AGENDA

DATE: June 8, 2000 (Thursday)

LOCATION: BT², Inc. Office

PROJECT: Stoughton City Landfill Operation and Maintenance

PURPOSE: Project Kick-Off Meeting to Discuss Project Coordination

TENTATIVE ATTENDEES:

Paul Kozol - WDNR
David Behn - WDNR
Charleen Khazae - WDNR
PAUL ~~Dave~~ - TestAmerica
Sherren Clark - BT²
Steven Smith - BT²
Jan Kucher - BT²

1. Introductions
2. Contracts ? BEHN -
3. Insurance — DNR COVERED ON INSURANCE
4. Communications/Reporting — JAN 1ST FORMAT CHARLENE
   - EPA coordination - THROUGH ME
5. Question Resolution Procedures - EM
6. Invoice Format (see example) — COVER SHEET, SUMMARY SHEET?
7. Status Reports — JUST TITE TRIANNAL
8. Health and Safety Plan - GOOD
9. Quality Assurance Project Plan (QAPP)
   - TestAmerica - analyte specific standard operating procedure
   - Exact scope and level of detail requested by WDNR

10. Scope of Work (Review Bid Price Sheet)

11. Forms

- Cover/site inspection
- Landfill gas monitoring form
- Sampling schedule
- gas
- groundwater
- cover inspection
- mowing
- well-specific field sheets

12. Questions

a. Purge water disposal
b. Need copy of results from previous monitoring (if clean water, may not need to be barreled and disposed of by WDNR)
c. PAL or exceedance – how to handle added parameters observed in gas chromatograph in groundwater samples
d. Other WDNR concerns
e. Site keys and locks
f. Neighbors
g. Previous annual report copy

13. Data Storage and Reports

14. Comments on Site Visit on June 7

- Wood fence
- Ports to vents for monitoring
- Label vents

LOAD SAMPLE FILTERED V.S. UNFILTERED OR TABLE TYPE O

3-3 METALS - RESULTS

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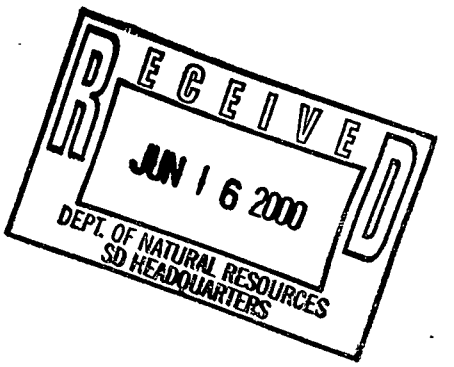

MEETING NOTES

DATE: June 8, 2000 (Thursday, 10:00 a.m.)

LOCATION: BT², Inc. Office

PROJECT: Stoughton City Landfill Operation and Maintenance

PURPOSE: Project Kick-Off Meeting to Discuss Project Coordination

ATTENDEES:

Paul Kozol - WDNR	(275-3301)
Charleen Khazae - WDNR	(267-0543)
Paul Junio - TestAmerica	(800-833-7036)
Sherren Clark - BT²	(224-2830)
Steven Smith - BT²	(224-2830)
Jan Kucher - BT²	(224-2830)

1. Contract

   Dave Behn is coordinating (received purchase order on June 15).

2. Insurance

   Jan Kucher to check with Dave Behn to confirm what we need to submit to the state.

3. Communications/Reporting

   Jan Kucher, Project Manager at BT², will be the main contact to provide continuity between the WDNR and BT². Paul Kozol will be the prime contact at the WDNR. Paul will also handle discussions and transfer copies to EPA Region V as necessary. Paul Kozol noted that 100% of the financing is from the WDNR.

   Reporting - submit deliverables as stated in the bid price sheet.

4. Question Resolution Procedures

   Refer all questions through Paul Kozol.

5. Invoice Format (see example attached)

Paul would like BT² to use a special WDNR cover sheet and then a copy of the bid price sheet with the incremental quantities for that billing period. A copy of a modified bid price sheet is attached to these meeting notes.

6. Health and Safety Plan

BT² will prepare our own H&S plan for our use only. The WDNR will not approve or disapprove of the H&S plan.

7. Quality Assurance Project Plan (QAPP)

Paul Kozol stated that we do not need CLP-level work on this project. Paul suggested that we check the Region V QAPP model dated May 1996 (revision 1). Our laboratory, TestAmerica, can take the standard operating procedure (SOP) and add a cover letter. Use the standard NR 140 methods. It is important to determine the limits necessary to meet NR 140 levels. Paul does not see a need to submit the QAPP to the EPA for review. It is important to hold off on all sampling until the QAPP is prepared and approved by the WDNR.

BT² will prepare detailed forms which will be included in the QAPP regarding cover/inspection, landfill gas monitoring, etc.

Paul noted that it is important for TestAmerica to pull additional QC data for validation in the future should it ever need to occur. Therefore, TestAmerica should assemble QC data and store for at least five years, but do not submit to the WDNR.

BT² is to add SOPs for the PID and CGI calibration. Jan noted that BT² would need approximately two weeks to prepare the QAPP after our notice to proceed in the form of a purchase order. Paul Kozol noted that the WDNR would then review and get back to BT² within a 60-day period.

8. Gas Sampling

BT² will number the vents for clarification and prepare SOPs from the gas laboratory. In addition, BT² will need to drill and tap in a sampling port on the side of the vent to facilitate sample collection after the goose neck has been plugged (to allow for gas stabilization). BT² will not begin the gas sampling until the QAPP is approved.

9. Groundwater Monitoring Reporting

BT² is to report as observed from the laboratory.

10. Team To-Do List

1. Call Dave Behn to obtain a purchase order/contract with a goal of starting on July 1. **NOTE: BT² received purchase order on June 13.**
2. Get WDNR cover sheet for inclusion of invoice - **Paul Kozol**
3. Check on gas target analytes and methods - **Paul Kozol**
4. Get price from MMSD for purge water disposal - **BT²**

5. Print parallel paperwork from groundwater analysis for future QC/validation and file for future use as necessary (do not submit) - **TestAmerica**
6. Get BT² a price for lead analysis at all wells for one round - **TestAmerica**
7. Investigate Weston 1998 baseline groundwater monitoring (units, filtered?) or table typographical error, review high lead in Section 3.3 - **Paul Kozol**
8. Get price to remove silt fence from the wetland and dispose of - **BT²**
9. Get price to remove and dispose of 6-inch schedule 40, PVC pipe located in the woods adjacent to the landfill - **BT²**
10. Prepare price to cleanup rotten hay, distribute in erosion-prone areas, remove stakes, and dispose of - **BT²**
11. Replace locks on fences, wells, gas probes to provide a common key - **Paul Kozol**
12. Provide price for a load of rock (check WDOT specifications) to be placed at the southwest edge of the site to reduce erosion - **BT²**
13. Provide BT² with a EPA QAPP model in electronic format - **Paul Kozol**

Attachment

cc: Attendees

I:\1764\000608 Meeting Notes.wpd

6-8-00

DOs AND DON'Ts TO FACILITATE QAPP APPROVAL

1. **DO NOT** submit the laboratory quality assurance program plan attached in an appendix in order to satisfy project-specific quality assurance project plan (QAPP) information. The generic lab QAPPs contain extraneous and ambiguous tables and information.

   DO append or otherwise incorporate into the QAPP the laboratory information that is project-specific (e.g. laboratory chain of custody, internal performance and system audits; etc.) to address certain elements outlined in this document. ~~For fund-lead projects the most current CLP Statements of Work must be followed.~~

2. **DO NOT** reproduce tables containing key information such as types of samples, numbers of investigational and quality control samples per matrix, or lists of target compounds. There should be one table of each kind of information contained in the QAPP.

   DO provide section-specific references when referring to the tabular information in the QAPP, Field Sampling Plan, or Work plan. By doing so, errors caused by not changing duplicated or summarized tables will be minimized.

3. **DO NOT** submit photocopied pages from Test Methods For Evaluating Solid Waste (SW-846) as laboratory Standard Operating Procedures (SOPs).

   DO submit laboratory-specific SOPs for review if CLP SOW procedures are not to be used.

4. **DO NOT** submit copies of manufacturer's guides to operating certain instrumentation such as the field equipment commonly used to detect volatile organic analytes, or for the measurement of temperature, pH, Eh, and specific conductance. The U.S. EPA evaluates the operator's SOPs for calibrating and maintaining such instruments.

5. **DO NOT** submit a multiple choice list indicating which methods will be used to analyze certain hazardous constituents. Only the instrumental and preparatory/cleanup/extraction/digestion procedures that will actually be utilized for analysis must be indicated in the QAPP. If SW-846 offers a selection of possibilities for performing the analyses, then the QAPP must specify which methods will actually be used.

6. **DO NOT** submit a QAPP to the U.S. EPA for review until a laboratory has been selected for a project. Once a selection has been made, laboratories cannot be changed due to a possible lab audit by U.S. EPA.

7. **DO NOT** write the QAPP until a scoping meeting has been held. This meeting involves representatives of the laboratory, the state agency, the Potentially Responsible Party (PRP), the contractor, and the U.S. EPA Remedial Project Manager (RPM) and support staff (chemist, toxicologist, ecologist, geologist, safety specialist, etc.) for the purpose of defining project objectives and evaluating potential Quality Assurance problems during implementation of the Work plan.

8. **DO** provide in the QAPP the complete list of hazardous constituents to be measured and reported for the superfund site. Such lists should be consistent with those constituent lists for which the methods have been validated.

9. **DO** provide information on sample tags. Sample tags are required for all samples taken in the field, as part of the chain of custody procedure.

Kozol, Paul L

From: Kozol, Paul L
Sent: Monday, July 10, 2000 3:56 PM
To: 'Bernard Schorle'; Kalnicky, Richard A
Subject: RE: Stoughton City Landfill

Bernie, I too have only the contract without the Appendices, I will check the Central Office files the next time I go to our downtown Central Office. Dick if you have the referenced SSC at your desk could you please check, otherwise I will dig into the files. Thanks!

Paul L. Kozol, P.E.
Remediation and Redevelopment Engineer
South Central Region
(608) 275-3301
Kozolp@dnr.state.wi.us

From: Schorle.Bernard@epamail.epa.gov[SMTP:Schorle.Bernard@epamail.epa.gov]
Sent: Monday, June 26, 2000 4:32 PM
To: kozolp@dnr.state.wi.us
Subject: Stoughton City Landfill

I have a copy of the Superfund State Contract for the remedial action at the Stoughton City Landfill that covers the agreement regarding the splitting of costs between the state and USEPA for the site's RA. This is dated 9/25/97. An Appendix A (description of the site) and an Appendix B (Statement of Work) are mentioned in the text, but my copy contains no appendices, and I have not so far been able to locate these appendices, or any other possible appendices, here. Would you happen to have a copy of the SSC that does include these appendices?

Kozol, Paul L

From: Schorle.Bernard@epamail.epa.gov[SMTP:Schorle.Bernard@epamail.epa.gov]
Sent: Monday, July 10, 2000 4:34 PM
To: Kozol, Paul L
Subject: RE: Stoughton City Landfill

Thanks for the information. I am afraid that there may not have been any appendices. It seems a little strange that it could have been signed without them. Didn't anyone read it?

Kozol, Paul L

From: Kozol, Paul L
Sent: Monday, July 10, 2000 4:52 PM
To: 'Bernard Schorle'
Subject: RE: Stoughton City Landfill

Only.... the money part!

Paul L. Kozol, P.E.
Remediation and Redevelopment Engineer
South Central Region
(608) 275-3301
Kozolp@dnr.state.wi.us

From: Schorle.Bernard@epamail.epa.gov[SMTP:Schorle.Bernard@epamail.epa.gov]
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To: Kozol, Paul L
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Kozol, Paul L

From: Schorle.Bernard@epamail.epa.gov[SMTP:Schorle.Bernard@epamail.epa.gov]
Sent: Tuesday, July 11, 2000 3:55 PM
To: Kozol, Paul L
Cc: Coll.Suzanne@epamail.epa.gov; Rutter.Anthony@epamail.epa.gov
Subject: RE: Stoughton City Landfill

Neither Tony or Sue have the appendices. I talked with Tony a littler about this, and I am asking him again. He at first thought that the SOW (Appendix B) may have been the SOW for the contractor, but I doubt that very much. I found a Statement of Work for Remedial Action dated September 10, 1997 attached to the Action Memorandum, dated September 4, 1997. The Work Assignment dated September 29, 1997 was sent to our contractor. The SOW with this appears to be the same as that with the Action Memorandum, except that some parts of Attachment 1 (Deliverables) have been marked up, but it appears that this was likely done on this copy, not what was sent to the contractor.

