Lauridsen, Keld B

From: RICHARD BOICE[SMTP:BOICE.RICHARD@epamail.epa.gov]
Sent: Tuesday, December 22, 1998 1:44 PM
To: LAURIK@DNR.STATE.WI.US
Cc: JFASSBENDER@HSIGEOTRANS.COM
Subject: Better Brite QAPP

Attached are U.S. EPA's comments on the QAPP. L. Finkelberg's comment 2 on Section III is partially in error. Although U.S. EPA Region V should review and approve the QAPP, this can be done by the RPM rather than the FSS QA reviewer.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE: December 22, 1998

SUBJECT: QAPP for Better Brite Site

FROM: Richard Boice, RPM
Superfund Division, U.S. EPA

TO: Keld B. Lauridsen, Hydrogeologist, WDNR

Following are my comments on the QAPP:

SECTION 1.5: Since the confirmational soil samples are critical in determining the success of the remedy, this sampling and analysis should be addressed in the QAPP, in addition to the ground water monitoring.

SECTION 1.7.2, and MONITORING PROGRAM PLAN: Low-flow sampling of the monitoring wells should be preferred. If low-flow sampling is not possible without pumping the monitoring wells dry, this should be explained.

SECTION 1.7.2.2: If after the first two years, you are confident of hydraulic capture at the Zinc Shop, why not reduce sampling to every four years like the Chrome Shop?

SECTION 2: The person or organization responsible for data validation should be identified.

SECTION 2.2: Since this is a State lead project, the RPM will only be involved at certain points in the process, such as review of the final design, and the prefinal and final inspections.

MEMORANDUM **SRT-4J**

DATE : December 09, 1998

SUBJECT: Review of the QAPP for Groundwater Monitoring at Better Brite Plating, INC., De Pere, WI.

FROM: L. Finkelberg, Chemist
Field Services Section (FSS)

TO: R. Boice, RPM

I have reviewed the QAPP for Groundwater Monitoring at Better Brite Plating , INC, DePare, WI. The subject QAPP was submitted to FSS on November 01, 1998 (Log-in No. 2451).

Attached to this memorandum are FSS comments that describe the deficiencies and provide guidance for their resolution.

I. 1. Title Page needs to be revised to correct name of the responsible US EPA Region 5 RPM : Richard Boice instead of J. Peterson. Please make this correction throughout the QAPP.

2. Title Page lists the provided QAPP as revision"0", but all sections of the QAPP facilitate revision as "Revision 1". Please be consistent.

II. Based on the description of the site history and site location, I think that the sample network design and Monitoring Program Plan should include monitoring of residential wells, located in the vicinity of the sites, as well.

III. Project Organization and Responsibility.

1. Please revise this section to address the name of US EPA Region 5 RPM as R. Boice.

2. Please address in Section 2.3 that all QAPPs should be reviewed and approved by US EPA Region 5 FSS QA reviewer. The participation of the US EPA Region 5 QA Reviewer should be reflected in Fig.2-1.

3. Due to EPA Region 5 reorganization the Superfund Technical Support Section was renamed for Field Services Section (FSS). Please make corrections in Section 2.3.

4. Fig. 2-1 should be corrected according to comment III.1 of current memo.

IV. Quality Assurance Objectives for Measurement Data .

Section 3.6 needs to be revised to add that aqueous MS/MSD samples must be collected at triple the volume for VOCs, but not for metal analysis.

V. Analytical Procedure

Based on the information from Project Description the groundwater samples only will be collected during the evaluation of the remedial action for the selected remedy at the site. Section 7 of QAPP listed groundwater and surface soil sampling during field

activities. Please be consistent.

VI. Two documents : Monitoring Program Plan (Appendix 1) and Field Sampling Plan (Appendix H) are provided with the QAPP. The information in both documents is not consistent. Section 4.0 of QAPP references Monitoring Plan for all sampling procedure information. The Field Sampling Plan presents the collection of treated soil samples for the S/S process and collection of soil samples of total lead from soil excavated for installation of the external residential foundation sumps. Please clarify which of these two documents are going to be followed.

VII. Tables

1.Two monitoring wells (MW10A and MW13A) will be sampled from Zinc Shop , but Table 1-1 lists only one sample collected for VOCs analysis. Please correct:

2.Table 1-2 lists required QC limits for Chrome by Method 6010 A as 7% precision and accuracy as 80-120% recovery.
The SOP from the laboratory based on Method 6010A outline the QC as 20 % precision and spike recovery should fall within 75-125%. The same discrepancies for Hexavalent Chrome analysis. Please be consistent .

3.According to Table 1-3 groundwater samples will be analyzed for "total dissolved chromium". This statement is incorrect: samples should be analyzed for "total" or dissolved Cr. Please correct.

VIII. SOPs deficiencies.

SOP No.44 Method 6010

1. The method detection limits and working range should be addressed in SOP.

2. The digesting procedure should be part of the SOP .

3.Reagents preparation should include preparation of spiking solution.

4. Please address the post-digestion spike procedure.

SOP for Hexavalent Cr determination.

The following is missing in the SOP:

1. Summary of the method.
2. The approximate working range and method detection limit.
3. Interferences
4. Sample handling and preservation.
5. The procedure should address the size of the sample to use for analysis.
6. The reagent preparation section should include preparation of turbidity blank and spike solution.
7. The QC requirements for duplicate and spike recovery in Table 1-2 are inconsistent with the information in SOP. Please revise the inconsistency. different

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

REPLY TO THE ATTENTION OF:
SQ-14J

MEMORANDUM

DATE: JAN 28 1993

SUBJECT: Partial Approval of the Second Revision, Fund-Lead Quality Assurance Project Plan (QAPjP) for Remedial Investigation/Feasibility Study at Better Brite Plating, Inc., De Pere, Wisconsin

FROM: Curtis Ross
Acting Regional Quality Assurance Manager

TO: James Mayka, Chief
Michigan/Wisconsin Remedial Response Branch

ATTENTION: Dan Cozza, Remedial Project Manager

I am providing **partial approval** of the subject QAPjP. The Quality Assurance Section (QAS) received the subject QAPjP on January 6, 1993 (QAS SF Log-in No. 1854).

This partial approval covers all water matrix activities. A partial approval was previously given (memo dated November 18, 1992) for the sampling and analysis of all soil samples except those for hexavalent chromium analysis and sieved samples for selected TAL metals and cyanide **which are still not approvable.**

To facilitate this partial approval, the following corrections have been made to the QAPjP and the corrected pages are attached:

1. In Section 5.1.3, page 5 of 5, the following statement has been added, **"The combination CLP Traffic Report/Chain of Custody and Combination SAS Packing List/Chain of Custody are in Appendix B.2."**

2. The combination CLP Traffic Report/Chain of Custody and Combination SAS Packing List/Chain of Custody has been inserted into Appendix B.2.

3. In the SAS for the Total Organic Analysis of groundwater, surface water, and residential well samples, the statement in Item No. 1 has been revised to read, **"all samples will be unfiltered (total)".**

Printed on Recycled Paper

I have signed the attached signature page. Please have the remedial project manager provide final sign-off. We would like to receive a copy of the completed signature page within the next two weeks.

Attachments

cc: Kaushal Khanna, HSRLT-5J

REVISION 1

TASK 2

QUALITY ASSURANCE PROJECT PLAN
REMEDIAL INVESTIGATION/
FEASIBILITY STUDY
BETTER BRITE CHROME AND ZINC SHOP SITES
DE PERE, WISCONSIN

Robert J. Karnauskas, P.G., P.HG.
Simon Hydro-Search Site Manager

Michael R. Noel
Simon Hydro-Search QA Officer

Terry Koehn
WDNR Project Manager

David Linnear
U.S. EPA Remedial Project Manager

2/1/93
U.S. EPA Central Regional Laboratory Director

1/28/93
U.S. EPA Quality Assurance Manager

John Rather
Ortek Quality Assurance Manager

*This partial approval covers all water matrix activities. A partial approval was previously given for sampling and analysis of all soil samples except those for hexavalent chromium analysis and sieved samples for selected TAL metals and cyanide which are still not approvable.

carriers are not required to sign off on the custody form as long as the custody forms are sealed inside the sample cooler and the custody seals remain intact.

The combination CLP Traffic Report/Chain of Custody and Combination SAS Packing List/Chain of Custody are in Appendix B.2.

5.2 Laboratory Chain-of-Custody Procedures

The chain of custody procedures for the CLP laboratory are described in the Statements of Work (SOWs) for RASs. The same custody procedure applies to SASs. These custody procedures along with the holding time requirements for CLP samples are described in the appropriate SOW (OLM01.1 for organics and ILM01.0 for inorganics).

The chain of custody procedures for samples shipped to the CRL are described in the CRL's SOP. The chain-of-custody procedures for samples shipped to the CSL (Ortek) are included with the Ortek SOP as Appendix D. Chain-of-custody procedures for the samples sent to the material property testing laboratory will follow the Simon Hydro-Search Chain-Of-Custody Standard Operating Procedure 40500 (Appendix F).

5.3 Final Evidence Files Custody Procedures

Simon Hydro-Search is the custodian of the evidence file and maintains the contents of evidence files for the RI, including all relevant records, reports, logs, field notebooks, pictures, subcontractor reports, correspondence, laboratory logbooks, chain of custody form, and LSSS of CRL's data reviews in a secured, limited access area and under custody of the contractor's site manager.

COMBINATION CLP TRAFFIC REPORT/
CHAIN OF CUSTODY AND COMBINATION SAS PACKING LIST/
CHAIN OF CUSTODY
(refer to attached examples)

A. GENERAL:

The combination traffic report/chain of custody is used to ship samples to the EPA contract lab for routine analytical services. The combination SAS packing list/ chain of custody is used to ship samples to the EPA Contract lab for special analytical services. These reports must be filled out and shipped with each code sent to the contract lab.

B. DISTRIBUTION:

1. First copy - Send to RSCC.
2. Second copy - Mail to SMO.
3. Third and fourth copies - Send to laboratory.

C. PREPARATION:

1. Case Number - Supplied by SMO.

2. SAS Number - Enter SAS number if applicable.

3. Project Code - Optional

4. Account Code - Optional

5. Regional Information - Enter 'TFA102'

6 Non-Superfund Program - Leave blank

7. Site Name, City, State - Enter site name and location.

8. Site Spill ID - Enter 'ZZ' for all SI work unless the Site is listed on the NPL; in that case, enter the EPA site/spill ID (2 digit) Cod
9. Region No. - Enter "5"

10. Sampling Company - Enter "PRC"

11. Sampler, Sampler Signature - Print and sign your name.

12. Type of Activity - Check appropriate activity, i.e. SSI

13. Date Shipped - Enter the date samples were shipped to lab.

14. Carrier - Federal Express

15. Airbill Number -- Enter the Federal Express airbill number.

16. Ship To - Enter the lab name, address, and the person who is supposed to receive shipment.

17. Sample Numbers - Enter the appropriate sample numbers.

18. Sample Description - Enter appropriate number from box No. 7 on traffic report.

19. Concentration - Enter the expected concentration of the sample (L, M, H).

20. Sample Type - Indicate either grab or composite.

21. Preservative - Enter the appropriate number or letter from box No. 6.

22. Analysis - Check the appropriate analyses for each sample indicated on traffic report.

23. Sample Tag Numbers - Indicate the sample tag numbers that correspond to each sample number.

24. Station Location Number -- Enter the assigned location number where each sample was collected, i.e. MW-01, MW-02.

25. Month/Day/Year/Time of Sample Collection -- Enter the date and time of sample collection.

26. Sampler Initials - Optional

27. Corresponding CLP Sample Number - Enter the corresponding inorganic sample number on the organic traffic report and enter the corresponding organic sample number on the inorganic traffic report.

Use the space at the right of the traffic report to indicate which sample numbers are blanks and duplicates. Indicate the custody seal numbers in the box labeled "TR." On the SAS packing list, indicate custody seal numbers in the space between the sample information and the chain of custody record.

If all samples collected under an assigned case number were shipped on the same day, circle "Y" in the "shipment for Case Complete?" box, on the appropriate traffic reports, to indicate the shipment for the case number was complete. If a portion of the samples for a case number are collected and shipped, then circle "N" on the appropriate traffic reports to indicate that shipment is incomplete for the case number.

The sampler should sign their name in the "Relinquished by:" box prior to shipment. The date and time should also be entered. The "Split Samples" box should indicate whether split samples were accepted or declined.

See attached Examples of completed forms.

28. Identify the sample to be used for the MS/MSD or spike/duplicate analysis in the appropriate box.

SAMPLE TAG
(refer to attached example)

A. GENERAL:

A sample tag is completed for every sample collected and attached to the sample container.

B. PREPARATION:

1. Project Code/Case#: - The SMO assigned Case # or SAS is entered for samples being shipped to the CLP. For CRL samples, the 1st 6 digits of the CRL log # is the project code.
2. Station Number - Enter sample point (station) code number;
   Code number must correlate with sample plan.
   Some examples:

Monitor well	= MW		
Sediment	= SE		
Existing well	= GW		
Lake	= LK		
Stream	= SW		
Lagoon	= LG		
Soil	= SO		
Leachate	= LE		
Sludge	= SL		
Blank	= BL		

3. Month/Day/Year - Self explanatory
4. Time - Use military format
   - i.e. 1430 for 2:30 P.M.
5. Designate - Comp (Composite) or grab (Check only one.)
6. Sample # : - Enter the CLP Sample #. For CRL Samples, enter the last three digits of the CRL log #.
7. Samplers - Enter signature of sampler.
8. Preservative - Check off the type of preservative used.
9. Analysis - Check analysis desired.
10. Remarks - Identify field blanks
11. Tag Number - Enter number in logbook, on custody sheet and/or Sample Description Form.
12. MS/MSD: Identify the sample to be used for the org. MS/MSD or inorg. spike/dup. by checking this box.

EPA

United States Environmental Protection Agency
Contract Laboratory Program Sample Management Office
PO Box 818 Alexandria, VA 22313
703-557-2490 FTS 557-2490

Inorganic Traffic Report & Chain of Custody Record

(For Inorganic CLP Analysis)

SAS No. (if applicable):

Case No.: Case #

1. Project Code	Account Code	2. Region No.	Sampling Co.	4. Date Shipped	Carrier
		V	Company Name	Date	Carrier Name

Regional Information

Sampler (Name): Sampler Name

Airbill Number: Airbill Number

Non-Superfund Program

Sampler Signature: Sampler Signature

5. Ship To: Laboratory Name / Address / Attn.: Name

Site Name: Site Name

4. Type of Activity — Lead / Pre Remedial / Remedial / Removal

SF	X			RIFS	X	CLEM	
PRP		PA		RD		REMA	
ST		SSI		RA		REM	
FED		LSI		O&M		OIL	
				NPLD		UST	

City, State: City, State | Site Spill ID: Code

6. Preservative (Enter in Column D)
1. HCl
2. HNO3
3. NaOH
4. H_2SO_4
5. $K_2Cr_2O_7$
6. Ice only
7. Other (SAS) (Specify)
N. Not preserved

7. Sample Description (Enter in Column A)
1. Surface Water
2. Ground Water
3. Leachate
4. Rinsate
5. Soil/Sediment
6. Oil (SAS)
7. Waste (SAS)
8. Other (SAS) (Specify)

CLP Sample Numbers (from labels)	A Enter # from Box 7	B Conc. Low Med High	C Sample Type: Comp./ Grab	D Preservative from Box 6	E - RAS Analysis: Metals Total	Metals Dissolved	Metals Cyanide	Low Conc. Nitrate/ Nitrite	Low Conc. Fluoride	High pH	High Conductivity	F Regional Specific Tracking Number or Tag Numbers	G Station Location Number	H Mo/Day/ Year/Time Sample Collection	I Sampler Initials	J Corresp. CLP Org. Samp. No.	K Designated Field QC
MEPA01	2	L	G	2	X							5-12345-12346	MW01	Date/Military Time		EPA01	
MEPA01				3			X					5-12347-12348	MW01	Date/Military Time			
MEPA02				2	X							5-12349	MW02	Date/Military Time		EPA02	
MEPA02				3			X					5-12350	MW02	Date/Military Time			
MEPA03				2	X							5-12351	MW03	Date/Military Time		EPA03	MEPA03-MEPA04 Field duplicates
MEPA03				3			X					5-12352	MW03	Date/Military Time			
MEPA04				2	X							5-12353	MW03	Date/Military Time		EPA04	
MEPA04				3			X					5-12354	MW03	Date/Military Time			
MEPA05	3			2	X							5-12355	FB01	Date/Military Time		EPA05	Field Blank
MEPA05	3			3			X					5-12356	FB01	Date/Military Time			" "

Shipment for Case complete? (Y/N): Circle One

Page 1 of #E

Sample used for a spike and/or duplicate: MEPA01

Additional Sampler Signatures:

Chain of Custody Seal Number: COC Seal #s

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Signature	Date / Military Time				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Received by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	Is custody seal intact? Y/N/none

Split Samples ☐ Accepted (Signature)
☐ Declined

EPA Form 9110-1 (Rev. 5-91) Replaces EPA Form (2075-6), previous edition which may be used

DISTRIBUTION:
Green - Region Copy Pink - SMO Copy White - Lab Copy Yellow - Lab Copy for return to SMO

Figure E8 - 2

EPA Organic Traffic Report & Chain of Custody Record

United States Environmental Protection Agency
Contract Laboratory Program Sample Management Office
PO Box 818 Alexandria, VA 22313
703-557-2490 FTS 557-2490

(For Organic CLP Analysis)

SAS No. (if applicable):

Case No.: Case #

1. Project Code	Account Code	2. Region No.	Sampling Co.	4. Date Shipped	Carrier
		V	Company Name	Date	Carrier Name

Regional Information:

Sampler (Name): Sampler Name

Airbill Number: Airbill Number

Non-Superfund Program:

Sampler Signature: Sampler Signature

5. Ship To: Laboratory Name / Address / Attn: Name

Site Name: Site Name

3. Type of Activity: Lead — SF [X], PRP [ ], ST [ ], FED [ ]; Pre-Remedial — PA [ ], SSI [ ], LSI [ ]; Removal — RIFS [X], RD [ ], RA [ ], O&M [ ], NPLD [ ]; Removal — CLEM [ ], NEMA [ ], NEM [ ], OIL [ ], UST [ ]

City, State: City, State

Site Spill ID: Code

6. Preservative (Enter in Column D): 1. HCl; 2. HNO3; 3. $NaHSO_4$; 4. H_2SO_4; 5. Other (SAS) (Specify); 6. Ice only; N. Not preserved

7. Sample Description (Enter in Column A): 1. Surface Water; 2. Ground Water; 3. Leachate; 4. Rinsate; 5. Soil/Sediment; 6. Oil (SAS); 7. Waste (SAS); 8. Other (SAS) (Specify)

CLP Sample Numbers (from labels)	A Enter # from Box 7	B Conc. Low Med High	C Sample Type: Comp./ Grab	D Preservative from Box 6	E RAS Analysis: VOA	BNA	Pest/ PCB	High/ ARO/ TOX	F Regional Specific Tracking Number or Tag Numbers	G Station Location Number	H Mo/Day/ Year/Time Sample Collection	I Sampler Initials	J Corresp. CLP Inorg. Samp. No.	K Designated Field QC
EPA01	2	L	G	1	X				5-12357-12362	MW01	Date/Military Time		MEPA01	
EPA01	|	|	|			X	X		5-12363-12366	MW01	Date/Military Time			
EPA02	|	|	|	1	X				5-12367-12368	MW02	Date/Military Time		MEPA02	
EPA02	|	|	|			X	X		5-12369-12370	MW02	Date/Military Time			
EPA03	|	|	|	1	X				5-12371-12372	MW03	Date/Military Time		MEPA03	EPA03-EPA04 Field duplicate
EPA03	|	|	|			X	X		5-12373-12374	MW03	Date/Military Time			
EPA04	|	|	|	1	X				5-12375-12376	MW03	Date/Military Time		MEPA04	
EPA04	↓	|	|			X	X		5-12377-12378	MW03	Date/Military Time			
EPA05	3	|	|	1	X				5-12379-12380	FB01	Date/Military Time		MEPA05	Field Blank
EPA05	3	↓	↓			X	X		5-12381-12382	FB01	Date/Military Time			

Shipment for Case complete? (Y/N): Circle One

Page 1 of 1

Sample used for a spike and/or duplicate: EPA01

Additional Sampler Signatures:

Chain of Custody Seal Number: COC Seal #5

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Signature	Date / Military Time				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Received by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	Is custody seal intact? Y/N/none

Split Samples: ☐ Accepted (Signature) ☐ Declined

EPA Form 9110-2 (Rev. 5-91) Replaces EPA Form (2075-7), previous edition which may be used

DISTRIBUTION:
Blue - Region Copy Pink - SMO Copy White - Lab Copy Yellow - Lab Copy for Return to SMO

Figure EB - 1

EPA United States Environmental Protection Agency
Contract Laboratory Program Sample Management Office
PO Box 818 Alexandria, VA 22313
703-557-2490 FTS 557-2490

Special Analytical Service
Packing List/Chain of Custody

SAS No. 1234 E

1. Project Code	Account Code	2. Region No. 5	Sampling Co. Your Company	4. Date Shipped 3/1/91	Carrier Fed Ex
Regional Information		Sampler (Name) Your Name		AirBill Number 12345678	
Non-Superfund Program		Sampler Signature Your Signature		5. Ship To Lab Name Address Attn:	
Site Name Landfill		3. Type of Activity: Lead / Pre-Remedial / Remedial / Removal — SF, PRP, ST, FED; PA, SSI, LSI; RIFS, RD, RA, O&M, NPLD; CLEM, REMA, REM, OIL, UST			
City, State Chicago, IL	Site Spill ID ZZ				

6. Sample Description (Enter in Column A): 1. Surface Water; 2. Ground Water; 3. Leachate; 4. Rinsate; 5. Soil/Sediment; 6. Oil; 7. Waste; 8. Other (Specify)

7. Preservative (Enter in Column C): 1. HCl; 2. HNO_3; 3. $NaHSO_4$; 4. H_2SO_4; 5. NaOH; 6. Other (SAS) (Specify); 7. Ice only; N. Not preserved

Sample Numbers	A Matrix Enter from Box 6	B Conc Low Med High	C Preservative Used from Box 7	D Analysis	E Sample used for spike and/or duplicate	F Regional Specific Tracking Number or Tag Number	G Station Location Identifier	H Mo/Day/Year/Time Sample Collection	I Sampler Initials	J Designated Field QC
1. E01	2	L	4	TOC, Nitr., COD		5-12345	FB-01	3/1/91 9:00		Blank
2. E02	2	L	4	↓		5-12347	MW-02	3/1/91 10:00		
3. E03	2	L	4	↓		5-12348	MW-03	3/1/91 11:00		
4. E04	2	L	4	↓	X	5-12349-12350	MW-04	3/1/91 13:00		
5. E01	2	L	7	SOIL, TSS, TDS		5-12351	FB-01	3/1/91 9:00		Blank
6. E02	2	L	7	↓		5-12352	MW-02	3/1/91 10:00		
7. E03	2	L	7	↓		5-12353	MW-03	3/1/91 11:00		
8. E04	2	L	7	↓	X	5-12351-12355	MW04	3/1/91 13:00		
9.										
10.										

