



March 5, 2003

Mr. Michael Schmoller
WDNR South Central Region Office
3911 Fish Hatchery Road
Fitchburg, WI 53711

**SUBJECT: Tri-Annual Facility Inspection Report and
Semi-Annual Gas Monitoring Probe Report
Bid Item #2 and #10
Stoughton City Landfill
FID # 113005950 - License #133
WDNR Purchase Order #NMB00000136
BT² Project #1764**

Dear Mr. Schmoller:

BT², Inc. has prepared the second of three facility inspection reports and the semi-annual gas monitoring probe report for the third year O&M at the Stoughton City Landfill site. Mr. Steven Smith of BT² inspected the site on February 10, 2003. The attached Inspection Report details the findings on that date. The Passive Gas Vent monitoring results for organic vapors and combustible gases were also completed on February 10, 2003. The monthly summaries of the monitoring of the three gas monitoring probes for December, January, and February are also included. Summaries of the facility inspection are as follows.

February 10, 2003 Inspection

The general site condition was good and the ground was snow covered to approximately three inches. The main gate and the City-of-Stoughton-owned areas of the gravel road skirting the landfill to the south and southeast were in good condition with no obvious erosion problems. The access gate to this road has frozen in place due to water in the post hole although the padlock was in good. The Periodic Inspection Report is included as **Attachment A**.

Perimeter Security Fencing: The condition of the perimeter fence and both entrance gates was good. There was no evidence of vandalism at the site. The wooden fence planks were in good condition. The chain link fencing on both gates was in good working order. Both gate padlocks were cleaned and sprayed with WD-40.

Monitoring Wells and Wellhead Covers: There were no evident signs of tampering at any of the site monitoring wells. The protective top for monitoring well MW7B has shifted. The concrete ring cracked and was replaced on February 19, 2003.

Final Cover Vegetation and Slope: The ground surface had a cover of approximately three inches of snow. No evidence of burrowing animals was observed on the cover.

Mr. Michael Schmoller
March 5, 2003
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Stormwater Drainage Channels: The storm water drainage channels were in good shape with no debris or blockages evident. Ice and snow covered most of the rocks in the rip-rap sections.

Landfill Gas Venting System: Gas vent pipes were inspected and found to be in good shape. The 21 passive gas vents were analyzed for percent LEL (as methane), percent oxygen, carbon dioxide, PID, and gas flow rate. The results are summarized on the Passive Gas Vent Report included as **Attachment B**.

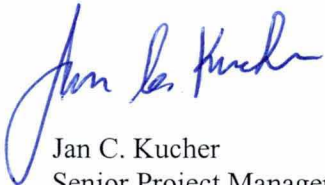
Access Gravel Roads: All access roads leading around the south edge of the landfill and to the various well nests were accessible and in good condition.

Monthly Gas Monitoring Probe results


The Gas Monitoring Probe monthly check includes percent LEL (as methane), percent oxygen, percent carbon dioxide, PID, and well head pressure. Summaries of these reports are included as **Attachment C**.

A CD-ROM copy of the Facility Site Inspection Report is also enclosed containing a copy of this report and the attachments as a PDF file. Please call us at (608) 224-2830 if you have any questions.

Sincerely,
BT², Inc.



Jan C. Kucher
Senior Project Manager



Steven B. Smith
Environmental Specialist

cc: Mr. Bernard J. Schorle, U.S. EPA Region V Office

Attachments: CD-ROM
A - O&M Facility Inspection Report
B - Passive Gas Vent Monitoring Report
C - Monthly Gas Monitoring Probe Reports

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ATTACHMENT A

O&M Facility Inspection report

**Operation and Maintenance Periodic Inspection Report
Stoughton City Landfill
Stoughton, Wisconsin**

Inspector S. Smith
 Company BT² Inc.
 Project Stoughton City LF
 Location Stoughton, WI
 Date/Time 2/10/03 10:00
 Project No. #1764

Weather	<u>Sunny, windy, cold</u>	Clear	P. Cloudy	Cloudy	Fog
Temperature	<u>12° F</u>	High	F	---	---
Wind	<u>NW at 13 mph</u>	Calm	<u>Medium</u>	High	---
Precipitation	<u>None</u>	Rain	Light	Moderate	Heavy
		Snow	Light	Moderate	Heavy