If the SOW for the SSC were a SOW that was going to the contractor, this would probably have to be it. However, the SSC says in Section 9, "A site-specific Statement of Work (SOW), for the Remedial Action indicating the tasks to be performed for this response action, including estimated costs, is attached in Appendix [B]." The September 10, 1997 SOW contains no dollar amounts, as would be the case for a SOW going to our contractor.

Tony thought that someone in your office might have prepared Appendix A, containing the site description, because he thought that someone on your end wanted this. You might try to look into this. While you are at it, you might look into whether you have an electronic copy of the main text of the SSC. I have yet to determine where that might be. The SOW, if it was prepared, might be on the same computer disk as the main text.

KozolP@mail01.dnr.state.wi.us on 07/11/2000 07:53:00 AM

To: KalniR@mail01.dnr.state.wi.us
cc:

Subject: RE: Stoughton City Landfill

Thanks Dick. I think before I had the project Gary E. had it. I was thinking about looking at an old SSC when I'm downtown - Madison I mean, not Milwaukee.

Paul L. Kozol, P.E.
Remediation and Redevelopment Engineer
South Central Region
(608) 275-3301
Kozolp@dnr.state.wi.us

> ----------
> From: Kalnicky, Richard A
> Sent: Tuesday, July 11, 2000 7:26 AM

> To: Kozol, Paul L
> Cc: Kalnicky, Richard A
> Subject: RE: Stoughton City Landfill
>
> Paul, I checked my Stoughton SSC files at my desk and I too am lacking
> both Appendix A and Appendix B. My question in trying to locate them is
> who originally prepared them? That person--maybe Tony Rutter?--should
> still have them on their computer. Another possibility--would Sue Coll
> have a copy? I doubt our library would have a copy of these appendices if
> you or I do not have a copy; however, it still would be worthwhile to
> check just in case something got routed there but not through you or me.
> Good luck.
>
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> From: Kozol, Paul L
> Sent: Monday, July 10, 2000 3:56 PM
> To: 'Bernard Schorle'; Kalnicky, Richard A
> Subject: RE: Stoughton City Landfill
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> these appendices?
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>
>
>

Kozol, Paul L

From: Steven Smith[SMTP:ssmith@bt2inc.com]
Sent: Thursday, July 13, 2000 3:12 PM
To: kozolp@dnr.state.wi.us
Subject: Stoughton L.F.

Paul,
The 3 background wells that we are to sample in addition to the 28 monitoring wells. Which wells are they?. I thought they were OW-1,2,3. Please let me know.
Thanks,
Steven

Steven B. Smith
Senior Technical Specialist
BT2, Inc.
2830 Dairy Drive
Madison, WI 53718
(608) 224-2830 ext. 239
ssmith@bt2inc.com

Kozol, Paul L

From: Steven Smith[SMTP:ssmith@bt2inc.com]
Sent: Thursday, July 13, 2000 4:44 PM
To: Jan Kucher; kozolp@dnr.state.wi.us; Khazae, Charlene A
Subject: RE: Stoughton City L.F. QAPP Questions

Charlene,
Once I have the QAPP done, do I send it directly to you for approval or do I send it to both you and Paul Kozol ?. Which office are you located in?.
Paul,
If the QAPP isn't ready until Aug. 1, whom should I be sending copies of it to ?.
Thanks,
Steven
>>> "Khazae, Charlene A" <KhazaC@mail01.dnr.state.wi.us> 07/13/00 09:25AM >>>
Greetings! And thanks for asking questions up front.

~~For question 1.) "headings"~~

* The rationale for choosing sample locations should be included in the QAPP. Seems to me that Paul Kozol had a strategy for sampling only a few gas vents each year. The reason for sampling all/some of the monitoring wells should be included. I haven't checked the Models language, but usually "rationale" also refers to the analyses that will be performed and why. None of this needs to be elaborate. A few lines will do. (If you and Paul have discussed dropping wells for sampling in the future, you might want to give the criteria that will be used to determine how wells will be eliminated from sampling.)
* The task chart bar - If this refers to the Figure for the project schedule, this could more appropriately be answered by Paul Kozol. The schedule is not as important to me as it might be to him.
* The final evidence files - Even though this phase of the project does not require strict enforcement measures, this heading may be the place to include the fact that the lab will retain the full QC package (for a specified length of time) in the event that the consultant or either one of the regulatory agencies might want to review/validate data. You can change the title and write a few lines of text accordingly.

For question 2.)

* I think it would be superfluous to include past data; we are in agreement here. However, since past data dictates the analyses being performed on the groundwater, etc., a mention of contaminants detected in the past, especially PAL/ES exceedances, would be useful and help support the sampling rationale (question 1.). Referring to documents that contain data from past endeavors would be appropriate.
* The Table giving the sample containers, preservations, holding times, etc., for THIS phase of the project is a must. From past sampling events, it is not necessary.

I hope this helps. Call or e-mail if I can help you further.

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> From: Steven Smith[SMTP:ssmith@bt2inc.com]
> Sent: Wednesday, July 12, 2000 3:42 PM
> To: Khazae, Charlene A
> Subject: Stoughton City L.F. QAPP Questions
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> Charlene,
> I have a few questions for you:
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> files, etc... Can I simply not use headings that don't apply or do you

> want them all listed?.
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> Thanks,
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> Steven B. Smith
> Senior Technical Specialist
> BT2, Inc.
> 2830 Dairy Drive
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> (608) 224-2830 ext. 239
> ssmith@bt2inc.com
>

Steven B. Smith
Senior Technical Specialist
BT2, Inc.
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Madison, WI 53718
(608) 224-2830 ext. 239
ssmith@bt2inc.com

Kozol, Paul L

From: Khazae, Charlene A
Sent: Monday, July 17, 2000 8:37 AM
To: Jan Kucher; kozolp@dnr.state.wi.us; 'Steven Smith'
Subject: RE: Stoughton City L.F. QAPP Questions

Here is what I'm proposing: Send us each a copy. I'll send my comments to Paul and he can incorporate my comments into his. Does this work, Paul? 405

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> ssmith@bt2inc.com
>

Kozol, Paul L

From: Schorle.Bernard@epamail.epa.gov[SMTP:Schorle.Bernard@epamail.epa.gov]
Sent: Monday, July 17, 2000 10:04 AM
To: Coll.Suzanne@epamail.epa.gov; kozolp@dnr.state.wi.us
Cc: Rutter.Anthony@epamail.epa.gov
Subject: RE: Stoughton City Landfill

Can you look through your electronic files to see if you can find the appendices that Tony says existed for the State Superfund Contract?

---------- Forwarded by BERNARD SCHORLE/R5/USEPA/US on 07/17/2000 10:00 AM ----------

ANTHONY RUTTER
07/17/2000 07:58 AM

To: BERNARD SCHORLE/R5/USEPA/US@EPA
cc:

Subject: RE: Stoughton City Landfill (Document link not converted)

There were appendices. Sue had an electronic copy, but the State probably had the final version since they wanted changes.

Kozol, Paul L

From: Schorle.Bernard@epamail.epa.gov[SMTP:Schorle.Bernard@epamail.epa.gov]
Sent: Monday, July 17, 2000 11:40 AM
To: kozolp@dnr.state.wi.us
Subject: RE: Stoughton City Landfill

Here is another possible place where you might find the appendices for the SSC.

---------- Forwarded by BERNARD SCHORLE/R5/USEPA/US on 07/17/2000 11:40 AM ----------

ANTHONY RUTTER
07/17/2000 11:08 AM

To: BERNARD SCHORLE/R5/USEPA/US@EPA
cc:

Subject: RE: Stoughton City Landfill (Document link not converted)

I believe that the State attorney, Linda Meyer produced the final version of the SSC. She can be reached at 715 839-2785.

Kozol, Paul L

From: Kozol, Paul L
Sent: Tuesday, July 18, 2000 8:37 AM
To: Meyer, Linda L
Cc: 'Bernard Schorle'; Kalnicky, Richard A
Subject: Stoughton SSC

Hi Linda. Well it seems the focus is now on you! We have all looked for it, but cannot find - the complete SOUGHTON SSC WITH APPENDICES. If you do indeed have the complete document have someone make a copy and send it to me here at SCR. If you do not have the complete document just e-mail me back and state such. Sometime within the next two weeks if possible. A big THANKS in advance.

Paul L. Kozol, P.E.
Remediation and Redevelopment Engineer
South Central Region
(608) 275-3301
Kozolp@dnr.state.wi.us

BT² inc

Environmental Engineering and Science

2830 Dairy Drive, Madison, WI 53718-6751, Phone (608) 224-2830, Fax (608) 224-2839

FAX TRANSMISSION

DATE: 9/15/00 TIME: 11am NO. OF PAGES (including cover sheet): 2

TO: Mike Schmoller FAX NUMBER: 275-3338

FROM: Steven Smith

If there is a problem with transmission please contact us at the phone number listed above. Thank You!

MESSAGE: Note 6 on the table lists the wells in the sample program. This information was in the bid package and Roy F. Weston's QAPP.

Talk to you soon,
Steven Smith

☒ THIS IS THE ONLY COPY YOU WILL RECEIVE ☐ HARD COPY WILL BE MAILED TODAY

THIS MESSAGE IS INTENDED ONLY FOR THE USE OF THE INDIVIDUAL OR ENTITY TO WHICH IT IS ADDRESSED AND MAY CONTAIN INFORMATION THAT IS PRIVILEGED, CONFIDENTIAL AND EXEMPT FROM DISCLOSURE UNDER APPLICABLE LAW. IF THE READER OF THIS MESSAGE IS NOT THE INTENDED RECIPIENT, YOU ARE HEREBY NOTIFIED THAT ANY DISSEMINATION, DISTRIBUTION, OR COPYING OF THIS COMMUNICATION IS STRICTLY PROHIBITED. IF YOU HAVE RECEIVED THIS COMMUNICATION IN ERROR, PLEASE NOTIFY US IMMEDIATELY BY TELEPHONE, AND RETURN THE ORIGINAL MESSAGE TO US AT THE ABOVE ADDRESS VIA U.S. POSTAL SERVICE. THANK YOU. M:\FORMS\ADMIN\FAX_FULL

SEP-15-2000 10:12 BT2

Table 1
Summary of Annual O&M Sampling and Analysis Program
Stoughton City Landfill, Stoughton, Wisconsin - BT[2] Project #1764

O&M Task	Sample Matrix	Field Parameters	Laboratory Parameters	Investigative[6]			Field Duplicate			Field Blank			MS/MSD[4]			Matrix Total[5]
				No.	Freq.	Total	No.	Freq.	Total	No.	Freq.	Total	No.	Freq.	Total	
Initial Groundwater Monitoring[1]	Groundwater	Water Level, pH, Conductivity, Temperature, Turbidity, Dissolved Oxygen	Tetrahydrofuran (THF)	28	1	28	3	1	3	3	1	3	2	1	2	34
			Dichlorodifluoromethane (DCDFM)	28	1	28	3	1	3	3	1	3	2	1	2	34
			TAL Metals (Unfiltered)	28	1	28	3	1	3	3	1	3	2	1	2	34
Routine Groundwater Monitoring[2]	Groundwater	Water Level, pH, Conductivity, Temperature, Turbidity, Dissolved Oxygen	THF, DCDFM	28	2	56	3	2	6	NA	NA	NA	NA	NA	NA	62
Passive Gas Vent Monitoring[3]	Air	Flow, Percent LEL, Percent Oxygen	EPA Method T014 Standard List of VOCs	5	1	5	NA	NA	NA	NA	NA	NA	1	1	1	5

NOTES:

[1] Initial groundwater monitoring will include one round of target analyte list (TAL) metals analysis.

[2] Routine groundwater monitoring will occur in rounds after the TAL metals analysis has been performed.

[3] Four annual sampling events are expected to complete the sampling of the 21 passive gas vents. This will involve sampling five gas vents each year for 3 years and six gas vents the fourth year.