Shipment for SAS complete? (Y) N

COC Seal #'s 45678-45679

CHAIN OF CUSTODY RECORD

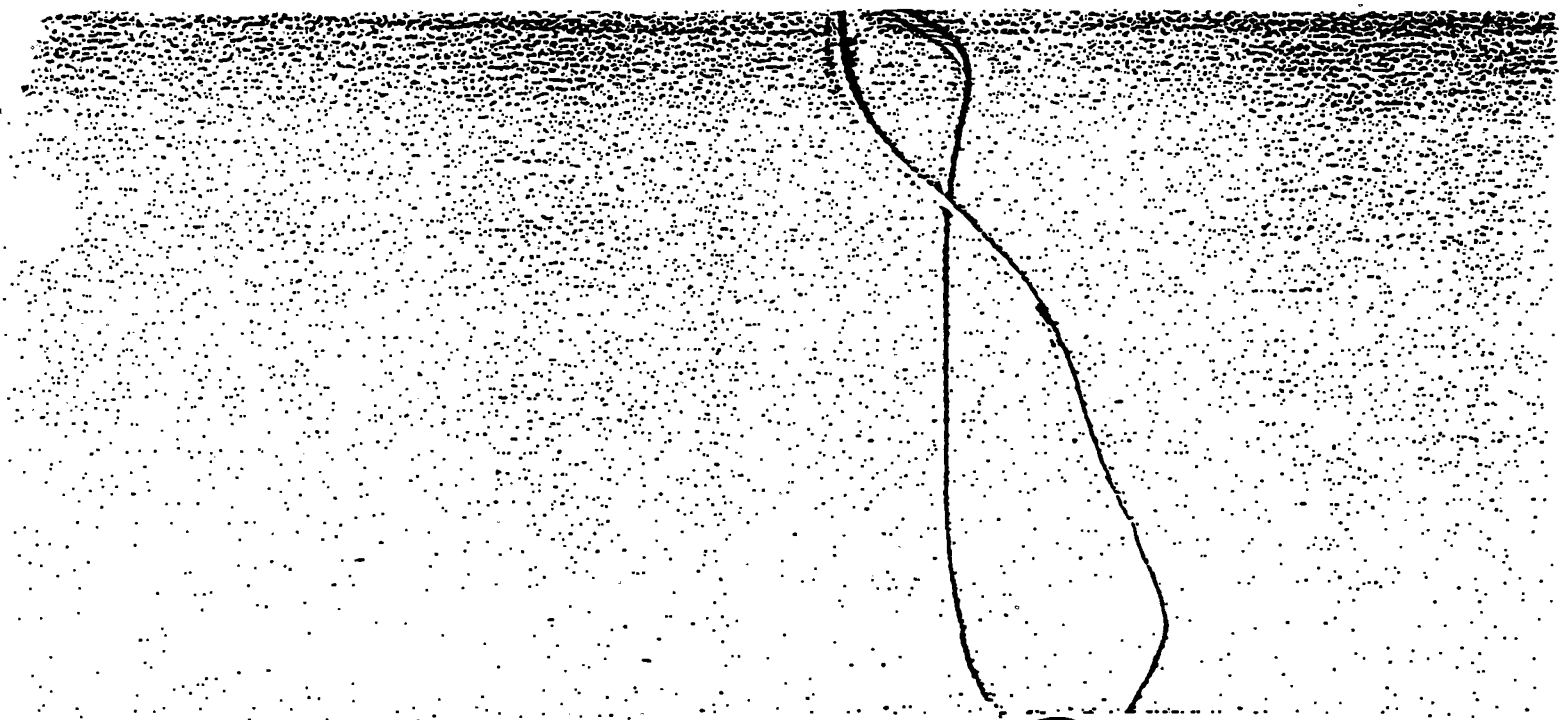
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Signature	3/1/91 18:00				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Received by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks Is custody seal intact? Y/N/none	

Split Samples ☐ Accepted (Signature) ☐ Declined

EPA Form 9110-3 (4-91)

DISTRIBUTION:

Figure E8 - 3



Case # or Project Code	Sample Number	Month/Day/Year	Time	DESIGNATE Grab	DESIGNATE Comp.	Station Number and Location	Samplers (signatures)

PRESERVATIVE: H_2SO_4 ☐

HCL ☐ HNO_3 ☐ NaOH ☐ Other ☐

ANALYSES

VOA	METALS
ABN	CYANIDE
PEST/PCB	
	Mercury
Pesticides	Fluoride
Herbicides	Nitrate/Nitrite
PCB	TOC
PCDD/PCDF	BOD
2,3,7,8-TCDD	COD
Ames Mutagen	TDS
Asbestos	TSS
Phosphorus	O&G
TO1	Sulfate
TO2	Chloride
	Sulfide
TOX	Ammonia
CBOD	Alkalinity
Bio-Acute	Acidity
Bio-Chronic	TKN

Remarks:

USE FOR MS/MSD ☐

Tag Number: CT — 169834

Lab Sample Number:

U.S. Environmental Protection Agency
CLP Sample Management Office
P. O. Box 818, Alexandria, Virginia 22313
PHONE: (703)/557-2490 or FTS/557-2490

SAS Number

SPECIAL ANALYTICAL SERVICES
Client Request

☐ Regional Transmittal ☐ Telephone Request

A. EPA Region/Client: Region V

B. RSCC Representative: Jan Pels

C. Telephone Number: (312) 353-2720

D. Date of Request:

E. Site Name: Better Brite Chrome & Zinc Shops

Please provide below a description of your request for Special Analytical Services under the Contract Laboratory Program. In order to most efficiently obtain laboratory capability fo your request, please address the following considerations, if applicable. Incomplete or erroneous information may result in delay in the processing of your request. Please continue response on additional sheets, or attach supplementary information as needed.

1. General description of analytical service requested: Analysis for total organic carbon in water (groundwater, surface water, and residential wells). all samples will be unfiltered (total). All samples will be preserved at time of collection. Results are reported as mg/l C.

2. Definition and number of work units involved (specify whether whole samples or fractions; whether organics or inorganics; whether aqueous or soil and sediments; and whether low, medium, or high concentration):

166 low to medium level aqueous samples

3. Purpose of analysis (specify whether Superfund (Remedial or Enforcement), RCRA, NPDES, etc.):

Superfund - Remedial

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Lake Michigan District Headquarters
1125 N. Military Avenue
P.O. Box 10448
Green Bay, WI 54307-0448
TELEPHONE # (414)492-5869
TELEFAX # (414)492-5913

George E. Meyer
Secretary

March 11, 1993.

File Ref: WIT-560010118
WID-006132088
Brown Co. SFND

Robert Karnauskas
Simon Hydro-Search
175 N. Corporate Dr., Suite 100
Brookfield, WI 53045

Re: Better Brite - EPA QAPP Approval

Dear Mr. Karnauskas:

Please find attached two memoranda from EPA QAS providing partial approval for the Better Brite QAPP. The first memorandum, dated November 18, 1992 addresses soil matrix activities and the second dated January 28, 1993 addresses water matrix activities.

All soil matrix activities appear to be approved by EPA except for analytical methods for hexavalent chromium and analysis of sieved samples. Modification of aspects of the shipping (chain of custody) of samples and the sampling of test pits are also included. All water matrix activities appear to be approved by EPA. A few modifications to aspects of sample shipment (chain of custody) are noted.

WDNR comments to the QAPP will be completed as soon possible. These comments can then be incorporated into the most recent document. Any required changes associated with SAP modifications can then be addressed.

If you have any questions please call me.

Sincerely,

Terry Koehn
State Project Manager

cc: G. Edelstien SW/3 with att.
C. Khazae SW/3 with att.
D. Linnear U.S. EPA w/o att.

Hydro-Search, Inc.
Brookfield Lakes Corporate Center XII
175 N. Corporate Drive, Suite 100
Brookfield, Wisconsin 53045
HYDROLOGISTS-GEOLOGISTS-ENGINEERS
Phone (414) 792-1282 FAX (414) 792-1310

January 23, 1991

Mr. Terry Koehn
Wisconsin Department of Natural Resources
1125 N. Military Avenue
Green Bay, WI 54307-0448

RECEIVED DNR
JAN 24 1992
LAKE MICHIGAN DISTRICT

RE: Pre-QAPjP Meeting; Better Brite Site, DePere, WI

Dear ~~Mr. Koehn~~ Terry:

Please find attached a Preliminary Draft copy of the Quality Assurance Project Plan (QAPjP) for the Better Brite site. This QAPjP is intended to be a working draft for discussion purposes in the development of analytical laboratory support needs through U.S.EPA, Region V. The tables have been formatted and partially completed pending finalizing the analytical needs dictated by the Sampling and Analysis Plan (SAP).

I have also enclosed a proposed pre-QAPjP meeting agenda for your review and comment. We understand the QAPjP and preliminary SAP will be issued to U.S.EPA on Monday or Tuesday next week, pending your review and authorization.

As always, please do not hesitate to contact us if questions arise on the documents.

Very truly yours,

HYDRO-SEARCH, INC.

Robert J. Karnauskas, P.G.,P.HG.
Director of Hydrogeology

RJK/gf

Encl.

cc: Gary Edelstein

Hydro-Search, Inc.
Brookfield Lakes Corporate Center XII
175 N. Corporate Drive, Suite 100
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PROPOSED AGENDA
PRE-QAPjP MEETING
BETTER BRITE SITE
DE PERE, WISCONSIN

February 6, 1991

I. Project Organization

II. Preliminary Schedule for Sampling

III. Overview of Sampling Tasks

IV. Review Data Quality Objectives

V. Proposed Analytical Parameters

* TAL Metals, Cyanide
* TCL VOCs (medium and low level)
* Availability of pre-approved SASs for Hexavalent and Trivalent Chromium, Total Organic Carbon, Soil pH, Readily Reducable Manganese
* Field Screening for Total and Hexavalent Chromium

VI. Laboratory Selection

* CRL vs. CLP

VII. Laboratory Coordination

VIII. QAPjP Review and Finalization

* U.S.EPA Contact Person
* Schedule for Draft Submittal

K 2-4-92

DNR, BUREAU OF SOLID & HAZARDOUS WASTE MANAGEMENT

TELEFAX COVER SHEET

DATE: 2·3·92

TO: Terry Koch

FROM: Char Chazae

SUBJECT: Better Brite ~~Draft~~ QAPP/SAP
Comments ?'s

4 PAGES TO FOLLOW (EXCLUDING COVER SHEET)

I will check in at the Hampton Weds. pm + travel w/ you + HSI to Chicago. Call me if this is not right w/ you. Thanks

Cha

BETTER BRITE QAPP and SAP Questions, comments, and concerns

QAPP

Section 2 — Health and Safety Officer should be mentioned. If an individual is not named at this time, at least recognize the position.

Section 3 — page 1 While it is true that MS/MSD's are only collected for organic analysis such as VOC's, it is necessary to collect 2X volume for laboratory QC for inorganics as well according to CLP protocol. Also, samples should be designated on all paperwork for lab QC, organic as well as inorganic.

page 2 - Extractable organics such as semivolatiles and PCB/Pesticides are not being analyzed, therefore mention of them may be eliminated.

page 3 - What is Eh?

page 3 - Writer needs to use the current dates for SOW's.

Section 5 — page 1 - Tags and labels should not be confused. SAS samples do not have labels, only an assigned number and a tag.

page 4 - item c I am not familiar with the term "co-locate". Does the writer mean split samples with other agencies?

Section 6 — page 1 - In addition to a spare electrode, spare batteries and buffers should be mentioned.

page 2 - Rinse electrode before placing in sample, also.

page 4 - There is no CRL SOW. CRL has Standard Operating Procedures (SOP) and also a guidance document "United States Environmental Protection Agency, Region V, Central Regional Laboratory, SARA/Superfund Sample Handling Manual, March 1989". They were in the process of updating this manual, so Jan Pels at CRL can be contacted for a newer version.

Section 7 — page 1 - The contractor should realize that CRL is not a CLP lab. The paperwork is different, QC procedures are different, and the data is returned in a different format. They may not have any choice where their samples go, but I would like to eliminate any surprises.

page 1 - Mention needs to be made here regarding physical soil tests. Is there any chance that these samples can go outside the CLP and would the contractor want this option?

SENT BY: ; 2- 3-82 ; 15:18 ; DNR SOLID WASTE-LAKE MICHIGAN DIST ;# 2

page 1 - TCLP, TOC, and CEC have also been left out.

Section 8

page 1 - CRL SOW=CRL SOP?

page 1 - The last statement only applies to samples that may go to CRL. Not appropriate for other samples.

Section 9

page 1 - CRL SOW=CRL SOP?

page 1 - Not all SAS's are validated. For example, Atterberg limits and grain size distribution are not validated, but data may be screened for contractual compliance by SMO.

page 2 - Writer should include dates for the guidance documents. Organic=February, 1988 and Inorganic-July, 1988.

page 2 - Close-support lab data is not generally validated since the time factor and lack of QC procedures will not allow.

page 2 - VOC's are not extractable organics.

Section 10

Do not understand this. Writer may use the Model QAPP for guidance.

Section 13

Does WDNR have direct contact with CLP labs or do we also have to go through RSCC and SMO? I'm not sure of this function; will discuss with Jan Pels.

Table 1-1

Explain material properties with a footnote, stating which analyses are to be included.

Isn't hydraulic conductivity a field parameter and not a lab parameter?

Table 3-1

Note 1 is out of line since blanks should not be used for MS/MSD.

Note 2 is incorrect as explained previously.

SAP

Section 4

✓ page 2 - I can't tell from the text if new wells are a Phase II activity or if they will be installed as a result of field/close support lab data.

✓ page 3 - There seems to be a great deal of confusion regarding DQO levels. The texts of the QAPP and SAP contradict each other, stating in the QAPP that no level II's would be used and the SAP has chromium tests (field?) as level II. Also, the SAP has a number of inconsistencies on DQO levels. It was my understanding that all SAS's were level V. This needs to be clarified.

✓ page 4 - Why are there two sampling events for groundwater one month apart? If more than one sampling is to take place, would not a quarterly schedule be more useful?

page 5 - Writer seems confused about CLP terminology. Better to refer to TAL inorganics and TCL VOC's as RAS (Routine Analytical Services) and all others as SAS. They will all be CLP.

Section 6

✓ page 3 - The testing of VOC's on test pit soil is a tricky issue. The writer needs to develop text to indicate that soil collected for this purpose will be non-aerated and disturbed as little as possible. Analysis could be rendered useless otherwise.

Section 7

✓ page 6 - I can not tell from text where these soils are coming from.

Section 8

page 2 - Same as above; where are soils coming from?

Section 9

It would be helpful if writer was more specific about residential well sampling. How many, what analyzed for, why data needed, and that lower detection limits are needed to accommodate this purpose, for example.

Contractor should mention that the SAS Requests and SOP for non-routine analyses will be included in an appendix.

Section 11

page 2 - VOC analysis of surficial soil is inappropriate.

page 6 - Storm water methods have been left out.

Section 14

14.3 and 14.5 Why are VOC's now being referred to as low level? Does this mean lower CRDL's used for residential wells? If the writer includes in the text that the expected levels of contamination are low to medium, this will not be necessary for non-residential well samples.

Section 17	page 3 - This is not a true statement regarding trip blanks. All trip blanks going through the CLP must be labeled with a traffic report number, tagged, and must be so noted on all paperwork.
Tables	Footnotes for material properties.
	Include a section on each table for field parameters where applicable.
	No Risk Assessment subtask 6 tables?
	Subtask 5-C has a private well. Is this the same as subtask 6-C residential wells for RA?

SAP and QAPP Review Meeting - Better Brite Project
February 5, 1992

General Questions/Comments

1. Does the agenda require modification prior to the Pre-QAPP meeting?

2. Need Assurance in SAP that, although we are looking at separate Operable Units, work on-site will be performed with a "single' mobilization. (Section 1, Page 7)

3. G.E. - Who will perform treatability studies?

4. Is TCLP analysis necessary as part of the RI/FS?

5. Would use of local lab be preferable to use of Hach Test for chromium?

6. G.E. - Can the WDNR approve a QAPP?

7. G.E. - Is it necessary to get EPA approval of QAPP?

8. G.E. - Do we want HSI to represent us at public meetings?

9. G.E. - Who will summarize/validate lab data?

10. G.E. - Opinions on analysis of pesticides.

11. G.E. - Opinion on in home sampling for risk analysis.

Sampling and Analysis Plan (Zinc Shop and Chrome Shop)

Zinc Shop Subtask 1 - Soils beneath Foundations
Metals and VOCs and Cyanide
Chromium species
Physical characteristics
Manganese, TOC
Hach, PID, Lab

8 Borings - 4 to water table
- 2 to water table
- 2 to bedrock - underground tanks
1 potential monitoring well

Subtask 2 - Surficial Soils

Soils/Sediment:	Metals and Cyanide
	Chromium Species
	Manganese, TOC, pH
Storm Water:	Metals and Cyanide and VOCs
	Chromium Species

2 Catchment Basin Sediments
? Surface Water
? Surface Soils (50 foot Grid - Specific Areas)

Subtask 3 - Subsurface Soils On and Off Site
Metals and VOCs and Cyanide
Chromium species
Physical characteristics
Manganese, TOC, pH
Hach, PID, Lab

6 to 11 test pits (3 samples each)
3 borings (3 samples per boring)

Subtask 4 - Groundwater in Vicinity of Foundations

2 water table wells
2 piezometers (4 samples each)
Sampling 4 old wells and Sump
Two Rounds (one month apart)
Hydraulic Testing

Subtask 5 - Other Groundwater Impacts On and Off Site

Subtask 6 - Private Residences

2-11-92

DNR, BUREAU OF SOLID & HAZARDOUS WASTE MANAGEMENT

TELEFAX COVER SHEET

DATE: 2-11-92

TO: Terry Koehn LMD

FROM: Charlene Chazae

SUBJECT: Better Brite pre QAPP

3 PAGES TO FOLLOW (EXCLUDING COVER SHEET)

Terry - let me know if this is OK. Any comments / questions / additions would be welcome. Thanks

Cha

State of Wisconsin

CORRESPONDENCE/MEMORANDUM

TO: File

FROM: Charlene Khazae

SUBJECT: NOTES ON BETTER BRITE preQAPP MEETING
February 6, 1992
Attendees: see attached sheet

DATE: February 11,1992

1. Bob Karnauskas began by giving a brief introduction and referred to the proposed agenda. He was interrupted by Dr. Tsai who made it clear that HSI had been given the wrong Model QAPP by the RPM. During the course of the meeting, Judy Fassbender was given the current, approved Model QAPP on disk and I received a hard copy.

2. The topic of field screening for hexavalent chromium was discussed. HSI would like to utilize a close-support laboratory in Green Bay (Ortech) to provide fast turn around data to help determine sample locations of soil and water. Ida Levin indicated that CRL would have to be included in the decision to use a CSL and determine all criteria, however, Ida would want this laboratory to have laboratory procedures and QA/QC protocol as close to CLP practices as possible. ("The closer to CLP the better.") Terry Koehn and Bob Karnauskas argued that such rigors would not be necessary for field screening purposes. I proposed that if the CSL data would in fact have to be of CLP caliber, then perhaps the data from the CSL could be used for risk assessment purposes if 10-20% of these field samples would also be sent through CLP for confirmational data. Ida Levin stated that there would be a problem if the data from these two sources did not agree. (Note: This solution would not be appropriate if data would be needed for legal reasons; the site's confidentiality/anonymity would need to be intact.) It was suggested that the SOP from the proposed CSL be obtained.

   The issue of using a Hach colorimeter method for field analysis of hexavalent chromium was also discussed. It was determined that the method, especially for soil samples, was difficult due to interferences.

   After the preQapp meeting, Terry Koehn made it clear to HSI and me that in order to meet the requirements of field screening data needs and budgetary considerations, several methods and CSL alternatives should be explored.

3. Dr. Tsai suggested that all water samples for hexavalent chromium analysis be included with the TAL inorganic analysis on a RAS plus SAS contract. It was later determined that all water samples for hex. chrom. will be sent to CRL.

4. Since total chromium was included in the TAL inorganic analysis and hexavalent chromium would be done, would it be necessary for samples to

SENT BY: ; 2-11-92 ; 10:54 ; DNR SOLID WASTE-LAKE MICHIGAN DIST ;# 2

be analyzed for trivalent chromium as well? Dr. Tsai said that trivalent chromium was not necessary and it could be eliminated.

5. All SAS's for chemical analyses are to be DQO level V.

6. Engineering samples for Atterberg limits and grain size distribution, for example, could be determined outside the CLP as a DQO level III with CRL approval.

