
JOB NUMBER====> 1014944 LOCATION====> Better Brite Plating
BATCH=====> 1 SAMPLED====> 03/29/93

Sample #	Sample Id	Result	Analyzed	By
CHROMIUM				
1 ...	BBZ Sump 02	32400 ug/l	... 04/05/93	... DB
CYANIDE				
1 ...	BBZ Sump 02	0.743 mg/l	... 03/31/93	... DJB
CYANIDE-AMENABLE				
1 ...	BBZ Sump 02	0.364 mg/l	... 04/02/93	... DJB
REACTIVE CYANIDE				
1 ...	BBZ Sump 02	<0.02 mg/l	... 03/31/93	... DJB
ZINC				
1 ...	BBZ Sump 02	2740 ug/l	... 04/05/93	... DB

ROBERT E. LEE & ASSOCIATES, INC.
Wisconsin Certification No: 405043870

CUSTOMER====> 000404 - De Pere Wastewater Treatment Plant
REPORT DATE====> 04/20/93 PROJECT====> Better Brite
JOB NUMBER====> 1015034 LOCATION====> Better Brite
BATCH====> 1 SAMPLED====> 03/31/93

Sample #	Sample Id	Result	Analyzed	By
CADMIUM				
1 ...	Untreated	660 ug/l	... 04/14/93	... DB
2 ...	Treated	5 ug/l	... 04/14/93	... DB
CHROMIUM				
1 ...	Untreated	95900 ug/l	... 04/14/93	... DB
2 ...	Treated	111 ug/l	... 04/14/93	... DB
CYANIDE				
1 ...	Untreated	11.7 mg/l	... 04/06/93	... DJB
2 ...	Treated	<0.004 mg/l	... 04/06/93	... DJB
CYANIDE-AMENABLE				
1 ...	Untreated	1.10 mg/l	... 04/13/93	... DJB
2 ...	Treated	<0.004 mg/l	... 04/13/93	... DJB
ZINC				
1 ...	Untreated	33700 ug/l	... 04/15/93	... DB
2 ...	Treated	43 ug/l	... 04/15/93	... DB

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DE PERE WASTEWATER
TREATMENT PLANT

[END OF BATCH: 1]

DE PERE WASTEWATER TREATMENT PLANT
315 LEONARD STREET
DE PERE, WISCONSIN 54115

Fax. No.: (414) 339-4048

TELECOPY COVER LETTER

Dated: 4/22/93

TO: Terry Koehn

FIRM/COMPANY: Wisconsin Dept of Natural Resources

FROM: Al Kardoske

For your information.

For your approval.

Your comments, please.

Per your request.

RE: Better Brute - Londe Street

COMMENTS: Latest data on treatment. Please note that the "treated"
sample was actually collected on 4/2/93, not 3/21/93 - that was the
collection date for the untreated sample

Total Number of Pages (including cover sheet): 2

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ROBERT E. LEE & ASSOCIATES, INC.
Wisconsin Certification No: 405043870

CUSTOMER====> 000404 - De Pere Wastewater Treatment Plant
REPORT DATE====> 05/19/93 PROJECT====> Better Brite
JOB NUMBER====> 1015718 LOCATION====> De Pere WWTP
BATCH====> 1 SAMPLED====> 05/06/93

Sample #	Sample Id	Result	Analyzed	By
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CHROMIUM

1 ...	Untreated Influent	66800 ug/l	... 05/17/93	... DB
2 ...	Treated Effluent	635 ug/l	... 05/17/93	... DB

ZINC

1 ...	Untreated Influent	95 ug/l	... 05/17/93	... DB
2 ...	Treated Effluent	6 ug/l	... 05/17/93	... DB

[END OF BATCH: 1]

K 6-21-93

DE PERE WASTEWATER TREATMENT PLANT
315 LEONARD STREET
DE PERE, WISCONSIN 54115



Fax. No.: (414) 339-4048

TELECOPY COVER LETTER

Dated: 6/21/93

TO: Terry Koehn

FIRM/COMPANY: Wisconsin DNR

FROM: Al Kordoske

For your information.