[4] Matrix spike/matrix spike duplicate (MS/MSDs) are not additional samples, but are samples on which the MS/MSD analysis will be performed by the laboratory. MS/MSDs will be performed on the organic samples only. Duplicate/spike analyses are performed on the inorganic samples.

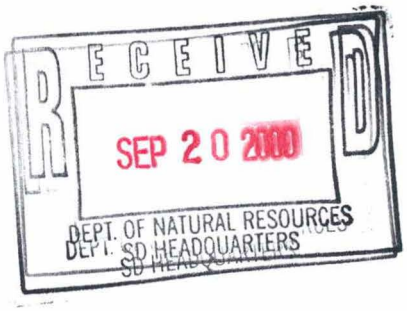
[5] The matrix total does not include trip blank samples or MS/MSD samples. One trip blank will be included with each VOC sample shipment.

[6] The groundwater monitoring wells to be sampled are wells: 3S, 3D, 3B, 4S, 4D, 5S, 5D, 7S, 7I, 7B, 8S, 8I, 8B, 9S, 9I, 10S, 10I, 10B, 13S, 13I, 13B, 14S, 14I, 14B, 15S, 15I, and 15B.

By: LIf
Date: 8/14/00
Checked by: SS

608 224 2839 P.02/02

TOTAL P.02



September 19, 2000

Mr. David Behn
Procurement Specialist
Wisconsin Department of Natural Resources
101 South Webster Street
Box 7921
Madison, Wisconsin 53707-7921

SUBJECT: City of Stoughton Landfill Operation and Maintenance
Affirmative Action Plan
BT² Project # 1764

Dear David:

The enclosed Affirmative Action Plan has been prepared as requested in your letter dated August 29, 2000.

Please call me if you have any questions about the plan or any other aspect of the project. My direct extension is (608) 224-2828, ext. 226.

Sincerely,
BT², Inc.

Jan C. Kucher, P.E.
Project Manager

Enclosure Affirmative Action Plan
I:\1764\affirmaction.wpd

cc Mr. Michael Schmoller - WDNR Southern District

POLICY

Pursuant to Federal, State and requirements set forth by the City of Madison, Dane Co., WI, it is this company's policy not to discriminate on the basis of age, race, ethnicity, religion, color, gender, disability, marital status, sexual orientation, cultural differences, ancestry, physical appearance, arrest record or conviction, military participation or membership in the national guard, state defense force or any other reserve component of the military forces of the United States, political belief. All employees shall be treated equally with respect to, but no limited to, recruitment, employment, promotion, demotion, transfer, compensation, selection for training, including apprenticeship, layoff and termination. To implement this policy, this firm further agrees to take affirmative action ensuring equal employment opportunities and in-serve deliver.

Thomas Bergamini, President has been designated as the Equal Opportunity Officer to be responsible for planning and implementing our company's affirmative action programs and serving as the liaison between contractors and the contracting entity. All personnel who are responsible for hiring and promoting employees and for the development and implementation of programs or activities are charged to support this program in implementing affirmative action goals and initiatives.

Thomas Bergamini
Name

Thomas Bergamini
Signature

President
Title

September 19, 2000
Date

S:\JME\POLICY\eoppolicy_cmad.wpd

Affirmative Action Goals

BT², Inc has identified the following goals with regards to creating a discrimination free work environment:

1. BT², Inc. has a goal of establishing and maintaining a recruiting program for new positions which allows equal access to women, minorities and handicapped persons. To achieve this goal BT²' Affirmative Action Officer will continue to research recruiting techniques which other firms and governmental agencies use in implementing Affirmative Action programs, and develop recruiting procedures for BT², Inc. Revised recruiting procedures are scheduled to be completed by February 15, 2001.

2. A company employee 3-person Affirmative Action Committee will be established to advise the President on Affirmative Action issues. The committee will meet at least quarterly, and more often as needed for specific issues. The committee will meet in November 2000, and quarterly thereafter.

3. BT², Inc. has a goal of developing and periodically reviewing position descriptions to ensure that the descriptions reflect the actual job duties being performed. Employee position descriptions will be periodically reviewed for reasonable work-related requirements for employment. To achieve this goal BT²'s Affirmative Action Officer will work with each supervisor and their staff to develop individual position descriptions for all current employees, and will attempt to develop position descriptions for all new positions. The position description for all current employees are scheduled to be completed by April 2001. Position descriptions for new positions will be developed within six months of filling that position.

4. Steps shall be taken during recruitment to ensure the widest possible pool of candidates is available. Position announcements will be sent to both the City of Madison and Dane County.

5. BT², Inc. has a goal of developing an interview format for competitive positions which include a quantitative evaluation of only job-related questions. To achieve this goal an interview team will meet prior to conducting interviews and develop a list of questions to be asked during the interviews and a list of criteria from which to quantitatively evaluate the interviewer's response to each question. Interview committees will attempt to be representative of the workforce at large and shall be comprised of at least one protected class member. The interview team will begin to function in this manner for all interviews conducted after January 1, 2001.

6. BT², Inc. has an employee exit interview program currently in use with a goal of facilitating the free exchange of information regarding the work environment. The exit interview program seeks to obtain constructive criticism for improving company policy and procedures. To further this goal the Affirmative Action Officer will develop a list of questions which will be asked of all willing employees at their time of leaving the Company. The employee will be allowed to review the questions for a minimum of 24 hours in advance. In addition, the employee will be allowed to make any other comments they wish to express at the time of the exit interview. The exit interview process is ongoing, and the goal for developing the specific list of questions is schedule to be in place by December 1, 2000.

7. BT², Inc. will attempt to continue to develop flexible work schedules for staff for religious, educational, and other purposes, and for whom full time employment is difficult.

To disseminate BT², Inc.'s Affirmative Action Goal and Objectives the following will be performed:

1. All advertisements for employment will include the statement the BT², Inc. is "an equal opportunity employer (EOE)".

2. The Affirmative Action Plan will be distributed to all employees. A copy of the plan will also be placed into the Employee handbook, along with other company policies and procedures. New employees will be asked to read the handbook as part of their orientation program.

3. BT², Inc. has monthly scheduled staff meetings on the first Friday of each month, and has monthly scheduled management meetings on the first Wednesday of each month. The staff meetings include all employees not working in the field that day, and the management meetings include the senior staff of the company. The Affirmative Action Officer will see that Affirmative Action issues are periodically brought up for discussion at these meetings, and listed on meeting agendas.

4. BT², Inc. will not attempt to prevent, discourage or suppress any employee from filing a complaint with the State Equal Rights Office or with the Wisconsin Office of Contract Compliance.

BT², Inc. will conduct an internal review of the company's adherence to the Affirmative Action Plan at six month intervals. The review will be lead by the Affirmative Action Officer and will include two other company officers. The review will evaluate the performance of management and supervisory personnel for their adherence to the plan within their areas of responsibility. Supervisory and management personnel will be informed of problems with their job performance during the Affirmative Action review, and given an opportunity to discuss suggestions for correcting those problems. Compensation of supervisory and management personnel will be held, in part, to their performance with respect to implementing the goals of the Affirmative Action Plan.

The Affirmative Action Officer will review the entire Affirmative Plan on an annual basis. A new work force analysis will be performed at that time along with a review of plans and goals. A draft revised plan will be circulated for all employees to review and comment on, before finalizing.

State of Wisconsin
Department of Administration
s.16.765 Wis. Stats. Admin. 50
DOA-3022 (R01/95)

WORK FORCE ANALYSIS: VENDOR

General Instructions: The vendor must include a work force analysis as a part of its Affirmative Action Plan or with its Request for an Exemption from Submitting an Affirmative Action Plan, if the vendor is requesting an exemption based on having achieved a balanced work force. As an alternative to submitting this document, a vendor may submit a copy of its federal EEO-1 form. This information is due to the contracting state agency within fifteen (15) working days after the award date of a contract from the State of Wisconsin. The reverse side has definitions for job categories and specific instructions for completing this worksheet.

Vendor	Bid Number	Date of Analysis	FEDERAL EMPLOYER IDENTIFICATION NUMBER (FEIN/SS#)
BT² Inc.		9-1-00	39-1698615

Primary Work Force Location:

City	State
Madison	Wisconsin

JOB CATEGORIES	EMPLOYES TOTAL	MALES TOTAL	%	FEMALES TOTAL	%	MINORITIES TOTAL	%	PERSONS W/DISABILITIES TOTAL	%
OFFICIALS & MANAGERS	8	6	75	2	25				
PROFESSIONALS	25	16	64	9	36	1	4		
TECHNICIANS	3	3	100						
SALES WORKERS									
OFFICE & CLERICAL	7			7	100				
CRAFTSWORKERS (SKILLED)									
OPERATIVES (SEMISKILLED)									
LABORERS (UNSKILLED)									
SERVICE WORKERS									
TOTAL	43								
TOTAL EMPLOYMENT REPORTED IN PREVIOUS REPORT DATED:_____	45	28	60.5	17	39.5	1	2.3		

Prepared By:

Joanne Eveland 9-19-00 608-224-2830

Signature Date Telephone Number

Office Manager Joanne Eveland

Title Printed Name

This form can be made available in accessible formats to qualified individuals with disabilities upon request. Please call the Wisconsin Office of Contract Compliance (WOCC) at (608) 266-5462 (voice) or (608) 267-9629 (TTY), or write to WOCC at 101 East Wilson Street, 6th Floor, Madison, Wisconsin 53707-7867.

BT² inc.

Environmental Engineering and Science

October 24, 2000

Ms. Janet Battista
Wisconsin Department of Natural Resources
101 South Webster Street SW/3
P.O. Box 7921
Madison, WI 53707-7921

SUBJECT: Wisconsin Unique Well Numbers
Stoughton City Landfill
FID # 113005950 - License #133
BT² Project #1764

Dear Ms. Battista:

As requested by you during our conversation on Monday October 23, I have the list of monitoring wells that need Wisconsin Unique Well Numbers assigned to them. We are currently working on getting the X-Y coordinates for each monitoring well and will send them to you as soon as possible. I have also included a copy of the final topo map for the site. Please call me if you have any questions at (608) 224-2830 ext. 239.

Point ID	Point Name	WUWN	Point ID	Point Name
111	MW3S	QH 840	126	MW9B
112	MW3D	QH 841	127	MW10S
113	MW3B	QH 842	128	MW10I
114	MW4S	QH 843	129	MW10D
115	MW4D	QH 844	130	MW13S
116	MW5S	QH 845	131	MW13I
117	MW5D	QH 846	132	MW13D
118	MW7S	QH 847	133	MW14S
119	MW7I	QH 848	134	MW14I
120	MW7B	QH 849	135	MW14D
121	MW8S	QH 850	136	MW15S
122	MW8I	QH 851	~~137~~	~~MW15S~~
123	MW8B	QH 852	138	MW15I
124	MW9S	QH 853	139	MW15D
125	MW9I	QH 854	~~140~~	EW-1

QH 855
QH 856
QH 857
QH 858
QH 859
QH 860
QH 861
QH 862
QH 863
QH 864
QH 865
QH 866
QH 867
QH 868 - 6"

Sincerely,
BT², Inc.

Steven B. Smith

Steven B. Smith
Senior Technical Specialist

entered into GEMS 10/31/00

cc: Mr. Mike Schmoller
Attachment: Final Topo Map
I:\1764\001024jb.wpd

RECEIVED
SEP 25 2009
BUREAU OF
WASTE MANAGEMENT

MW-12 CLUSTER LOCATED
APPROXIMATELY 1,000' EAST

EAST-WEST 1/4 LINE

APPROX. WETLAND BOUNDARY

EXISTING WETLANDS

APPROXIMATE WETLAND BOUNDARY

CAPPING LIMITS

N02°54'40"W 667.82'

N02°04'20"W 1143.57'

EXISTING WETLANDS

LEGEND

- BENCHMARK
- POWER POLE
- SEWER MANHOLE
- WATER VALVE
- CHAIN LINK FENCE
- PROPERTY LINE
- WETLAND BOUNDARY
- SANITARY SEWER LINE
- WATER LINE
- TELEPHONE LINE
- OVERHEAD UTILITY LINE
- CAPPING LIMITS
- 850 TOPSOIL CONTOUR (1' INTERVAL)
- DECIDUOUS TREE
- TREE LINE
- WOOD FENCE
- CHAINLINK FENCE
- GAS VENT RISER
- MONITORING WELL
- FIRE HYDRANT
- CONTROL POINT

NOTES:

1. ORIGINAL MAP BASED ON REI SURVEYING MAP DRAWN 02/01/99 BY THOMAS A. RADENZ.
2. THE LOCATION OF UNDERGROUND UTILITIES ARE OBTAINED FROM FIELD MEASUREMENTS AND CITY OF STOUGHTON RECORDS. FIELD VERIFY.