Type of Inspection Routine Special

Persons/Equipment Present: S. Smith → LMS, Landfill gas meter, Thermo P10

General Description of Site Conditions: Snow covering, clear conditions

Specific Inspection Items	Potential Problem Areas	Status*	Notes
Perimeter Security Fencing	Broken boards/vandalism	1	None found - no damage
Entrance Gate and Locking Mechanism	Lock broken/missing, mechanism inoperative	1	Good condition
Monitoring Wells and Wellhead Covers	Signs of tampering, casing damaged, lock missing or damaged	1	Good condition
Final Cover Vegetation	Bare spots, stressed vegetation, deep-rooted vegetation	1	Snow covered
Final Cover Slope (explain below)	Gullies, lack of vegetation, subsidence, ponding	1	Good condition
Evidence of Burrowing Animals	Damage to final cover, evidence of waste	1	No evidence
Stormwater Drainage Channels	Gullies, erosion, debris, culvert blocked	1	Good condition
Landfill Gas Venting System	Damaged vent risers, stressed vegetation	1	Good condition
Access Road	Ponding, rutting, erosion	1	Great condition

*(1) Acceptable - No Maintenance Required. (2) Not Acceptable - Identify Required Maintenance.

Summary of Deficiencies and/or Corrective Actions: NO deficiencies

Signature of Inspector [Signature]

Date 2/10/03

ATTACHMENT B

Passive Gas Vent Monitoring Report

Operation and Maintenance Report
Passive Gas Vent Monitoring
Stoughton City Landfill / BT² Project #1764

Probe	% LEL	% Oxygen	PID (ppm)	Gas Flow (m ³ /hr)	Other Gasses
GV-1	0.0	20.8	1.4	0.0	none
GV-2	0.0	21.0	1.4	0.0	↓
GV-3	0.0	20.8	0.0	0.0	↓
GV-4	0.4	20.4	0.6	0.0	CO ₂ = 0.2%
GV-5	0.0	21.0	0.0	0.0	none
GV-6	0.0	20.8	0.4	0.0	↓
GV-7	0.0	20.7	0.0	0.0	↓
GV-8	0.0	21.0	0.0	0.0	↓
GV-9	0.0	20.0	0.9	0.0	CO ₂ = 0.3%
GV-10	0.2	20.7	1.0	0.0	none
GV-11	0.2	20.8	0.0	0.0	↓
GV-12	0.2	20.7	0.0	0.0	↓
GV-13	1.0	20.0	0.5	0.0	CO ₂ = 0.2%
GV-14	5.5	9.6	3.9 0.8	0.0	CO ₂ = 3.9%
GV-15	0.2	20.8	0.0	0.0	none
GV-16	0.0 0.2	20.8	0.0	0.0	↓
GV-17	0.2	20.7	0.0	0.0	↓
GV-18	0.3	20.6	0.4	0.0	CO ₂ = 0.1%
GV-19	0.3	20.7	0.2	0.0	none
GV-20	0.2	20.8	0.0	0.0	↓
GV-21	0.0	21.0	0.0	0.0	↓

PID Thermo PID #1

Operator: S. Smith

Barometric Pressure: 29.80" Hg

Temperature: 12°F

Ground Surface: Snow covered

Date: 2/10/03

Weather: mostly sunny

Notes:

1. % LEL as measured as Methane.
2. Other gases - detected gases other than % O₂ and % LEL as Methane.

ATTACHMENT C

Monthly Gas Monitoring Probe Reports

Monthly Report
Gas Monitoring Probes
Stoughton City Landfill
BT² Project #1764

Probe	% LEL (as Methane)	% Oxygen	% CO ₂	PID (ppm)	Pressure (inches H ₂ O)
GMP-1	0.0	21.0	0.0	1.5	0.0
GMP-2	0.4	20.6	0.3	0.0	0.0
GMP-3	0.5	20.2	0.5	1.8	0.0