7. Cation exchange capacity was added to page 11 of section 1 of the QAPP.

8. It was stated that the people at CRL who had knowledge of metals analysis are John Morris and Chuck Elly.

(Since CRL was not represented at this meeting , it was necessary for HSI, WDNR, and the RPM to relocate to the CRL facilities. Jan Pels and Patrick Churilla were present.)

9. I asked Jan Pels if CRL had pre-approved SOP's that could be provided for SAS analysis/requests such as hexavalent chromium for soil and water; readily reducible manganese; soil pH; TOC and CEC. She was certain that she had on file all hex. chrom. methods and TOC; CEC was an SW-846 method; soil pH would not be necessary since it is a part of the RAS package; soil % moisture was not necessary for physical tests since it would be included in the grain size determination; and that readily reducible manganese would be tricky. She will search for a method.

10. She agreed that the Hach test may have interferences but mentioned another site, Avon Town, and the RPM, Mary Lou Martin, could be contacted by David Linnear for assistance/information.

11. I asked if there was any guidance available on CSL selection or QA/QC criteria. Jan stated that there was none but that her office could help determine the approval of lab and methods.

12. It was determined that the short holding time waters for hex. chrom. would NOT be a RAS plus SAS, that all hex. chromes were to be sent to CRL for analysis.

13. It was established that the few residential well samples (approximately 4) would most likely be analyzed at CRL for organic and inorganic RAS's due to the new statements of work not yet being approved. This was not firm.

14. The updated version of Region V's Sample Handling Manual is not available, however Jan had supplemental handouts for the old document that she could make available.

15. Jan suggested that soil permeability be added to the physical tests.

16. I had methods available from another site (Mauthe) for the determination of selected metals and cyanide in air samples and fugitive dust. Perhaps this method could be used with modification. Jan will review and let us know.

MEETING FORM

NATURE OF MEETING: Pre-OAPiP Meeting

DATE: February 6, 1992 ; **TIME:** 10:00 AM

PLACE: ESD Conference room #1414 (77 W. Jackson Blvd. Chicago,

PROJECT NAME: Better Brite, Wisconsin

CURRENT STATUS: RI/FS

ATTENDEE:

NAME	ORGANIZATION AFFILIATED	TELEPHONE
Cheng-Wen Tsai CWT	US EPA ESD/MOAB/OAS	(312) 886-8220
Ida Levin	US EPA ESD/MOAB/OAS	(312) 886-6254
Terry Keehn	WDNR-LMD/SW	(414) 492-5869
Bob Karnauskas	Hydro-Search, Inc	(414) 792-1282
Charlene Khazae	WDNR-Madison SW	(608) 267-0543
Judy Fassbender	Hydro-Search Inc	(414) 792-1282
David Cinneder	U.S. EPA	312-886-1841

SENT BY: ; 2-11-92 ; 10:56 ; DNR SOLID WASTE-LAKE MICHIGAN DIST :# 4

CORRESPONDENCE MEMORANDUM

STATE OF WISCONSIN

DATE: February 20, 1992

TO: Better Brite Files

FROM: Terry Koehn - LMD T Koehn

SUBJECT: **Better Brite Project**
Pre-QAPP Meeting

A Pre-QAPP Meeting was held on February 6, 1992 in Chicago, IL at the EPA office. Besides myself, C. Khazae (WDNR), R. Karnauskas (HSI), J. Fassbender (HSI), Dr. Tsia (EPA), I. Levin (EPA) and D. Linnear (EPA) were in attendance. The majority of the meeting addressed quality control concerns and analytical questions as expected. However, one significant problem was brought to our attention. The purpose of this memo is to document this problem.

At the meeting, we were informed that the model QAPP, provided to us by EPA, was in fact only an unapproved draft version (A revised version was supplied to us at the meeting by Dr. Tsai). In preparation for the this meeting, HSI was directed to prepare a rough draft of the Better Brite QAPP using the model originally provided. At this time, it appears that a significant portion of this rough draft may prove to be unusable. An effort will be made to make use of as much of this work as possible, however, there is a very good chance that the budget for QAPP preparation could be exceeded.

I would estimate that as much as one full week of work performed by HSI and the associated expense ($2000 ?) has been spent in working on the unapproved model QAPP.

To address this unexpected expenditure, it may prove to be necessary to prepare a Change Order. This need will be evaluated through further discussion with HSI and the development of an estimate of costs associated with trying to use the unapproved model QAPP rather than the correct version.

cc: G. Edelstein SW/3
J. McLimans SW/3
C. Khazae SW/3

SIMON HYDRO-SEARCH

175 N. Corporate Drive
Suite 100
Brookfield, WI 53045

Telephone (414)792-1282
Facsimile (414)792-1310

X 3-9-92

March 5, 1992

Mr. Mark Giesfeldt, Chief
Environmental Response and Repair Section
Wisconsin Department of Natural Resources
101 S. Webster Street
Madison, WI 53707-7866

RECEIVED DNR
MAR 09 1992
LAKE MICHIGAN DISTRICT

RE: Better Brite NPL Site, DePere, Wisconsin

Dear Mark:

A conversation today with Terry Koehn of the Green Bay office reminded me of the need to express my appreciation of the support we received from Charlene Khazae at our pre-QAPP meeting with U. S. EPA in Chicago in February, 1992. Charlene's previous experience with Dr. Tsai and others within the U. S. EPA Quality Assurance Section proved to be invaluable in a very difficult situation during that meeting. I was highly impressed with her abilities to interact with key U. S. EPA staff, and knowledge of QAPPs in general. Charlene's support during this meeting was most appreciated and look forward to continuing to work with her through finalizing the Better Brite QAPP.

Neither of us receive many letters like this and, in this case, it is particularly well deserved.

Sincerely,

SIMON HYDRO-SEARCH

Robert J. Karnauskas, P.G., P.HG.
Director of Hydrogeology

RJK:gf

cc: Terry Koehn, WDNR, Lake Michigan District Office

SIMON Environmental

K 3-23-92

State of Wisconsin

CORRESPONDENCE/MEMORANDUM

DATE: March 20, 1992 FILE REF:

TO: Better Brite File

FROM: Charlene Khazae SW/3

SUBJECT: Conversation with Jan Pels, et al, regarding laboratory methods

On March 17, 1991 I had a conversation with Jan Pels, EPA/CRL concerning the laboratory methods for the above site.

I informed Jan that HSI and DNR are no longer interestad in collecting samples for fugitive dust (wipe test) or large volume air for the analysis of selected metals, cyanide and hexavalent chromium. It was no longer necessary for her to review the methods that I submitted to her last month.

Jan had also reviewed the method for readily reducible manganese that Judy Fassbender from HSI had sent to me. She questioned the purpose of the analysis, as it appears to only relate to agricultural situations. I explained that recent literature indicated that the presence of readily reducible manganese in soil helped to enhance the likelihood of chromium in the hexavalent state. Hexavalent chromium is more toxic than other forms and therefore this data might be useful for risk assessment. She will confer with her supervisor on this. This is not a high-priority item with me or Terry.

It has been established that EPA's CRL will accept the water samples only for hex. chrom.. Soil samples will be sent to labs through the CLP on a SAS contract. Currently there is no approved/reliable method for soil hex. chrom. analysis, however the RPM for Better Brite, David Linnear, is to contact John Morris. Morris is familiar with other sites that required this analysis. Judy will contact David.

Confirmed that a pre-approved SOP existed for TOC's, however HSI has received the SAS request and SOP for this, lifted from the Mauthe Site, from Terry Koehn. This will be used.

The cation exchange capacity procedure is in the SW-846. HSI can easily lift this and attach to a SAS request, provided all necessary information is included.

For the surficial soil issue, this is how it has been resolved. Surficial soils will be "split". The first portion will be sent to lab for analysis of TAL metals, cyanide, and hexavalent chromium. The second portion will be sent to lab to be dried and sieved. The fraction that is < 35 micron will be analyzed for cadmium, total chromium, and hexavalent chromium. The drying process will invalidate cyanide results and will therefore not be tested for. Terry Koehn said he wanted lead added to the list of analytes for the dried fraction, however we agreed that there was no reason to include any other analytes. Jan would like HSI to write separate SAS requests for each of these tests and specify that the same lab will have to do all analyses. This is to insure comparable data. Judy at HSI was confused about the need for a SAS for TAL inorganics. It was my understanding based on the conversation with Jan Pels, CRL, that this was necessary because of the special request for lab procurement. I saw no reason why the SAS request could not simply reference the EPA/CLP Statement of Work. Attaching an SOP was not necessary.

Judy Fassbender and I discussed the above during a phone conversation on March 19th. Terry Koehn and I spoke on the phone about these matters on March 20th. I informed Judy F. of HSI of the lead addition via FAX on March 20th.

DNR, BUREAU OF SOLID & HAZARDOUS WASTE MANAGEMENT

TELEFAX COVER SHEET

DATE: 3·20·92

TO: Terry Koehn LMD

FROM: Char Chazae SW/3

SUBJECT: BB / FYI

1 PAGES TO FOLLOW (EXCLUDING COVER SHEET)

any additions / corrections welcomed.

FROM: Charlene Khazae SW/3

TO: Terry Koehn LMD

SUBJECT–MESSAGE

— Better Brite QAPP

As per our discussion please find attached copies of:

1) Manual Hex Chrome in Soils Addendum with all attachments
   a) SOP for Hex in Soils
   b) SOP for analysis of metals in Soils by ICP
   c) SAS for TOC
   d) SAS for % Solids

REPLY

SIGNED T Koehn DATE 3-31-92

RETURN THIS COPY TO SENDER

SIGNED _____ DATE _____

4-16-92

MEMORANDUM 5SCRL

Date: 6 Nov 92

Subject: Analysis of Soil Samples Collected at the N. W. Mauthe Superfund Site on December 3, 1991 for Hexavalent Chromium

From: John V. Morris, Chemist
Central Regional Laboratory

To: File: SF0833

cc: John Peterson, HSRW-6J
Kaushal Khanna, HSRLT-5J

Twenty-eight soil samples were received at CRL on December 12, 1991 from the N. W. Mauthe Superfund Site in Appleton, Wisconsin for analysis of hexavalent chromium, or Cr(VI). These samples had been collected on December 3. They were also analyzed for total cadmium, chromium, and zinc, with the total chromium results being used to bracket the spikes of Cr(III) and Cr(VI) that are used to evaluate each sample result in the Cr(VI) method.

The results, together with the micrograms of chromium used for the spikes, and the percent recoveries for the hexavalent and trivalent spikes, are presented in Table 1. The detection limits used reflect only the detection limit of the ICP used to detect the chromium, not the detection limit of the entire procedure, which is as yet undetermined. All samples show negative for Cr(VI), but all spikes show reduction taking place. It is impossible to tell if the reduction is taking place in the extraction, or if the sample is inherently reducing in the solid phase, such that Cr(VI) could not exist in the sample in the field. All that can be said is that *with this method*, if Cr(VI) existed in these samples, one would be unable to extract it.

One blank did not recover the Cr(VI) spike, but the only conclusion is that the analyst forgot to add the spike in this case.

↑ What this is saying is that Cr VI is converting to CrIII. Either something in the soil is causing it or the method is. Chan

Post-it™ brand fax transmittal memo 7671	# of pages ▸
To Terry Koehn	From Char Charae
Co. LMD	Co. Madison
Dept. WDNR	Phone #
Fax #	Fax #

E 4-29-92

State of Wisconsin

CORRESPONDENCE/MEMORANDUM

DATE: April 28, 1992 FILE REF: 4440

TO: Terry Koehn, Lake Michigan District

Need SOP on Surficial Soil Spls

FROM: Charlene Khazae, SW/3

SUBJECT: Better Brite Draft Quality Assurance Project Plan (QAPP), Sampling and Analysis Plan (SAP), and Data Management Plan (DMP) comments

I have reviewed the above mentioned plans. Please present the following comments to Hyro-Search as you deem appropriate. The texts should reflect the procedures described in the guidance "United States Environmental Protection Agency, Region V, Central Regional Laboratory, SARA/Superfund, Sample Handling Manual, March 1989" with the included handouts. This must be followed exactly for all samples sent through the CLP. This guidance material was sent to HSI in February. I will be available to help HSI with all CLP details (lab procurement, sample labeling and packaging, paperwork), if necessary, but only after a more exacting review of the guidance provided.

COMMENTS ON DRAFT QAPP

Section	Page	Comment
"sign-off" page		It is inappropriate to have a signature for "Laboratory QA Officer" since several CLP and non-CLP labs will be utilized. It is sufficient to have the U.S. EPA CRL Laboratory Director's signature.
1	11	Under DQO Level 5, analysis for TCL VOCs and TAL inorganics for all residential wells including the municipal well should appear here because of the lower detection limits.
2	4	First item- "and field laboratory staff" could be substituted with "field measurements" since on-site lab analysis will not be done.
3	1	The writer followed the model QAPP exactly, however the text is misleading and the following changes (underlined) would make it more correct: "Trip blanks are used to assess the potential for contamination of samples due to VOC contaminant migration during sample shipment and storage." Also, "All matrix spikes for organic analysis are performed in duplicate and are hereinafter referred to as MS/MSD samples. Similar laboratory QC is performed on inorganics as well. One laboratory QC sample will be collected/designated for every 20 investigative sample collected for organic or inorganic analysis." This is CLP protocol.
3	2	Second full paragraph-Surface water and basement sump water should be included. Also, HSI should be advised that we have a commitment from CRL to accept the aqueous hexavalent chromium samples only, not the soils. Residential well samples for VOCs and inorganics may be sent to CRL or a CLP lab.
3	3	The accuracy and precision requirements for the CSL data should be referenced specifically.

	Section	Page	Comment
see CK	3	3	The model QAPP suggests 95% completeness. If you can make your decisions on 90% valid data, this is fine with me also.
✓	5	4	Item c may be eliminated. Samples collected will not be split.
✓	6	2	Typo-"it will be returned to the manufacturer for service."
✓	6	5	The model also says SOW but it should be SOP.
	7	1	✓ Surface water (and basement sump water) should be included. The ✓ statement, "Because CRL will be used..." should appear in the SAS sub-section since they have accepted aqueous hex. chrome samples ✓ only. Also in the SAS sub-section CEC and residential well analysis should be included. Section 7 should also have ✓ information regarding non-CLP lab analysis such as the CSL and the ✓ lab(s) doing the physical soil tests. Since a PID will be used ✓ for field screening and not just for H&S reasons, this should be included in 7.2.
✓	8	1	8.2-Include information on PID.
✓	8	2	A sub-section on CSL internal quality control checks should be included. SOP may be referenced.
✓	9	1	✓ 9.1.1 Model has syntax error. The word "summarized" doesn't fit. ✓ 9.1.2 "at the Better Brite site..."
✓	9	2	9.2 The statement regarding the CSL data validation should be reworded to better reflect our needs. Suggest, "The CSL QC officer will be responsible for reviewing the close support laboratory data. Since this fast turn-around data will be used for field screening purposes only, validation will not be required."
✓	9	3	I know that physical soil test data are handled totally different. HSI may wish to include information regarding deliverables here.
✓	10	1	Typo-"These audits will be occur..." (eliminate be). I am not familiar with Central District Office. Is this EPA? Would like to have the opportunity for WDNR to audit also. With my familiarity with EPA/CLP protocol, it may be beneficial. Let's discuss.
✓	10	2	Syntax error. Might better read "The system audits will include..."
✓	10	2	It would be helpful if HSI included the CSL "credentials" such as State certification and any other certifications they hold or performance evaluations in which they participate.
✓	11	1	11.1 Include PID information here.

Section	Page	Comment
13	3	A statement must be added similar to the following, " Any changes or deviations in the field that effect the number of samples, matrices, expected level of contamination, or sampling schedule must also be relayed to the Regional Sample Control Center (RSCC) of CRL promptly." This could effect lab services.
13	5	Corrective action for CSL and non-CLP labs should be included. Section 6.3 of CSL SOP may be referenced. I am not familiar enough with ASTM methods or data needs to offer guidance on material properties tests corrective action. Since HSI has the opportunity to interact with this lab directly, it may be less formal.
Figure QA2-1		Project Organizational chart-I do not understand the function of "Laboratory QA Task Coordinator" and the text in Section 2 of QAPP does not mention this. This should be defined.
Table QA1-1		MS/MSDs (and other laboratory QC) Samples that are designated (and extra volume collected when appropriate) as MS/MSDs or other lab QC are not considered separate samples according to EPA protocol. Regardless of volume, they are given the same sample number as the "parent" sample. In most cases the table reflects the number of QC samples required, however the Total Sample column should not include these samples.
		Soil pH During the pre-QAPP meeting we were assured by Pat Churilla that separate analysis for soil pH would not be necessary since this will be done as a part of the regular RAS. If this is the case, all references to SAS soil pH can be eliminated. Let's get this resolved.
		Surficial Soils Table does not indicate that there will be 2 samples for each location; one fraction analyzed for TAL inorganics plus hex. chrome, and the other fraction dried, sieved and analyzed for selected metals and cyanide. The total number of field samples in the SAS requests are 62. Separate field duplicates are to be collected (they may come from the same location) and separate samples must be designated for lab QC (they may come from the same location also).
		Field Blanks For surface water and basement sumps, the SAP gives several methods for collection. If these samples are collected directly into the proper containers and they are not filtered (and they should not be) no field blank is required for these matrices.
		Trip Blanks One trip blank is required for each cooler containing aqueous VOC samples. Surface water, groundwater, extraction well, and sump water that are being shipped together may share the same trip blank. Residential well and municipal well samples may share a

Section	Page	Comment
	✓	trip blank because they are both analyzed using lower detection limits. Are the numbers of trip blanks that appear in the table guesses?
	✓	Frequency Since more than one sampling event is proposed, monitoring wells or extraction wells that will be resampled at a later time must have notation to this effect. A footnote will do. Field and lab QC requirements must be met for each sampling event.
Table QA3-4	✓	Cyanide for res. wells has been left out.
Table 11-1		This table can be eliminated. I believe the model QAPP suggests this for enforcement lead projects. Routine maintenance procedures are included in the SOWs.
Table ?	✓	A table must be included which shows the proper style and numbers of containers, sample size, preservation, and analytical holding times. All RAS, SAS, CSL, and non-CLP parameters must be included.

COMMENTS ON DRAFT SAP

	Section	Page	Comment
✓	4	2	The word "quantity" is incorrect. Quantify?
✓	4	3	Typo-"collected and submitted to a laboratory..."
✓	4	5	The PID instrument will give a reading to alert the samplers to elevated VOC levels, but a visual test for chromium bearing material is more subjective. For this reason a brief description in the text as to what the samplers should look for would be helpful.
✓	5	4	The hexavalent chromium for the soils have a DQO Level of 5.
✓	5	5	If the CSL data results warrant additional sample being sent to CLP, the text needs to state so here.
✓	6	3	TOC and CEC are both DQO Level 5. Again, a separate test for soil pH may not be necessary. If it is, DQO Level 5.
✓	6	7	The separate soil pH analysis may not be necessary.
✓	8	2	All residential well and municipal well samples have a DQO Level 5 because of lower detection limits.
✓	9	1&2	A number of questions and concerns regarding the subject of drums have been raised. Firstly, if a magnetometer test for buried drums will be conducted, pertinent information regarding standard operating procedures, calibrations, and maintenance must be included in all appropriate sections of the QAPP and SAP. If drums are in fact discovered text should include what action

	Section	Page		Comment
				should be taken. For example, will excavation and sampling take place immediately, during the proposed Phase II, or will EPA/WDNR conduct an emergency removal? HSI should be advised that special laboratory services will be required for heavily contaminated material. We have made no provisions for this.
✓	9	6		Separate analysis for soil pH may not be necessary.
✓	10	3		Define CSL as close support lab.
✓	10	3		Third paragraph-Will the storm water run-off be sampled <u>in addition to</u> the three basins? Please clarify.
✓	10	5	✓	If the data from the CSL on these additional samples warrants sending extra samples to CLP, it should be mentioned here.
			✓	Text should indicate the number of storm water samples anticipated.
✓	11	1		End of first paragraph-"A separate part of the Subtask-3C..." might better read "Subtask-5C", since information regarding residential well sampling is presented in 5C.
✓	11	3		TOC, CEC, and pH (if required) are all DQO Level 5.
✓	11	4		Typo-"In Subtask 1C one additional water table well <u>was</u> also proposed."
✓	11	6		Typo-"...interpretation of this data will be the preparation <u>of</u> three ..."
✓	11	7		Separate soil pH analysis may not be necessary.
✓	13	2		The TCL VOCs for res. wells should also be noted as low level and all res. well analyses have a DQO level 5 because of lower detection limits.
✓	13	4		Sampling of air particulates has been eliminated from this project.
✓	13	5		The media "groundwater" should read "residential wells". (This may need to be corrected elsewhere.) The VOCs for res. wells are also CLP-SAS.
✓	15	1		15.1 Text would better read, "Each sample container will be tagged with the following..." EPA sample <u>labels</u> are only used for the RAS parameters.
✓	15	3		First paragraph-This is an untrue statement regarding trip blanks. Trip blanks are not supplied by CLP labs. They are prepared prior to mobilization and carried into the field along with all other VOC samples/containers. They are labeled, tagged, and preserved, as if the were an investigative sample. They are designated on

Section	Page	Comment
		EPA paperwork (chain of custody/traffic report) as a trip blank. HSI is required to use the same high quality water for their trip blanks that they intend to use for decontamination and field blank purposes.
15	3	While it is a good idea to designate MS/MSD and other lab QC samples in the log books and paper work in the manner described at the bottom of this page, HSI must be aware that these QC samples will receive the same EPA sample number as the field sample.
Table 4-1		Number of samples-Believe the zeros in these two columns are inappropriate. Since the degree and extent of contamination are being investigated, it would be advantageous to have at least one sample per boring. The table may instead contain the abbreviation "max." to indicate that multiple samples/boring may not be necessary.
		Tests included in "Material Properties" need to be specified. A footnote will do.
Table 6-1		Footnotes are needed here; one to indicate the number of samples per location for groundwater will happen during two separate sampling events and the other to list tests for material properties.
Table 7-1		See previous note regarding sampling events.
Table 8-1		See previous note regarding sampling events.
Table 9-1		See previous notes regarding zero samples and material properties.
Table 10-1		Referring to Section 10, page 3, third paragraph-The number of surface water samples is in question. If there is a chance for more than three surface water samples, the table should state so.
Table 11-1		The number of monitoring wells I believe should be 33 and not 32. (There are 29 new wells, 3 existing and one installed during Subtask-1C.) This will change numbers across the entire row. See previous notes regarding sampling events and material properties.
Table 12-1		See previous notes regarding sampling events.
Appendix A / Standard Operating Procedures of SAP		
SOP 40100		General comments: This section does not need to be included in the SAP. It is, however, necessary for the QAPP/SAP to include a statement similar to the following: "All environmental samples will be packaged, labeled, and shipped according to current Federal DOT regulations." This is important so that the contractor will be responsible for any consequences of not complying with the regulations. For example, if a commercial

Section	Page	Comment
		carrier refused shipment because of improper labeling, etc., and critical holding times were exceeded, HSI would be responsible. For HSI's convenience I would like to recommend that they call Federal Express's toll-free telephone number (1-800-238-5355) and ask for the "Dangerous Goods Hotline". The purpose is two-fold. Firstly, the categories listed in Table 1, page 3 most likely do not apply to the investigative samples from Better Brite. Federal Express has trained personnel who will be able to help classify these samples, based on historical data, and provide information on packaging, labeling, etc.. I expect them to come under ORM (other regulated material). Secondly, commercial carriers sometimes have more stringent rules than the Federal Government, and their policies can also be discussed. A very important detail that HSI should be aware of is that, as of 1-1-91, DOT regulations require that in order to ship potentially dangerous materials a 24-hour telephone number must be included on the paperwork so that information can be provided on the materials being shipped.
✓	4	3.1 Packaging-Proper CLP packaging procedures are included in guidance/handouts. Please include these procedures in the text.
✓	6	✓ Paper work such as chain of custody forms must be completed according to the manual provided.
		✓ 6.0-Transportation. HSI may not transport any samples to a CLP laboratory.
40400	2	✓ 2.0-Please do not confuse labels with tags. All sample containers are tagged but only RAS samples are labeled.
		✓ Suggest that suffixes be added to identification numbers which denote depth for soil samples or sampling event for groundwater samples.
40500	2	✓ Item (a)- I can not find an Attachment A. There will be several chain of custody forms for this project and examples of each should be included. HSI may use their own chain of custody form for samples being sent to the CSL and all non-CLP labs. EPA/CLP ✓ requires the use of either the organic traffic report/chain of custody, an inorganic traffic report/chain of custody, or a SAS packing list/chain of custody as described in the handouts provided.
		✓ Item (c)-May be eliminated since sample will not be split.
		✓ Item (d)-All EPA chain of custody forms have four pages and instructions are given for where each one is sent.
40600		✓ This entire SOP in invalid for all CLP samples. CLP labs do not provide sample containers or preservatives. HSI is encouraged to contact Jan Pels, Region V CRL, to get guidance on container/preservative procurement.

