DEPARTMENT OF THE AIR FORCE
AIR FORCE REAL PROPERTY AGENCY

MEMORANDUM FOR Mr. Douglas Pocze NOV 18 2004
USEPA Region II
Federal Facilities Section
290 Broadway, 18th Floor
New York, NY 10007-1866

Ms. Heather Bishop, Project Manager
New York State Department of Environmental Conservation
Bureau of Eastern Remedial Action
Division of Hazardous Waste Remediation, 11th Floor
625 Broadway
Albany, NY 12233-7015

Mr. Gregory Rys
NYS Department of Health
5665 NYS Route 5
Herkimer, NY 13350

FROM: AFRPA/DA-Griffiss
Environmental Section
153 Brooks Road
Rome, NY 13441-4205

SUBJECT: Methane Gas Monitoring at Landfills 1 & 2/3

1. Attached please find the following documents:

   a. Landfill 1 and 2/3 gas monitoring results dated September 30, 2004 (e-mail)

   b. Landfill 1 methane gas supplemental investigation report and mitigation plan dated November 15, 2004.

   c. Landfill 2/3 methane gas supplemental investigation report and mitigation plan dated November 11, 2004

2. The recommendations stated in the mitigation plan for each respective landfill are presently being implemented and for Landfill 1, the adjacent property owners have been notified. Monitoring will be performed as stated in the mitigation plans for each respective landfill and the sampling results will be forwarded to your office.

3. If you have any questions, please contact Cathy Jerrard or Mike Wojnas at (315) 330-2275

Mark R Rule

for MICHAEL F. MCDERMOTT
BRAC Environmental Coordinator

Attachments: As noted.

Cc: Mr. Jim Waldron, AFRPA/DA

To: Catherine Jerrard@Griffiss@AFBDA.OLX,
ddn[hlbishop@gw.dec.state.ny.us],
ddn[POCZE.DOUG@EPAMAIL.EPA.GOV]
From: Mike Wojnas@Griffiss@AFBDA.OLX
Cc: ddn[joseph.wojnas@usace.army.mil],Michael
McDermott@Griffiss@AFBDA.OLX
Subject: re: Landfill Gas Monitoring
Attachment: LANDFILLS 1 & 2-3 VENT GAS RESULTS.PDF
Date: 9/30/2004 8:27 AM

Heather/Doug: Attached are the results of the vent and probe gas sampling performed at Landfill 1 & 2/3. Conti & EA (Certifying Engineer) are evaluating the data and will be providing a proposed corrective action plan in the near future.

If you have any questions, please give us a call.

Thanks Mike W

Michael Wojnas
Air Force Real Property Agency
AFRPA/DA-Griffiss
Phone: (315) 330-2053
Fax: (315) 330-4062
E-Mail: mike.wojnas@afrpa.pentagon.af.mil

From: Catherine Jerrard@Griffiss@AFBDA.OLX, on 9/24/2004 1:23 PM:

Doug and Heather-

The first round of gas sampling has been completed at Landfill 1 and Landfill 2/3. Both landfills had high concentrations of methane and high LEL values.

The sampling was performed by FPM. Conti/EA will resample next week to confirm the data. We will let you know the results when they are available and will follow with a proposed corrective action plan if required.

Please call Mike Wojnas on Monday if you have specific questions.

Thank you.

Cathy Jerrard
Air Force Real Property Agency
AFRPA/DA - Griffiss
Phone: 315-330-3371
FAX: 315-330-4062
email: catherine.jerrard@afrpa.pentagon.af.mil