Instruments Used: Thermo PID (+2), LMSx Landfill Gas Meter

Operator: S. Smith Date: 12/3/02

Weather Data

Barometric Pressure: 30.00 in Hg (Steady) Temperature: 20°F

Humidity: 69% Dewpoint: 17°F Wind: NU at 9mph

Ground Surface: Clean, clear, and dry. Conditions: Clear

**Monthly Report
Gas Monitoring Probes
Stoughton City Landfill
BT² Project #1764**

Probe:	%LEL (as Methane)	%Oxygen	%CO ₂	PID (ppm)	Pressure (inches H ₂ O)
GMP-1	0.2	21.0	0.0	0.8	0.0
GMP-2	0.6	20.7	0.3	1.3	0.0
GMP-3	0.4	20.6	0.3	1.7	0.0

Instruments Used: Thermo PID (#2), LMS, landfill gas meter

Operator: S. Smith Date: 1/25/03

Weather Data

Barometric Pressure: 30.37 in (Steady) Temperature: 19°F

Humidity: 49% Dewpoint: 3°F Wind: NE at 5 mph

Ground Surface: Snow covered Conditions: Clear

Monthly Report
Gas Monitoring Probes
Stoughton City Landfill
BT² Project #1764

Probe	% LEL (as Methane)	% Oxygen	% CO ₂	PID (ppm)	Pressure (inches H ₂ O)
GMP-1	0.0	21.0	0.0	0.0	0.0 -1.0
GMP-2	0.4	20.5	0.2	0.5	0.0
GMP-3	0.2	20.8	0.0	0.0	-1.0

Instruments Used: LMSx LF gas meter Turmo PID
 Operator: S. Smith Date: 2/10/03

Weather Data

Barometric Pressure: 29.80" Hg Temperature: 12°F
 Humidity: 67% Dewpoint: 3°F Wind: NW at 13 mph
 Ground Surface: Snow covered Conditions: mostly cloudy sunny



June 27, 2003

Mr. Michael Schmoller
WDNR South Central Region Office
3911 Fish Hatchery Road
Fitchburg, WI 53711

**SUBJECT: Tri-Annual Facility Inspection Report and
Semi-Annual Gas Monitoring Probe Report
Bid Item #2 and #10
Stoughton City Landfill
FID # 113005950 - License #133
WDNR Purchase Order #NMC00000112
BT² Project #1764**

Dear Mr. Schmoller:

BT², Inc. has prepared the third of three facility inspection reports and the second semi-annual gas monitoring probe report for the third year O&M at the Stoughton City Landfill site. Mr. Steven Smith of BT² inspected the site on May 27, 2003. The attached Inspection Report details the findings on that date. The Passive Gas Vent monitoring results for organic vapors and combustible gases were also completed on May 27, 2003. The monthly summaries of the monitoring of the three gas monitoring probes for March, April, and May 2003 are also included. Summaries of the facility inspection are as follows.

May 27, 2003 Inspection

The general site condition is good and the ground is covered in grasses to a height of approximately six inches. The main gate and the City-of-Stoughton-owned areas of the gravel road skirting the landfill to the south and southeast are in good condition with no obvious erosion problems. The access gate to this road is in proper operating condition and the padlock was also in good condition. The Periodic Inspection Report is included as **Attachment A**.

Perimeter Security Fencing: The condition of the perimeter fence and both entrance gates is good. There is no evidence of vandalism at the site. A loosened wooden fence plank was found on the west access gate to the site (probably damaged by wind) and was repaired by nailing it back into place. The other fence planks on the site fencing are in good condition. The chain link fencing on both gates is in good working order. Both gate padlocks were cleaned and sprayed with WD-40 lubricant.

Monitoring Wells and Wellhead Covers: There are no evident signs of tampering at any of the site monitoring wells.

Final Cover Vegetation and Slope: The ground surface has a cover of approximately six inches of grass. No evidence of burrowing animals was observed on the cover.

Mr. Michael Schmoller
June 27, 2003
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Stormwater Drainage Channels: The storm water drainage channels are in good shape with no debris or blockages evident.

Landfill Gas Venting System: Gas vent pipes were inspected and found to be in good shape. The 21 passive gas vents were analyzed for percent LEL (as methane), percent oxygen, carbon dioxide, PID, and gas flow rate. The results are summarized on the Passive Gas Vent Report included as **Attachment B**.