Section	Page		Comment
		✓	As previously stated, a Table must be included which lists all containers, preservatives, and holding times for all parameters.
40700	1	✓	Typo-"A sample location..."
		✓	What wetland?
50100		✓	I do not know if a portable gas detector is necessary for health and safety purposes but it does not need to be included in the SAP.
50200	2	✓	Please indicate the energy level of the PID lamp being used.
	5	✓	Please indicate how often duplicates will be taken.
	6	✓	It is suggested that unusually high PID readings be included on EPA paperwork to alert the analyst.
50300	2	✓	Include a step for rinsing and drying electrode between samples.
	3	✓	4.1-Please indicate how often duplicates will be taken.
50400	2	✓	Table 1-Please check if 0.01M KC should be KCl.
	3	✓	Many conductivity meters require a deionized water blank for "zeroing" the instrument. Please check the instruction manual to make sure that this step has not been eliminated.
	4	✓	4.1-Please indicate how often duplicates will be taken.
60200	2	✓	Phosphate-free detergent is to be used. Also suggest that if the tap water rinse is followed by an isopropanol and then followed by a distilled water rinse, that evaporation of equipment will not be necessary.
		✓	Typo-"...and disposed of in an appropriate manner."
60204		✓	Is mapping a part of this project?
70100	2	✓	Eliminate "laboratory-prepared". This is not EPA/CLP protocol.
		✓	Use the word tagged instead of labeled. Also, it is inappropriate to composite VOC samples.
70500	1	✓	1.0-The determination of LNAPLs and DNAPLs is not appropriate for this project.
		✓	Typo-"Construction and installation..."
	3	✓	Where is Figure 1?
		✓	Syntax error-"If the packing material bridges, it will be tamped into place." This same error appears in other sections.

?

Section	Page		Comment
	4	✓	Where can we find examples of the well forms mentioned? In DMP
	5	✓	Where is Figure 2?
	7	✓	Where is Figure 3?
80400		✓	Subsurface Soil Sampling. There is no text describing the collection of soil samples from test pits. It is necessary to include here or in a separate SOP to especially insure the integrity of the VOC analysis. VOC samples that are aerated will be useless.
91000	2	✓	Second paragraph is inappropriate for CLP samples as stated previously.
		✓	3.1-How will such samples be identified and will this be the responsibility of the field crew or lab? Please clarify.
	3	✓	3.3-Not CLP protocol.
		✓	3.4-Not CLP-RAS. SAS Turnaround times are specified in the SAS request forms. This subsection is not necessary.
		✓	3.5-This is not necessary for samples sent through CLP.
		✓	3.6-HSI must follow the manual provided for this information.
	8	✓	4.4-This entire sub-section must be rewritten to reflect CLP protocol.
	10	✓	4.5-Same as comment above.
	12	✓	5.0-According to CLP procedures, many forms may be necessary. Examples of these should be included.
	13	✓	5.2-Purging information. It is not required on CLP paperwork to include this information. A CLP lab does not care if a sample was not collected nor why.
	20	✓	6.3-Two typos at bottom of page.
	28	✓	Third paragraph-When field measurements are in error, instruments should also be recalibrated. This should be added to the text.
	29	✓	8.3-Eliminate TOX. Please state that samples for organic analysis (VOCs) are not filtered. See previous statements on sample bottle procurement. HSI should be advised that pre-filtration jugs obtained commercially are seldom cleaned according to EPA's highest standards.
	30	✓	Sample bottles obtained commercially usually do not have a preservative added. CLP labs do not provide bottles nor preservatives.

Section	Page		Comment
		✓	Typo-Item (1) " put <u>on the</u> ground"
	31	✓	Items 5 & 6-Eliminate TOX and Coliform references.
		✓	Item 7-CLP manual stipulates that samples are to be sent out within 24 hours of collection.
		✓	Typo-Item (9) "fall <u>on the</u> ground"
	32&33	✓	8.4-Second paragraph-This needs to be reworded since trip blanks are not prepared by the lab receiving the samples. Should indicate that they are for VOCs only. HSI is advised to have extra trip blanks in the field. If one is accidentally opened it should be discarded. Regarding field blanks: When bottles are obtained commercially and are cleaned according to EPA's highest standards, they come with a certificate of analysis indicating the absence of contamination. For this reason, "bottle blanks" are not necessary. The purpose of a field blank is to determine if decontamination procedures are being carried out properly and there is no "carry over" from one aqueous sample to another. When sample bottles are filled directly and do not come in contact with sampling or a filtering apparatus, field blanks are not required. Even with dedicated sampling equipment, such as bailers, a field blank is required for every 10 samples to determine if the dedicated bailers were clean to begin with. Field blanks are analyzed for all parameters that the field samples are analyzed for including SAS parameters.
		✓	Items (1), (2), and (3)-This is incorrect. See above statement regarding field blanks. One trip blank is required for each cooler containing samples for VOC analysis. Each field QA sample serves a specific purpose and they can not be substituted for each other. This needs to be reworded.
	34	✓	8.5-This is not necessary for this project. Text can more simply state that field duplicate samples will be collected at a frequency of one for every 10 samples or fewer, for each matrix, at the same time, and in the same manner as the original sample.
	36	✓	Second note-This is a good precautionary step, however, if filtering equipment is decontaminated properly, cross contamination should not happen. (See comment for page 38.)
	37	✓	Third item-Not necessary to include this information on EPA/CLP paperwork.
	38		Item (1)-Filtering equipment should be decontaminated in the same manner as other field equipment: Tap water and phosphate-free detergent, tap water rinse, isopropanol, DI water rinse. If filtering apparatus contains components that should not come in contact with alcohols or other solvents, at least detergent should be used.

Section	Page		Comment
	39	?	Many typos on upper half of page.
		✓	Item (12)-This decon. procedure is deficient. See previous notes.
		✓	"unless analytical data is available ..." should be eliminated. Loss of organic analytes is of major concern.
	40	✓	9.1-This sub-section must be rewritten to reflect CLP protocol as given in the manual.
		✓	Typo-Third paragraph-eliminate the word <u>in</u>.
	41-43	✓	9.2-Same as comment above. (9.1)
	44-46	✓	9.3-Same as comment above. (9.1)
92000	2	✓	Syntax error-The word <u>prelude</u> should be substituted with <u>preclude</u>.
	3	✓	4.0-Where is Attachment A?
		✓	5.0-Typo-"The <u>tap</u> will be turned on..."
		✓	The last sentence in first paragraph-Should this read "The sample bottles will be filled as required in order to decrease (prevent) volatility."?
94000	1	✓	2.0-The McLane, et al, method is not attached to the SOP as stated.
	2	✓	Third paragraph-Syntax error; tenses.
100100	1	✓	There is no Figure 1.
		✓	Since VOC analysis of surface water is proposed for this site, I'm not sure that compositing of surface water is valid. This requires discussion.
General Comment		✓	There is no text describing the sampling procedure for basement sumps. This should be included somewhere.

<u>Special Analytical Service Requests and SOPs</u>

I haven't contacted HSI regarding the changes that you and I discussed so I am including them here for your confirmation. For all SAS requests that deal with metals analysis, the second item which asks for expected level of contamination should be changed from "low" to "low to medium". The surficial soil fraction that is dried and sieved will be <u>air</u> dried instead of oven dried. The purpose of this is to be able to include cyanides and also to insure that hexavalent and trivalent chromium will not undergo any changes due to heat. I will supply Judy Fassbender with a new attachment to the SOP soon.

Data Management Plan

Section	Page		Comment
3	1	✓	Second paragraph-EPA tags are retained as documents and it is important to include this in text. EPA sample labels are not as important since only RAS parameters are labeled.
	6	✓	3.2.3.13-Please refer to previous statements regarding specific chain of custody forms. Examples of each should be included.

cc: Gary Edelstein

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

REPLY TO THE ATTENTION OF:
SQ-14J

MEMORANDUM

DATE: NOV 18 1992

SUBJECT: Partial Approval of the First Revision, Fund-Lead Quality Assurance Project Plan (QAPjP) for Remedial Investigation/Feasibility Study at Better Brite Plating, Inc., De Pere, Wisconsin

FROM: Curtis Ross
Acting Regional Quality Assurance Manager

TO: James Mayka, Chief
Michigan/Wisconsin Remedial Response Branch

ATTENTION: Dan Cozza, Remedial Project Manager

I am providing partial approval of the subject QAPjP. The Quality Assurance Section (QAS) received the subject QAPjP on November 4, 1992 (QAS Log-in No. 1820). All activities are approved except the sampling and analysis of soil samples for hexavalent chromium. The Central Regional Laboratory will work with the RPM to get the analytical method into a workable form.

To facilitate this partial approval, the following corrections have been made to the QAPjP and the changed pages are attached:

1. In Section 5.1.3, page 5 of 5, the following statement has been added, **"The combination CLP Traffic Report/Chain of Custody and Combination SAS Packing List/Chain of Custody are in Appendix B.2."**

2. The combination CLP Traffic Report/Chain of Custody and Combination SAS Packing List/Chain of Custody has been inserted into Appendix B.2

I have signed the attached signature page. Please have the remedial project manager provide final sign-off. We would like to receive a copy of the completed signature page within the next two weeks.

Attachments

cc: Kaushal Khanna, HSRLT-5J
Charles Elly, SL-10C

Printed on Recycled Paper

REVISION 1

TASK 2

QUALITY ASSURANCE PROJECT PLAN
REMEDIAL INVESTIGATION/
FEASIBILITY STUDY
BETTER BRITE CHROME AND ZINC SHOP SITES
DE PERE, WISCONSIN

Robert J. Karnauskas, P.G., P.HG.
Simon Hydro-Search Site Manager

Michael R. Noel
Simon Hydro-Search QA Officer

Terry Koehn
WDNR Project Manager

U.S. EPA Remedial Project Manager

Charles J. Ebby 11/18/92
U.S. EPA Central Regional Laboratory Director

NOV 19 19[illegible]
U.S. EPA Quality Assurance Manager

*Partial Approval for all activities except the sampling analysis of soil samples for hexavalent chromium.

John Rather
Ortek Quality Assurance Manager

SIMON HYDRO-SEARCH

carriers are not required to sign off on the custody form as long as the custody forms are sealed inside the sample cooler and the custody seals remain intact.

The combination CLP Traffic Report/Chain of Custody and Combination SAS Packing List/Chain of Custody are in Appendix B.2.

5.2 Laboratory Chain-of-Custody Procedures

The chain of custody procedures for the CLP laboratory are described in the Statements of Work (SOWs) for RASs. The same custody procedure applies to SASs. These custody procedures along with the holding time requirements for CLP samples are described in the appropriate SOW (OLM01.1 for organics and ILM01.0 for inorganics).

The chain of custody procedures for samples shipped to the CRL are described in the CRL's SOP. The chain-of-custody procedures for samples shipped to the CSL (Ortek) are included with the Ortek SOP as Appendix D. Chain-of-custody procedures for the samples sent to the material property testing laboratory will follow the Simon Hydro-Search Chain-Of-Custody Standard Operating Procedure 40500 (Appendix F).

5.3 Final Evidence Files Custody Procedures

Simon Hydro-Search is the custodian of the evidence file and maintains the contents of evidence files for the RI, including all relevant records, reports, logs, field notebooks, pictures, subcontractor reports, correspondence, laboratory logbooks, chain of custody form, and LSSS of CRL's data reviews in a secured, limited access area and under custody of the contractor's site manager.

COMBINATION CLP TRAFFIC REPORT/
CHAIN OF CUSTODY AND COMBINATION SAS PACKING LIST/
CHAIN OF CUSTODY
(refer to attached examples)

A. GENERAL:

The combination traffic report/chain of custody is used to ship samples to the EPA contract lab for routine analytical services. The combination SAS packing list/ chain of custody is used to ship samples to the EPA Contract lab for special analytical services. These reports must be filled out and shipped with each code sent to the contract lab.

B. DISTRIBUTION:

1. First copy - Send to RSCC.
2. Second copy - Mail to SMO.
3. Third and fourth copies - Send to laboratory.

C. PREPARATION:

1. Case Number - Supplied by SMO.

2. SAS Number - Enter SAS number if applicable.

3. Project Code - Optional

4. Account Code - Optional

5. Regional Information - ~~Enter~~ ~~'TFA102'~~

6 Non-Superfund Program - Leave blank

7. Site Name, City, State - Enter site name and location.

8. Site Spill ID - Enter 'ZZ' for all SI work unless the site is listed on the NPL; in that case, enter the EPA site/spill ID (2 digit)Coc
9. Region No. - Enter "5"

10. Sampling Company - Enter "PRC"

11. Sampler, Sampler Signature - Print and sign your name.

12. Type of Activity - Check appropriate activity, i.e. SSI

13. Date Shipped - Enter the date samples were shipped to lab.

14. Carrier - Federal Express

15. Airbill Number -- Enter the Federal Express airbill number.

16. Ship To - Enter the lab name, address, and the person who is supposed to receive shipment.

17. Sample Numbers - Enter the appropriate sample numbers.

18. Sample Description - Enter appropriate number from box No. 7 on traffic report.

19. Concentration - Enter the expected concentration of the sample (L, M, H).

20. Sample Type - Indicate either grab or composite.

21. Preservative - Enter the appropriate number or letter from box No. 6.

22. Analysis - Check the appropriate analyses for each sample indicated on traffic report.

23. Sample Tag Numbers - Indicate the sample tag numbers that correspond to each sample number.

24. Station Location Number -- Enter the assigned location number where each sample was collected, i.e. MW-01, MW-02.

25. Month/Day/Year/Time of Sample Collection -- Enter the date and time of sample collection.

26. Sampler Initials - Optional

27. Corresponding CLP Sample Number - Enter the corresponding inorganic sample number on the organic traffic report and enter the corresponding organic sample number on the inorganic traffic report.

Use the space at the right of the traffic report to indicate which sample numbers are blanks and duplicates. Indicate the custody seal numbers in the box labeled "TR." On the SAS packing list, indicate custody seal numbers in the space between the sample information and the chain of custody record.

If all samples collected under an assigned case number were shipped on the same day, circle "Y" in the "shipment for Case Complete?" box, on the appropriate traffic reports, to indicate the shipment for the case number was complete. If a portion of the samples for a case number are collected and shipped, then circle "N" on the appropriate traffic reports to indicate that shipment is incomplete for the case number.

The sampler should sign their name in the "Relinquished by:" box prior to shipment. The date and time should also be entered. The "Split Samples" box should indicate whether split samples were accepted or declined.

See attached Examples of completed forms.

28. Identify the sample to be used for the MS/MSD or spike/duplicate analysis in the appropriate box.

SAMPLE TAG
(refer to attached example)

A. GENERAL:

A sample tag is completed for every sample collected and attached to the sample container.

B. PREPARATION:

1. Project Code/Case#: - The SMO assigned Case or SAS # is entered for samples being shipped to the CLP. For CRL samples, the 1st 6 digits of the CRL log # is the project code

2. Station Number - Enter sample point (station) code number;
Code number must correlate with sample plan.
Some examples:

Monitor well	= MW
Sediment	= SE
Existing well	= GW
Lake	= LK
Stream	= SW
Lagoon	= LG
Soil	= SO
Leachate	= LE
Sludge	= SL
Blank	= BL

3. Month/Day/Year - Self explanatory
4. Time - Use military format
- i.e. 1430 for 2:30 P.M.
5. Designate - Comp (Composite) or grab (Check only one.)
6. Sample # : - Enter the CLP Sample #. For CRL Samples, enter the last three digits of the CRL log #.
7. Samplers - Enter signature of sampler.
8. Preservative - Check off the type of preservative used.
9. Analysis - Check analysis desired.
10. Remarks - Identify field blanks
11. Tag Number - Enter number in logbook, on custody sheet and/or Sample Description Form.
12. MS/MSD: Identify the sample to be used for the org. MS/MSD or inorg. spike/dup. by checking this box.