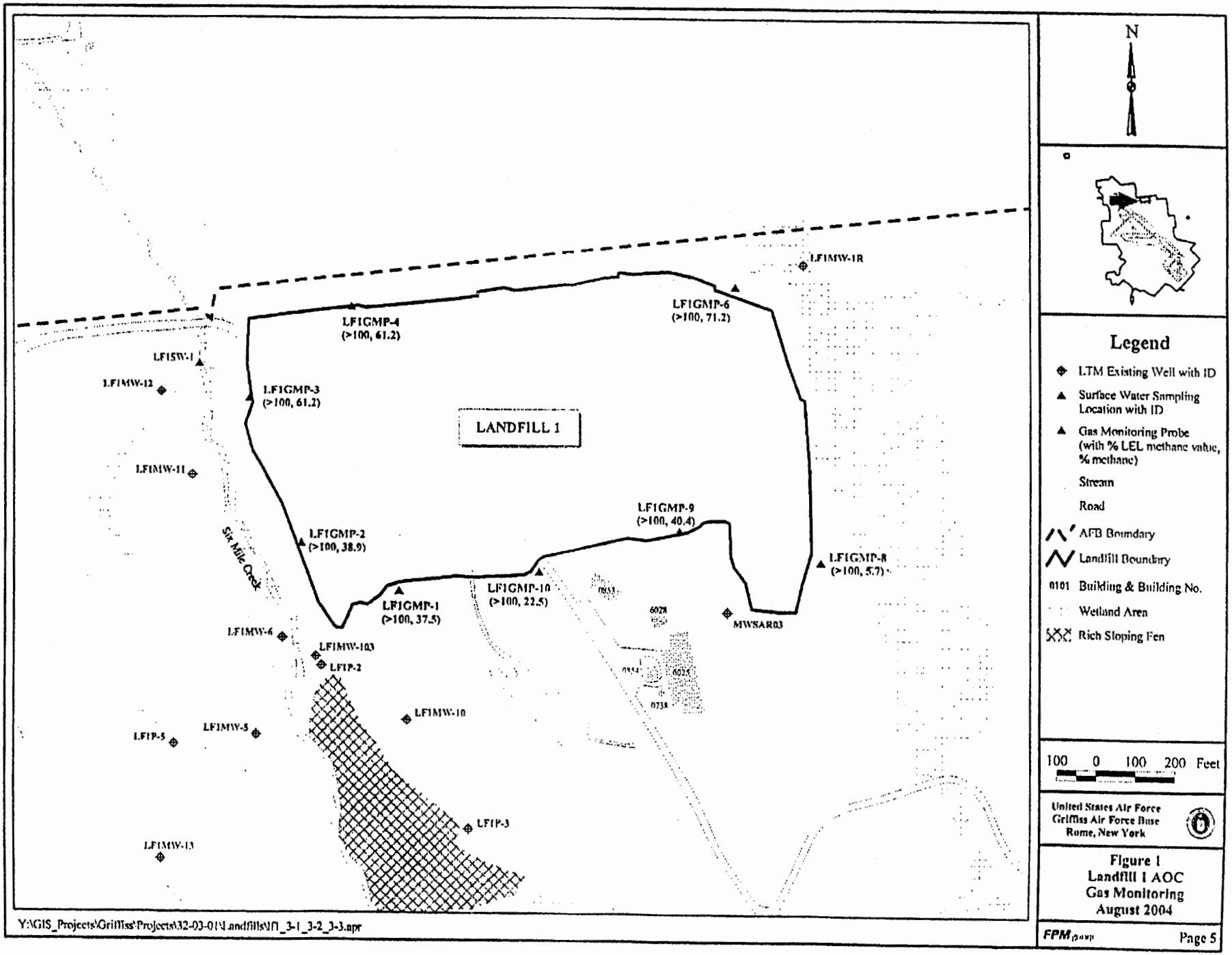

N
LF1MW-1R
LF1GMP-6
(>100, 71.2)
LF1GMP-4
(>100, 61.2)
LF1SW-1
LF1MW-12
LF1GMP-3
(>100, 61.2)
LANDFILL 1
LF1MW-11
LF1GMP-9
(>100, 40.4)
LF1GMP-2
(>100, 38.9)
Six Mile Creek
LF1GMP-8
(>100, 5.7)
LF1GMP-10
(>100, 22.5)
LF1GMP-1
(>100, 37.5)
MWSAR03
LF1MW-6
LF1MW-103
LF1P-2
LF1MW-10
LF1P-5
LF1MW-5
LF1P-3
LF1MW-13
Legend
LTM Existing Well with ID
Surface Water Sampling Location with ID
Gas Monitoring Probe (with % LEL methane value, % methane)
Stream
Road
AFB Boundary
Landfill Boundary
0101 Building & Building No.
Wetland Area
Rich Sloping Fen
100 0 100 200 Feet
United States Air Force
Griffiss Air Force Base
Rome, New York
Figure 1
Landfill 1 AOC
Gas Monitoring
August 2004
Y:\GIS_Projects\Griffiss\Projects\32-03-01\Landfills\lf1_3-1_3-2_3-3.apr

Table 1 - Landfill 1 Gas Monitoring Results.
Results from September 27, 2004 Investigation (Conti/EA)

