



environmental engineers, scientists,
planners, & management consultants
February 6, 1986

CAMP DRESSER & MCKEE INC.

One Center Plaza
Boston, Massachusetts 02108
617 742-5151

Mr. Everett Kennedy
Commissioner
Department of Public Works
147 Hampshire Street
Cambridge, MA 02139

New Street Dump Site
Results of Additional Monitoring Program

Dear Mr. Kennedy:

We are pleased to submit the results of our additional monitoring of the New Street dump site. These results are intended to complement our previous "Report on Results for the New Street Dump Site Comprehensive Monitoring Program--Phase II" which is dated July 1985. The purposes of these additional investigations were to:

1. Measure groundwater levels again to document any declines in local groundwater levels, due to low rainfall over the summer.
2. Measure methane concentrations in the well casings and the vent trench at the dump, at the same time groundwater levels were measured;
3. Identify and quantify the non-methane components of the gas detected during the air quality survey at the New Street Pump Station; and
4. Collect additional sediment samples from Fresh Pond at several locations and analyze for PCBs to determine the extent of their presence in the bottom sediments.

RESULTS OF GROUNDWATER LEVEL MONITORING

A summary of the groundwater levels measured on November 20, 1985 is presented in Table 1. As shown, groundwater levels have declined in response to last summer's low rainfall. These levels are still higher than the lowest groundwater levels which were recorded during October 1983. The overall direction of groundwater flow has not changed. Groundwater moving through the dump would travel in the direction of Alewife Brook, or be drawn into the New Street pumps. These results verify our previous understanding of groundwater movement in the area.

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RESULTS OF AIR QUALITY MONITORING

On November 20, 1985, a CDM site investigation team conducted air monitoring activities at the dump. This investigation was undertaken to determine the change, if any, in air quality from previous air quality monitoring results at the dump site, and to better define air quality in and around the New Street pump station.

General air quality sampling was conducted in a walkover of the entire site. A summary of the combustible gas data collected during this effort is presented in Table 2. Key observation points identified in Table 2 are located on Figure 1. Almost all of the gas detected was methane. In general, the methane trench that surrounds the Cambridge Dump continues to function properly. The greatest amounts of methane continue to be vented in the south and southeastern sections of the dump, and at one location in the western part of the dump (site 1). Concentrations of 1,000 ppm were measured directly at the ground surface at observation point 1. Concentrations of methane measured three feet above the ground dissipated to background levels. None of the measured methane concentrations at the vent trench would pose a health or safety hazard to on-site personnel or nearby residents. The Lower Explosion Limit (LEL) for methane is in excess 50,000 ppm.

One-liter tedlar bag samples were collected at five well casings (nos. 11, 13, 17, 18, and 19) and the New Street Pump Station. The purpose of this analysis was to determine the proportion of methane in the gases at these locations. The results are summarized in Table 3. Well 13 was the only well casing exhibiting detectable levels of methane. The percentage of methane in Well 13 is significant (28%) and poses a potential safety hazard. Methane from the well is likely to flare up if ignited. We recommend that a safety lock and cap be installed at Well 13 to prevent accidental injury. There is no danger of explosion because the methane levels are too low. Historically, Well 13 has exhibited detectable levels of methane -- both in the well casing, as well as the vent trench near the well casing. Haley and Aldrich has posed the possibility that dumping may have taken place outside of the vent trench in the vicinity of Well 13, and has recommended additional field investigations in this area. Because this area of the dump appears to produce the greatest amounts of methane, it will continue to be the focus of future monitoring efforts.

Finally, the non-methane component of the gas at the New Street Pump Station was also analyzed to determine whether any volatile organics were present. Concerns about potential health hazards arose during the Phase II sampling program when volatile organics were detected in the water quality samples. Vinyl chloride, toluene, and chlorobenzene were detected at concentrations less than 10 ppb. To evaluate whether volatile organics

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were present in the ambient air at the New Street Pump Station, and to determine whether a health hazard existed, air quality samples were collected and analyzed. The results of this sampling, which are presented in Table 4, show that volatile organics were not detected, and thus, no health hazard exists.