EPA United States Environmental Protection Agency
Contract Laboratory Program Sample Management Office
PO Box 818 Alexandria, VA 22313
703-557-2490 FTS 557-2490

Inorganic Traffic Report & Chain of Custody Record
(For Inorganic CLP Analysis)

SAS No. (if applicable):

Case No.: Case #

1. Project Code	Account Code	2. Region No.	Sampling Co.	4. Date Shipped	Carrier
		V	Company Name	Date	Carrier Name

Regional Information

Sampler (Name): Sampler Name

Airbill Number: Airbill Number

Non-Superfund Program

Sampler Signature: Sampler Signature

5. Ship To: Laboratory Name, Address, Attn: Name

Site Name: Site Name

4. Type of Activity — Lead / Pre-Remedial / Remedial / Removal

	Lead	Pre-Remedial	Remedial	Removal
SF	X		RIFS	X	CLEM	
PRP		PA		RD		RA		REMA	
ST		SSI		O&M		REM	
FED		LSI		NPLD		OIL	
						UST	

City, State: City, State

Site Spill ID: Code

6. Preservative (Enter in Column D): 1. HCl 2. HNO3 3. NaOH 4. H_2SO_4 5. $K_2Cr_2O_7$ 6. Ice only 7. Other (SAS) (Specify) N. Not preserved

7. Sample Description (Enter in Column A): 1. Surface Water 2. Ground Water 3. Leachate 4. Rinsate 5. Soil/Sediment 6. Oil (SAS) 7. Waste (SAS) 8. Other (SAS) (Specify)

CLP Sample Numbers (from labels)	A Enter # from Box 7	B Conc. Low Med High	C Sample Type: Comp / Grab	D Preservative from Box 6	E - RAS Analysis: Metals Total	Metals Dissolved	Cyanide	Low Conc. Nitrate/Nitrite	Low Conc. Fluoride	High pH	High Conductivity	F Regional Specific Tracking Number or Tag Numbers	G Station Location Number	H Mo/Day/Year/Time Sample Collection	I Sampler Initials	J Corresp. CLP Org. Samp. No.	K Designated Field QC
MEPA01	2	L	G	2	X							5-12345/12346	MW01	Date / Military Time		EPA01	
MEPA01				3			X					5-12347/12348	MW01	Date / Military Time			
MEPA02				2	X							5-12349	MW02	Date / Military Time		EPA02	
MEPA02				3			X					5-12350	MW02	Date / Military Time			
MEPA03				2	X							5-12351	MW03	Date / Military Time		EPA03	MEPA03-MEPA04 Field duplicates
MEPA03				3			X					5-12352	MW03	Date / Military Time			
MEPA04				2	X							5-12353	MW03	Date / Military Time		EPA04	
MEPA04				3			X					5-12354	MW03	Date / Military Time			
MEPA05	3			2	X							5-12355	FB01	Date / Military Time		EPA05	Field Blank
MEPA05	3			3			X					5-12356	FB01	Date / Military Time			" "

Shipment for Case complete? (Y/N): Circle One

Page 1 of #

Sample used for a spike and/or duplicate: MEPA01

Additional Sampler Signatures:

Chain of Custody Seal Number: COC Seal #s

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Signature	Date / Military Time				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Received by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks: Is custody seal intact? Y/N/none	

Spill Samples: ☐ Accepted (Signature) ☐ Declined

EPA Form 9110-1 (Rev. 5-91) Replaces EPA Form (2075-6), previous edition which may be used

DISTRIBUTION: Green - Region Copy Pink - SMO Copy White - Lab Copy Yellow - Lab Copy for return to SMO

Figure E8 - 2

014401

EPA Organic Traffic Report & Chain of Custody Record

United States Environmental Protection Agency
Contract Laboratory Program Sample Management Office
PO Box 818 Alexandria, VA 22313
703-557-2490 FTS 557-2490

(For Organic CLP Analysis)

SAS No. (if applicable):

Case No.: Case #

1. Project Code	Account Code	2. Region No.	Sampling Co.	4. Date Shipped	Carrier
		V	Company Name	Date	Carrier Name

Regional Information:

Sampler (Name): Sampler Name

Airbill Number: Airbill Number

Non-Superfund Program:

Sampler Signature: Sampler Signature

5. Ship To: Laboratory Name / Address / Attn: Name

Site Name: Site Name

3. Type of Activity: Lead — SF [X], PRP [ ], ST [ ], FED [ ]; Pre-Remedial — PA [ ], SSI [ ], LSI [ ]; Remedial — RIFS [X], RD [ ], RA [ ], O&M [ ], NPLD [ ]; Removal — CLEM [ ], NEMA [ ], REM [ ], OIL [ ], UST [ ]

City, State: City, State | Site Spill ID: Code

6. Preservative (Enter in Column D): 1. HCl; 2. HNO3; 3. $NaHSO_4$; 4. H_2SO_4; 5. Other (SAS) (Specify); 6. Ice only; N. Not preserved

7. Sample Description (Enter in Column A): 1. Surface Water; 2. Ground Water; 3. Leachate; 4. Rinsate; 5. Soil/Sediment; 6. Oil (SAS); 7. Waste (SAS); 8. Other (SAS) (Specify)

CLP Sample Numbers (from labels)	A Enter # from Box 7	B Conc. Low Mod High	C Sample Type: Comp./ Grab	D Preservative from Box 6	E TAS Analysis: VOA	BNA	Pest/ PCB	High ARO/ TOX	F Regional Specific Tracking Number or Tag Numbers	G Station Location Number	H Mo/Day/ Year/Time Sample Collection	I Sampler Initials	J Corresp. CLP Inorg. Samp. No.	K Designated Field QC
EPA01	2	L	G	1	X				5-12357-712362	MW01	Date/Military Time		MEPA01	
EPA01	↓	↓	↓			X	X		5-12363-712366	MW01	Date/Military Time			
EPA02				1	X				5-12367-712368	MW02	Date/Military Time		MEPA02	
EPA02						X	X		5-12369-712370	MW02	Date/Military Time			
EPA03				1	X				5-12371-712372	MW03	Date/Military Time		MEPA03	EPA03-EPA04 Field duplicates
EPA03						X	X		5-12373-712374	MW03	Date/Military Time			
EPA04				1	X				5-12375-712376	MW03	Date/Military Time		MEPA04	
EPA04	↓	↓	↓			X	X		5-12377-712378	MW03	Date/Military Time			
EPA05	3			1	X				5-12379-712380	FB01	Date/Military Time		MEPA05	Field Blank
EPA05	3	↓	↓			X	X		5-12381-712382	FB01	Date/Military Time			

Shipment for Case complete? (Y/N): Circle One

Page 1 of #

Sample used for a spike and/or duplicate: EPA01

Additional Sampler Signatures:

Chain of Custody Seal Number: COC Seal #s

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Signature	Date / Military Time				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Received by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	Is custody seal intact? Y/N/none

Split Samples: ☐ Accepted (Signature) ☐ Declined

EPA Form 9110-2 (Rev. 6-91) Replaces EPA Form (2075-7), previous edition which may be used

DISTRIBUTION:
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Figure E8 - 1

EPA United States Environmental Protection Agency
Contract Laboratory Program Sample Management Office
PO Box 818 Alexandria, VA 22313
703-557-2490 FTS 557-2490

Special Analytical Service
Packing List/Chain of Custody

SAS No. 1234 E

1. Project Code	Account Code	2. Region No. 1	Sampling Co. Your Company	4. Date Shipped 3/1/91	Carrier Fed Ex
Regional Information		Sampler (Name) Your Name		Airbill Number 12345678	
Non-Superfund Program		Sampler Signature Your Signature		5. Ship To Lab Name Address Attn:	
Site Name Landfill		3. Type of Activity: SF, PRP, ST, FED; Lead; Pre-Remedial: PA, SSI, LSI; Remedial: RIFS [X], RD, RA, O&M, NPLD; Removal: CLEM, REMA, REM, OIL, UST			
City, State Chicago, IL	Site Spill ID ZZ				

6. Sample Description (Enter in Column A)
1. Surface Water
2. Ground Water
3. Leachate
4. Rinsate
5. Soil/Sediment
6. Oil
7. Waste
8. Other (Specify)

7. Preservative (Enter in Column C)
1. HCl
2. HNO_3
3. $NaHSO_4$
4. H_2SO_4
5. NaOH
6. Other (SAS) (Specify)
7. Ice only
N. Not preserved

Sample Numbers	A Matrix Enter from Box 6	B Conc Low Med High	C Preservative Used from Box 7	D Analysis	E Sample used for spike and/or duplicate	F Regional Specific Tracking Number or Tag Number	G Station Location Identifier	H Mo/Day/Year/Time Sample Collection	I Sampler Initials	J Designated Field QC
1. E01	2	L	4	TOC, Nitr., COD		5-12345	FB-01	3/1/91 9:00		Blank
2. E02	2	L	4	↓		5-12347	MW-02	3/1/91 10:00		
3. E03	2	L	4	↓		5-12348	MW-03	3/1/91 11:00		
4. E04	2	L	4	↓	X	5-12349→12350	MW-04	3/1/91 13:00		
5. E01	2	L	7	SOil, TSS, TDS		5-12351	FB-01	3/1/91 9:00		Blank
6. E02	2	L	7	↓		5-12352	MW-02	3/1/91 10:00		
7. E03	2	L	7	↓		5-12353	MW-03	3/1/91 11:00		
8. E04	2	L	7	↓	X	5-12354→12355	MW04	3/1/91 13:00		
9.										
10.										

Shipment for SAS complete? (Y) N

COC Seal #'s 45678-45679

CHAIN OF CUSTODY RECORD

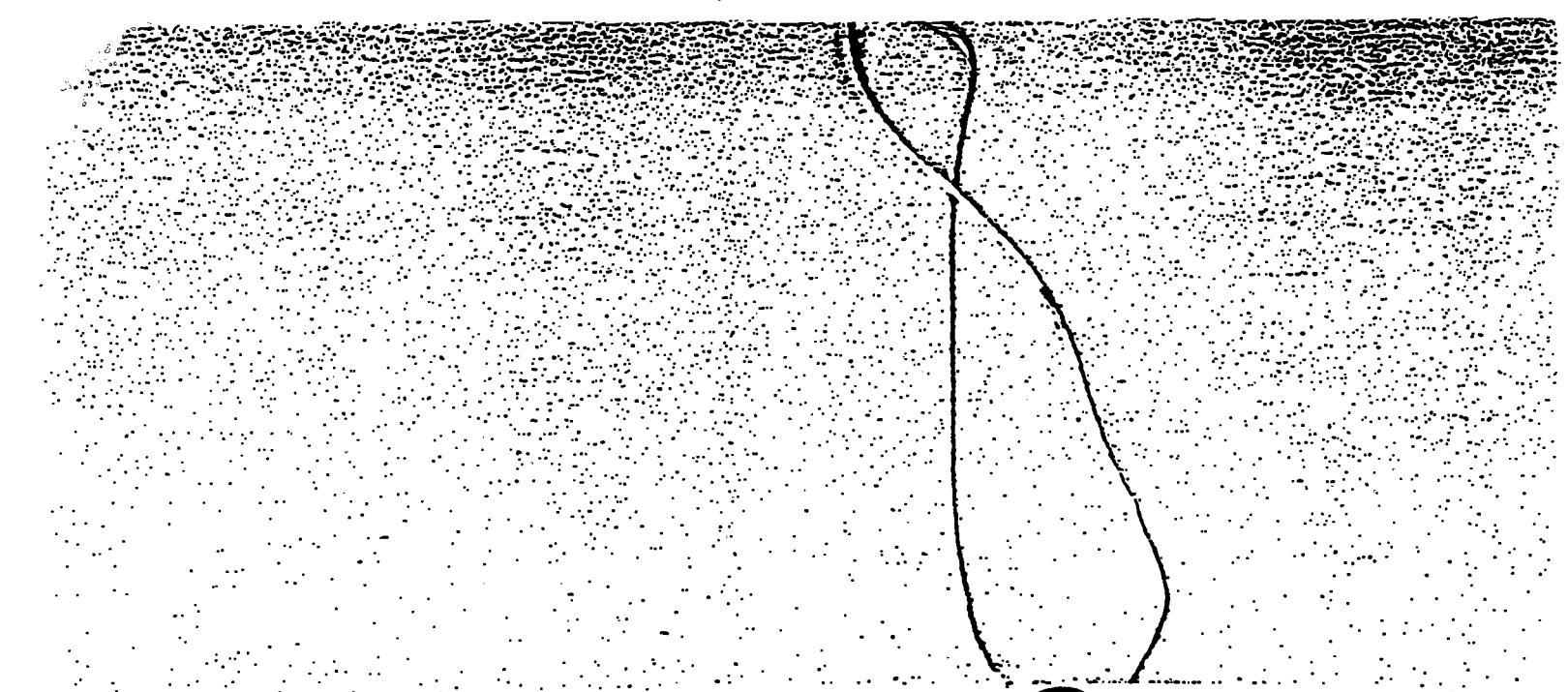
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Signature	3/1/91 18:00				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Received by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks Is custody seal intact? Y/N/none	

Split Samples ☐ Accepted (Signature)
☐ Declined

EPA Form 9110-3 (4-91)

DISTRIBUTION:

Figure E8 - 3



		PRESERVATIVE: H_2SO_4 ☐ HCL ☐ HNO_3 ☐ NaOH ☐ Other ☐	
		ANALYSES	
DESIGNATE Grab	Samplers (signatures)	VOA	METALS
DESIGNATE Comp.		ABN	CYANIDE
Time		PEST/PCB	
			Mercury
		Pesticides	Fluoride
		Herbicides	Nitrate/Nitrite
		PCB	TOC
Month/Day/Year		PCDD/PCDF	BOD
		2,3,7,8-TCDD	COD
		Ames Mutagen	TDS
		Asbestos	TSS
		Phosphorus	O&G
Sample Number	Station Number and Location	TO1	Sulfate
		TO2	Chloride
			Sulfide
		TOX	Ammonia
		CBOD	Alkalinity
		Bio-Acute	Acidity
		Bio-Chronic	TKN
Case # or Project Code		Remarks:	
		USE FOR MS/MSD ☐	
		Tag Number CH — 169834	Lab Sample Number

4.0 SUBTASK-1Z DOCUMENTED AND SUSPECTED IMPACTS TO SUBSURFACE SOILS

4.1 Subtask Description

Subtask-1Z involves source and physical characterization activities necessary to define the nature and extent of impacted subsurface soils located under the Zinc Shop building as well as soils in the area immediately adjacent to the building. The soils under and around the building (Figure 4-1) are suspected source areas based upon previous investigative work, WDNR interviews with former Better Brite personnel, and review of historical spill and release records. Information obtained from investigations at plating facilities with similar histories indicate that the foundation slab has likely been penetrated by the chromium solutions especially in areas with floor drain trenches and floor drain basins. An additional source of impacts may be underground plating tanks which are suspected at the Shop and have been tentatively confirmed by U.S. EPA (WDNR, 1991). The building and the foundation will be removed and the soils from the excavation will be sampled.

These impacted soils are contained by a relatively impermeable cover (Zinc Shop building and slab). During previous investigations, subsurface soil impacts were detected around the perimeter of the Zinc Shop building but extent of contamination was not determined. Completion of the characterization requirements for Subtask-1Z consist of source exploration activities after the excavation is complete ~~primarily at known or suspected release areas~~. These include soils at the bottom of the excavated area ~~under the building foundation, especially at the suspected UST plating tanks, along~~ the former floor drains and floor drain trench, and in the north end of the building where drums had ~~been stored. Additional areas of concern include the loading dock to the north~~, near the ~~drum storage area where accumulations of plating rinse water were previously noted~~ by WDNR, ~~to the east near the sanitary sewer manway, to the east near the current~~ extraction ~~system near the area with documented releases, along the southern building~~ wall where historical records indicate ~~leakage of solutions into the soils from discharges along the sill~~.

plate, and west of the Zinc Shop where service laterals enter the shop. Liquid solutions and waste are known or likely to have been released in these vicinities. Probable response actions, if any, cannot be defined at this time. Data needed for alternative screening includes definition of the areal extent of impacts to subsurface soils.

Limited information has been collected during previous investigations to determine the chemical and physical characteristics of the soils and ground water at the site. Samples collected in 1987 through 1991 have detected elevated levels of organic and inorganic compounds. This subtask will ~~include performing a source characterization to~~ evaluate the magnitude and extent of contaminants present at the site after the removal of the building and the underlying soils. Activities necessary to conduct this characterization include collection and analysis of soil samples.

4.2 Sampling Objectives

The objectives of the sampling and analysis plan for Subtask-1Z include the following:

1. Determine metals and VOC concentrations in the unsaturated zone under the building where liquid waste releases are likely to have covered;

2. Evaluate the existence of impacted soils at known or suspected source areas or potential spill sites or in contaminant migration pathways in areas not covered by the building foundation, including along service laterals exiting the west side of the former building.

3. Determine the quantity, extent, and magnitude of impacted soils not covered by the building foundation.

1. Evaluate the levels of contaminants remaining after the removal of the building, foundation and underlying soils.

2 ~~4.~~ Evaluate the presence of subsoil fractures and their effect on chromium distribution within source areas and chromium mobilization resulting from geochemical reactions in the subsurface.

3 ~~5.~~ Determine chromium species present; and

4 ~~6.~~ Determine the physical characteristics of the subsurface soils to enable evaluation of remedial alternatives, if appropriate.

Discharge of liquids from the plating procedure to the ground surface has been documented in earlier investigations. Discharge of liquid within the building or under the building (from USTs) is also likely to have occurred during the operation of the plant. The presence of metal and/or VOC-impacted soils under the building foundation and around the building will be evaluated directly through soil sampling, visual analysis, field screening, and laboratory analysis. ~~Soil borings will be completed through the building foundation to evaluate soils under the building, and test pits will be used to allow more thorough visual analysis of subsurface conditions beyond the building foundation~~. Soil samples will be collected and submitted to a laboratory for analytical testing and for testing of material properties to determine the physical properties of the soil.

4.3 Data Quality Objectives

DQOs for Subtask-1Z will encompass a combination of field screening and analytical laboratory quality objectives as follows:

Sampling Objective	Parameter	Data Quality Objective
Determine potential presence of impacts in soils	Photoionizable VOCs	PID Field Screening (DQO Level I)
Determine extent and magnitude of impacted soil	TAL Metals and Cyanide TCL VOCs Soil pH	Establish presence/absence and vertical/horizontal boundaries of impacts. Provide data for risk assessment. (DQO Level IV and V)
Determine the physical characteristics of the soil	Material Properties Testing	Provide data for determine contaminant migration potential (DQO Level III)

4.4 Technical Approach

4.4.1 Scope of Investigation

The building (already removed) and the foundation will be removed along with all contaminated soils as determined via screening and visual observations. The bottom of the excavation will be sampled

4.4.1.1 Impacts Under the Building

To evaluate impacts under the building, five test borings will be completed in the suspect area of releases within the Zinc Shop building as shown on Figure 4-1. Three borings will be completed to the water table, approximately 4 feet below ground surface (bgs). A silt or sand zone has been noted at a depth of approximately 15 feet bgs at some areas across the site so one boring will be extended to a depth of 20-feet and a second will be extended to bedrock (approximately 30 feet bgs) so a determination can be made as to whether this zone is continuous across the site.

The boring which extends to bedrock will be drilled in an area of suspected USTs where plating solutions may have potentially been released. The boring will be extended to the bedrock surface to evaluate chromium levels with depth in the potential source area. The boring which is advanced to bedrock will be sealed following NR141 abandonment procedures. This will be done to reduce the potential for contaminants in the soils to migrate to the bedrock surface through the borehole.

Samples will be taken with a backhoe and ~~The test borings will be advanced using hollow stem augers with continuous samples collected using split-spoon samplers. The split-spoon samples~~ will be visually inspected for the presence of chromium-bearing materials and screened for VOC content using a PID. ~~A 2-foot maximum field screening interval will be used targeting zones with visual impacts.~~ Up to one sample from each 50 sq ft within the excavation ~~4-foot boring and two samples from the deeper borings~~ will be submitted to the laboratory for analysis. Samples which exhibit elevated PID response or visible chromium bearing materials, if any, will be preferentially selected for analysis. ~~One sample from each stratigraphic unit encountered in the borings will be submitted for material property testing, up to a maximum of six samples.~~

4.4.1.2 Impacts Adjacent to the Building

For evaluating impacts adjacent to the building, one boring and four test pits will be completed to determine the subsurface conditions in four areas with known or suspected impacts. Boring and test pit locations are indicated on Figure 4-1. The boring will be completed to 15 feet following the procedures documented in Section 4.4.1.1. Each test pit location may be investigated using more than one pit in close proximity to provide necessary detail but limit the amount of disturbance to impacted soil. The pits will be dug no closer than 5 feet from the building foundation to avoid potential structural damage to the foundation and to the approximate depth of the water table (estimated at 4 feet).

Representative samples from each boring and test pit will be examined for the presence of chromium bearing materials and screened for VOC content. Chromium compounds are visible in soils and can be differentiated in the field using a hand lens. These compounds are found predominantly on the fracture planes in clay. Crystalline dichromate is a platey mineral which is bright orange in color. Trivalent chrome precipitates are black or dark green and chromium staining on calcium carbonate turns the crystals bright yellow, making even the micro-crystals of silt size or finer, visible. One sample per 50 sq. feet within the excavation ~~Up to three samples from each of the five locations~~ will be submitted for laboratory analysis of the parameters listed in Section 4.5. ~~A total of up to three boring and test pit samples will be submitted for material property testing to define subsurface conditions at the site.~~

4.4.2 Sampling Procedures

Field investigation procedures applicable to the activities described above are summarized in Section 15.0 of this SAP. Detailed procedures are contained in Appendix A.

4.5 Analytical Requirements

Analysis of samples described above will be performed as follows:

Media	Parameters	Method
Soil	VOCs	HNu PID Model PI-101 (Field Screening)
	TAL Metals and Cyanide	CLP-RAS
	TCL VOCs	CLP-RAS
	pH	CLP-SAS
	~~Material Property Testing~~ hex chrome	~~Non-CLP-ASTM~~ CLP GAS

4.6 Summary

A summary of site investigation activities for Subtask-1Z is shown on Table 4-1. The results of this activity will be reported in Technical Memoranda #1, Initial Investigative Results, and #2, Source Characterization.

15.0 SAMPLING PROCEDURES

Sampling procedures and protocols necessary to conduct the RI activities described for each of the subtasks are summarized on Table 15-1. The specific details of each of the sampling procedures referenced are contained in Appendix A. This appendix contains Standard Operating Procedures (SOPs) which will be uniformly adhered to for sample collection and handling activities.

A summary table of sample matrices, analytical parameters, and frequencies of sample collection are shown on Table 15-2.

15.1 Sample Identification and Documentation

Each sample container will be tagged with the following information as required by CLP:

- Sample identification code,
- Date/time of collection,
- Preservative, and
- Any special information, including potential level of contamination.

The sample identification code is an alpha-numeric code used to specify the material type, location, and sampling interval (i.e., depth), where appropriate, for each sample. Listed below are the standard codes to identify the type of material to be sampled. To an extent, these codes also identify the sampling location.

- SB - Soil borehole
- MW - Water table monitoring well (soils and ground water)
- P - Piezometer Monitoring well (soils and ground water)

- ST - Trench or test pit soil
- SS - Surficial soil
- SW - Surface water
- SD - Sediment
- SP - Sump
- Ex Excavation

For example, SB110-3 to 5 refers to a soil sample from borehole location 110 over the three to five-foot interval; and MW-203 refers to a ground-water sample from monitoring well location 203. Additional guidance for sample identification includes the following:

- Subsurface exploration involving drilling or hand augering to depths exceeding 12 inches will be identified as soil borings (SB). Samples collected from the ground surface to a depth of 12 inches, or less, will be identified as surficial soil samples (SS).

- Soil boring logs for boring locations instrumented as monitoring wells will be identified as monitoring wells (MW).

- Exploration locations will be numbered consecutively so that each sampling location is unique (e.g., SB-1, SB-2, MW-3, MW-4, ST-5). The numeric code will not be duplicated, except to identify sample locations vertically or differing media (e.g., SB-1, 3'; SB-1, 5'; or SB-1, 3'SG).

- If a sample is a composite, the letter "C" will follow the depth intervals over which the composite was collected. An appropriate description of the sample will be recorded on the chain-of-custody record and field notebook.

Trip blanks will be prepared prior to field work using laboratory-grade deionized water in laboratory quality sample vials. Trip blanks will be labelled, tagged, and preserved as if they were investigative samples and they will be designated as trip blanks on U.S. EPA paperwork.

To further reduce the potential for sample identification errors and duplication of previous site investigation sample locations, each series of subtasks has been assigned numbers for use in identifying sampling locations. The numbers available for each subtask are as follows:

Subtasks Associated with the Better Brite Zinc Shop:

Subtasks	Sample Location Numbers
1Z through 5Z	Z001 through Z900

Subtasks Associated with the Better Brite Chrome Shop:

Subtasks	Sample Location Numbers
1C through 5C	C001 through C900

Sample location numbers Z901 through Z999 and C901 through C999 are reserved for duplicate and field blank QA samples. For example, a duplicate ground-water sample from monitoring well MW-Z001 would be identified as MW-Z901. Other duplicate samples or field blanks will be numbered in succession. Samples collected for matrix spike duplicates analysis will be identified with the code MSD (e.g., MWZ001-MSD). Only soil samples are being sent to the CSL, so trip blanks and MS/MSD sample volumes will not be sent to the CSL, but a limited number of duplicate samples will be sent.