Sample Location	LEL (%)	Methane (%)	Oxygen (%)	Carbon Dioxide (%)	Barometric Pressure (in)
LF1GMP-1	>100	58.3	2.3	32.5	29.68
LF1GMP-2	>100	48.5	0.0	35.3	29.68
LF1GMP-3	>100	64.5	0.0	35.3	29.68
LF1GMP-4	>100	63.8	0.0	36.4	29.68
LF1GMP-6	>100	76.4	0.0	10.6	29.68
LF1GMP-8	>100	15.3	0.5	18.8	29.68
LF1GMP-9	>100	53.3	0.1	29.0	29.68
LF1GMP-10	>100	35.4	1.9	30.2	29.68

Table 1
Landfill 1 Gas Monitoring Results

Sample Location	LEL (%)	Methane (%)	Oxygen (%)	Carbon Dioxide (%)	Barometric Pressure
LF1GMP-1	>100	37.5	1.3	28.1	29.23
LF1GMP-2	>100	38.9	0.0	32.2	29.23
LF1GMP-3	>100	61.2	0.0	44.4	29.23
LF1GMP-4	>100	61.2	0.0	46.1	29.23
LF1GMP-6	>100	71.2	0.0	8.8	29.23
LF1GMP-8	>100	5.7	0.0	16.8	29.23
LF1GMP-9	>100	40.4	0.0	26.0	29.23
LF1GMP-10	>100	22.5	1.0	26.1	29.23