For your approval.

Your comments, please.

Per your request.

RE: Latest Better Brite results

COMMENTS: which site? Prob Zinc

Total Number of Pages (including cover sheet): 2

IF YOU DO NOT RECEIVE ALL PAGES OR HAVE ANY PROBLEM RECEIVING THIS
TRANSMISSION, PLEASE CALL Al AT (414) 339-4094.

ROBERT E. LEE & ASSOCIATES, INC.
Wisconsin Certification No: 405043870

CUSTOMER====> 000404 - De Pere Wastewater Treatment Plant
REPORT DATE====> 07/06/93 PROJECT====> Better Brite 6th St.
JOB NUMBER====> 1016672 LOCATION====> 6th Street Transfer
BATCH====> 1 SAMPLED====> 06/23/93

Sample #	Sample Id	Result	Analyzed	By
CADMIUM				
1 ...	Untreated #1	<3 ug/l	... 06/30/93	... EWW
2 ...	Untreated #2	<3 ug/l	... 06/30/93	... EWW
3 ...	Treated	<3 ug/l	... 06/30/93	... EWW
CHROMIUM				
1 ...	Untreated #1	60000 ug/l	... 06/30/93	... EWW
2 ...	Untreated #2	58400 ug/l	... 06/30/93	... EWW
3 ...	Treated	1160 ug/l	... 06/30/93	... EWW
ZINC				
1 ...	Untreated #1	70 ug/l	... 06/30/93	... EWW
2 ...	Untreated #2	59 ug/l	... 06/30/93	... EWW
3 ...	Treated	5 ug/l	... 06/30/93	... EWW

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DE PERE WASTEWATER
TREATMENT PLANT

[END OF BATCH: 1]

ROBERT E. LEE & ASSOCIATES, INC.
Wisconsin Certification No: 405043870

CUSTOMER====> 000404 - De Pere Wastewater Treatment Plant
REPORT DATE====> 07/06/93 PROJECT====> Better Brite 6th St.
JOB NUMBER====> 1016672 LOCATION====> 6th Street Transfer
BATCH====> 2 SAMPLED====> 06/23/93

Sample #	Sample Id	Result	Analyzed	By
CYANIDE				
1 ...	Untreated	0.878 mg/l	... 06/30/93 ...	DJB
2 ...	Treated	0.094 mg/l	... 06/30/93 ...	DJB
CYANIDE-AMENABLE				
1 ...	Untreated	<0.878 mg/l	... 06/30/93 ...	DJB
2 ...	Treated	<0.094 mg/l	... 06/30/93 ...	DJB

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DE PERE WASTEWATER
TREATMENT PLANT

[END OF BATCH: 2]

R 7-12-93

DE PERE WASTEWATER TREATMENT PLANT
315 LEONARD STREET
DE PERE, WISCONSIN 54115

Fax. No.: (414) 339-4048

TELECOPY COVER LETTER

Dated: 7/12/93

TO: Terry Koehn

FIRM/COMPANY: Wis. DNR

FROM: Al Karbyska

For your information.

For your approval.

Your comments, please.

Per your request.

RE: Analysis - 6th street transfer to Lande Street

COMMENTS: includes a duplicate sampling of untreated water

Total Number of Pages (including cover sheet): 3

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TRANSMISSION, PLEASE CALL Al AT (414) 339-4094.

DE PERE WASTEWATER TREATMENT PLANT
315 LEONARD STREET
DE PERE, WISCONSIN 54115

Fax. No.: (414) 339-4048

TELECOPY COVER LETTER

Dated: 8/23/93

TO: Terry Koehn

FIRM/COMPANY: WDNR

FROM: Al Kardoske

For your information.

For your approval.

Your comments, please.

Per your request.

RE: Better Bette Data

COMMENTS: _____

Total Number of Pages (including cover sheet): 2

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TRANSMISSION, PLEASE CALL Al AT (414) 339-4094.