Table 4-1. Summary of Data Collection Activities: SUBTASK-1Z

Description: Subtask-1Z: Documented and suspected impacts to subsurface soils at the Zinc Shop.

Media/Activity	No. of Locations	Depth (ft.)	Maximum Number of Samples		Analytical Parameters
			per location	total	
1 sample/50 ~~ft~~ ft bottom of excavation Soil					
~~Soil Borings~~	3 1 1 1	4 20 30 15	1 1 - 2 1 - 2 1 - 3	3 1 - 2 1 - 2 1 - 3	TAL Metals and Cyanide, TCL VOCs, pH
	6	4 - 30	1	~~6~~	~~Material Properties~~[1]
~~Test Pits~~	4	4	1 - 3	4 - 12	TAL Metals and Cyanide, TCL VOCs, pH
				~~4~~	~~Material Properties~~[1]

1 Material properties includes grain size distribution.

Table SAP15-2 Table of Samples and Matrices

Matrix	Test Parameter	# of Samples		[1]Field Dup.		[1]Field Blank		[2]Trip Blank		[3]MS/MSD	Total Sample
		Zinc	Chrome	Zinc	Chrome	Zinc	Chrome	Zinc	Chrome		
SOIL BORINGS											
Soil	RAS CLP TAL Metals and Cyanide RAS CLP TCL VOA SAS CLP pH	10	6	1	1	0	0	0	0	1	18
TESTPITs EXCAVATIONS											
Soil	RAS CLP TAL Metals and Cyanide RAS CLP TCL VOA SAS CLP pH	9	~~19~~	1	~~2~~	0	~~0~~	0	~~0~~	1 ~~2~~	~~27~~ 12
MONITOR WELL INSTALLATIONS											
Soil	RAS CLP TAL Metals and Cyanide RAS CLP TCL VOA SAS CLP pH	~~10~~	~~16~~	~~1~~	~~2~~	~~0~~	~~0~~	~~0~~	~~0~~	~~2~~	29
	SAS CLP Hexavalent Chromium SAS CLP Cation Exchange Capacity SAS CLP Total Organic Carbon	~~9~~	~~9~~	1	1	0	0	0	~~0~~	1	~~20~~
SURFICIAL SOIL											
Soil	CSL SOP - Total Chromium	72 ~~38~~	140 ~~68~~	7 ~~4~~	14 ~~6~~	0	0	0	0	10 ~~2~~	~~243~~ 186
	RAS CLP TAL Metals and Cyanide (Total Sample) SAS CLP Hexavalent Chromium (Total Sample)	30 ~~40~~	38 ~~18~~	3 ~~2~~	4 ~~5~~	0	0	0	0	4 ~~2~~	79 ~~34~~
	~~SAS CLP Selected TAL Metals and Cyanide (Sieved Sample)~~	~~10~~	~~18~~	~~1~~	~~2~~	~~0~~	~~0~~	~~0~~	~~0~~	~~2~~	~~31~~
SURFACE WATER RUNOFF											
Water	RAS CLP TAL Metals and Cyanide RAS CLP TCL VOA SAS CLP Hexavalent Chromium	5	7	1		0		1		1	14
MONITOR WELLS											
Water	Round 1: RAS CLP TAL Metals and Cyanide[5] RAS CLP TCL VOA CRL SOP Hexavalent Chromium SAS CLP Total Organic Carbon	26	33	3	4	3	4	3	4	4	80
	Round 2: RAS CLP TAL Metals and Cyanide[5] RAS CLP TCL VOA CRL SOP Hexavalent Chromium SAS CLP Total Organic Carbon	26	33	3	4	3	4	3	4	4	80

SIMON HYDRO-SEARCH

40400 SAMPLE IDENTIFICATION

1.0 Purpose

Locations for collection of samples are affixed alpha-numeric codes which are used to track affixed laboratory results and enable presentation of date on maps and drawings. Each planview location where a sample is collected is issued a unique numeric code (number) which corresponds to a specific map location at a site. An alpha-code (letter) is used to describe the type of sampling activity performed at the specific numeric location.

The following alpha codes will be used:

- B - Borehole (no monitoring well installed)
- MW - Water table monitor well
- P - Piezometer well
- PW - Private residential well
- T - Test pit
- S - Surface soil
- SW - Surface water sampling station
- A - Air sampling station
- D - Sediment

Each number used at a site should correspond to one, and only one, location. A typical series of alpha numeric codes for a site might include test pit locations T-1 through T-12; borings B-13, B-14, B-15; monitor wells MW-16, MW-17, MW-18, etc. A borehole drilled with the intent of installing a monitor well or piezometer will be identified as MW or P. There should not be a borehole log B-1 for monitor well MW-1.

If previous work has been performed at a site, the alpha-numeric code should continue with previous successive numbers. If there is any potential for conflict with identified sample number identifiers, the proposed sample number should begin with series 101, 10001, or other appropriate system.

2.0 Container Labeling

Each sample container, tag, and/or label will contain the following information:

- Project number;
- Sample type identification code and number,
- Media (soil, water, air, sediment),
- Date/time of collection, and
- Preservative.

The sample identification code will be an alpha-numeric code used to specify the material type, location, and sampling interval (i.e., depth), where appropriate, for each sample. For example: SB110-3 to 5 refers to a soil sample from borehole location 110 over the 3 to 5-foot depth interval, and MW-203 refers to a ground-water sample from monitor well location 203.

Listed below are the standard codes to identify the type of material to be sampled. To an extent, these codes also identify the sampling location.

- SB - Sample from a soil borehole
- WB - Water sample from a borehole with no monitor well
- MW - Water table monitor well (soils and ground water)
- P - Piezometer well (soils and ground water)
- PW - Private residential well water samples

- ST - Trench or test pit (soil)
- WT - Trench or test pit (water)
- SS - Surficial soil
- SW - Surface water
- SD - Sediment
- A - Air

If a sample is a composite, the letter "C" should follow the depth intervals over which the composite was collected. An appropriate description of the sample should be recorded on the chain-of-custody record and field notebook.

40500 CHAIN-OF-CUSTODY PROCEDURES

1.0 Purpose

Chain-of-custody procedures are established to provide sample integrity. Sample custody protocols will be based on procedures as described in "NEIC Policies and Procedures", EPA-330/9-78-DD1-R, Revised June, 1985. This custody is in two parts: sample collection and laboratory analysis. A sample is under a person's custody if it meets the following requirements:

- It is in the person's possession;
- It is in the person's view, after being in the person's possession;
- It was in the person's possession and it was placed in a secured location; or
- It is in a designated secure area.

2.0 Field Specific Custody Procedures

The sample packaging and shipment procedures summarized below will assure that the samples will arrive at the laboratory with the chain-of-custody intact.

Field procedures are as follows:

(a) The field sampler is personally responsible for the care and custody of the samples until they are transferred or properly dispatched. As few people as possible should handle the samples.

(b) All bottles should be tagged with sample numbers and locations.

(c) Sample tags should be filled out using waterproof ink for each sample.

(d) The Project Manager should review all field activities to determine whether proper custody procedures were followed during the field work and decide if additional samples are required.

Transfer of Custody and Shipment Procedures are as follows:

(a) Samples should be accompanied by a properly completed chain-of-custody form. The sample numbers and locations will be listed on the chain-of-custody form. When transferring the possession of samples, the individuals relinquishing and receiving will sign, date, and note the time on the record. This record documents transfer of custody of samples from the sampler to another person, to a mobile laboratory, to the permanent laboratory, or to/from a secure storage area.

(b) Samples will be properly packaged for shipment and dispatched to the appropriate laboratory for analysis with a separate signed custody record enclosed in each sample box or cooler. Shipping containers will be locked and secured with strapping tape in at least two locations for shipment to the laboratory.

(c) Whenever samples are split with a source or government agency, a separate Sample Receipt is prepared for those samples and marked to indicate with whom the samples are being split. The person relinquishing the samples to the facility or agency should request the representative's signature acknowledging sample receipt. If the representative is unavailable or refuses, this is noted in the "Received By" space.

(d) All shipments will be accompanied by the Chain-of-Custody record identifying the contents. The original record will accompany the shipment, and the pink and yellow copies will be retained by the sampler for returning to the sample office.

(e) If the samples are sent by common carrier, a bill of lading should be used. Receipts of bills of lading will be retained as part of the permanent documentation. If sent by mail, the package will be registered with return receipt requested. Commercial carriers are not required to sign off on the custody form as long as the custody forms are sealed inside the sample cooler.

40600 SAMPLE CONTAINER, PREPARATION, PRESERVATION AND MAXIMUM HOLDING TIMES

1.0 Purpose

Sampling containers and preservatives will be provided in laboratory-quality containers. The general requirements for sample containers, preservatives, and analytical holding times are shown on the attached table.

All containers will be obtained from one or more of the CLP laboratories to be used, or from I-Chem, Hayward, California, or be of equivalent quality. All I-Chem containers are cleaned in accordance with U.S. EPA protocols. Each lot of these containers is analyzed in accordance with I-Chem quality control requirements and is not shipped by I-Chem unless the QC requirements are met. The types of containers that will be provided for each analyses are listed on Table 1, along with required volumes and preservatives required for each analysis.

All sample containers will be shipped with chain-of-custody records. These chain-of-custody records will be compiled by the field sampling personnel and returned with the samples.

Preservatives will be reagent grade or better.

QA Table Sample Quantities, Containers, Preservatives, Holding Times, Packaging (Cont'd)

Matrix	Analysis	Container	Preservation	Holding Time	Volume of Samples	Shipping	Normal Packaging
SOIL/SEDIMENT	Total Chromium (screening)	One 8-oz. wide mouth glass bottle	Iced to 4°C	6 months	Fill 3/4 full	Ship Daily by Overnight Carrier or deliver by courier	Vermiculite
	TCL VOA	Two 120 ml wide mouth glass vials	Iced to 4°C	14 days	Fill completely no headspace	Ship Daily by Overnight Carrier	Vermiculite
	TAL Metals and Cyanide (Total Sample)	One 8-oz. wide mouth glass bottle	Iced to 4°C	6 months (26 days Hg, 14 days CN)	Fill to 3/4 full	Ship Daily by Overnight Carrier	Vermiculite
	Selected TAL Metals and Cyanide (Sieved portion)	One 8-oz. wide mouth glass bottle	Iced to 4°C	6 months (14 days CN)	Fill to 3/4 full	Ship Daily by Overnight Carrier	Vermiculite
	Hexavalent Chromium	One 8-oz. wide mouth glass bottle[3]	Iced to 4°C	None established prior to extraction; 24 hours after extraction	Fill to 3/4 full	Ship Daily by Overnight Carrier	Vermiculite
	pH	8-oz. wide mouth glass bottles	None	Analyze immediately	Fill to 3/4 full	Ship Daily by Overnight Carrier	Vermiculite
	TOC	8-oz. wide mouth glass bottle	None	28 days	Fill to 3/4 full	Ship Daily by Overnight Carrier	Vermiculite
	CEC	8-oz. wide mouth glass bottle	None	Not established	Fill to 3/4 full	Ship Daily by Overnight Carrier	Vermiculite
PHYSICAL PROPERTIES	Grain size, Moisture content	Two 8-oz. wide mouth glass jars	None	Not established	Fill 3/4 full	Ship by Carrier	Bubble wrap and packing peanuts
	Atterburg Limits, Permeability	3-inch Shelby tube	None	Not established	Fill completely	Ship by Carrier	Vermiculite or bubble wrap in upright position

Notes:

* Detection limits appropriate for drinking water

** Sample will require special handling if residual chlorine or sulfide is suspected

HDPE High density polyethylene

TOC Total organic carbon

CEC Cation exchange capacity

1 Only the samples collected from monitor wells for metals analysis should be field filtered.

2 Mercury preservative: Dissolve 250 ml of concentrated HNO_3 and 25 g of $K_2Cr_2O_7$ in deionized distilled water and dilute to one liter. Collect approximatel 500 ml of sample and add 10 ml of this preservative. (Caution: Do not store the preservative solution in plastic containers.)

3 If TAL metals and cyanide analysis is also done, no additional sample volume is needed for hexavalent chromium. The soil quantity collected for the TA metals analysis is adequate to include hexavalent chromium.

For QA/QC: No additional volume is required for soil samples.
3 times the sample volume is required for organic analyses of aqueous samples done by CRL. No additional volume needed for aqueous samples analyze by CLP.
2 times the sample volume is required for inorganic analyses on aqueous samples.

SIMON HYDRO-SEARCH

80300 ~~TEST PIT~~ EXCAVATION SAMPLING

1.0 ~~Test Pit/Trench~~ Excavation Sampling

~~Test pit~~ Excavations are usually ~~constructed~~ dug using backhoes from which soil samples can be obtained. ~~Test pits~~ The excavation will expose shallow soil units in order to obtain detailed soil descriptions and multiple samples from specific soil horizons. Backhoes equipped with front end loader attachments are generally used for excavation. ~~The front end bucket facilitates backfilling of the test pit following completion of work.~~ the excavation will be shored up with sheet piling

Test pits are excavated by incrementally ~~removing~~ soil material and placing it away from the edge of the test pit. Test pits usually are not excavated to depths greater than five feet unless the walls are properly braced or sloped as described ~~in OSHA~~ regulations. Test pits exhibiting evidence of headwall cracking or slumping should not be entered until properly stabilized.

The Excavation
~~Test pits which~~ will remain open for longer than one day soil will be barricaded, using a snow fence or other appropriate material, to minimize the risk of inadvertent entry of unauthorized personnel or animals. The fence should be erected at a distance no less than six feet from the perimeter of the test pit. The excavation will be ~~Test pits are~~ backfilled as soon as practicable following completion of sampling and soil profile description, and construction of a groundwater collection system.

At all hazardous waste sites, air quality within the test pit should be determined to ensure proper personal protection is donned prior to entry into the pit. Soil sampling within ~~test pits~~ the excavation is accomplished using any of the devices described in Section 80200, including trowels, shovels, core samplers, or augers. ~~Core samplers may be used to obtain vertical or horizontal soil samples~~ for use in hydraulic conductivity ~~determinations from test pits.~~

2.0 Sample Collection

Soil samples may be collected for field screening and/or laboratory analysis. Under no circumstances will the same soil sample be used for screening and for laboratory analysis; separate samples will be collected.

Field Screening Samples

Samples collected for field PID screening will be visually observed and placed in a glass mason jar sealed with two layers of aluminum foil.

Laboratory Samples

Unless otherwise specified, all samples obtained for laboratory analysis will be discrete grab samples which are representative of the material under consideration. Composite samples are only obtained when it has been demonstrated that the data generated will provide useful information in site conditions. Field screening may include visual inspection, photoionization detector (PID) screening, or other appropriate techniques. PID screening of soil samples in described in SOP 50200.

The volume of soil necessary for grab samples is determined by the parameter(s) to be analyzed. The appropriate number and size of laboratory-quality sample jars will be obtained prior to initiation of sampling. Each container is filled to 75 to 100 percent by volume, depending upon the analytical parameter(s). For parameters which may decrease due to volatilization loss, every attempt will be made to fill the jar 100 percent by volume. Soil samples will be immediately sealed, tagged, and placed in a cooler at approximately 40°C for potential submission to an analytical laboratory.

4.0 Decontamination

All sampling implements must be decontaminated between samples to minimize potential for cross-contamination of soil samples. Equipment decontamination procedures are described in SOP 85000.

TK 5-28-91

CORRESPONDENCE/MEMORANDUM — **State of Wisconsin**

DATE: May 23, 1991

TO: Terry Koehn - LMD

FROM: Celia VanDerLoop - SW/3

SUBJECT: Better-Brite administrative items

I'm writing this memo to clarify the status of several items which will need to be completed for the Better-Brite project.

Community Relations

EPA's contractor completed a community relations plan for Better-Brite in 1990. Jim Leverance suggested that you review it to see if it meets our needs, i.e., to find any areas where we may need additional information or may need to re-interview people. We should ask Sue Pastor at EPA if the plan is adequate and also have her review any changes made. I assume you have a copy, if not, we can probably get copies from Sue Pastor. I have a copy.

A mailing list has been generated and should be available at the district as well as in General Services here. Jim said when you need a mailing done, you tell the copy center how many copies and the mailing list number, and they will take care of getting the mailing out. Contact General Services to get the list number.

Jim has a Superfund Community Relations User's Guide available. If you or your PIO does not have a copy, I can get one to you.

We may want to issue a press release or mailing soon saying that the DNR is the lead agency; where we're at in the process; and that we will be having a public meeting when the work plan is done to kick off the RI/FS.

Before the work plan is done, we will need to prepare and distribute a fact sheet. The fact sheet should let people know of the RI/FS kickoff public meeting. Our Superfund intern can help on that or that can be done by your PIO - it's up to you. There is guidance available on what should be in the fact sheet.

A newspaper notice will have to be issued before the public meeting. Our intern can do that or your PIO.

* We can use the work that EPA has done for the administrative record and information repository, i.e. same locations, same people. We can use the same record that EPA has. Darsi said that we can have the EPA contractors take the 1st cut at the historic information that should go

in. Dave Linnear may be able to give you a contact. Steve has a system worked out for when he adds things to the records so that the index stays up to date, I imagine you're doing the same thing for Mauthe.

QAPP

We will have to use the EPA QAPP review people. From what I have heard, it seems to be of great benefit to have a pre-QAPP meeting. I've attached a package that Steve Ales gave me which includes a list of attendees and a proposed agenda. We should arrange the meeting for before HSI starts work on the QAPP, i.e., very soon after the contract is signed. Although we don't have to have an EPA-approved QAPP, we definitely need their review and comments. Steve reviewed the QAPP comments with Sue Louisnathan and agreed on which had to be included. I would suggest contacting Dr. Tsai very shortly. Sue L. said that we should ask Dave Linnear to contact their QAPP review program and arrange the pre-QAPP meeting and QAPP review.

HSP

We can either provide our own reveiw of the HSP or can ask for EPA's assistance. Neither EPA or the state approve the HSP. The generic contract specifies what should be included in the HSP. If we want EPA's assistance, we should go through Dave Linnear.

Treatability studies

The leg-work on this should be started as soon as possible, i.e., identifying potential technologies or lining up SITE demonstrations, etc. We can either talk with HSI about what technologies they are considering and which we should do treatability on, or we can contact Cincinnati ORD or the SITE program regarding what technologies are appropriate, or both. Sue L. suggested asking for Dave Linnear's assistance on this.

ROD Target

B-B is not targeted for next fiscal year. B-B will probably be targeted for December '92 or March '93. However, we are slim on targets for FY '91 and this may be a candidate for bringing in early.

Other than that, I don't think we need other details taken care of. Let me know what guidance documents, etc. that I can get for you.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
230 SOUTH DEARBORN ST.
CHICAGO, ILLINOIS 60604

FEB 1991
BUREAU OF SOLID &
HAZARDOUS WASTE MANAGEMENT

January 31, 1991

REPLY TO ATTENTION OF:

Mr. Steven Ales
Wisconsin Department of Natural Resources
101 S. Webster St.
GRF II
Box 7921
Madison, WI 53707

Dear Steve:

Following our recent conversation I have enclosed an outline containing the main points of a quality assurance project plan and an agenda for a pre-QAPP meeting which is the start of the QAPP process. In addition to this information I have listed some project objectives that might be appropriate for the Delavan Site. These objectives are as follows:

* Characterize the source(s) of potential contamination;

* Characterize the hydrogeologic setting to determine probable contaminant migration pathways and physical features that could affect potential remedial action;

* Determine the migration rates, extent and characteristics of contamination that may be present at the site; and

* Gather data and information to the extent necessary to sufficiently quantify risk to public health and the environment and to support the development and evaluation of viable remedial alternatives in the Feasibility Study.

After consulting with the U.S. EPA quality assurance section chief, the week of February 18 is appropriate for a pre-QAPP meeting to discuss the requirements and procedures for a QAPP in further detail. After discussion and approval with all parties involved I will arrange a specific date. This meeting can be held in Chicago or by a conference call.

If you would like to discuss this issue in further detail, please contact me.

Sincerely,

Bill Haubold

Bill Haubold
U.S. EPA Project Manager, Delavan Municipal Wellfield

Printed on Recycled Paper

GUIDELINE FOR ARRANGEMENT AND PREPARATION OF PRE-QAPjP MEETING

January 16, 1991

Quality Assurance Section

Environmental Science Division

U.S. Environmental Protection Agency

536 South Clark Street
Chicago, Illinois 60605

1.0 Determine the Need of a Pre-QAPjP Meeting

1.1 Gather information of the project and define the scope of work;

1.2 Contact Cheng-Wen Tsai at 886-6220 to discuss/determine whether a Pre-QAPjP meeting is needed.

2.0 When to arrange for a pre-QAPjP meeting?

Pre-QAPjP meeting should be arranged two weeks before the meeting date.

3.0 Who Should Attend the Pre-QAPjP meeting ?

Attendee of each Pre-QAPjP meeting will vary with the type of project (Fund-Lead, PRP-Lead, and State-Lead projects):

3.1 Fund-Lead :

ARCS/REM contractor	-	Site/Project Manager QA Officer QAPjP preparer.
WMD	-	Remedial Project Manager (RPM), QA Coordinator (Kaushal Khanna)
ESD/QAS	-	QAS QAPjP reviewer,
ESD/CRL	-	QAPjP/Data reviewer or Laboratory chemists

3.2 PRP-Lead :

PRP's representative	-	Steering Committee representative; Project Manager
PRP's Contractor	-	Site/Project Officer, QA Officer QAPjP preparer Laboratory representative (preferred a chemist)

WMD - Remedial Project Manager (RPM),
QA Coordinator (Kaushal Khanna)

ESD/QAS - QAS QAPjP reviewer,

ESD/CRL - QAPjP/Data reviewer or
Laboratory chemists

3.3 State-Lead :

State Agency - Site Manager, QA Officer

State Contractor - Site/Project Manager,
QA Officer,
QAPjP preparer,
Chemist (of selected lab).