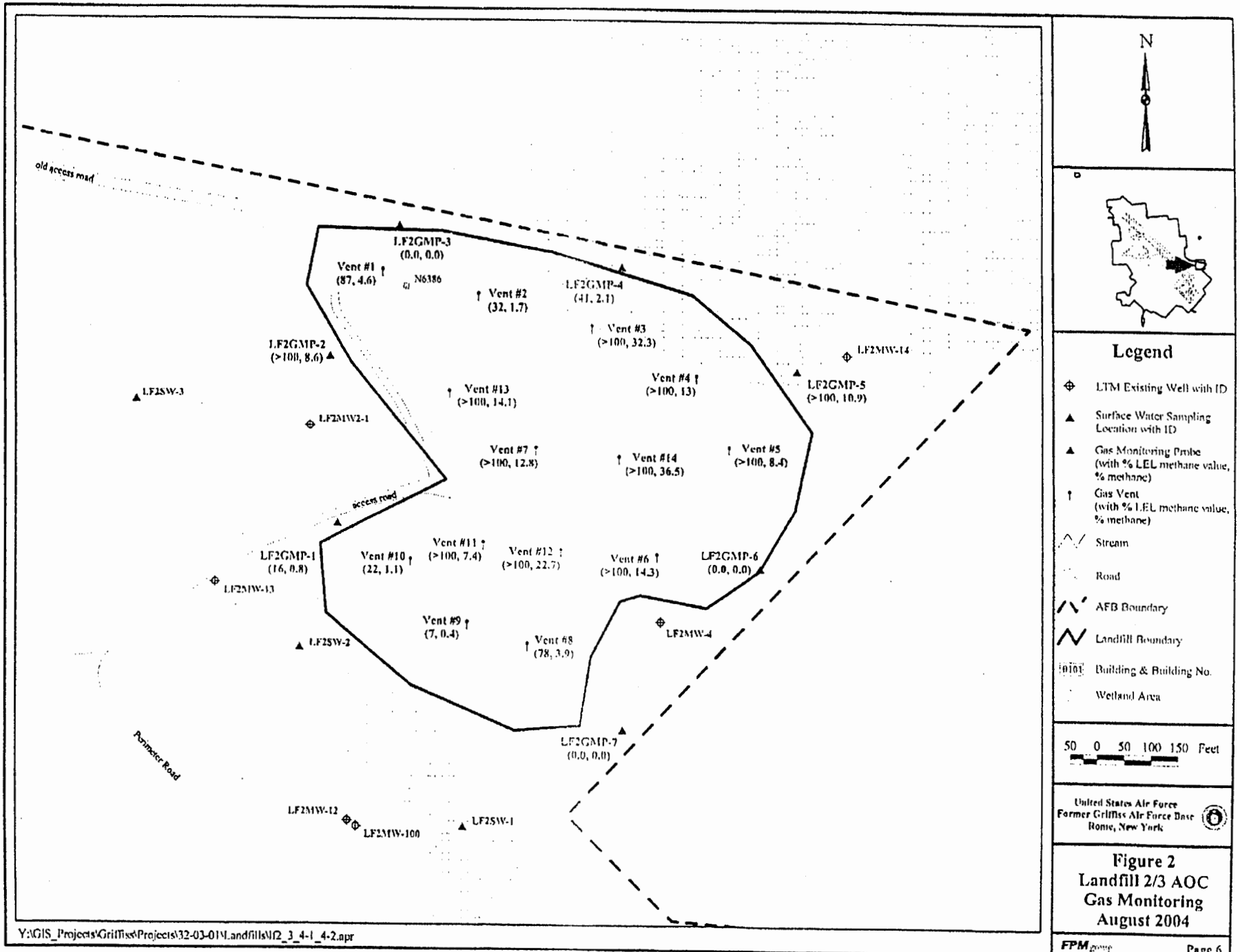


Figure 2
Landfill 2/3 AOC
Gas Monitoring
August 2004

Table 2 - Landfill 2/3 Gas Monitoring Results.
Results from September 27, 2004 Investigation (Conti/EA)

Sample Location	LEL (%)	Methane (%)	Oxygen (%)	Carbon Dioxide (%)	Barometric Pressure (in)
LF2VENT-5	>100	32.0	0.3	29.4	29.68
LF2VENT-2	---	---	---	---	---
LF2VENT-11	50.0	2.5	16.1	5.2	29.68
LF2VENT-10	---	---	---	---	---
LF2VENT-9	---	---	---	---	---
LF2VENT-8	66.0	3.2	5.7	12.6	29.68
LF2VENT-12	>100	24.3	0.3	29.1	29.68
LF2VENT-6	>100	13.7	7.9	15.9	29.68
LF2VENT-4	>100	10.5	15.0	8.6	29.68
LF2VENT-3	>100	15.2	6.8	13.0	29.68
LF2VENT-14	>100	11.4	16.7	8.0	29.68
LF2VENT-7	>100	10.0	18.4	5.2	29.68
LF2VENT-13	54.0	3.1	19.9	1.9	29.68
LF2GMP-2	>100	8.7	4.7	6.3	29.68
LF2GMP-3	0.0	0.0	18.7	2.7	29.68
LF2VENT-1	---	---	---	---	---
LF2GMP-1	32.0	1.6	2.4	16.0	29.68
LF2GMP-4	62.0	3.0	9.4	12.3	29.68
LF2GMP-5	>100	7.0	5.8	7.6	29.68
LF2GMP-6	0.0	0.0	13.9	6.0	29.68
LF2GMP-7	0.0	0.0	16.9	4.5	29.68

Notes:
--- Location not monitored

Table 2
Landfill 2/3 Gas Monitoring Results

Sample Location	LEL (%)	Methane (%)	Oxygen (%)	Carbon Dioxide (%)	Barometric Pressure
LF2VENT-5	>100	8.4	1.7	15	29.49
LF2VENT-2	32	1.7	18.4	2.1	29.51
LF2VENT-11	>100	7.4	1.4	15.8	29.32
LF2VENT-10	22	1.1	0.9	13.7	29.32
LF2VENT-9	7	0.4	1.7	13.0	29.32
LF2VENT-8	78	3.9	0.1	17.0	29.32
LF2VENT-12	>100	22.7	0.0	27.1	29.32
LF2VENT-6	>100	14.3	1.3	19.4	29.32
LF2VENT-4	>100	13	0.7	22.1	29.32
LF2VENT-3	>100	32.3	0.9	22.9	29.32
LF2VENT-14	>100	36.5	1.0	24.9	29.30
LF2VENT-7	>100	12.8	0.8	13.8	29.30
LF2VENT-13	>100	14.1	1.0	14.1	29.30
LF2GMP-2	>100	8.6	2.4	16.2	29.30
LF2GMP-3	0	0.0	18.1	2.3	29.30
LF2VENT-1	87	4.6	14.8	3.6	29.30
LF2GMP-1	16	0.8	1.2	14.8	29.30
LF2GMP-4	41	2.1	5.3	10.0	29.30
LF2GMP-5	>100	10.9	0.0	8.4	29.30
LF2GMP-6	0	0.0	15.9	3.3	29.30
LF2GMP-7	0	0.0	17.0	4.0	29.30

EA Engineering, P.C. and Its Affiliate
EA Science and Technology

6731 Collamer Road, Suite 2
East Syracuse, New York 13057-9808
Telephone: 315-431-4610
Fax: 315-431-4280
www.eaest.com

15 November 2004

Mr. Richard Hamlin
Project Superintendent
Conti Environmental
678 Perimeter Road
Rome, New York 13441

RE: Former Griffiss Air Force Base
Landfill 1 Gas Monitoring
EA Project No. 30002.04

Dear Mr. Hamlin:

EA Engineering, P.C. and its affiliate EA Science and Technology have prepared this letter to summarize the results of recent landfill gas monitoring at Landfill 1, discuss the supplemental investigation at the property line and around nearby structures, and recommend future action to protect human health and reduce the concentration of landfill gas detected at the perimeter of the landfill and at existing structures adjacent to Landfill 1 as necessary.