The overall results of the air quality monitoring program are consistent with the Phase II findings.

RESULTS OF FRESH POND SEDIMENT SAMPLING PROGRAM

The previous Phase II sampling results revealed the presence of PCBs in the bottom sediments of Fresh Pond based on the one sample that was collected. Although the concentration of the PCB found (5 ppm) does not pose a health hazard, it was recommended that additional sediment samples be collected to confirm the presence of PCBs in the pond bottom, and to provide a better understanding of what effects the urban environment is having on the pond.

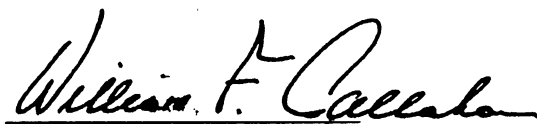
Five composited sediment samples were collected during this effort at various locations around Fresh Pond, as shown in Figure 2. No PCB contamination was detected at any of the locations. This suggests that the PCB detected during the Phase II monitoring program was an isolated case, and not an indication of widespread contamination. The results are appended.

The results of this effort are consistent with our previous findings. In this sampling effort, however, five sediment samples taken from the bottom of Fresh Pond showed no PCBs to be present. In addition, significant concentrations of methane were detected at Well 13. A safety cap should be installed at this well to prevent accidental injury caused by ignition of the gas. We conclude that the Cambridge Dump poses no significant environmental or health-related threat. As a precaution, we recommend that monitoring of the site continue so as to observe any significant changes from present conditions.

We look forward to meeting with you to discuss our results. Please call us if you have any questions, or require additional information.

Sincerely,

CAMP DRESSER & MCKEE, INC.



William F. Callahan
Senior Vice President

WFC:ls

TABLE 1
RESULTS OF GROUNDWATER LEVEL MONITORING
NOVEMBER 20, 1985

<u>Well No.</u>	<u>November 20, 1985 Groundwater Level Feet Above MSL</u>	<u>October 1983 Groundwater Level Feet Above MSL</u>
W11	17.75	15.28
W18	16.70	15.90
W17	17.0	16.55
W13	12.9	11.60
C2	16.1	15.37
C6	18.4	15.77
1(deep)	16.5	16.36
1(shallow)	15.9	14.98
C4	23.7	-
C3	16.6	15.34
C5	16.5	14.91

TABLE 2
RESULTS OF COMBUSTIBLE GAS
MONITORING - NOVEMBER 20, 1985

<u>Observation Point</u>	<u>Total Hydrocarbons (1) (Including Methane) In ppm</u>	<u>Hydrocarbons (2) (Not Including Methane) In ppm</u>
1	400-1000	0
W19	30	0
W11	50	7
2	10-50	1
W18	10-40	0
W17	10	2-3
3	90-100	0
4	90-100	0
5	50-70	0
6	100-200	0
7	60-100	0
8	40-100	0
9	30-60	0
10	10	0
11	10	0
12	10	0
W13	>1000	0
13	40	0
14	100	0
15	90	0
16	20	0
W19	30	0

NOTES: (1) From OVA Measurements.
(2) From HNU Measurements.

All reported values are ground level readings.
OVA zeroed at 10 ppm.
HNU zeroed at 0 ppm.

TABLE 3
SUMMARY OF BAG SAMPLING RESULTS

<u>Sample No.</u>	<u>Sample Location</u>	<u>% Methane</u>
NSD-V0-W13-001	Well 13	28
NSD-V0-W19-002	Well 19	<1
NSD-V0-W11-003	Well 11	ND*
NSD-V0-W17-004	Well 17	ND
NSD-V0-W18-005	Well 18	ND
NSD-V0-PS-008	Pump Station	ND

* Not detected at detection limit of 0% methane.

TABLE 4
SUMMARY OF VOLATILE ORGANICS SAMPLES
AT NEW STREET PUMP STATION
CAMBRIDGE, MASSACHUSETTS

<u>Sample Identification</u>	<u>Flowrate (L/min.)</u>	<u>Sample Time (min.)</u>	<u>Volume Collected (L)</u>	<u>Volatile Organics (ppm)</u>
NSD-V0-PS-006	0.366	120	43.9	<DL
NSD-V0-PS-007	0.161	120	19.3	<DL
NSD-V0-PS-008 (Field Blank)	NA	NA	NA	<DL

DL = Detection limit of 11 ppb.