Access Gravel Roads: All access roads leading around the south edge of the landfill and to the various well nests are accessible and in good condition.

Monthly Gas Monitoring Probe results

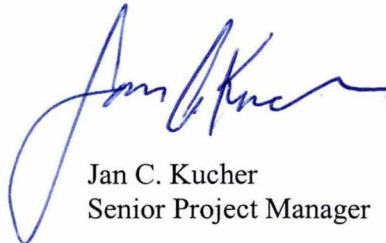
The Gas Monitoring Probe monthly check includes percent LEL (as methane), percent oxygen, percent carbon dioxide, PID, and well head pressure. Summaries of these reports are included as **Attachment C**.

A copy of the Facility Site Inspection Report on CD-ROM is also enclosed containing a copy of this report and the attachments as a PDF file. Please call us at (608) 224-2830 if you have any questions.

Sincerely,
BT², Inc.



Steven B. Smith
Environmental Specialist



Jan C. Kucher
Senior Project Manager

cc: Mr. Bernard J. Schorle, U.S. EPA Region V Office

Attachments: CD-ROM
A - O&M Facility Inspection Report
B - Passive Gas Vent Monitoring Report
C - Monthly Gas Monitoring Probe Reports

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ATTACHMENT A

O&M Facility Inspection Report

Operation and Maintenance Periodic Inspection Report
Stoughton City Landfill
Stoughton, Wisconsin

Inspector S. Smith
 Company BT² Inc.
 Project Stoughton City LF
 Location Stoughton, WI
 Date/Time 5/27/03 10am
 Project No. #1764

Weather	<u>Sunny, beautiful</u>	<u>Clear</u>	P. Cloudy	Cloudy	Fog
Temperature	<u>67°F</u>	High	F	---	---
Wind	<u>Light wind</u>	Calm	Medium	High	---
Precipitation	<u>None</u>	Rain	Light	Moderate	Heavy
		Snow	Light	Moderate	Heavy

Type of Inspection Routine Special

Persons/Equipment Present: S. Smith → LMS, Landfill Gas Meter, Turner PIA (#1)

General Description of Site Conditions: Good general condition. Cover is ready to be moved in approx. 1-2 wks.

Specific Inspection Items	Potential Problem Areas	Status*	Notes
Perimeter Security Fencing	Broken boards/vandalism	2	<u>Found a loose board on the side access gate. Repaired the board.</u>
Entrance Gate and Locking Mechanism	Lock broken/missing, mechanism inoperative	1	<u>Gate's and locks in working condition</u>
Monitoring Wells and Wellhead Covers	Signs of tampering, casing damaged, lock missing or damaged	1	<u>No damage, good condition</u>
Final Cover Vegetation	Bare spots, stressed vegetation, deep-rooted vegetation	1	<u>No problem areas. Due for a mow in approx 1-2 weeks.</u>
Final Cover Slope (explain below)	Gullies, lack of vegetation, subsidence, ponding	1	<u>Good condition</u>
Evidence of Burrowing Animals	Damage to final cover, evidence of waste	1	<u>None</u>
Stormwater Drainage Channels	Gullies, erosion, debris, culvert blocked	1	<u>Good condition</u>
Landfill Gas Venting System	Damaged vent risers, stressed vegetation	1	<u>Good condition</u>
Access Road	Ponding, rutting, erosion	1	<u>Good condition</u>

*(1) Acceptable - No Maintenance Required. (2) Not Acceptable - Identify Required Maintenance.

Summary of Deficiencies and/or Corrective Actions: Be repaired fence

Signature of Inspector Alvin Arnold

Date 5/27/03

ATTACHMENT B

Passive Gas Vent Monitoring Report

Operation and Maintenance Report
Passive Gas Vent Monitoring
Stoughton City Landfill / BT² Project #1764