ROBERT E. LEE & ASSOCIATES, INC.
Wisconsin Certification NO: 405043870

- CERTIFICATE OF ANALYSIS -

To: De Pere Wastewater Treatment Plant
315 Leonard Street
De Pere WI 54115

Attn: Al Kardoskee
Phone: 414-339-4094
Fax: 414-339-4048

Customer Number: 000404

Lab Number: 93RELO00391
Sample ID : BB POND 793-1
Matrix : LIQUID

Chain Number: 4190
Report Date : 08/09/1993
Sample Date : 07/26/1993

METHOD	PARAMETER NAME	RESULT	UNITS	MDL	DATE	BY
EPA 200.7	TOTAL CHROMIUM ICP	29	UG/L	5.0000	08/02/1993	EMW

ATTEST:





Robert E. Lee & Associates, Inc.
Engineering, Surveying, Laboratory Services

Wisconsin Certification No: 405043870

2825 S. Webster Ave.
P.O. Box 2100
Green Bay, WI 54306-2100
414/336-6338
FAX 414/336-9141

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AUG 23 1993
LMD SOLID WASTE

REPORT DATE===== > 08/20/1993

CHAIN OF CUSTODY #== > 5145

CUSTOMER===== > 000404

De Pere Wastewater Treatment Plant
315 Leonard Street
De Pere WI 54115

414-339-4094

CONTACT===== > Al Kardoskee

PROJECT===== > BETTER BRITE

RECEIVED===== > 08/10/1993

SAMPLED===== > 08/06/1993

COMMENTS:

cc: Terry Koehn
DEPARTMENT OF NATURAL RESOURCES
P O BOX 10448
Green Bay, WI 54307-0448

ATTEST:

ROBERT E. LEE & ASSOCIATES, INC.
Wisconsin Certification NO: 405043870

- CERTIFICATE OF ANALYSIS -

To: De Pere Wastewater Treatment Plant
315 Leonard Street
De Pere WI 54115

Attn: Al Kardoskee
Phone: 414-339-4094
Fax: 414-339-4048

Customer Number: 000404

Lab Number: 93REL001236
Sample ID : BB8601
Matrix : LIQUID

Chain Number: 5145
Report Date : 08/20/1993
Sample Date : 08/06/1993

METHOD	PARAMETER NAME	RESULT	UNITS	MDL	DATE	BY
SW846-6010	TOTAL CHROMIUM ICP	14	UG/L	5.0000	08/12/1993	DLB

ATTEST: 

ROBERT E. LEE & ASSOCIATES, INC.
Wisconsin Certification NO: 405043870

- CERTIFICATE OF ANALYSIS -

To: De Pere Wastewater Treatment Plant
315 Leonard Street
De Pere WI 54115


Attn: Al Kardoskee
Phone: 414-339-4094
Fax: 414-339-4048

Customer Number: 000404

Lab Number: 93REL001237
Sample ID : BB8602
Matrix : LIQUID

Chain Number: 5145
Report Date : 08/20/1993
Sample Date : 08/06/1993

METHOD	PARAMETER NAME	RESULT	UNITS	MDL	DATE	BY
SW846-6010	TOTAL CHROMIUM ICP	<5	UG/L	5.0000	08/12/1993	DLB

ATTEST: 

ROBERT E. LEE & ASSOCIATES, INC.
Wisconsin Certification NO: 405043870

- CERTIFICATE OF ANALYSIS -

To: De Pere Wastewater Treatment Plant
315 Leonard Street
De Pere WI 54115

Attn: Al Kardoskee
Phone: 414-339-4094
Fax: 414-339-4048

Customer Number: 000404

Lab Number: 93REL001238
Sample ID : BB8603
Matrix : LIQUID

Chain Number: 5145
Report Date : 08/20/1993
Sample Date : 08/06/1993

METHOD	PARAMETER NAME	RESULT	UNITS	MDL	DATE	BY
SW846-6010	TOTAL CHROMIUM ICP	<5	UG/L	5.0000	08/12/1993	DLB

ATTEST: 