I. BACKGROUND

As you are aware, FPM Group measured gas concentrations in 8 perimeter gas monitoring probes at Landfill 1 during an August 2004 monitoring event. FPM's measurements showed that gas concentrations exceeded 100 percent of the lower explosive limit (LEL) in all gas monitoring probes around Landfill 1. In September 2004, Conti and EA sampled the 22 gas vents and resampled the gas monitoring probes at Landfill 1 and achieved similar results. USEPA and NYSDEC were notified of the results on 30 September 2004.

II. SUPPLEMENTAL INVESTIGATION

The requirements provided in 6 NYCRR Part 360 Section 360-2.17 (f) regarding decomposition gases are as follows:

"Decomposition gases generated within a landfill must be controlled to avoid hazards to health, safety, or property. Measures to control decomposition gases must be undertaken in accordance with the following requirements:

(1) The concentration of methane and other explosive gases generated by the facility must not exceed:

(i) 25 percent of the lower explosive limit for gases in structures on or off-site, excluding gas control or recovery system components; and

(ii) The lower explosive limit for the gases at or beyond the property boundary."

The existing gas probes sampled during the above referenced monitoring events are approximately 15 feet from the limit of waste and therefore do not provide adequate information to determine compliance with the regulations as described above. In order to further define the extent of potential gas migration the following have been installed:

- Two permanent gas monitoring probes along the northern property line between existing gas probes LF1GMP-4 and LF1GMP-6 to determine if gas is present at the property line above the LEL.

- Three permanent gas monitoring probes around Firing Range Building #853 to determine if gas is present at 25% of the LEL.

- Two permanent gas monitoring probes along the northern portion of the leachate treatment building to determine if gas is present at 25% of the LEL.

The approximate locations of these additional gas probes are provided on the attached figure. The probes were sampled on 8 November 2004 and the following results were documented:

Sample Location	LEL (%)	Methane (%)	Oxygen (%)	Carbon Dioxide (%)	Barometric Pressure (in)
LF1GMP-11	>100	40.0	0.0	35.2	29.60
LF1GMP-12	0	0.0	18.2	3.5	29.60
LF1GMP-13	0	0.0	18.4	1.0	29.60
LF1GMP-14	0	0.0	18.6	0.9	29.60
LF1GMP-15	0	0.0	19.1	0.9	29.60
LF1GMP-16	0	0.0	17.1	3.3	29.60
LF1GMP-17	0	0.0	18.3	1.9	29.60

As shown in the above table, landfill gas is present at greater than 100% LEL along a portion of the northern property line. However, landfill gas was not found in the gas monitoring probes located around the two structures.

III. MITIGATION PLAN

It is our understanding that the owners of the adjacent property to the north of Landfill 1, Mr. and Mrs. Randall Webster, have been informed of the potential hazards associated with certain activities while a contingency plan is being developed and implemented. We also understand that the Oneida Indian Nation Police, who occasionally use Firing Range Building #853, have been asked to adhere to certain safety procedures while the extent of potential landfill gas

migration is being evaluated. Access to the Building #853 has been restricted and closely controlled. If access is required, the interior space will be sampled immediately prior to entry and during occupancy.

As shown in the table below, results from three different monitoring events show a steady decline in the methane concentration at the two permanent probes originally installed along the northern perimeter of Landfill 1.

Sample Location	LEL (%)	Methane (%)	Oxygen (%)	Carbon Dioxide (%)	Barometric Pressure (in)
Results from September 27, 2004 Investigation					
LF1GMP-4	>100	63.8	0.0	36.4	29.68
LF1GMP-6	>100	76.4	0.0	10.6	29.68
Results from November 5, 2004 Investigation					
LF1GMP-4	>100	56.6	0.5	42.7	29.11
LF1GMP-6	>100	74.8	0.2	7.7	29.11
Results from November 8, 2004 Investigation					
LF1GMP-4	>100	52.0	3.6	41.8	29.60
LF1GMP-6	>100	64.3	3.2	6.6	29.60

Based on the results described in this letter and our understanding of Part 360 Section 2.17 (f), EA recommends the following additional activities at Landfill 1 to mitigate landfill gas migration beyond the perimeter of the landfill and ensure safety of human health.