Probe	% LEL	% Oxygen	PID (ppm)	Gas Flow (m ³ /hr)	Other Gases
GV-1	0.0	21.0	6.0	0.0	
GV-2	0.0	20.8	7.3	1.0	
GV-3	0.0	20.3	6.4	0.0	CO ₂ = 0.2%
GV-4	0.0	13.4%	6.8	0.0	CO ₂ = 3.4%
GV-5	0.0	20.5	5.0	0.0	
GV-6	0.0	20.8	3.0	0.0	
GV-7	0.0	19.5	5.5	1.0	CO ₂ = 1.0%
GV-8	0.0	4.0	7.0	2.0	CO ₂ = 5.5%
GV-9	0.0	19.9	3.9	1.0	CO ₂ = 1.5%
GV-10	0.0	20.8	2.0	0.0	
GV-11	0.0	11.3 8.5	5.1	1.0	CO ₂ = 7.8% 8.2%
GV-12	0.0	20.8	2.0	1.0	
GV-13	7.3	0.1	0.4	0.0	CO ₂ = 15.0%
GV-14	0.7	15.3	2.8	0.0	CO ₂ = 4.3%
GV-15	0.2	19.9	4.0	0.0	CO ₂ = 0.2%
GV-16	0.2	20.6	3.7	0.0	
GV-17	0.0	20.8	1.7	1.0	
GV-18	0.0	20.7	2.2	1.0	
GV-19	1.2	17.7	5.9	0.0	CO ₂ = 0.8%
GV-20	2.1	3.0	5.5	0.0	CO ₂ = 14.0%
GV-21	2.6	3.6	4.6	1.0	CO ₂ = 13.0%

PID Thermo #1 Operator: S. Smith

Barometric Pressure: 30.18"

Temperature: 67°F (at site)

Ground Surface: Clear and dry

Date: 5/27/03

Weather: Clear

- Notes:**
1. % LEL as measured as Methane.
 2. Other gases - detected gases other than % O₂ and % LEL as Methane.

ATTACHMENT C

Monthly Gas Monitoring Probe Reports

**Monthly Report
Gas Monitoring Probes
Stoughton City Landfill
BT² Project #1764**

Probe	% LEL (as Methane)	% Oxygen	% CO ₂	PID (ppm)	Pressure (inches H ₂ O)
GMP-1	0.2	20.7	0.2	1.3	-1.0
GMP-2	0.5	20.5	0.2	0.9	0.0
GMP-3	0.3	20.7	0.2	1.3	-1.0

Instruments Used: LMSx Landfill Gas Meter, Thermo PID (#1)
 Operator: S. Smith Date: 3/25/03 (2:30pm)

Weather Data

Barometric Pressure: 29.92 in Hg. Temperature: 55°F 53.6°F
 Humidity: 35% Dewpoint: 24.8% Wind: 11.5 mph WNW
 Ground Surface: moist, frost coming up Conditions: Clear

**Monthly Report
Gas Monitoring Probes
Stoughton City Landfill
BT² Project #1764**

Probe	% LEL (as Methane)	% Oxygen	% CO ₂	PID (ppm)	Pressure (inches H ₂ O)
GMP-1	0.4	20.6	0.2	1.7	0.0
GMP-2	0.3	20.7	0.2	0.8	0.0
GMP-3	0.3	20.7	0.0	1.3	0.0

Instruments Used: Thermo PID (#1), LMS Landfill Gas Meter
 Operator: S. Smith Date: 4/24/03 (4:30)

Weather Data

Barometric Pressure: 29.92 in Temperature: 63°F
 Humidity: 24% Dewpoint: 24.8° Wind: 12.7 mph
 Ground Surface: Clear and dry Conditions: Overcast

Monthly Report
Gas Monitoring Probes
Stoughton City Landfill
BT² Project #1764

Probe	% LEL (as Methane)	% Oxygen	% CO ₂	PID (ppm)	Pressure (inches H ₂ O)
GMP-1	0.8	19.9	0.5	4.5	1.0
GMP-2	0.4	20.2	0.2	5.1	0.0
GMP-3	1.0	20.0 18.0 <i>SS starts</i>	0.8	3.9	1.0

Instruments Used: Thermo PID #1, LMS, LF gas meter
 Operator: S.S. Smith Date: 5/27/03

Weather Data

Barometric Pressure: 30.18" Temperature: 66.2°F
 Humidity: 52% Dewpoint: 48.2°F Wind: 3.5 mph
 Ground Surface: Clear and dry Conditions: Clear