RIP-RAP
24" RCP
AMUNDSON PARKWAY
66'
33'
8" WATERMAIN
42" STORM SWR
INV. ELEV.= 844.48
MAIN GATE
MW-2S
MW-2D
GMP-1
RETAINING WALL
EX. GARAGE
FIRE HYDRANT
INV. ELEV.= 845.52
INV. ELEV.= 846.35
36" STROM SWR
INV. ELEV.= 847.07
RIP-RAP
EXISTING 21" STORM SWR
INV. ELEV.= 850.95
GRAVEL DRIVE
EXISTING 18" STORM SWR
INV. ELEV.= 850.80
EAST GATE
LANDS OWNED BY THE CITY OF STOUGHTON
OVERHEAD ELECTRIC EASEMENT WIDTH NOT DEFINED
EXISTING CONDOMINIUM COMPLEX
PROPERTY OWNER:
SKALEN SUNSET HOME INC.
1200 NORTH MORRIS STREET
STOUGHTON, WI 53589

GV-1 GV-2 GV-3 GV-4 GV-5 GV-6 GV-7 GV-8 GV-9 GV-10 GV-11 GV-12 GV-13 GV-14 GV-15 GV-16 GV-17 GV-18 GV-19 GV-20 GV-21

CP-19 CP-21 CP-5 CP-4

MW-6D MW-6S MW-11D MW-11I MW-11S MW-5S MW-5D MW-9I MW-9S MW-9B EW-01 OW-01 OW-03 OW-02 OW-04 MW-13S MW-13I MW-13D MW-14S MW-14D MW-14I MW-4S MW-4D MW-8S MW-8I MW-8B MW-10S MW-10I MW-10D MW-7S MW-7B MW-7I MW-3S MW-3D MW-3B GMP-3 MW-15S MW-15I MW-15D MW-1D MW-1S

872.63

130+00 129+00 128+00 127+00 126+00 125+00 124+00 123+00 122+00 121+00 120+00

391+00 390+00 389+00 388+00 387+00 386+00 385+00 384+00 383+00 382+00 381+00 380+00 379+00 378+00 377+00 376+00 375+00 374+00 373+00 372+00

N

60 0 60
SCALE: 1" = 60'

FINAL TOPO

STOUGHTON CITY LANDFILL
STOUGHTON, WISCONSIN

PROJECT NO. 1764	
DRAWN BY: KP	
CHECKED BY: SS	
DRAWN: 06/06/00 REVISED: 09/05/00	
J:\1764\SITE1.DWG	

BT² inc.

SHEET 1 OF 1

RECEIVED
OCT 30 2000
BUREAU OF
WASTE MANAGEMENT

October 27, 2000

Ms. Janet Battista
Wisconsin Department of Natural Resources
101 South Webster Street SW/3
P.O. Box 7921
Madison, WI 53707-7921

SUBJECT: Groundwater Monitoring Well Coordinates
Stoughton City Landfill
FID # 113005950 - License #133
BT² Project #1764

Dear Ms. Battista:

I have enclosed the X-Y coordinates from the map of the Stoughton City Landfill site. Several wells that we won't be sampling and don't need unique well numbers for are also included on the list and are noted. Please call me if you have any questions at (608) 224-2830 ext. 239.

Sincerely,
BT², Inc.

Steven B. Smith
Senior Technical Specialist

Attachment: X-Y Coordinates

I:\1764\001027jb.wpd

STOUGHTON CITY LANDFILL

BT#1764

GROUNDWATER MONITORING WELL COORDINATES

Well: OW-04			
Point: X = 12203.99	Y = 38730.09	Z = 0.00	
Well: OW-01			
Point: X = 12099.46	Y = 38681.12	Z = 0.00	
Well: OW-03			
Point: X = 12083.13	Y = 38665.85	Z = 0.00	
Well: OW-02			
Point: X = 12077.30	Y = 38664.16	Z = 0.00	
Well: MW-9I			
Point: X = 12160.55	Y = 38570.91	Z = 0.00	
Well: EW-01			
Point: X = 12122.86	Y = 38692.08	Z = 0.00	
Well: MW-9S			
Point: X = 12153.27	Y = 38574.27	Z = 0.00	
Well: MW-9B			
Point: X = 12150.08	Y = 38574.89	Z = 0.00	
Well: MW-13S			
Point: X = 12080.84	Y = 39081.65	Z = 0.00	
Well: MW-13I			
Point: X = 12077.17	Y = 39083.00	Z = 0.00	
Well: MW-13D			
Point: X = 12069.00	Y = 39079.96	Z = 0.00	
Well: MW-14D			
Point: X = 12112.76	Y = 38386.42	Z = 0.00	
Well: MW-14S			
Point: X = 12105.92	Y = 38393.34	Z = 0.00	
Well: MW-14I			
Point: X = 12102.84	Y = 38384.04	Z = 0.00	
Well: MW-4S			
Point: X = 12132.59	Y = 38188.29	Z = 0.00	
Well: MW-4D			
Point: X = 12123.71	Y = 38177.85	Z = 0.00	
Well: MW-5S			
Point: X = 12250.91	Y = 38454.15	Z = 0.00	
Well: MW-5D			
Point: X = 12240.34	Y = 38452.46	Z = 0.00	
Well: MW-10S			
Point: X = 11942.96	Y = 38322.81	Z = 0.00	
Well: MW-10I			
Point: X = 11937.34	Y = 38327.85	Z = 0.00	
Well: MW-10D			
Point: X = 11929.32	Y = 38325.06	Z = 0.00	
Well: MW-8S			
Point: X = 11977.20	Y = 38125.76	Z = 0.00	
Well: MW-8I			
Point: X = 11967.90	Y = 38136.98	Z = 0.00	
Well: MW-8B			
Point: X = 11941.03	Y = 38142.82	Z = 0.00	
Well: MW-11D			
Point: X = 12477.38	Y = 38589.11	Z = 0.00	
Well: MW-11I			
Point: X = 12471.04	Y = 38588.91	Z = 0.00	
~~Well: MW-11S~~			

Don't issue unique well numbers for these 4 observation wells.

Please issue a well number. I forgot to include it on the list I sent you

locations only need to be added to GEMS.

Well MW-11S
Point: X = 12467.37 Y = 38584.39 Z = 0.00
Well: MW-6D
Point: X = 12763.76 Y = 38460.99 Z = 0.00
Well: MW-6S
Point: X = 12761.41 Y = 38452.32 Z = 0.00
Well: MW-3S
Point: X = 12168.71 Y = 37887.76 Z = 0.00
Well: MW-3D
Point: X = 12166.63 Y = 37881.69 Z = 0.00
Well: MW-3B
Point: X = 12162.44 Y = 37889.13 Z = 0.00
Well: MW-15S
Point: X = 12000.86 Y = 37848.85 Z = 0.00
Well: MW-15I
Point: X = 11989.57 Y = 37849.31 Z = 0.00
Well: MW-15D
Point: X = 11970.17 Y = 37844.24 Z = 0.00
Well: MW-7S
Point: X = 11833.40 Y = 38011.35 Z = 0.00
Well: MW-7I
Point: X = 11829.95 Y = 38007.59 Z = 0.00
Well: MW-7B
Point: X = 11824.94 Y = 38010.57 Z = 0.00
Well: MW-1D
Point: X = 12331.31 Y = 37365.32 Z = 0.00
Well: MW-1S
Point: X = 12319.43 Y = 37351.26 Z = 0.00
Well: MW-2S
Point: X = 12706.40 Y = 37449.72 Z = 0.00
Well: MW-2D
Point: X = 12681.26 Y = 37449.77 Z = 0.00
Well: MW-12 CLUSTER ~1000' EAST
Point: X = 12964.76 Y = 39119.30 Z = 0.00

Don't issue well numbers for these 3 wells.

Janet,
Here are the well logs for some of the wells to be sampled at Stoughton. I think the rest of the logs must be in the RI report in the downtown files. I will try to find those next week. This can get us started. Also, BT2 asked what facility ID number we use when the lab does the samples. Apparently it is a 5 digit number. Do you what this is? It is not the FID number already on GEMS.

Mike Schmoller

FAX
267-2768

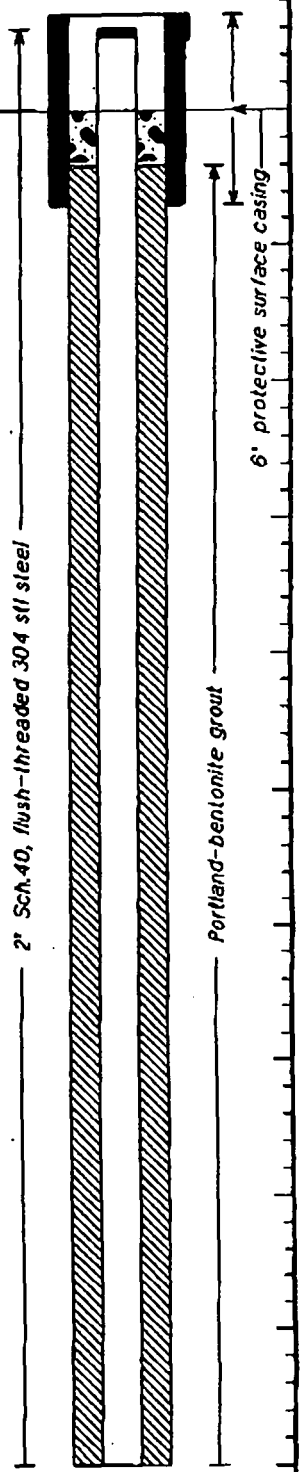
JACOBS ENGINEERING GROUP, INC
CHICAGO ENVIRONMENTAL

BORING NUMBER MW-3B
DATE DRILLED 8/17/93 through 8/20/93
DRILL COMPANY Exploration Technology Inc.
DRILL METHOD Dual Wall Reverse Circulation (6" OD)
SURFACE ELEVATION 857.26 Feet MSLD

CLIENT U.S. EPA
PROJECT Stoughton City Landfill
GEOLOGIST Jeff Bale

DEPTH feet	SAMPLE	SAMP. NO.	BLOWS/FT.	PID (ppm)	GRAPHIC LOG	SOIL CLASS	DESCRIPTION AND REMARKS
0				150			Topsoil, dark brown, organic
5						GW	Sand gravel to 2.0cm some fine sand
10							
15						GW	Same as above to 1.0cm
20							
25						SP	Sand, fine
30						GW	Gravel to 1.0cm with sand, medium-fine
35							
40						SP	Sand, fine with trace gravels
45						GW	Sandy gravel to 1.0cm
50						SP	

WELL DIAGRAM



JOB NUMBER: C05030

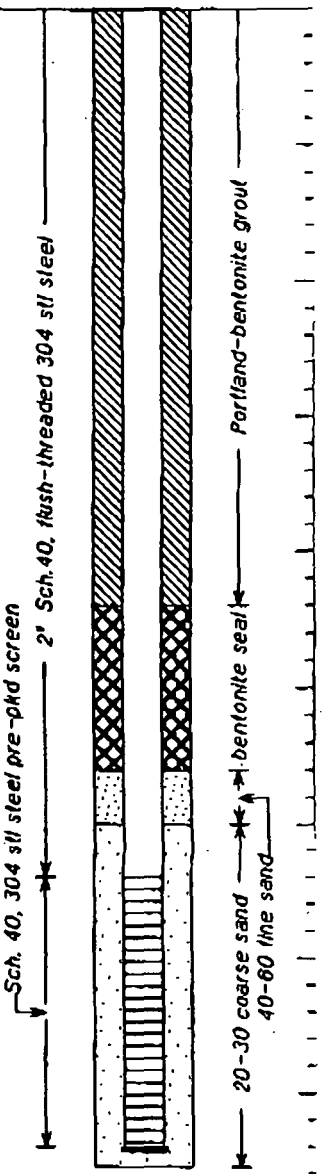
JACOBS ENGINEERING GROUP, INC
CHICAGO ENVIRONMENTAL

BORING NUMBER MW-3B
DATE DRILLED 8/17/93 through 8/20/93
DRILL COMPANY Exploration Technology Inc.
DRILL METHOD Dual Wall Reverse Circulation (6" OD)
SURFACE ELEVATION 857.28 Feet MSLD