- Installation of an additional passive gas vent along northern property line close to GMP-11. This additional gas vent will promote venting of landfill gas in the affected area to the surface prior to migration beyond the property line.

- Installation of turbine ventilators on every passive gas vent on Landfill 1, including the additional gas vent proposed above. These turbines will be capable of producing flows of approximately 140 cubic feet per minute and will expedite venting of landfill gases to the surface of the landfill.

- Monitoring of the gas probes on a monthly basis for the first year to identify and evaluate trends in landfill gas concentrations and potential migration. The recently installed gas probes will be monitored as part of this effort and will ultimately be incorporated into the Long Term Monitoring Plan for the landfill.

Results from the monthly monitoring events will be evaluated and additional action will be considered based on the results. Copies of the monitoring reports will also be forwarded to the

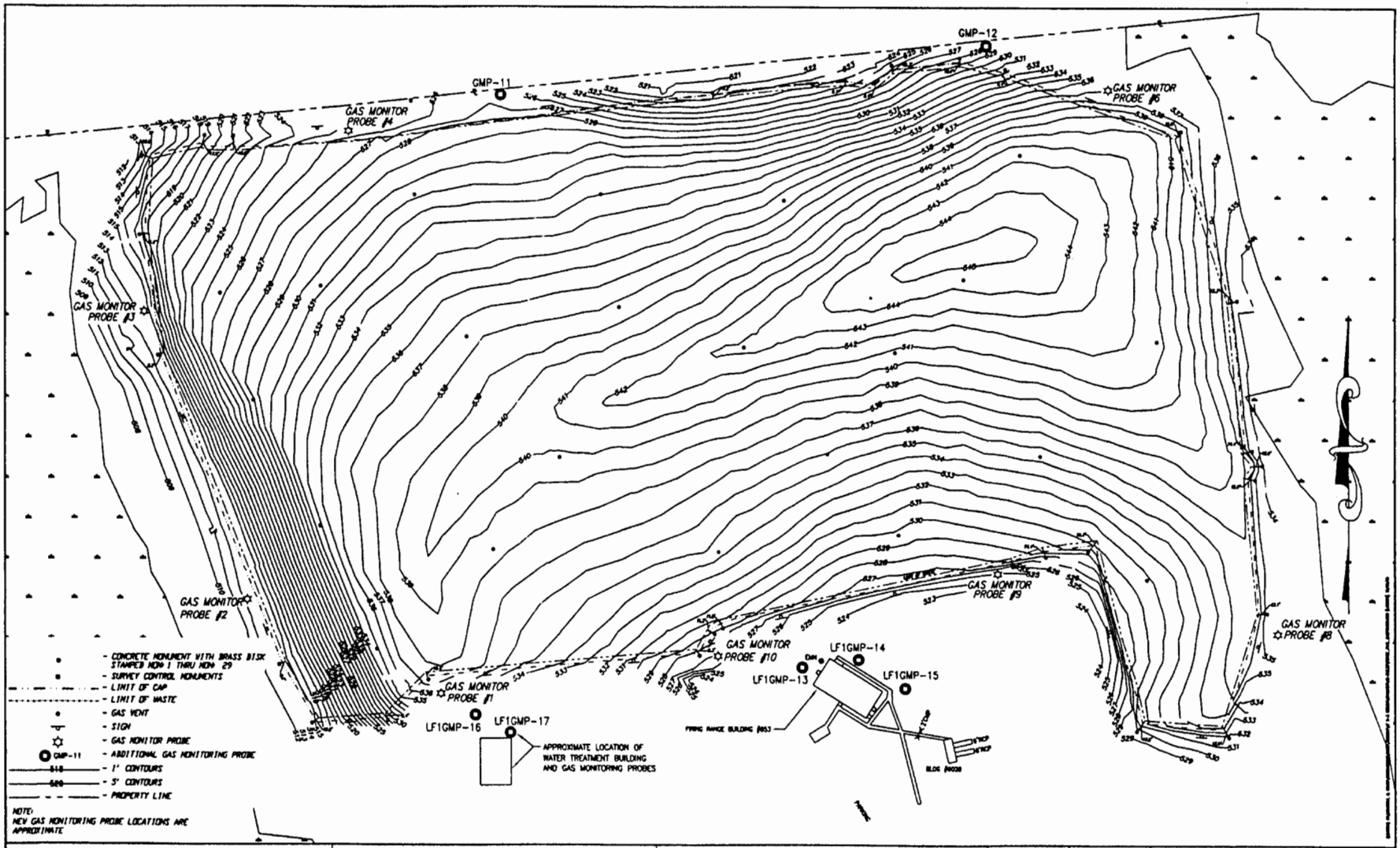
USEPA and NYSDEC. If you have any questions regarding these results or require additional information, feel free to contact me at (315) 431-4610.