ROBERT E. LEE & ASSOCIATES, INC.
Wisconsin Certification NO: 405043870

- CERTIFICATE OF ANALYSIS -

To: De Pere Wastewater Treatment Plant
315 Leonard Street
De Pere WI 54115


Attn: Al Kardoskee
Phone: 414-339-4094
Fax: 414-339-4048

Customer Number: 000404

Lab Number: 93REL001239
Sample ID : BB8604
Matrix : LIQUID

Chain Number: 5145
Report Date : 08/20/1993
Sample Date : 08/06/1993

METHOD	PARAMETER NAME	RESULT	UNITS	MDL	DATE	BY
SW846-6010	TOTAL CHROMIUM ICP	6	UG/L	5.0000	08/12/1993	DLB

ATTEST: 

CORRESPONDENCE MEMORANDUM*STATE OF WISCONSIN***DATE:** April 14, 1993**TO:** Better Brite Files**FROM:** Terry Koehn - LMD **SUBJECT:** Zinc Shop Groundwater Transfer

EPA Emergency Response completed construction of the enlarged groundwater collection sump, except for capping, in March 1993. The sump should provide a significantly increased volume of contaminated groundwater from the site. Construction of the sump may also have changed the hydraulic conditions at the site, as compared to the periodic use of the sump previously constructed, and potentially the characteristics of the collected water. The following table presents analytical results from samples collected from groundwater transferred from the Zinc Shop to the Chrome Shop on March 16, 1993. The first sample (Untreated) represents influent, the second sample (treated) effluent from the pretreatment plant for the same transfer. The analyses were performed by Robert E. Lee and Assoc., Inc.

Influent (Untreated)	Concentration	Units
Cadmium (total)	6.	ug/l
Chromium (total)	37700.	ug/l
Cyanide (total)	4.283	mg/l
Cyanide (amenable)	0.036	mg/l
Zinc (total)	738.	ug/l

(Job#1014721, Sampled 3/16/93)

Effluent (Treated)	Concentration	Units
Chromium (total)	265.	ug/l
Cyanide (total)	<0.004 *	mg/l
Cyanide (amenable)	<0.004	mg/l
Zinc (total)	7.	ug/l

* Qualified Result - Spike failure due to matrix interferences
(Job# 1014772, Sampled 3/18/93 - No Cadmium Analysis)

Review of the results suggests that cyanide, as well as chromium and zinc, is being removed during the pretreatment process, although the process is not designed to

specifically address cyanide. The reduction in the cyanide level, between the influent and the effluent, may be caused by the release of HCN from the treatment process or possibly by its inclusion in the filter cake. The low amount of amenable cyanide detected in the untreated sample lessens the possibility of measurable quantities of HCN being released during the treatment process, and supports the theory that a considerable portion of the total cyanide present is associated with solid particles and is being removed with the filter cake.

The presence of cyanide in the water being transferred for treatment brought up several questions/concerns related to worker safety, water discharge limits, air release limits and residual waste characteristics. Discussion of these questions/concerns follow:

Due to the fact that the first step in the pretreatment process is the addition of sulfuric acid to the contaminated water and the potential for generation of HCN, the primary concern was the safety of the operators. An initial review of the potential for developing air quality problems associated with cyanide in the pretreatment building does not suggest a threat. The two exhaust fans, one directly over the tank and a second for the building in general, should vent any HCN generated from the building. A cyanide detection meter (Compure 4100 SN Monotox, 1 ppm detection limit) has been obtained through EPA and is being used when treating water from the Zinc Shop. To date cyanide has not been detected in the plant using the meter. Monitoring will be continued until the situation is better understood. The operators have been directed to make sure that the vent fans are operating when treating Zinc Shop water and that they should avoid placing their face/head near the opening to the reaction tank.

The City of De Pere's discharge limit for cyanide (total) is currently 1.9 mg/l. A limit of 0.9 mg/l is proposed to take effect in May or June 1993. The batch of water from which the above samples were collected met the current discharge limits. Sampling of additional batches is being performed to confirm compliance.

A cursory discussion with WDNR's Air Management Program (E. Ingerersen) did not suggest that potential cyanide emissions (based on an assumed 10 mg/l CN concentration) from the pretreatment plant would represent a potential exceedence of standards. It may be prudent to more fully evaluate emissions from the pretreatment plant if concentrations remain elevated.