CLIENT U.S. EPA
PROJECT Stoughton City Landfill
GEOLOGIST Jeff Bale

DEPTH feet	SAMPLE	SAMP. NO.	BLOWS/FT.	PID (ppm) 0 150	GRAPHIC LOG	SOIL CLASS	DESCRIPTION AND REMARKS
55–60–65–70						SP	Sand, fine
75						CL	Silty Clay, medium plasticity
						SW	Gravelly sand with clay, gray, plastic
80						GW	Sandy gravel to 3.0cm with sand, medium-fine
						GW	Same as above with trace limestone fragments
85–90						LS	Limestone bedrock, tan, producing significant water
95–100							Boring terminated at 92'9"

WELL DIAGRAM



JOB NUMBER: C05030

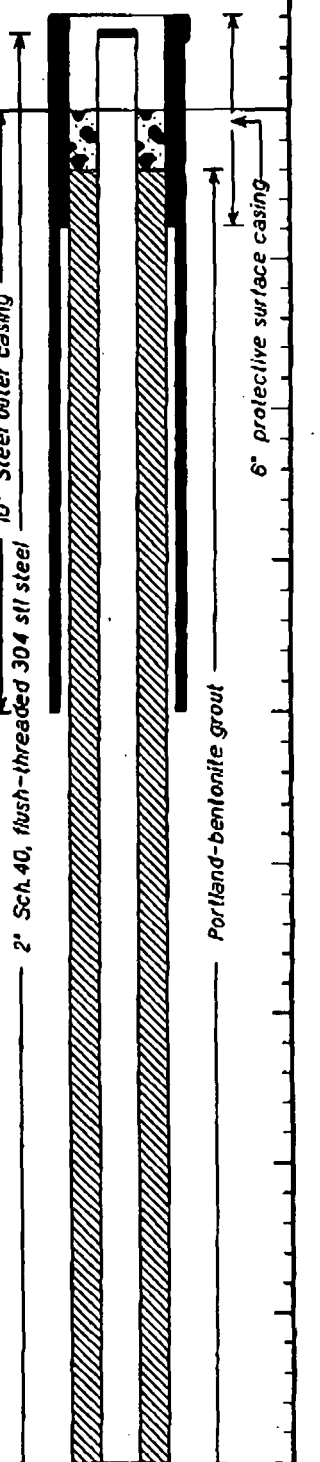
JACOBS ENGINEERING GROUP, INC
CHICAGO ENVIRONMENTAL

BORING NUMBER MW-7B (EB-1)
DATE DRILLED 7/8/93 through 7/13/93
DRILL COMPANY Exploration Technology Inc.
DRILL METHOD Dual Wall Reverse Circulation (8" OD)
SURFACE ELEVATION 846.79 Feet MSLD

CLIENT U.S. EPA
PROJECT Stoughton City Landfill
GEOLOGIST Lou Ehrhard and Jeff Bale

DEPTH feet	SAMPLE	SAMP. NO.	BLOWS/FT.	PID (ppm) 0 150	GRAPHIC LOG	SOIL CLASS	DESCRIPTION AND REMARKS
							Topsoil, dark brown, organic
						SP	Sand, fine, light brown
5						CL	Silty clay, gray
						SP	Sand, medium, light brown
						SW	Gravelly sand
10						GW	
						GW	Sandy gravel
	X	SL-EB1-12				SP	Gravel to 2cm, angular to subrounded
						ML	
						CH	Sand, fine, light brown
15						CH	Silt, gray
							Clay, brown-gray, plastic
							Same as above
20						CH	Same as above
25						CH	Same as above
30						CH	Same as above
35						GW	Sandy gravel to 1.5cm, angular-subrounded
						GW	Same as above
40	X	NO RECOV				SW	*No sample recovery Gravelly sand, brown, dry
45						SM	

WELL DIAGRAM



JOB NUMBER: C05030

JACOBS ENGINEERING GROUP, INC
CHICAGO ENVIRONMENTAL

BORING NUMBER MW-7B (EB-1)
DATE DRILLED 7/8/93 through 7/13/93
DRILL COMPANY Exploration Technology Inc.
DRILL METHOD Dual Wall Reverse Circulation (6" OD)
SURFACE ELEVATION 846.79 Feet MSLD

CLIENT U.S. EPA
PROJECT Stoughton City Landfill
GEOLOGIST Lou Ehrhard and Jeff Bale

DEPTH feet	SAMPLE	SAMP. NO.	BLOWS/FT.	PID (ppm)	GRAPHIC LOG	SOIL CLASS	DESCRIPTION AND REMARKS
				0 150		SM	Silty sand, brown
						SW	Gravelly sand to 1.0cm, subrounded
50						SP	Sand, fine with gravel
55	SL	EB1-55				SP	Same as above
60						GW	Sandy gravel to 2cm, angular-subrounded
						SP	Getting refusal, possible boulder layer
						GW	Sand, fine with trace gravel
65						GW	Gravel to 3cm, limestone chips, some sand - upper weathered bedrock unit.
							Same as above, producing significant water
70						GW	Gravel, limestone with 20% poorly graded sand
	SL	EB1-72				LS	Limestone bedrock, tan
75						LS	Same as above
80						LS	Same as above
							Boring terminated at 81'10"
85							
90							

WELL DIAGRAM

Sch. 40, 304 stl steel pre-pkd screen
2" Sch.40, flush-threaded 304 stl steel
Portland-bentonite grout
bentonite seal
20-30 coarse sand
40-60 fine sand

JOB NUMBER: C05030

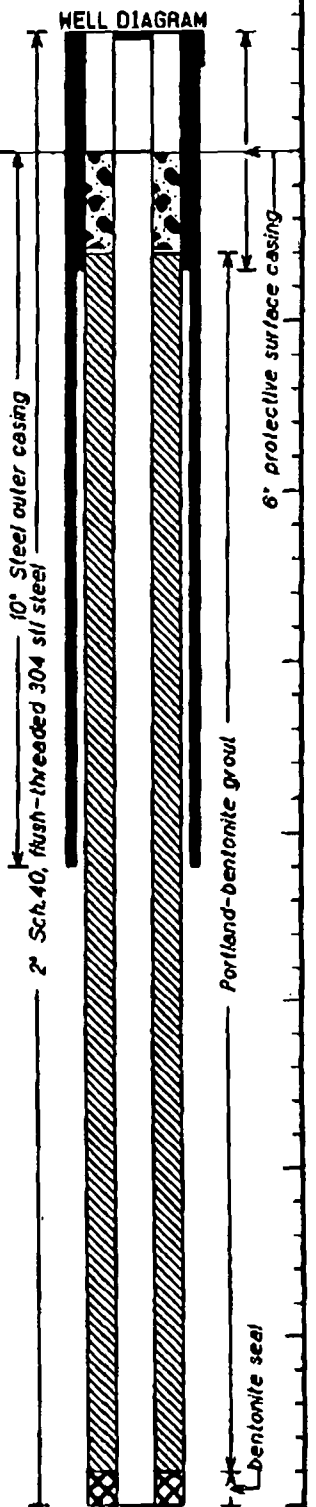
JACOBS ENGINEERING GROUP, INC
CHICAGO ENVIRONMENTAL

BORING NUMBER MW-7I
DATE DRILLED 8/3/93
DRILL COMPANY Exploration Technology Inc.
DRILL METHOD 8" OD Hollow Stem Auger
SURFACE ELEVATION 846.69 Feet MSLD

CLIENT U.S. EPA
PROJECT Stoughton City Landfill
GEOLOGIST Jeff Bale and Sue Lorenz

DEPTH feet	SAMPLE	SAMP. NO.	BLOWS/FT.	PID (ppm) 0–150	GRAPHIC LOG	SOIL CLASS	DESCRIPTION AND REMARKS
							Topsoil, dark brown, organic
						SP	Sand, fine, light brown
5						CL	Silty clay, gray
						SP	Sand, medium, light brown
						SW	Gravelly sand
10						GW	
						GW	Sandy gravel
						SP	Gravel to 2cm, angular to subrounded
						ML	Sand, fine, light brown
15						CH	Silt, gray
						CH	Clay, brown gray, plastic
							Same as above
20						CH	Same as above
25						CH	Same as above
30						CH	Same as above
35						GW	Sandy gravel to 1.5cm, angular–subrounded
						GW	Same as above
40						SW	

WELL DIAGRAM



JOB NUMBER: C05030

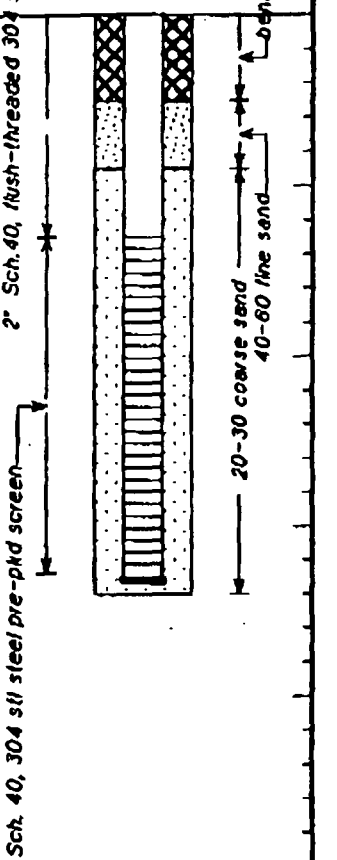
JACOBS ENGINEERING GROUP, INC
CHICAGO ENVIRONMENTAL

BORING NUMBER MW-7I
DATE DRILLED 8/3/93
DRILL COMPANY Exploration Technology Inc.
DRILL METHOD 8" OD Hollow Stem Auger
SURFACE ELEVATION 846.69 Feet NSLD

CLIENT U.S. EPA
PROJECT Stoughton City Landfill
GEOLOGIST Jeff Bale and Sue Lorenz

DEPTH feet	SAMPLE	SAMP. NO.	BLOWS/FT.	PID (ppm)	GRAPHIC LOG	SOIL CLASS	DESCRIPTION AND REMARKS
				0 150		SW	*No sample recovery Gravelly sand, brown, dry
45						SM	Silty sand, brown
						SW	Gravelly sand to 1.0cm, subrounded
50						SP	
55	X	MW7-I-58					Sand, fine with gravel
							Boring terminated at 57'
60							
65							
70							
75							
80							

WELL DIAGRAM



JOB NUMBER: C05030

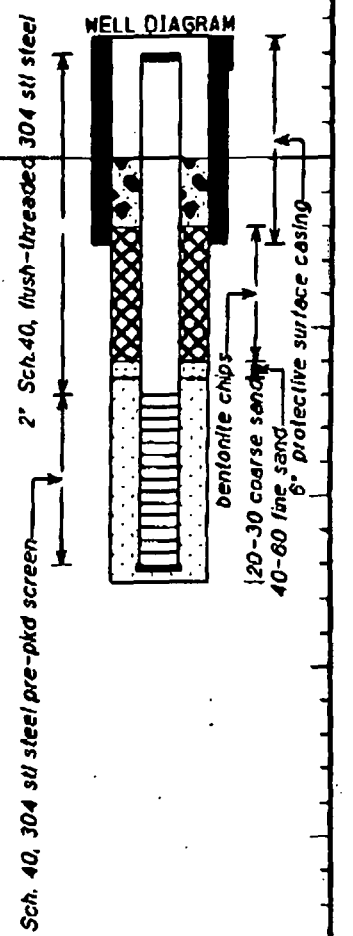
JACOBS ENGINEERING GROUP, INC
CHICAGO ENVIRONMENTAL

BORING NUMBER MW-7S
DATE DRILLED 8/4/93
DRILL COMPANY Exploration Technology Inc.
DRILL METHOD 8" OD Hollow Stem Auger
SURFACE ELEVATION 848.80 Feet MSLD