Sincerely,

EA ENGINEERING, P.C.

Christopher J. Canonica, P.E.
Assistant Vice President

CC/mr
Enclosures



EA SCIENCE AND TECHNOLOGY

LANDFILL 1
FORMER GRIFFISS AIR FORCE BASE
ROME, NEW YORK

PROPOSED GAS PROBE LOCATIONS

DESIGNED BY	DRAWN BY	DATE	PROJECT NO.	FILE NAME
DOK	DOK	11-08-04	30002.04	-
CHECKED BY	PROJECT MGR.	SCALE	DRAWING NO.	FIGURE
DE	CC	1" = 120'	-	1

EA Engineering, P.C. and Its Affiliate
EA Science and Technology

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www.eaest.com

11 November 2004

Mr. Richard Hamlin
Project Superintendent
Conti Environmental
678 Perimeter Road
Rome, New York 13441

RE: Former Griffiss Air Force Base
Landfill 2/3 Gas Monitoring
EA Project No. 30002.02

Dear Mr. Hamlin:

EA Engineering, P.C. and its affiliate EA Science and Technology have prepared this letter to summarize the results of recent landfill gas monitoring at Landfill 2/3, discuss the supplemental investigation at the property line and recommend future monitoring.

I. BACKGROUND

As you are aware, FPM Group measured gas concentrations in 7 perimeter gas monitoring probes at Landfill 2/3 during an August 2004 monitoring event. FPM's measurements showed that gas concentrations exceeded 100 percent of the lower explosive limit (LEL) in 2 of the 7 gas monitoring probes around Landfill 2/3. In September 2004, Conti and EA resampled the gas monitoring probes at Landfill 2/3 and achieved similar results. USEPA and NYSDEC were notified of the results on 30 September 2004.

II. SUPPLEMENTAL INVESTIGATION

The requirements provided in 6 NYCRR Part 360 Section 360-2.17 (f) regarding decomposition gases are as follows:

"Decomposition gases generated within a landfill must be controlled to avoid hazards to health, safety, or property. Measures to control decomposition gases must be undertaken in accordance with the following requirements:

(1) The concentration of methane and other explosive gases generated by the facility must not exceed:

(i) 25 percent of the lower explosive limit for gases in structures on or off-site, excluding gas control or recovery system components; and
(ii) The lower explosive limit for the gases at or beyond the property boundary."

Since there are no on-site structures at or around Landfill 2/3, this portion of the regulation does not apply. LF2/3GMP-2 is located to the west of the limit of waste and is not close to a property line. LF2/3GMP-5 is located to the northeast of the limit of waste, and property lines to the north and east of the site had the potential of being affected by landfill gas migration. In order to further define the extent of potential gas migration the following have been installed:

- One permanent gas monitoring probe along the northern property line to the north of existing gas probe LF2/3GMP-5 to determine if gas is present at this property line above the LEL.

- One permanent gas monitoring probe along the eastern property line to the east of existing gas probe LF2/3GMP-5 to determine if gas is present at this property line above the LEL.

The approximate locations of these additional gas probes are provided on the attached figure. The probes were sampled on 8 November 2004 and the following results were documented:

Sample Location	LEL (%)	Methane (%)	Oxygen (%)	Carbon Dioxide (%)	Barometric Pressure (in)
LF2/3GMP-8	0	0.0	20.3	0.5	29.60
LF2/3GMP-9	0	0.0	21.0	0.2	29.60

III. MITIGATION PLAN

Results obtained from recent monitoring of the additional gas probes along the northern and eastern property lines indicate that landfill gas is not migrating beyond these property lines. Although this information indicates compliance with Part 360 Section 2.17 (f), EA recommends incorporating gas probes LF2/3GMP-8 and LF2/3GMP-9 into the Landfill 2/3 Long Term Monitoring (LTM) Plan. Furthermore, EA recommends that Conti perform monthly gas monitoring at the probes adjacent to the property line, namely, LF2/3GMP-3, LF2/3GMP-4, LF2/3GMP-5, LF2/3GMP-6, LF2/3GMP-7, LF2/3GMP-8 and LF2/3GMP- 9 for a minimum of three months. Results from these monitoring events will be evaluated and additional action will be considered based on these results.