Additionally, the possibility of a change in the chemical characteristics of the filter cake produced from the facility should be addressed. This question is not anticipated to represent a problem, however, a sample of the sludge is being collected for analysis.

To date these questions have not presented a concern, as groundwater samples from the site did not indicate significant levels of cyanide and the quantity of water from the Zinc Shop was minimal. The cyanide concentrations, observed in monitoring wells from 1987 through 1989, ranged from <0.01 mg/l to 0.23 mg/l. A sample collected directly from the sump (1991) on February 19, 1992 detected 0.598 mg/l cyanide (total).

Influent and effluent samples have been collected from several subsequent batches of water from the Zinc Shop. Analytical results are not yet available. Results of these analyses will be used to determine if further steps are required.

cc: G. Edelstein SW/3
D. Rossberg LMD
K. Bro WDOH
D. Linnear U.S. EPA Region V
W. Nied U.S. EPA Region V
D. Benner City of De Pere

K

ROBERT E. LEE & ASSOCIATES, INC.
Wisconsin Certification No: 405043870

CUSTOMER====> 000404 - De Pere Wastewater Treatment Plant
REPORT DATE====> 03/22/93 PROJECT====> Better Brite/6th St
JOB NUMBER====> 1014721 LOCATION====> Better Brite/6th Street
BATCH====> 1 SAMPLED====> 03/16/93

Sample #	Sample Id	Result	Analyzed	By
CADMIUM				
1 ...	Untreated	6 ug/l	... 03/18/93 ...	EWW
CHROMIUM				
1 ...	Untreated	37700 ug/l	... 03/18/93 ...	EWW
CYANIDE				
1 ...	Untreated	4.283 mg/l	... 03/19/93 ...	DJB
CYANIDE-AMENABLE				
1 ...	Untreated	0.036 mg/l	... 03/19/93 ...	DJB
ZINC				
1 ...	Untreated	738 ug/l	... 03/18/93 ...	EWW

[END OF BATCH: 1]

DE PERE WASTEWATER TREATMENT PLANT
315 LEONARD STREET
DE PERE, WISCONSIN 54115

Fax, No.: (414) 337-4048

TELECOPY COVER LETTER

Dated: 3/24/93

TO: Terry Koehn

FIRM/COMPANY: WDNR

FROM: Al Kardoski

- For your information.
- For your approval.
- Your comments, please.
- Per your request.

RE: Analysis of transfer from 6th street site to Leode Street

COMMENTS: Preliminary results on untreated groundwater

Total Number of Pages (including cover sheet): 2

IF YOU DO NOT RECEIVE ALL PAGES OR HAVE ANY PROBLEM RECEIVING THIS
TRANSMISSION, PLEASE CALL Al AT (414) 337-4074.

ROBERT E. LEE & ASSOCIATES, INC.
Wisconsin Certification No: 405043870

CUSTOMER====> 000404 - De Pere Wastewater Treatment Plant
REPORT DATE====> 03/30/93 PROJECT====> Better Brite/6th St.
JOB NUMBER====> 1014772 LOCATION====> Better Brite/6th Street
BATCH====> 1 SAMPLED====> 03/18/93

Sample #	Sample Id	Result	Analyzed	By
CHROMIUM				
1	... Treated	265 ug/l	... 03/26/93	... DB
CYANIDE				
1	... Treated	<0.004(11) mg/l	... 03/25/93	... DJB
CYANIDE-AMENABLE				
1	... Treated	<0.004 mg/l	... 03/25/93	... DJB
ZINC				
1	... Treated	7 ug/l	... 03/26/93	... DB

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APR 01 1993

DE PERE WASTEWATER
TREATMENT PLANT

[END OF BATCH: 1]



Robert E. Lee & Associates, Inc.
Engineering, Surveying, Laboratory Services

Wisconsin Certification No: 405043870

Attn: Terry Koehn

2825 S. Webster Ave.
P.O. Box 2100
Green Bay, WI 54306-2100
414/336-6336
FAX 414/336-9141

REPORT DATE====> 03/30/93

JOB NUMBER====> 1014772.