CLIENT U.S. EPA
PROJECT Stoughton City Landfill
GEOLOGIST Jeff Bale

DEPTH feet	SAMPLE	SAMP. NO.	BLOWS/FT.	PID (ppm) 0 150	GRAPHIC LOG	SOIL CLASS	DESCRIPTION AND REMARKS
							Topsoil, dark brown, organic
						SP	Sand, fine, light brown
5						CL	Silty clay, gray
						SP	Sand, medium, light brown
						SW	Gravelly sand
10	X	MW7-S-10				GW	
						GW	Sandy gravel
						SP	Gravel to 2cm, angular to subrounded
						ML	Sand, fine, light brown
15							Silt, gray
							Boring terminated at 12.5'
20							
25							
30							
35							
40							

WELL DIAGRAM



JOB NUMBER: C05030

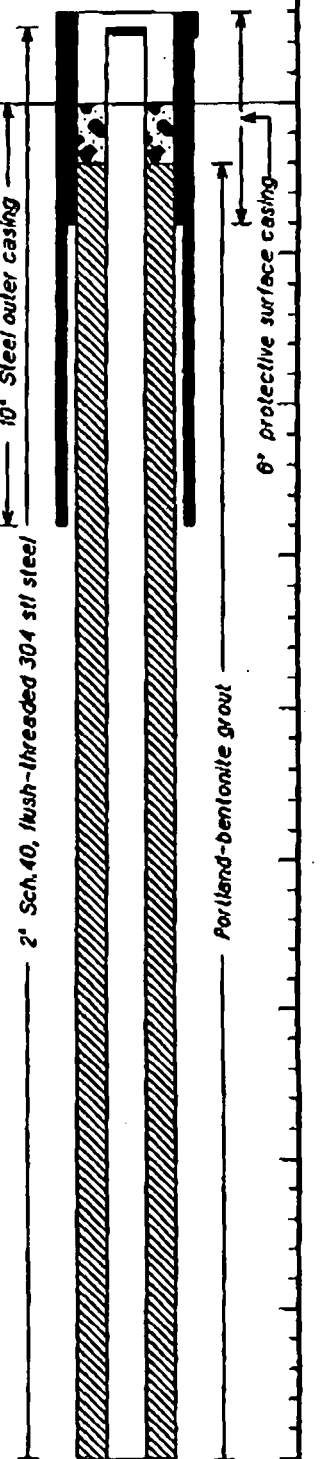
JACOBS ENGINEERING GROUP, INC
CHICAGO ENVIRONMENTAL

BORING NUMBER MW-88 (EB-3)
DATE DRILLED 7/20/93 TO 7/27/93
DRILL COMPANY Exploration Technology Inc.
DRILL METHOD Dual Wall Reverse Circulation (8" OD)
SURFACE ELEVATION 848.28 Feet MSLD

CLIENT U.S. EPA
PROJECT Stoughton City Landfill
GEOLOGIST Jeff Bale and Sue Lorenz

DEPTH feet	SAMPLE	SAMP. NO.	BLOWS/FT.	PID (ppm)	GRAPHIC LOG	SOIL CLASS	DESCRIPTION AND REMARKS
				0 150			Topsoil, dark brown, organic
5						SP	Sand, fine with trace gravel, rounded
						SC	Clayey sand, slightly plastic
10						CH	Clay, light brown, plastic
15							
						CH	Same as above with trace gravel to 1cm, rounded
20						SC	
						CH	Clayey sand, slightly plastic
	SL	EB3-21				GW	Clay, light brown, plastic with sand, fine
						GM	
						SM	Gravel to 2cm, well graded, subangular - angular
25						SM	
						GW	Silty/Sandy gravel to 1.0cm
							Silty sand, medium, with fine sand
						GW	
						SP	Silty sand with gravel and trace clay
30						GW	
						SM	Sandy gravel to 1.0cm, subangular
							Same as above to 1.5cm with more sand
						SP	Sand, fine, poorly graded
35							Gravel to 3.0cm, well graded, with coarse sand
						GW	Silty sand, very fine with trace sand, coarse
						SP	Sand, medium/fine, poorly graded
40							Sandy gravel to 2.5cm, well graded, subangular to very rounded
	SL	EB3-41				GW	Sand, fine/medium, poorly graded
						SP	Gravel to 3.0cm, well graded, very angular to well rounded
45						SP	Sand, medium, poorly graded

WELL DIAGRAM



JOB NUMBER: C05030

JACOBS ENGINEERING GROUP, INC
CHICAGO ENVIRONMENTAL

BORING NUMBER MW-8B (EB-3)
DATE DRILLED 7/20/93 TO 7/27/93
DRILL COMPANY Exploration Technology Inc.
DRILL METHOD Dual Wall Reverse Circulation (6" OD)
SURFACE ELEVATION 848.28 Feet MSLD

CLIENT U.S. EPA
PROJECT Stoughton City Landfill
GEOLOGIST Jeff Bale and Sue Lorenz

DEPTH feet	SAMPLE	SAMP. NO.	BLOWS/FT.	PID (ppm) 0 150	GRAPHIC LOG	SOIL CLASS	DESCRIPTION AND REMARKS
						SP	
						SP	Sand, fine, poorly graded, wet
						SP	
50						GW	Sand, fine, poorly graded, dry
						SP	Gravel to 2.5cm, well graded, producing significant water
						GW	Sand, fine, poorly graded, producing significant water
55							Sandy gravel to 2.0cm, well graded with some limestone chips
						SP	Sand, fine, poorly graded
60							
65						GW	Gravel to 3.0cm, well graded, with sand, limestone chips, and trace clay
70	SL	EB3-71				GW	Gravel, well graded, with limestone chips and sand, fine, Weathered Bedrock Unit
75						LS	Limestone bedrock, tan
80							Boring terminated at 81'8"
85							
90							

WELL DIAGRAM

Sch. 40, 304 stl steel pre-pkd screen
2" Sch.40, flush-threaded 304 stl steel
Portland-bentonite grout
bentonite seal
20-30 coarse sand
40-60 fine sand

JOB NUMBER: C05030

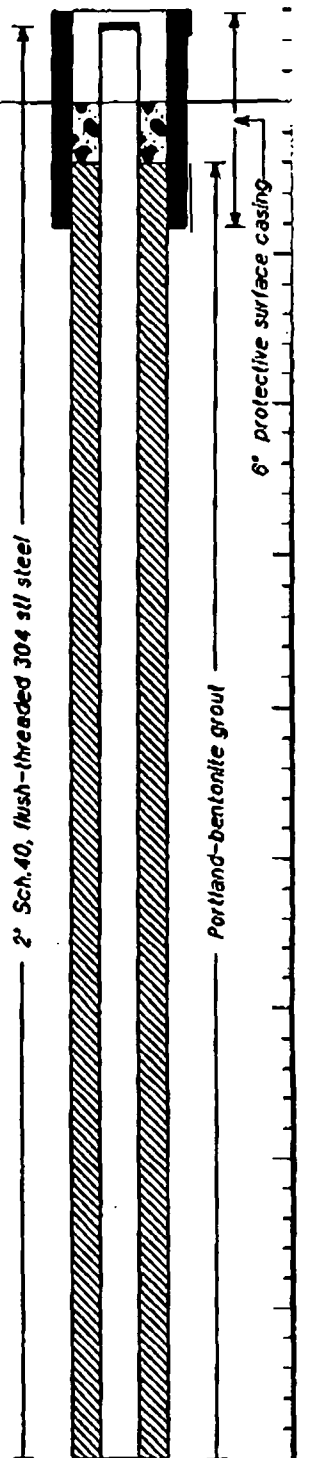
JACOBS ENGINEERING GROUP, INC
CHICAGO ENVIRONMENTAL

BORING NUMBER MW-8B (EB-4)
DATE DRILLED 7/21/93 through 7/29/93
DRILL COMPANY Exploration Technology Inc.
DRILL METHOD Dual Wall Reverse Circulation (8" OD)
SURFACE ELEVATION 848.88 Feet MSLD

CLIENT U.S. EPA
PROJECT Stoughton City Landfill
GEOLOGIST Jeff Bale

DEPTH feet	SAMPLE	SAMP. NO.	BLOWS/FT.	PID (ppm)	GRAPHIC LOG	SOIL CLASS	DESCRIPTION AND REMARKS
							Topsoil, dark, organic with clay, low plasticity
						SW	Gravelly sand, well graded
5						SP	Sand, medium, poorly graded
						CL	Sand, medium, poorly graded
						CH	Gravelly/Sandy clay, medium plasticity
						CL	Clay, light brown/gray, plastic
10							Gravelly/Sandy clay, medium plasticity
	X		NO RECOV			SP	Sand, medium, poorly graded
						GW	Gravel to 1.5cm, well graded, subangular
15						GC	Clayey gravel to 1.0cm, subangular
						SC	Clayey sand, coarse, poorly graded
						GW	Gravel to 2.5cm, well graded with sand
20						SP	Sand, fine-medium, poorly graded, moist
						SP	Sand, fine, poorly graded
25	X	SL-EB4-26				GW	Sandy gravel, well graded, producing water
30						SM	Silty sand, very fine with trace sand, coarse and gravel
						GW	Sandy gravel, well graded, producing significant water
35							
40	X	SL-EB4-42					
45						SP	

WELL DIAGRAM



JOB NUMBER: C05030

JACOBS ENGINEERING GROUP, INC
CHICAGO ENVIRONMENTAL

BORING NUMBER MW-98 (EB-4)
DATE DRILLED 7/21/93 through 7/28/93
DRILL COMPANY Exploration Technology Inc.
DRILL METHOD Dual Wall Reverse Circulation (6" OD)
SURFACE ELEVATION 848.88 Feet MSLD

CLIENT U.S. EPA
PROJECT Stoughton City Landfill
GEOLOGIST Jeff Bale

DEPTH feet	SAMPLE	SAMP. NO.	BLOWS/FT.	PID (ppm)	GRAPHIC LOG	SOIL CLASS	DESCRIPTION AND REMARKS
50				150		SP	Sand, very fine, poorly graded, wet with fines
55						SP	Same as above with trace gravel, well graded
						SP	Same as above
60						SP	Sand, fine, poorly graded, wet
65						GW	Gravel, well graded, with sand, medium-coarse
						GP	Gravel, poorly graded with sand, fine-coarse limestone fragments
70	SS	EB4-71				SP LS	Sand, medium-coarse with small limestone fragments, producing minor water
75							Limestone bedrock, tan, producing steady water
80							*Boring terminated at 81'*
85							
90							

WELL DIAGRAM

Sch. 40, 304 stl steel pre-pkd screen
2" Sch.40, flush-threaded 304 stl steel
Portland-bentonite grout
bentonite seal
20-30 coarse sand
40-60 fine sand

JOB NUMBER: C05030

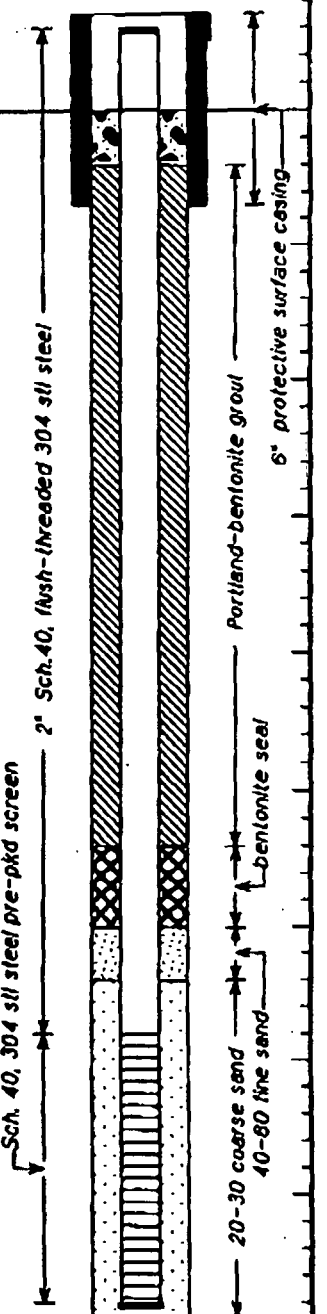
JACOBS ENGINEERING GROUP, INC
CHICAGO ENVIRONMENTAL

BORING NUMBER MW-01
DATE DRILLED 8/5/933
DRILL COMPANY Exploration Technology Inc.
DRILL METHOD 8" OD Hollow Stem Auger
SURFACE ELEVATION 849.18 Feet MSLD