WMD - Remedial Project Manager (RPM),
Project Officer (PO),
QA Coordinator (Kaushal Khanna)

ESD/QAS - QAS QAPjP reviewer,

ESD/CRL - QAPjP/Data reviewer or
Laboratory chemists

4.0 Steps to Arrange for a Pre-QAPjP Meeting

4.1 Call the following parties to set up a pre-QAPjP meeting:

4.1.1 Potential Responsible Party (PRP) Representatives;

4.1.2 ARCS/REM/PRP's Contractors Site/project manager and QA Officer;

NOTE: Chemist of the selected laboratory (mostly the PRP- and State-Lead project) shall also attend the meeting.

4.1.3 State Project/Site Manager (if appropriate);

4.1.4 Central Regional Laboratory (CRL) - David Payne

4.1.5 Technical Support/QA Coordinator (Kaushal Khanna)

4.2 Call Cheng-Wen Tsai at 886-6220 to arrange for the meeting

4.3 After meeting date and meeting time are set, send the Pre-QAPjP Meeting Announcement (attached) to each Attendee.

NOTE: Meeting announcement to WMD/QA Coordinator (K. Khanna), ESD/QAS (Cheng-Wen Tsai) and ESD/CRL (David Payne) shall be accompanied with the following information:

- o Site history/background or copy of draft work Plan;
- o Summary of past remedial activity/past data;
- o Copy of consent decree order (PRP project only);
- o Statment of Work, etc.

5.0 Preparation for the Meeting

5.1 Provide contractor with available guideline on QAPjP preparation

5.2 Instruct the contractor to prepare the following:

5.2.1 A Meeting Agenda, which shall include the following:

5.2.1.1 Site history/Background
5.2.1.2 Scope of Work
5.2.1.3 Sample Matrix to be sampled
5.2.1.4 Parameters to be tested/Analytical Methodologies to be used
5.2.1.5 Issues, including question reagarding QAPjP guideline, that need to be discussed.
5.2.1.6 Laboratory selected (PRP- and State-lead only), including on-site laboratory (all projects)

5.2.2 Preparing Site Map (for Presentation of Site Background, sample network design, etc.)

6.0 Role of the Remedial Project Manager

6.1 The Remedial Project Manager (RPM) should be prepared to give a brief introduction, which may include the following:

- 6.1.1 Introduction of the attendees;
- 6.1.2 Description of the site;
- 6.1.3 Current stage of the project;
- 6.1.4 Purpose of the sampling, etc..

7.0 Role of the contractor representative

7.1 The contractor's Site Manager/Project Officer should be prepared to present the following:

- 7.1.1 Scope of the current activity;
- 7.1.2 Project Objectives, including required data quality;
- 7.1.3 Approaches to be used which may include, but is not limited to, the following:
  - 7.1.3.1 Sample network design and rationale;
  - 7.1.3.2 Methods for Sample collection;
  - 7.1.3.3 Field measurements to be performed;
  - 7.1.3.4 Field (or on-site) laboratory to be used;
  - 7.1.3.5 Analytical methodologies proposed to be used;
  - 7.1.3.6 Laboratories selected for the project; etc.
- 7.1.4 Other technical issues

Received 1-9-86
CWT

PREPARATION OF FEDERAL-LEAD REMEDIAL INVESTIGATION QUALITY ASSURANCE PROJECT PLANS FOR REGION V

GUIDANCE

QUALITY ASSURANCE OFFICE
U.S. ENVIRONMENTAL PROTECTION AGENCY
536 SOUTH CLARK STREET
CHICAGO, ILLINOIS 60605
DECEMBER 20, 1985

I. INTRODUCTION

Remedial Investigation Quality Assurance Project Plans (QAPP's) are prepared to achieve the data quality goals for monitoring activities at a specific hazardous waste site. A QAPP describes, in specific, succinct terms, the 1) policy, 2) organization, 3) functional activities (sample collection, chemical analyses, etc.), and 4) quality assurance (QA) and quality control (QC) protocols necessary to achieve data quality goals dictated by intended usage(s) of the data. The roles and definitions of QA and QC for any monitoring activity are effectively discussed in two literature references cited below:

1. "Principles of Environmental Analysis", American Chemical Society, Committee on Environmental Improvement, Anal. Chem., 55, 2210 (1983).

2. Taylor, J. K., "Quality Assurance of Chemical Measurements", Anal. Chem., 53, 1588A (1981).

Copies of these two articles are attached for informational purposes. They document that QA and QC are a recognized and integral part of a technically sound environmental monitoring program or activity.

Quality Assurance can be defined as the mechanism used to verify that an analytical process is operating within acceptable limits and is providing desired data quality. The most important factor in determining the level of QA and QC required for a monitoring activity is the consequences of being wrong.

As part of U.S. Environmental Protection Agency policy and codified regulation, QAPP's are prepared and approved prior to initiation of EPA monitoring programs or EPA funded monitoring programs. A QAPP organizes, in a logical format, the general guidelines suggested by the above "Principles of Environmental Analysis". "Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans", QAMS-005/80, U.S. EPA, December, 1980 is the current EPA guidance document for preparation of QAPP's. QAMS-005/80 specifies 16 elements (see Section 3.2 of QAMS-005/80) that must be considered in a QAPP and has been provided to Region V CERCLA Enforcement Section, for potential responsible parties QAPP's, to Region V Emergency and Remedial Response Branch for federal-lead remedial investigations, and to State personnel managing State-lead remedial activities.

Each of the 16 QAPP elements can be considered and written individually, or be documented by reference, to provide units of work that are easy to complete. Each element is to be tailored to the specific needs of a monitoring project or activity. It is not necessary to include an element in a QAPP if it is not applicable to the remedial activity. At the same time, QAMS-005/80 says little on the data assessment (validation or final data review) that is necessary for utilization of National Contract Laboratory Program (CLP) raw data for a remedial investigation. QAMS-005/80 elements have to be added or changed to reflect use of the CLP. QAMS-005/80 does not provide complete guidance for all types of monitoring activities.

The sixteen QAPP elements are:

1. Title Page with provision for approval signature

2. Table of Contents

3. Project Description

4. Project Organization and Responsibility

5. QA Objectives for Measurement Data in Terms of

   - precision
   - accuracy
   - completeness
   - representativeness
   - comparability

6. Sampling Procedures

7. Sample Custody (includes final files)

8. Analytical Laboratory Services for Routine Analytical Services (CLP), Special Analytical Services (CLP), CRL, Field, Field Screening, etc.

   a) Sample custody (includes evidence files)
   b) Analytical Procedures
   c) Calibration Procedures and Frequency
   d) Internal Quality Control Checks
   e) Data - Reduction
      - Validation
      - Reporting
   f) Performance and Systems Audits
   g) Data Assessment
   h) Preventive Maintenance Procedures/Schedules (may not apply to this report) optional
   i) Procedures to Assess Data for
      - precision
      - accuracy
      - completeness
   j) Corrective Action

9. Quality Assurance Report
   (may not apply to this report) optional

Both the Region V Quality Assurance Office and EPA Headquarters Office of Emergency and Remedial Response have found "Guidance for Preparation of Combined Work/Quality Assurance Project Plans for Water Monitoring", Office of Water Regulations, U.S. EPA, March 1983, to be helpful in writing certain of the 16 elements. A copy of this guidance document is attached. See Section II of this attached document for guidance, more detailed than QAMS-005/80, for preparation of certain of the 16 elements.

The following guidance is provided by the Region V Quality Assurance Office to the Region V Emergency and Remedial Response Branch (ERRB) and Hazardous Waste Enforcement Branch (HWEB) on preparation of QAPP's for federal-lead remedial activities. This guidance assumes a Work Plan and a site-specific Sampling Plan have been, or are being written, for the remedial activity in conjunction with the QAPP. At the end of the guidance is a "short-form" QAPP outline for remedial activities or sub-activities that do not require a complete QAPP. Use of a "short-form" QAPP, in lieu of a complete QAPP, should be done with the joint concurrence of the Quality Assurance Office. "Short-form" QAPP's are intended for remedial activities of limited scope or for QAPP's which can be covered well by simple reference to SOP's, or reference to more comprehensive project/program description documents that are readily available.

II. ELEMENTS OF A FEDERAL-LEAD REMEDIAL ACTIVITY QAPP

QAPP's are prepared using document control format. See upper right hand corner on each page of QAMS-005/80. This provides for easy changes for individual elements without rewriting the entire document.

A. Title Page and Approvals

Federal-lead Remedial Actions can be considered, either as extramural, or as intramural projects, as defined by page 1 of Section 4 of QAMS 005/80. If all planning, sample collection, laboratory analyses (including CLP laboratory services), QA and report preparation are to be done in-house, the QAPP title page will provide provisions, at a minimum, for the ERRB Regional Project Manager's (RPM's) immediate Supervisor and the Region V Quality Assurance Officer (presently the Chief, Quality Assurance Office). Responsible EPA inhouse laboratories and sampling organizations will sign-off on the QAPP, as appropriate.

Most federal-lead remedial activities will utilize contract engineering firms 1) to prepare Sampling Plans and QAPP's, 2) to plan and perform remedial activity studies and sampling, and 3) to assess data prior to preparation of a Remedial Investigation/Feasibility Study (RI/FS) report, all under the oversight and approval of a RPM. In this case, approval of QAPP's should follow the extramural project approval protocol of page 1 of Section 4 of QAMS-005/80.

For extramural federal-lead remedial activities, the QAPP will contain, at a minimum, provisions for approval by the Region V Quality Assurance Officer, by the Region V RPM, by the responsible Project Officer and QA Officer Officer for the contract engineering firm, and by important subcontractors, as appropriate. It is also the policy of the Region V Environmental Services Division to require review of the QAPP by the Director, Central Regional Laboratory (CRL), Region V when CLP and/or CRL analytical services are to be used for the remedial activity.

After final approval of the QAPP by the Region V Quality Assurance Officer, the Quality Assurance Office and ERRB/HWEB will jointly determine the distribution, and responsibility for this distribution, of QAPP copies to each person/organization having a major responsibility for the proposed environmental measurements. This includes, but is not limited to, contractors, subcontractors, and each laboratory.

B. Table of Contents

This is self-explanatory.

C. Responsibilities (Draft)

It is expected that most federal-lead projects will use contractor engineering firms to perform most monitoring of a remedial activity and the contractor will be requested to document most QAPP elements as part of the remedial activity, including test procedures and QC protocols to be used for field measurements, CLP routine analytical services (RAS), CLP Special Analytical Services (SAS), field laboratories, CRL laboratory services, and non-CLP and non-CRL laboratory services. In this case, the ERRB/HWEB should still retain over-all responsibility for preparation of the 3 QAPP elements 1) Project Description, 2) Project Organization Responsibility, and 3) QA Objectives. These 3 are best written and developed during preparation of Remedial Action Work Plans and and Sampling Plans. Remaining elements are easy to define once these 3 elements are comprehensively written.

The 3 elements often require the talents and input of the ERRB/HWEB, Environmental Services Division, contract engineering firms, and the CLP.

The Region V Central Regional Laboratory, through its Contract Project Management Section, will have to provide the specific CLP and CRL analytical and QC protocols that will be used for a remedial investigation and its QAPP.

D. Project Description

The purpose of the project description is to define the objectives (goals of the remedial activity), to describe how the project will be designed to obtain the information needed for these objectives, and to define the scope of the QAPP for the document's reviewers. The project description element should contain the following items:

1. A succinct description of the project including a brief statement addressing the projects objective(s) and providing an overview of the project's scope or complexity.

2. Background information from previous studies at the hazardous waste site. No one can effectively review the choice of parameter selection and QC protocols without access to previous study data.

: parameters selection

3. Dates anticipated for start, milestones, and completion of the project and monitoring activities. A milestone table is appropriate.

4. A brief statement outlining data usage(s). These can be, but are not limited to, future enforcement actions, data for remedial action alternatives, determination of hazardous waste characteristics for remedial removals, protection of public health, definition of extent of environmental contamination, etc. Future regulatory actions under such laws (and corresponding regulations) as RCRA, CERCLA, Safe Drinking Water Act, and EPA Approved Water Quality Standards may, or may not, dictate that certain analytical methods, QC, and chain-of-custody are to be used.

5. A succinct description of the monitoring (sampling) network design and rationale. This may be referenced to readily available Work Plans and Sampling Plans.

6. A discussion and listing (in tabular form) of the sample matrices and parameters to be tested and their frequency of collection. Parameters should include any field measurements (pH, conductance, etc.) and hydrogeological investigations (soil permeability, particle size analysis, etc.). Sample matrices and parameters are best listed in groups for a remedial activity site:

a. On-site sludges, barrels, liquids, contaminated soils, etc. These types of analyses are often done to determine disposal methods.

b. Ambient monitoring of air, groundwater, soils, drinking waters, surface waters, river sediments, fish, etc. ✓Specifications for filtered or unfiltered sample aliquots for groundwater and all other waters, must be included as part of the definition of parameters. These types of determinations usually are intended to measure the extent of environmental contamination and to assess public health risks.

The aboye two types of determinations usually dictate two types of sampling, analytical and QA protocols. A precise project description defines the scope of the remaining QAPP elements.

Attachment A to this Guidance are the Hazardous Substances List parameters provided by CLP Routine Analytical Services (RAS), as of December, 1985, and are applicable to low and medium level soils and waters only. As part of CLP RAS, tentative identification of unknown organic compounds are provided by computer assisted library searches subsequent to the GC/MS determinations of the volatile and the base/neutral and acid HSL compounds. A maximum of 10 tentative identifications are made during the volatile determinations and a maximum of 20 are made during the determinations of base/neutrals and acids. Attachment A provides the parameters to be determined by the CLP, and this list should be part of a QAPP. Both different matrices, such as oils or high hazard wastes, and additional parameters, not part of the RAS, will require CLP SAS.✓ Parameters to be analyzed by the CRL should be listed separately in the Project Description. ✓

The Region V CRL routinely analyzes all drinking waters tested during a federal-lead remedial activity in Region V. The ERRB/HWEB and engineering firm should contact the Contract Project Management Section, CRL to select the parameters to be determined in these drinking water supplies.

E. Project Organization and Responsibility

This element identifies key personnel/organizations that are necessary for the remedial action and apprises them of their responsibilities.

1. Overall Responsibility

a. Region V ERRB/HWEB Project Manager or RPM
b. Engineering Firm - Site Project Manager
c. Remedial Investigation/Feasibility Study Report

2. Monitoring and Sampling Operations and QC

Identify principle engineering firm and any subcontractors and functional activities for the major field activities identified in the Project Description.

3. Laboratory analyses and QC

Identify all laboratories performing analyses of parameters identified in the Project Description.

a. Contract Laboratory Program (RAS & SAS) - Contact CPMS, CRL, Region V.

b. Central Regional Laboratory (Drinking Waters) - Contact CPMS, or Director, CRL, Region V.

c. Commercial Laboratory other than CLP or CRL, if appropriate.

d. Field Laboratory - Identify organization and supervisor of any field laboratory necessary for field screening analyses described in the Project Description.

e. Hydrogeological Testing Laboratory, if appropriate.

4. Specialized Responsibilities for Laboratory Services (as appropriate)

These are included so that appropriate personnel/organizations are identified for these necessary activities.

a. Final Data Review/Assessment of CLP RAS:

(1) CPMS, CRL and/or Sample Management Office, EPA
(2) Engineering Firm as appropriate

b. Preparation of CLP SAS - Primary engineering firm, ERRB, and/or Environmental Services Division, as appropriate.

c. Final Data Review/Assessment of CLP SAS.

d. Assessment of CRL Data - QC Coordinator, CRL.

e. Final Data Review/Assessment of other Laboratories, if any.

f. Review of tentatively Identified Compounds, as to need for confirmation and usability for RI report and enforcement actions.

5. Quality Assurance

a. Overall QA Responsibility - Region V Quality Assurance Office. Provide QA responsibilities for primary engineering firm as appropriate.

b. Field - QA Manager of Principle Engineering Firm.

c. CLP RAS

(1) Support Services Branch, OERR, EPA Headquarters
(2) EMSL-Las Vegas, EPA
(3) CPMS, CRL

d. CLP SAS - Region V Environmental Services Division, Region V ERRB/HWEB, or Primary Engineering Firm. This is the responsibility of the organization preparing or administering the SAS and must be determined on a site-bysite basis. Final review and approval of a SAS request is provided by the Region V Quality Assurance Office during review of a QAPP.

e. CRL - Region V Quality Assurance Office and QC Coordinator, CRL.

f. Field Laboratories and Non-CLP Commercial Laboratories - Region V Quality Assurance Office.

g. Final QA Report for Monitoring Activity.

6. Performance and Systems Audits.

Any Performance and Systems Audits scheduled for the remedial activity should be identified and their personnel/organizational responsibility identified.

a. Field Operations - QA Manager of Principle Engineering Firm.

b. Evidence Audit - QA Manager of Principle Engineering Firm, or NEIC, U.S. EPA.

c. CLP - EMSL-Las Vegas, EPA.

d. CRL

(1) Region V QA Office or QC Coordinator, CRL
(2) EMSL-Las Vegas

e. Other Laboratories, if any - Region V QA Office

It is often useful on a remedial activity to provide an organizational chart to illustrate the relationship of the above organizational responsibilities.

F. Quality Assurance Objectives for Measurement Data, in Terms of Precision, Accuracy, Completeness, Representativeness, and Comparability

For each matrix (or matrix groups) and parameters, it is important that a cooperative effort be undertaken by the ERRB/HWEB, principle engineering firm, and analytical laboratory staff (Environmental Services Division) to define what levels of quality should be required for the data. These QA objectives shall be based on a common understanding of the intended use of the data, available laboratory procedures, and availability of resources.

1. Field QA Audits (Blanks and Duplicates)

For the matrix groups identified in the Project Description, itemize the field blanks and duplicate field sample aliquots to be collected for QA purposes. These are often routinely detailed in the Sampling Plan.

2. Regulatory or Legal Requirements

Selection of analytical methods require familiarity with any regulatory (RCRA, drinking water standards, etc.) or legal (consent decree) requirements of data usage(s). Specify any regulations that mandate the use of certain analytical methods for any of the sample matrices and parameters listed in the project description.

3. Accuracy, Precision and Sensitivity of Analysis

QA objectives for accuracy, precision, and sensitivity of analysis can be written on a site-specific basis in 3 ways.

a. Project Needs

QA Objectives can be established on project needs, if possible, but must be discussed with support laboratories so they are realistic. The detection limit needs of a project should be reviewed against the CLP detection limits provided by Attachment A (either as Method Detection Limits or Instrument Detection Limits). Special attention should be paid to the detection limits provided by the CLP for volatile organic compounds. These may be insufficient for drinking waters. Also, the CLP instrument detection

limits in soil (parts per billion) are 500-800 times larger than in water (ug/l) for metals. Important public health standards or criteria should be discussed for those key determinations that are critical to the success of a remedial activity. If QA Objectives are not met by CLP RAS then one or more CLP SAS's will need to be written.

Quantitative limits should be established for the following QA objectives:

(1) Level of QA Effort
(2) Accuracy (sample spikes, surrogate compound spikes, reference samples, etc.)
(3) Precision (replicate sample analyses)
(4) Sensitivity or Method Detection Limits

a. The above QA Objectives need to be stated in the manner they will be measured. If precision or accuracy statements are going to be made for resulting data, the QA Objectives will have to be stated in the manner they will be measured and will have to be consistent with protocols for any precision and accuracy statements. For example, mean matrix or surrogate spike recoveries for volatile halogenated organic compounds in water, using purge and trap gas chromatography techniques, should be between 90-110%, and range between 80 and 120% recovery. Reference sample results should be accurate within ± 20% of true values. Precision objectives should be that duplicate sample aliquots values do not differ more than ± 10%, at the 95% confidence level, when concentrations are measured significantly larger than the method detection limit. Except for methylene chloride, method detection limits can realistically be established at 0.2 ug/l or less for this gas chromatography technique. Blanks (field and laboratory) should contain no volatile halogenated compounds greater than 0.2 ug/l. The level of QA effort, or the frequency and number of spikes, reference samples, duplicates, and blanks, will need to be established to assure 1) QA objectives are met and 2) sufficient QA data are available to provide statements on the accuracy and precision of resulting data or to provide an adequate data base for proper assessment of analysis data as to its adequacy to meet study needs.

b. Achievement of QC Acceptance Criteria for Existing Analytical Protocols.

WA85-J646/J687

(1) QA Objectives are QC Criteria of Existing CLP Invitation for Bid No.s ~~WA84-A266/A267~~ for organic chemical analyses and Invitation for Bid (IFB) No.s ~~WA-J091/J092~~ for inorganic chemical analyses

(2) QA Objectives are QC audits in CLP SAS's (appended to QAPP)

WA85-J838/J839

(3) QA Objectives are QC audits in CRL Test Procedures. Summaries of CRL QC acceptance criteria can be added to the QAPP as the QA Objectives for drinking water analyses

(4) QC acceptance criteria for field laboratory analyses can be referenced to existing test procedure and QC protocols

c. QC audits to Summarize or Define Resulting Data Quality

Sometimes quantitative QA Objectives cannot be established for all parameters, or a laboratory has to be used which has not defined QA program. This is sometimes done because of the experimental nature of the measurements or the relatively unimportance or investigative nature of the measurements for success of the project. The number/frequency of field blanks, replicate sample analyses, reference samples, sample spikes, and surrogate compound spikes can be defined for each group of determinations. Results of these audits must be assessed prior to use of the data. Assessment of these QC audits must be clearly identified in Project Organization and Responsibility.