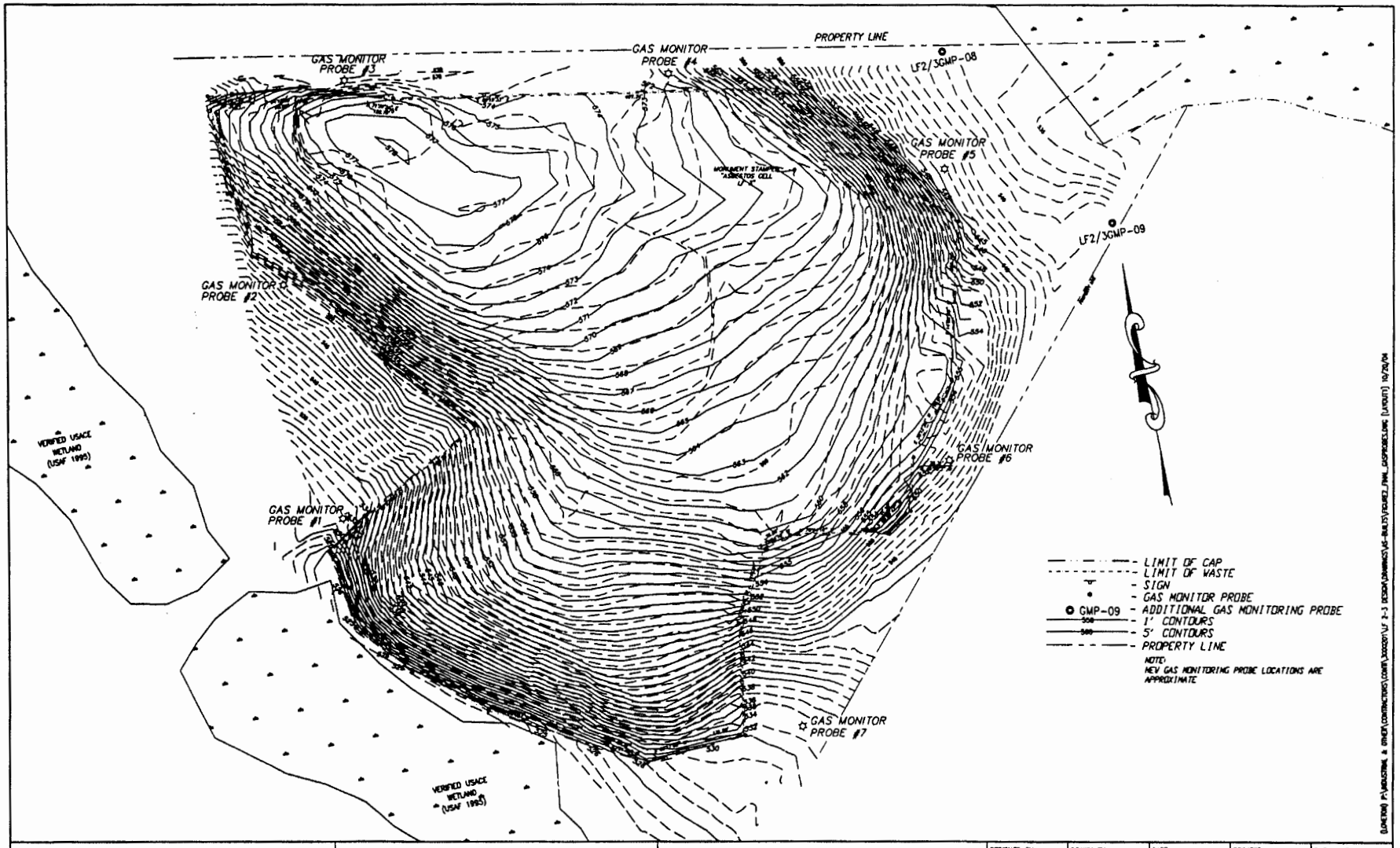
If you have any questions regarding these results or require additional information, feel free to contact me at (315) 431-4610.

Sincerely,

EA ENGINEERING, P.C.

Christopher J. Canonica, P.E.
Assistant Vice President

CC/mr
Enclosures



EA SCIENCE AND TECHNOLOGY

LANDFILL 2/3
FORMER GRIFFISS AIR FORCE BASE
ROME, NEW YORK

PROPOSED GAS PROBE LOCATIONS

DESIGNED BY	DRAWN BY	DATE	PROJECT NO.	FILE NAME
DOK	DOK	11-08-04	30002.04	-
CHECKED BY	PROJECT MGR.	SCALE	DRAWING NO.	FIGURE
DE	CC	1" = 120'	-	1