CLIENT U.S. EPA
PROJECT Stoughton City Landfill
GEOLOGIST Jeff Bale

DEPTH feet	SAMPLE	SAMP. NO.	BLOWS/FT.	PID (ppm)	GRAPHIC LOG	SOIL CLASS	DESCRIPTION AND REMARKS
				0 150			Topsoil, dark, organic with clay, low plasticity
						SW	Gravelly sand, well graded
						SP	
5						CL	Sand, medium, poorly graded
						CH	Gravelly/Sandy clay, medium plasticity
						CL	Clay, light brown/gray, plastic
10						SP	Gravelly/Sandy clay, medium plasticity
						GW	Sand, medium, poorly graded
15						GC	Gravel to 1.5cm, well graded, subangular
						SC	Clayey gravel to 1.0cm, subangular
						GW	Clayey sand, coarse, poorly graded
20						SP	Gravel to 2.5cm, well graded with sand
							Sand, fine-medium, poorly graded, moist
25						SP	Sand, fine, poorly graded
						GW	Sandy gravel, well graded, producing water
30						SW	Silty sand, very fine with trace sand, coarse and gravel
						GW	
35							Sandy gravel, well graded, producing significant water
40							
45						SP	Sand, very fine, poorly graded, wet with fines
							Boring terminated at 44'6"
50							

WELL DIAGRAM



JOB NUMBER: C05030

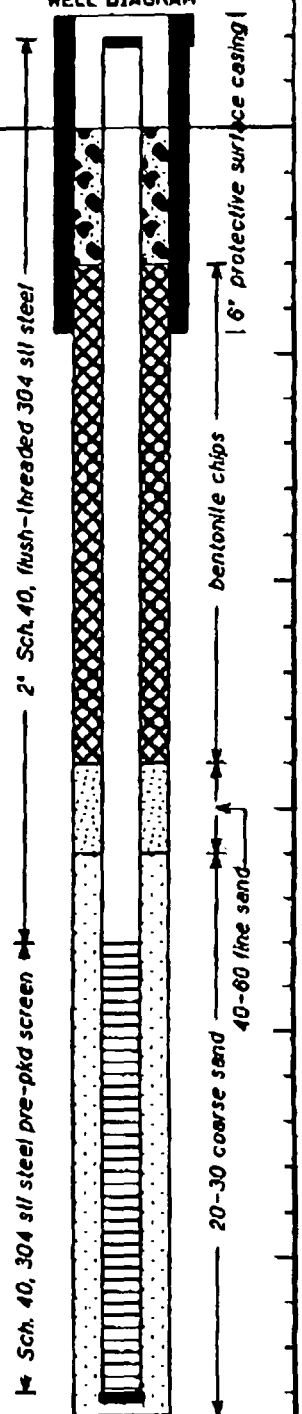
JACOBS ENGINEERING GROUP, INC
CHICAGO ENVIRONMENTAL

BORING NUMBER MW-9S
DATE DRILLED 8/4/933
DRILL COMPANY Exploration Technology Inc.
DRILL METHOD 8" OD Hollow Stem Auger
SURFACE ELEVATION 848.98 Feet MSLD

CLIENT U.S. EPA
PROJECT Stoughton City Landfill
GEOLOGIST Jeff Bale

DEPTH feet	SAMPLE	SAMP. NO.	BLOWS/FT.	PID (ppm)	GRAPHIC LOG	SOIL CLASS	DESCRIPTION AND REMARKS
				0 150			Topsoil, dark, organic with clay, low plasticity
						SW	Gravelly snad, well graded
						SP	Sand, medium, poorly graded
5						CL	Gravelly/Sandy clay, medium plasticity
						CH	Clay, light brown/gray, plastic
						CL	Gravelly/Sandy clay, medium plasticity
10						SP	Sand, medium, poorly graded
						GW	Gravel to 1.5cm, well graded, subangular
15	X	MW9-S-18				GC	Clayey gravel to 1.0cm, subangular
						SC	Clayey sand, coarse, poorly graded
						GW	Gravel to 2.5cm, well graded with sand
20						SP	Sand, fine-medium, poorly graded, moist
						SP	Sand, fine, poorly graded
25						GW	Sandy gravel, well graded, producing water
							Boring terminated at 28'6"
30							

WELL DIAGRAM



JOB NUMBER: C05030

- SW Gwm
- FID 113005950

BT² inc.

Environmental Engineering and Science

2830 Dairy Drive, Madison, WI 53718-6751, Phone (608) 224-2830, Fax (608) 224-2839

FAX TRANSMISSION

DATE: 9/10/01 TIME: 09:10 NO. OF PAGES (including cover sheet): 12

TO: Kathleen J. Thompson FAX NUMBER: 267-2768

FROM: Steven B. Smith

If there is a problem with transmission please contact us at the phone number listed above. Thank You!

MESSAGE: I've sent you the 3 page Groundwater Monitory well information form you've requested. as well as the 8 page Field Sampling Plan. The FSP was part of our QAPP and the bid package sent out by WDNR.

On the GW monitory well information forms, I don't have much data. All I Know is how deep the wells are from on-site observations. Contact Mike Schmoller at WDNR if you need more info.

Thanks,

Steve Smith

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State of Wisconsin
Department of Natural Resources

GROUNDWATER MONITORING WELL INFORMATION FORM

Chapter 144, Wis. Stats.
Form 4400-89

Rev. 1-90

Facility Name: Stoughton City Landfill
Facility ID Number: 113005950
Date: 9/10/01
Completed By (Name and Firm): Steven Smith, BT² Inc.

Well Name	DNR Well ID Number	Point 30 Well Location	N	S	E	W	Date Established	Well Casing Diam.	Well Casing Type	Elevations Top of Well Casing	Elevations Ground Surface	Reference MSL (√)	Reference Site Datum (√)	Screen Length	Well Depth	Type of Well (√) PIEZ	OW	PW	LYS	Other	Abandoned	Enf. Stds Apply	Gradient U, S, D or N
mw3S	QH 840	111					(1)	2.0"	SS	(1)	(1)	(1)	(1)	(1)	19.4'								
mw3D	QH 841	112													73.0	X							
mw3B	QH 842	113													95.2								
mw4S	QH 843	114													15.2								
mw4D	QH 844	115													74.0								
mw5S	QH 845	116													16.6								
mw5D	QH 846	117													77.0								
mw7S	QH 847	118													15.1								
mw7I	QH 848	119													59.95								
mw7B	QH 849	120													?								
mw8S	QH 850	121													33.0								
mw8I	QH 851	122					↓	↓	↓	↓	↓	↓	↓	↓	62.45								

Location Coordinates Are:

☐ Local Grid System (preferred) ☐ State Plane Coordinate ☐ Northern ☐ Central

Remarks: (1) Unknown; no data exists to the best of my knowledge. See Mike Schmoller (WDNR) for questions.

PSS Use:

File Maint. Completed: _____

Other: _____

State of Wisconsin
Department of Natural Resources

GROUNDWATER MONITORING WELL INFORMATION FORM
Chapter 144, Wis. Stats.
Form 4400-89 Rev. 1-90

Facility Name: Stoughton City Landfill
Facility ID Number: 113005950
Date: 9/10/01
Completed By (Name and Firm): Steven Smith, BT² Inc.

Well Name	DNR Well ID Number	Point 10* Well Location	N	S	E	W	Date Established	Well Casing Diam.	Well Casing Type	Elevations Top of Well Casing	Elevations Ground Surface	Reference MSL (√)	Reference Site Datum (√)	Screen Length	Well Depth	Type of Well (√) PIEZ	OW	PW	LYS	Other	Abandoned	Enf. Stds Apply	Gradient U, S, D or N
mw8B	QH 852	123					①	2.0"	SS	①	①	①	①	①	84.3								
mw9S	QH 853	124													30.1								
mw9I	QH 854	125													47.3								
mw9B	QH 855	126													83.4								
mw10S	QH 856	127													16.9								
mw10I	QH 857	128													39.8								
mw10D	QH 858	129													86.6								
mw13S	QH 859	130													16.75								
mw13I	QH 860	131													57.5								
mw13D	QH 861	132													95.6								
mw14S	QH 862	133													26.2								
mw14I	QH 863	134													51.2								

Location Coordinates Are:

☐ Local Grid System (preferred) ☐ State Plane Coordinate ☐ Northern ☐ Central

Remarks:

PSS Use:

File Maint. Completed: _____

Other: _____

State of Wisconsin
Department of Natural Resources

GROUNDWATER MONITORING WELL INFORMATION FORM
Chapter 144, Wis. Stats.
Form 4400-89 Rev. 1-90

Facility Name: Stoughton City Landfill
Facility ID Number: 113005950
Date: 9/10/01
Completed By (Name and Firm): Steven Smith, BT² Inc.

Well Name	DNR Well ID Number	Point ID# Well Location	N	S	E	W	Date Established	Well Casing Diam.	Well Casing Type	Elevations Top of Well Casing	Elevations Ground Surface	Reference MSL (√)	Reference Site Datum (√)	Screen Length	Well Depth	Type of Well (√) PIEZ	OW	PW	LYS	Other	Abandoned	Enf. Stds Apply	Gradient U, S, D or N
MW14D	QH 864	135					①	2.0"	SS	①	①	①	①	①	89.6								
MW15S	QH 865	136													16.6								
MW15I	QH 866	137													57.4								
MW15D	QH 867	138													85.95								
EW-1	QH 868	139													①								

Location Coordinates Are:

☐ Local Grid System (preferred) ☐ State Plane Coordinate ☐ Northern ☐ Central

Remarks:

PSS Use:

File Maint. Completed: _____

Other: _____

4.0 FIELD SAMPLING PLAN

This FSP describes the field sampling protocols to be followed as part of the O&M for the landfill remediation component at the SCL site in Stoughton, Wisconsin.

Specifically, the FSP addresses the following:

- Sampling plan rationale.
- Field sampling procedures.
- Numbers, locations, and types of samples.
- QA/QC of field sampling.
- Sample numbering system.
- Sample containers and preservation.
- Sample packaging and shipment.
- COC procedures.
- Documentation.
- Sampling team organization.
- Management of investigation-derived wastes.
- Sample container procurements.

During the O&M, additional field sampling may be necessary. If the additional field sampling is not covered in ths FSP, an addendum to the FSP should be made at the appropriate time, and approval should be obtained by the WDNR before initiating field work.

4.1 Sample Network Design and Rationale

This section presents the rationale for sampling frequency and analysis during the O&M phase of the remedial action. The sampling activities include groundwater monitoring and landfill gas monitoring. **Table GW-1** summarizes the sampling and analysis program.

4.1.1 Groundwater Monitoring

The groundwater monitoring has the following objectives:

- Monitor the movement of the THF and DCDFM plumes semiannually to evaluate natural attenuation and the effect of the landfill cap on the THF and DCDFM plumes.

- Reevaluate the site groundwater quality five years after the placement of the landfill cap and compare it against the initial baseline. Repeat this reevaluation every five years until the THF and DCDFM concentrations fall below the PALs.

4.1.2 Routine Groundwater Monitoring

The routine groundwater monitoring will be conducted semiannually. The objective of the routine groundwater monitoring is to monitor the movement of THF and DCDFM plumes. Therefore, only THF and DCDFM analysis will be performed. The monitoring wells located on the western edge of the landfill (28 monitoring wells) will be used for the routine groundwater monitoring. These include monitoring wells 3S, 3D, 3B, 4S, 4D, 5S, 5D, 7S, 7I, 7B, 8S, 8I, 8B, 9S, 9I, 10S, 10I, 10B, 13S, 13I, 13B, 14S, 14I, 14B, 15S, 15I, 15B, [redacted].

4.2 Landfill Gas Monitoring

The landfill gas monitoring has the following objectives:

- Monitor the concentration of the landfill gases as a percentage of the LEL for the landfill gases at the site boundary.

- Verify that the air emissions from the passive gas vents do not exceed the regulatory levels found in the applicable provisions of the National Emission Standards for Hazardous Air Pollutants (NESHAP), and Chapter NR 445, Wisconsin Administrative Code (WAC).