4. Completeness, Representativeness, and Comparability

For most remedial activities these last 3 terms are quality characteristics which should be considered during study planning. Data completeness can be quantified during data assessment. It is expected that laboratories should provide data, meeting QC acceptance criteria, for 90% or more of the requested determinations. It is incumbent for planners to identify any sample types, such as control or background locations, which require 100% completeness. Representativeness is most often thought of in terms of collection of representative samples (compositing sub-aliquots if appropriate) or selection of representative sample aliquots during laboratory analysis. Comparability is a consideration during planning to avoid noncomparability between different organizations' data or between different analytical methods.

G. Sampling Procedures

Append the site-specific Sampling Plan. Field measurements or test procedures for hydrogeological investigations may be documented either in the Sampling Plan or in the Analytical Procedures element below. The Sampling Procedures element is properly detailed on page 4 and 6 of Section 5 of QAMS-005/80 and should include:

✓ a. Description of techniques or guidelines used to select sampling sites.

b. Inclusion of specific sampling procedures to be used (by reference in the case of standard procedures and by actual description of the entire procedure in the case of nonstandard procedures).

✓ c. Charts, flow diagrams or tables delineating sampling program operations.

d. A description of containers, procedures, reagents, etc., used for sample collection, preservation, transport, and storage. The CPMS, CRL has the responsibility to provide this information for CLP RAS and CRL analyses. CLP SAS's should include a description of this requirement.

e. Special conditions for the preparation of sampling equipment and containers to avoid sample contamination (e.g., containers for organics should be solvent-rinsed; containers for trace metals should be acid-rinsed).

f. Time considerations for shipping samples promptly to the laboratory.

g. Sample custody or chain-of-custody procedures (to be described later in this document).

h. Forms, notebooks and procedures to be used to record sample history, sampling conditions and analyses to be performed.

H. Sample Custody

Region V, U.S. EPA sample custody or chain-of-custody protocols are described in "NEIC Policies and Procedures", EPA-330/9-78-001-R, Revised ~~February, 1983.~~ June, 1985 This custody is in 3 parts --

1) sample collection
2) laboratory
3) final evidence files

Final evidence files include all originals of laboratory reports and are maintained under documented control in a secure area. Attachment B is an example of laboratory "Chain-of-Custody". It is based on actual laboratory operations and its exact applicability to other laboratories is appropriate only if other laboratories have the same physical facilities, secure areas, floor plans, etc.

A sample or evidence file is under custody if:

1. It is in your possession, or
2. It is in your view, after being in your possession, or
3. It was in your possession and you locked it up, or
4. It is in a designated secure area.

The Region V, ERRB/HWEB will be responsible for determining the need for chain-of-custody for a remedial activity. The Region V Quality Assurance Office will review a QAPP's chain of custody protocol, usually described in the Sampling Plan, for field operations, for consistency with NEIC's protocol requirements. A QAPP or Sampling Plan should provide examples of chain-of-custody records, or forms used to record chain-of-custody for sample, laboratories, to describe evidence files. Sample custody protocols and their evidence files (originals of laboratory reports and records) for individual laboratories or separate Analytical Services are best described in Item J below.

I. Calibration Procedures and Frequency and Preventative Maintenance

These should be contained in the test procedures of the Analytical Procedures element below. For field measurement procedures they can be detailed in this QAPP element or described in the Sampling Plan.

J. Analytical Services

The following ten QAPP elements are to be considered separately for each group of analytical services used. It is the i...

document to require each group of Analytical Services to document the ten elements as a separate, distinct report for inclusion in the QAPP. In this way, separate groups of Analytical Services can write different sections of the QAPP independent of each other.

The ten elements are:

a) Sample Custody (includes evidence files)
b) Analytical Procedures
c) Calibration Procedures and Frequency
d) Internal Quality Control Checks
e) Data Reduction, Validation, and Reporting (Optional)
f) Performance and Systems Audits
g) Data Assessment
h) Preventative Maintenance Procedures/Schedules (Optional)
i) Procedures to Assess Precision, Accuracy, Sensitivity and Completeness
j) Corrective Action

Common groups of analytical services are:

a) CLP - RAS
b) CLP - SAS
c) CRL (This principally will be residential wells)
d) Field Analytical Services
(This is not field entry analysis, but analysis of samples at a field laboratory.)
e) Other Labs
f) etc.

There are other laboratories like State Laboratories and non-CLP labs that may be used at a particular site. The below example can clearly be expanded for these other labs.

	RAS	CRL	SAS	FIELD SCREENING	OTHERS
Calibration Procedure	PD	PD*	Specify	Specify	Specify
Analytical Procedure	PD	PD*	Specify	Specify	Specify
Internal QC	PD	PD*	Specify	Specify	Specify
Data Reduction/Validation	PD	PD*	Specify	Specify	Specify
Performance/System Audit	PD	PD*	Specify	Specify	Specify
Data Assessment	PD	PD*	Specify	Specify	Specify
Accuracy/Precision Definitions	PD	PD*	Specify	Specify	Specify
Corrective Action	PD	PD*	Specify	Specify	Specify

PD = Predetermined
* = Predetermined for routine parameter analyses.

For CLP RAS and CRL analyses, all ten elements are covered either by the current CLP IFB or Region V SOP's, and will be predetermined; however, they shall be documented by proper reference, or "boiler-plate" SOP's can be developed for the 10 elements for a group of these predetermined Analytical Services.

1. CLP RAS

1) CLP IFB No.'s WA84-A266/A267 for organic chemical analyses, 2) IFB No.'s WA-J091/J092 for inorganic chemical analyses, and 3) CLP RAS Statement of Work for dioxin analysis in soil/sediment dated 9/15/83 and associated revisions of 12/29/83, all provide specifications for Analytical Procedures, Calibration Procedures and Frequency, Internal Quality Control Checks, Data Reduction, and Preventative Maintenance, Performance and Systems Audits are the responsibility of the Support Services Branch, OERR, EPA and of EMSL-Las Vegas, EPA. Data Assessment is the joint responsibility of CPMS, CRL and Sample Management Office, EPA and should be defined for a QAPP. Accuracy, Precision, and Completeness data are provided by the RAS and should be defined by a QAPP.

2. CRL

A separate set of 10 elements should be developed jointly by the principal engineering firm and the CRL for identifiable analyses to be performed by the CRL.

3. CLP SAS

The "Special Analytical Services - Regional Request" form (Attachment C), if completed precisely, should contain for each parameter, or parameter groups, all required information for Analytical Procedures, Calibration Procedures (as part of the specified analytical methods), Internal Quality Control Checks, Data Reduction, Performance Audits (for specified reference samples), and Definitions of Accuracy, Precision, and Sensitivity. Sufficient requirements should be specified to allow proper data assessment by Region V.

Analytical methods can be specified from EPA's methods manuals. ASTM, "Standard Methods", AOAC, etc. If a non-published methodology is specified, a proper detailed test procedure description must accompany the SAS.

The final SAS provided the Sample Management Office by the CPMS, CRL must be inserted in the approved QAPP. An approved QAPP should not contain "draft" SAS's that are later changed by the CPMS for proper use by the CLP.

K. Quality Assurance Reports

TABLE 1

SUMMARY OF THE SAMPLING AND ANALSIS PROGRAM AT G AND H LANDFILL

Sample Matrix	Field Parameters	Laboratory Parameters	Investigative Samples No.	Freq.	Total	Quality Assurance Samples: Duplicate No.	Freq.	Total	Sample Blank No.	Freq.	Total	Bottle Blank No.	Freq.	Total	Matrix Total
Groundwater															
	pH	VOC's consistent with CLP protocols	65	1	65	7	1	7	3	1	3	3	1	3	78
	Specific Conductance	BNA extractables consistent with CLP protocols	65	1	65	7	1	7	3	1	3	3	1	3	78
	Temperature	Pesticides/PCB's consistent with CLP protocols	65	1	65	7	1	7	3	1	3	3	1	3	78
		Metals consistent with CLP protocols, filtered samples	65	1	65	7	1	7	3	1	3	3	1	3	78
		Cyanide consistent with CLP protocols, unfiltered samples	65	1	65	7	1	7	3	1	3	3	1	3	78
		Chloride (EPA 325.1, 2 or 3) unfiltered samples	65	1	65	7	1	7	3	1	3	3	1	3	78
		Nitrate + Nitrite - N (EPA 353.1, 2 or 3) unfiltered samples	65	1	65	7	1	7	3	1	3	3	1	3	78
		Ammonia - N (EPA 350.1 or 3) unfiltered samples	65	1	65	7	1	7	3	1	3	3	1	3	78
		Total Kjeldahl - N (EPA 351.2 or 3) unfiltered samples	65	1	65	7	1	7	3	1	3	3	1	3	78
		Chemical Oxygen Demand (EPA 410.1) unfiltered samples	65	1	65	7	1	7	3	1	3	3	1	3	78
		Biochemical Oxygen Demand (Standard Methods No. 507) unfiltered samples	65	1	65	7	1	7	3	1	3	3	1	3	78
		Phosphorus (EPA 365.1 or 2) unfiltered samples	65	1	65	7	1	7	3	1	3	3	1	3	78
		Oil and Grease EPA CRL BPES 2415242 unfiltered samples	65	1	65	7	1	7	3	1	3	3	1	3	78
		Residue, non-filterable (EPA 160.2) unfiltered samples	65	1	65	7	1	7	3	1	3	3	1	3	78
		Boron (EPA 213.3) unfiltered samples	10	1	10	1	1	1	1	1	1	1	1	1	13
Leachate															
	pH	VOC's consistent with CLP protocols	15	1	15	3	1	3	1	1	1	1	1	1	20
	Specific Conductance	BNA extractables consistent with CLP protocols	15	1	15	3	1	3	1	1	1	1	1	1	20
	Temperature	Pesticides/PCB's consistent with CLP protocols	15	1	15	3	1	3	1	1	1	1	1	1	20

SAMPLE QUANTITIES, BOTTLES, PRESERVATIVES AND PACKAGING FOR SOIL, SEDIMENT AND WATER SAMPLES FROM G & H LANDFILL, UTICA, MICHIGAN

Analysis	Bottles and Jars	Preservation	Holding Time	Volume of Sample	Shipping	Normal Packaging
WATER AND LIQUIDS						
Routine Analytical Services (RAS) Low Concentration (Organics)						
Acid Extractables, base/neutral extractables, pesticides/PCBs	Two 1/2-gallon amber bottles (teflon-lined caps)	Iced to 4°C	5 days until extraction	Fill bottle to neck	Federal Express Priority I	No. 1 foam liner or vermiculite
Volatiles	Two 40-ml volatile organic analysis (VOA vials)	Iced to 4°C	7 days	Fill completely no headspace	Federal Express Priority I	No. 1 foam liner or vermiculite
Low Concentration (Inorganics)						
Metals	One 1-liter high density polyethylene bottle	Filter through 0.45 um filter (groundwater only), HNO_3 to pH <2, Iced to 4°C, Optional	6 months	Fill to shoulder of bottle	Federal Express Priority I	No. 2 foam liner or vermiculite
Cyanide	One 1-liter high density polyethylene bottle	NaOH to pH >12, Iced to 4°C	14 days	Fill to shoulder of bottle	Federal Express Priority I	No. 2 foam liner or vermiculite
Special Analytical Services (SAS)						
Oil and Grease	One 1-liter wide mouth glass bottle - aluminum foil under cap	5 ml/l 1:1 H_Cl	28 days	Fill to shoulder of bottle	Federal Express Priority I	Vermiculite
BOD_5	One 1-liter high density polyethylene bottle	Iced to 4°C	48 hours	Fill to shoulder of bottle	Federal Express Priority I	Vermiculite
COD, TKN, TOC, Nitrate + Nitrite-N, Ammonia, Total P	One 1-liter high density polyethylene bottle	1 ml/l H_2SO_4 Iced to 4°C	28 days	Fill to shoulder of bottle	Federal Express Priority I	Vermiculite
Chloride, Boron	One 1-liter high density polyethylene	Iced to 4°C	28 days	Fill to shoulder of bottle	Federal Express Priority I	No. 2 foam liner or vermiculite
Suspended Solids	One 1-liter high density polyethylene	Iced to 4°C	7 days	Fill to shoulder of bottle	Federal Express Priority I	No. 2 foam liner or vermiculite
Medium Concentration (Organics)						
Acid extractables, base/neutral extractables, pesticides/PCBs	Four 32-oz wide mouth glass jars	NONE	Not established	Fill 3/4 full	Federal Express Priority I w/attached shipper's certificate for restricted articles	In cans/ vermiculite
Volatiles	Two 40-ml volatile organic analyses (VOA) vials	NONE	Not established	Fill completely no headspace		

TABLE 2 (continued)

Analysis	Bottles and Jars	Preservation	Holding Time	Volume of Sample	Shipping	Normal Packaging
Medium Concentration (Inorganics)						
Metals	One 16-oz wide mouth glass jar	NONE	Not established	Fill 3/4 full	Federal Express Priority I w/attached shipper's certificate for restricted articles	In cans/ vermiculite
Cyanide	One 1-liter high density polyethylene bottle	NONE	Not established	Fill 3/4 full		
High Hazard Protocol	One 8-oz wide mouth glass jar	NONE	Not established	Fill 3/4 full		
SOILS AND SOLIDS						
Routine Analytical Services (RAS) Low or Med Concentration (Organics)						
Acid extractables, base/neutral extractables, pesticides/PCBs	One 8-oz wide mouth glass jar	Iced to 4°C	Not established	Fill 3/4 full	Federal Express Priority I (Med w/attached shipper's certificate for restricted articles)	Foam liner No. 3 (Med in cans/ vermiculite)
Volatiles	Two 120-ml VOA vials	Iced to 4°C	Not established	Fill completely no headspace	Federal Express Priority I	
Low or Med Concentration (Inorganics)						
Metals and Cyanide	One 8-oz wide mouth glass jar	Iced to 4°C	Not established	Fill 3/4 full	Federal Express Priority I (Med w/attached shipper's certificate for restricted articles)	Foam liner No. 3 (Med in cans/ vermiculite)
High Hazard Protocol	One 8-oz wide mouth glass jar	NONE	Not established	Fill 3/4 full	Federal Express Priority I w/attached shipper's certificate for restricted articles	In cans/ vermiculite
Special Analytical Services (SAS)						
Oil and Grease	One 8-oz wide mouth glass jar	Iced to 4°C	Not established	Fill 3/4 full	Federal Express Priority I (Med w/attached shipper's certificate for restricted articles)	Foam liner No. 3 (Med in cans/ vermiculite)

CENTRAL REGIONAL LABORATORY SAMPLE DATA REPORT

1. Insert assigned laboratory case number.
2. Insert site name.
3. Insert laboratory names, indicating which lab will receive the organic samples and which lab will receive the inorganic samples.
4. Insert date of shipment.
5. Insert DU code (either Y905 for site inspection or remedial, or Y306 for enforcement, including PRP sites).
6. Insert name of RPM (the RPM will know what the site DU code is).
7. Insert page number and total number of pages.
8. Insert CRL log number, which consists of the fiscal year, EPA assigned contractor code, sampler code, round of sampling, sample type designation and sample number.
   eg. 8 7 S W 0 1 S 0 1
   a b c d e f

a. FY	b. contractor code	c. this could be the 1st letter of surname of the sampler (sampler code)	d. round	e. sample type, could be: S-sample D-duplicate R-field blank	f. sample number ie. 01,02,03,et

87SW01S01 would be a sample.
87SW01D01 would be a field duplicate of sample 87SW01S01.
87SW01R01 would be a field blank.

9. Insert organic traffic report number.
10. Insert inorganic traffic report number.
11. Indicate the analyses required (eg. acid-base neutral cpds, volatile organic analysis, etc.) for each sample in the appropriate section (for waters or soils) with an "X".

Note: All samples should have a unique number. If the same location will be sampled at a site two weeks in a row, the sample number for the first week could be 87SW01S01, and for the second week 87SW02S01.
If a sample is collected for total and dissolved metals analyses, a separate ITR should be filled out for each bottle(the filtered and unfiltered). Each one of these samples would then be assigned a unique CRL log number. The dissolved metals analyses can be requested by writing "Dissolved Metals" in one of the free columns and checking this analysis off for the samples that have been filtered. Metals analysis for the unfiltered samples would have an "X" in the metals column (already printed on the form).

This form must be filled out for all SF samples which will go to contract labs.

CENTRAL REGIONAL LABORATORY SAMPLE DATA REPORT

1. Insert assigned laboratory case number.
2. Insert site name.
3. Insert laboratory names, indicating which lab will receive the organic samples and which lab will receive the inorganic samples.
4. Insert date of shipment.
5. Insert DU code (either Y905 for site inspection or remedial, or Y306 for enforcement, including PRP sites).
6. Insert name of RPM (the RPM will know what the site DU code is).
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eg. 8 7 S W 0 1 S 0 1
a b c d e f

a.	b.	c.	d.	e.	f.
FY	contractor code	this could be the 1st letter of surname of the sampler (sampler code)	round	sample type, could be: S-sample D-duplicate R-field blank	sample number ie. 01,02,03,et

87SW01S01 would be a sample.
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87SW01R01 would be a field blank.

9. Insert organic traffic report number.
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11. Indicate the analyses required (eg. acid-base neutral cpds, volatile organic analysis, etc.) for each sample in the appropriate section (for waters or soils) with an "X".

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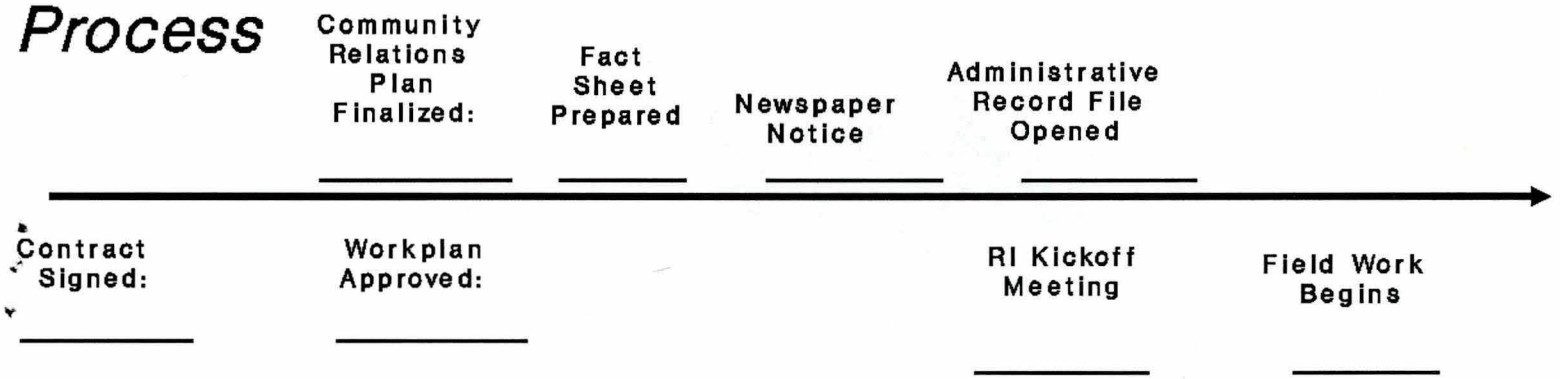
If a sample is collected for total and dissolved metals analyses, a separate ITR should be filled out for each bottle(the filtered and unfiltered). Each one of these samples would then be assigned a unique CRL log number. The dissolved metals analyses can be requested by writing "Dissolved Metals" in one of the free columns and checking this analysis off for the samples that have been filtered. Metals analysis for the unfiltered samples would have an "X" in the metals column (already printed on the form).

This form must be filled out for all SF samples which will go to contract labs.

Superfund Site Schedule for

_____

RI Process



Information Repository & Administrative Record File Established?

Where?

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Carroll D. Besadny
Secretary
Lake Michigan District Headquarters
1125 N. Military Avenue
P.O. Box 10448
Green Bay, Wisconsin 54307-0448

August 21, 1991

File Ref: WID-560010118
Brown Co.
SW/SFND

Ms. Judy L. Fassbender, Hydrogeologist
Hydro-Search, Inc.
Brookfield Lakes Corporate Center XII
175 N. Corporate Drive, Suite 100
Brookfield, WI 53045

Re: Better Brite RI/FS

Dear Ms. Fassbender:

Please find enclosed a disk containing the model QAPP provided by the EPA. The model uses Word Perfect.

It is my intention to provide you with a private well survey prior to September 12, 1991. This survey will utilize well construction forms (WDNR Records) and other information obtained from the City of DePere. The survey information is to be presented in table form and on a map of the area.

I also plan to perform an inspection of the monitoring wells at the site(s) and to provide you with a summary of this information prior to September 12, 1991.

If you have any questions regarding the above please call me at (414) 492-5869.

Sincerely,

T Koehn

Terry Koehn
State Project Manager

cc: David Linnear EPA Region V
Darsi Foss SW/3
w/o enclosure

Hydro-Search, Inc.
Brookfield Lakes Corporate Center XII
175 N. Corporate Drive, Suite 100
Brookfield, Wisconsin 53045
HYDROLOGISTS-GEOLOGISTS-ENGINEERS
Phone (414) 792-1282 FAX (414) 792-1310

PROPOSED AGENDA
PRE-QAPjP MEETING
BETTER BRITE SITE
DE PERE, WISCONSIN

February 6, 1991

I. Project Organization

II. Preliminary Schedule for Sampling

III. Overview of Sampling Tasks

IV. Review Data Quality Objectives

V. Proposed Analytical Parameters

* TAL Metals, Cyanide
* TCL VOCs (medium and low level)
* Availability of pre-approved SASs for Hexavalent and ~~Trivalent Chromium~~, Total Organic Carbon, Soil pH, Readily Reducable Manganese – SAS on SOP
* Field Screening for Total and Hexavalent Chromium

VI. Laboratory Selection

* CRL vs. CLP Local (Screening)

VII. Laboratory Coordination

VIII. QAPjP Review and Finalization

* U.S.EPA Contact Person – Need DL to Ida Lewis
* Schedule for Draft Submittal