CUSTOMER====> 000404

De Pere Wastewater Treatment Plant
315 Leonard St.
De Pere, WI 54115

(414) 339-4094

CONTACT====> Al Kardoskee

PROJECT====> Better Brite/6th St.

RECEIVED====> 03/18/93

SAMPLED====> 03/18/93

COMMENTS:

For Cyanide analysis: Spike failure due to matrix interferences, possibly metal complexes.

ATTEST: _____

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APR 01 1993

**DE PERE WASTEWATER
TREATMENT PLANT**

A++n
Terry Koehn

ROBERT E LEE & ASSOCIATES, INC.**Laboratory Services**

Figures in parentheses after the analytical result indicate that a quality control violation has occurred or a special comment is needed. Please see the key below to determine the proper qualifier.

1. The result reported was included in an analytical batch in which the duplicate analysis failed the acceptable quality control limits.
2. The result reported was included in an analytical batch in which the spike analysis failed the acceptable quality control limits.
3. The result reported was included in an analytical batch in which the check standard failed the acceptable quality control limits.
4. The reported duplicate value for this sample failed the acceptable quality control limits for duplicate analysis.
5. The reported spike recovery for this sample failed the acceptable quality control limits for spike analysis.
6. The result reported was influenced by a sample interference in the analytical method.
7. Sample analyzed after holding time had expired.
8. The 5-day BOD result is reported as an "estimate" since the dilution was inadequate.
9. Sample received after holding time had expired.
10. The reported result is preliminary.
11. See the sample comments section of the report.

1/13/92

DE PERE WASTEWATER TREATMENT PLANT
315 LEONARD STREET
DE PERE, WISCONSIN 54115

Fax. No.: (414) 339-4048

TELECOPY COVER LETTER

Dated: 4/2/93

TO: Terry Koehn

FIRM/COMPANY: Wisconsin DNR

FROM: Al Kordoske

For your information.

For your approval.

Your comments, please.

Per your request.

RE: Better Brite Treated Discharge Results

COMMENTS: _____

Total Number of Pages (including cover sheet): 2

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ROBERT E. LEE & ASSOCIATES, INC.
Wisconsin Certification No: 405043870

CUSTOMER=====> 000404 - De Pere Wastewater Treatment Plant
REPORT DATE====> 03/30/93 PROJECT=====> Better Brite/6th St.
JOB NUMBER=====> 1014772 LOCATION=====> Better Brite/6th Street
BATCH=====> 1 SAMPLED=====> 03/18/93

Sample #	Sample Id	Result	Analyzed	By
CHROMIUM				
1 ...	Treated	265 ug/l	... 03/26/93	... DB
CYANIDE				
1 ...	Treated	<0.004 (11) mg/l	... 03/25/93	... DJB
CYANIDE-AMENABLE				
1 ...	Treated	<0.004 mg/l	... 03/25/93	... DJB
ZINC				
1 ...	Treated	7 ug/l	... 03/26/93	... DB

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APR 01 1993

DE PERE WASTEWATER
TREATMENT PLANT



Robert E. Lee & Associates, Inc.
Engineering, Surveying, Laboratory Services

Wisconsin Certification No: 405043870

2825 S. Webster Ave.
P.O. Box 2100
Green Bay, WI 54306-2100
414/336-6338
FAX 414/336-9141

REPORT DATE====> 03/30/93

JOB NUMBER=====> 1014772

CUSTOMER=====> 000404

De Pere Wastewater Treatment Plant
315 Leonard St.
De Pere, WI 54115

(414) 339-4094

CONTACT=====> Al Kardoskee

PROJECT=====> Better Brite/6th St.

RECEIVED=====> 03/18/93

SAMPLED=====> 03/18/93

COMMENTS:

For Cyanide analysis: Spike failure due to matrix interferences, possibly metal complexes.

ATTEST: 

RECEIVED

APR 01 1993

**DE PERE WASTEWATER
TREATMENT PLANT**