During the predesign activities, Roy F. Weston, Inc., used a combustible gas indicator (CGI) to periodically monitor the concentration of the landfill gases as a percentage of the LEL for the landfill gases at the monitoring probes outside the site boundary. The percent LEL readings at these locations

during the predesign monitoring were zero. During the remedial action (RA), a series of landfill gas monitoring probes were installed outside the waste boundary. These probes will be monitored once every three months to verify that the LEL is below 25 percent.

Landfill gas flow will be measured from each of the 21 gas vent wells annually. Gas samples will also be collected annually. It is estimated that five vents will be sufficient to collect representative gas samples from the landfill. Therefore, during the first sampling event, five out of 21 vents will be sampled. During the second sampling event, five out of the remaining 16 vents will be sampled. During the third sampling event, five out of the remaining 11 vents will be sampled, and the remaining six vents will be sampled during the fourth event. The samples will be analyzed for VOCs included in EPA Method TO-14. The VOCs included in this method encompass VOCs typically found in landfill gases. The National Ambient Air Quality standard for particulate matter (PM) will not be monitored. PM is not a concern because the landfill gas will not be flared ant the physical process occurring within the landfill will not generate particulate matter. At the end of each sampling event, the data will be used to determine if the landfill gas emissions exceed the NR 445 de minimis levels. Based on the results, the monitoring requirements will be reevaluated to determine whether further monitoring or gas treatment is required or sampling can be discontinued.

4.3 Field Investigation Protocols

The following sections detail the procedures that will be followed during the O&M field sampling activities. All sample container preservation and volume requirements are outlined in **Table GW-4**. All activities will follow BT^2's standard procedures which are included as **Appendix C**.

4.3.1 Water Level Measurement

Prior to the sampling of monitoring wells, water level measurements will be collected. The water level data will be used in determining the approximate direction of groundwater flow, and will provide information on lateral and vertical hydraulic gradients. The following protocols will be used during water level measurement:

- The water level probe and cable will be decontaminated prior to each use with a distilled water rinse.

- Depth to water will be measured with an electrical sounding device (accuracy ± 0.01 feet). The reference point for this measurement will be the top of the well riser pipe. Measurements will be converted into elevations (i.e., mean sea level), using established survey information.

- The depth to water and the time will be recorded in a field book.

4.3.2 Groundwater Monitoring Well Sampling Procedures

Monitoring wells will be sampled using a bladder pump (or a submersible pump) utilizing a very slow flow rate (0.2 to 2 liters per minute [l/min]). Sampling equipment and all downhole equipment will be decontaminated pursuant to the protocols outlined in **Table GW-6**. Each sample will be collected using the following methodology as spelled out in **Appendix C**.

- The depth to the water level in the well and the total depth of the well will be measured with an electrical sounding device (accuracy ± 0.01 feet). The depth to water and the time of measurement will be recorded. The reference point for these depths will be the top of the well riser pipe.

- The volume of standing water in the well will be calculated. Volume of water in a 2-inch-diameter well (gallons) = length (feet) x 0.16 (gallons/foot). For a 4-inch-diameter well (gallons) = length (feet) x 0.65 (gallons/foot). For a 6-inch-diameter well (gallons) = length (feet) x 1.47 (gallons/foot).

- Per Sec. 2.4.A of the WDNR Groundwater Sampling Field Manual (Publ. DG-038-96), a bladder pump or a submersible pump that has been decontaminated prior to use will be used for purging and sampling utilizing a very slow flow rate (<1.0 l/min). Tubing will be thick and of minimal length to exclude atmospheric gases.

- Well purging will be conducted at low flow rates (1.0 to 4.0 L/min) with the pump intake just above or within the screened interval. Field measurements of pH, temperature, conductivity, dissolved oxygen, and turbidity will be made over time. Stabilization of these well purging parameters (± 0.25 units for pH, ± 0.5°C for temperature, ± 10 percent

for conductivity, ± 0.1 mg/l for dissolved oxygen, and ± 1 units for turbidity) indicate equilibrated conditions. Well purging will continue until the turbidity has decreased to 5 nephelometric turbidity units (NTU) or less, or until five purge volumes have been removed.

- In the event that the monitoring well pumps dry before three volumes have been removed, the well will be allowed to recharge for 15 minutes and then be pumped dry again before sampling. All purge water will be containerized and managed in accordance with **Section 9** protocols.

- Samples will be collected directly from the pump after the well purging has been completed. The groundwater samples will be collected in decreasing order of sensitivity of volatilizing organic contaminants: DCDFM, THF, followed by total metals.

- Sampling bottles will be filled at an angle in order to limit splashing and bubbling. VOA sample bottles will be preserved with hydrochloric acid (HCI) prior to the addition of the sample. The VOA sample bottles will be filled such that no air space is present in the bottle after it is capped. If bubbles appear after the bottle is capped, additional sample (water) will be added and the bottle resealed. If the sample has to be discarded and a new sample collected, a new, preserved VOA container will be used to collect the sample. If bubbles persist, an unpreserved VOA sample will be collected. (The Field Sample Manager will note the absence of the preservative on the sample paperwork and in the field logbook.)

- For collecting unfiltered metal samples, one sample will be collected at each monitoring well sample location.

4.3.3 Landfill Gas Flow Rate Measurements

During the annual sampling event, flow rates will be measured, if possible, at each of the 21 passive gas vents. Passive gas vents have a very small flow rate. Additionally, the landfill breaths in and out at the vents, depending on the atmospheric conditions. Caution should be used near the vents because of

potential explosion and breathing hazards. The landfill gas flow rates will be measured using the following procedure:

- Record weather conditions in the field logbook including temperature, rainfall, barometric pressure, cloud cover/sunshine, wind speed, and direction.

- Remove the threaded fittings from the passive gas vents and place the inlet to the anemometer in the threaded hole. Record the flow rate in the field logbook.

4.3.4 Landfill Gas Sampling Procedures

During the annual sampling event, gas samples will be collected from five passive gas vents. Caution should be used near the vents because of potential explosion and breathing hazards. The gas sampling will be performed using SUMMA passivated 6-liter stainless steel canisters utilizing a Teflon line and a flow control system. The laboratory should transport each canister certified as clean and evacuated to an absolute pressure of 0.05 millimeters of mercury (mm Hg). The interior surfaces of the canister must be treated with a pure chrome-nickel oxide layer. This provides for greater stability for VOCs stored in the canisters. The sample flow controller is used to maintain a constant flow rate from full vacuum to 25 psig. The laboratory should preset the flow controllers to 200 ml/min to equal collection of a 6-liter sample in about 30 minutes. The gas samples will be collected using the following procedures:

- At least three days prior to sample collection, place an airtight stainless steel monitoring well cap on each passive gas vent to allow landfill gas to equilibrate in the vent. Seal the cap threads with Teflon tape.

- Purge the vent immediately before sample collection. Connect a vacuum pump to the vent using Teflon tubing. Each seal cap has a 1/4-inch Swagelok fitting that is used to connect to the vent. Use a combustible gas indicator/oxygen (CGI/O_2) meter to monitor the percent LEL and the percent oxygen (O_2) in the landfill gas being purged from the vent. Collect percent LEL and percent O_2 measurements continuously every 1 to 2 minutes to determine whether a representative sample of landfill gas is being obtained (i.e., stability is reached). The landfill gas being purged from the vent is determined to

be stable after two consecutive readings within 10 percent of each other. Begin sample collection after stability is reached.

- Attach the flow controller to the canister. Connect the canister and the flow controller to the vent using Teflon tubing and fitting. The 1/4-inch Swagelok fitting in the seal cap is used to connect the vent to the canister and flow controller. The connecting line between the sample outlet and the vent should be as short as possible to minimize the contained sample volume.

- Open canister valve and record start time and canister pressure. Periodically check and record canister pressure and sampler operation during the 30-minute sampling event.

- When the canister is near ambient pressure, record canister pressure and elapsed time; then close the canister inlet valve.

- Disconnect canister from the flow controller, and cap the canister with the Swagelok end cap.

4.4 Decontamination Requirements

All sampling equipment will be decontaminated before being used to collect a sample. The decontamination protocol for sampling equipment is presented in **Table GW-6**. The management of water generated during decontamination will be in accordance with the requirements outlined in **Section 9**. All decontamination wastewater will be containerized.

4.5 Field Quality Control Samples

The O&M sampling effort will include the following types of field QC samples:

- Field duplicates.
- Field blanks.
- Trip blanks.

This section of the QAPP explains the purpose of each type of QC sample. Sample containers and handling and shipment procedures used for QC samples are identical to those used for the investigative samples. Each field QC sample will be documented on a COC form.

4.5.1 Field Duplicate Samples

Field duplicate samples will be collected at selected locations during water sampling at 1 per 10 sample frequency using procedures identical to those for the investigative samples. Duplicate samples will be analyzed for the same parameters as the investigative samples. Duplicate samples will be collected by alternatively filling two sets of sample bottles from the same sample unit. The VOC analysis fraction for each duplicate sample will be collected immediately after the VOA fraction for the investigative sample, in order to minimize the possibility of loss of VOCs during sample collection.

4.2.2 Field Blanks

Field blank samples will be collected during water sampling events. One field blank will be collected for every ten or fewer investigative aqueous samples collected during the field sampling activities. For water samples, field blanks will be obtained by pouring ultra pure water (HPLC-grade water) over and through a decontaminated or disposable sampling device such as a bailer, and collecting the water in the required sample containers. Each field blank will be analyzed for the same parameters as the investigative samples in accordance with the same analytical methodologies. When collecting a field blank, the VOCs will be collected first, followed by the total metals. All field blanks will be identified as such on all sample documentation.

4.5.3 Trip Blanks

One trip blank sample will be enclosed in each sample shipment container in which aqueous VOA samples are included. Trip blanks will consist of two 40-milliliter (ml) glass vials. All sample handling, packaging, and preservation requirements for the trip blanks will be identical to the investigative VOA sample aliquot. The 40-ml vials for each trip blank will be filled by the laboratory. Preparation of the trip blank will entail the pouring of ultra pure water (HPLC-grade water) into the 40-ml vial (leaving no airspace) and carefully securing the caps to ensure the absence of air bubbles. The sealed bottles will be subsequently placed in a sample container and accompany field personnel to the sample site. All trip blanks will be shipped to the laboratories in containers with other VOA samples. The trip blank will be documented and identified as such on all sample documentation.

FID 113005950

BT² inc.

Environmental Engineering and Science

April 15, 2002

RECEIVED
APR 19 2002
DEPT. OF NATURAL RESOURCES
SOUTH CENTRAL REGION

RECEIVED
APR 16 2002
BUREAU OF
WASTE MANAGEMENT

Kathy Thompson
WDNR
101 South Webster Street SW/3
P.O. Box 7921
Madison, WI 53707-7921

SUBJECT: GEMS Data Submittals for Stoughton City Landfill (Lic. #133)
BT² Project #1764

Dear Kathy:

This letter is in response to your email dated March 20, 2002 regarding data that had been previously submitted for the Stoughton City Landfill. Your email had two attachments identifying problems with two different data sets. Our responses for the two items are as follows:

July 2000 and April 2001 Data

Results for these two monitoring events were originally submitted with the incorrect DNR sample point ID numbers. This error was fixed last year and TestAmerica provided a corrected data file to you. Based on the error printout that you sent, it appears that you then later tried to load the old data over the top of the corrected data, which is why you are now getting a duplicate records for the trip blank and field blanks. We are submitting another disk with the correct data for the July 2000 and April 2001 monitoring periods, but we expect that most or all of the data will be duplicates of what is already in GEMS. In case of a conflict between what is on the enclosed disk and what is in GEMS, please use the data from the enclosed disk.

November 2001 Data

The error report for the samples collected in November indicated an incorrect reporting period. By agreement between BT² and Mike Schmoller (WDNR project manager), the sampling schedule has been modified to April and November. Although the sampling was done in the correct period (November), the laboratory used a reporting period of October for the data disk, which is incorrect. A revised data file with the correct reporting period is included on the enclosed disk.

MS
4/19/02

If you have any questions or need additional information, please call us at 608-224-2830.

Sincerely,
BT^2, Inc.

Sherren Clark, P.E., P.G.
Principal

Jan Kucher, P.E.
Project Manager

Enclosure

cc: Mike Schmoller, WDNR

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