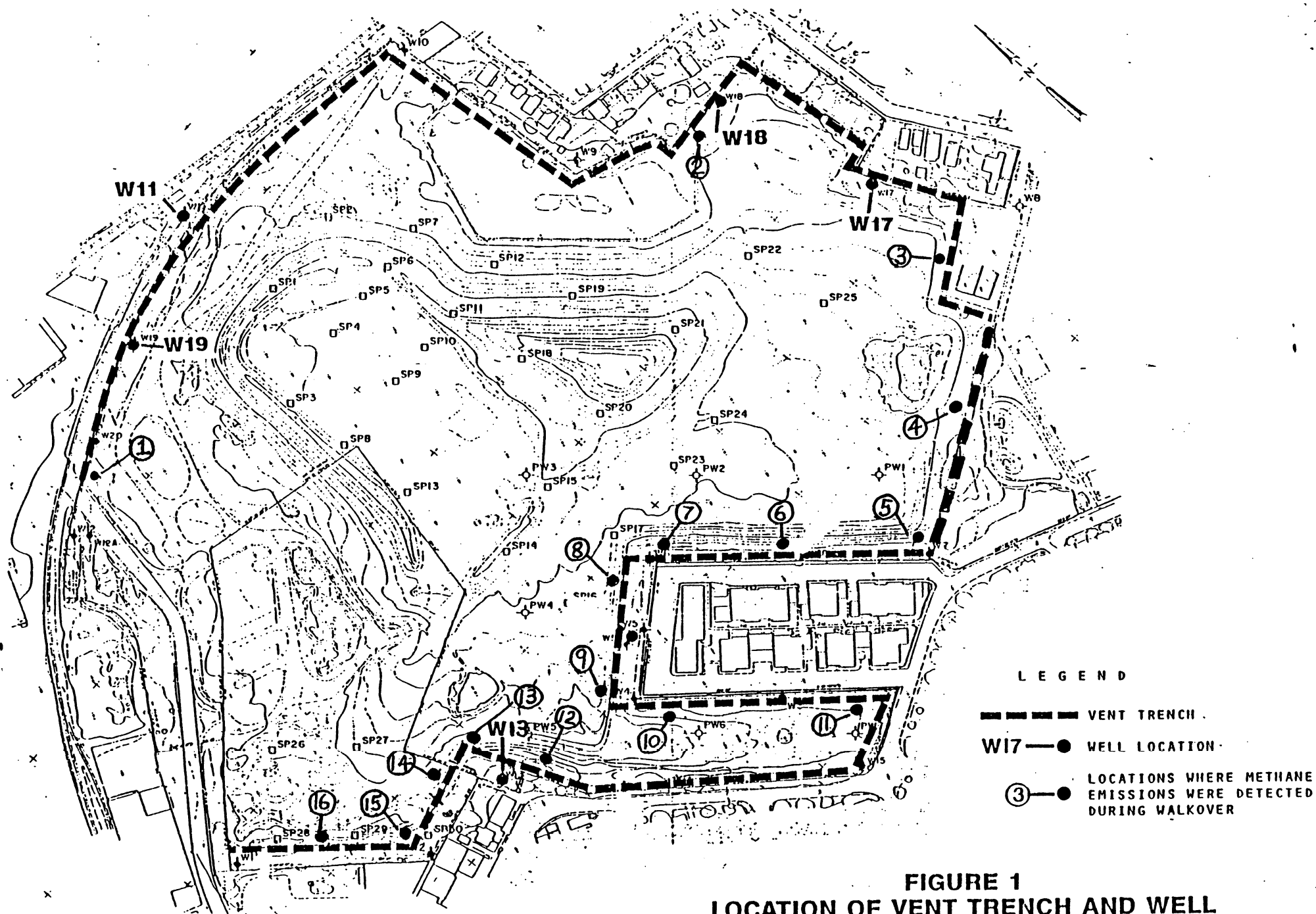
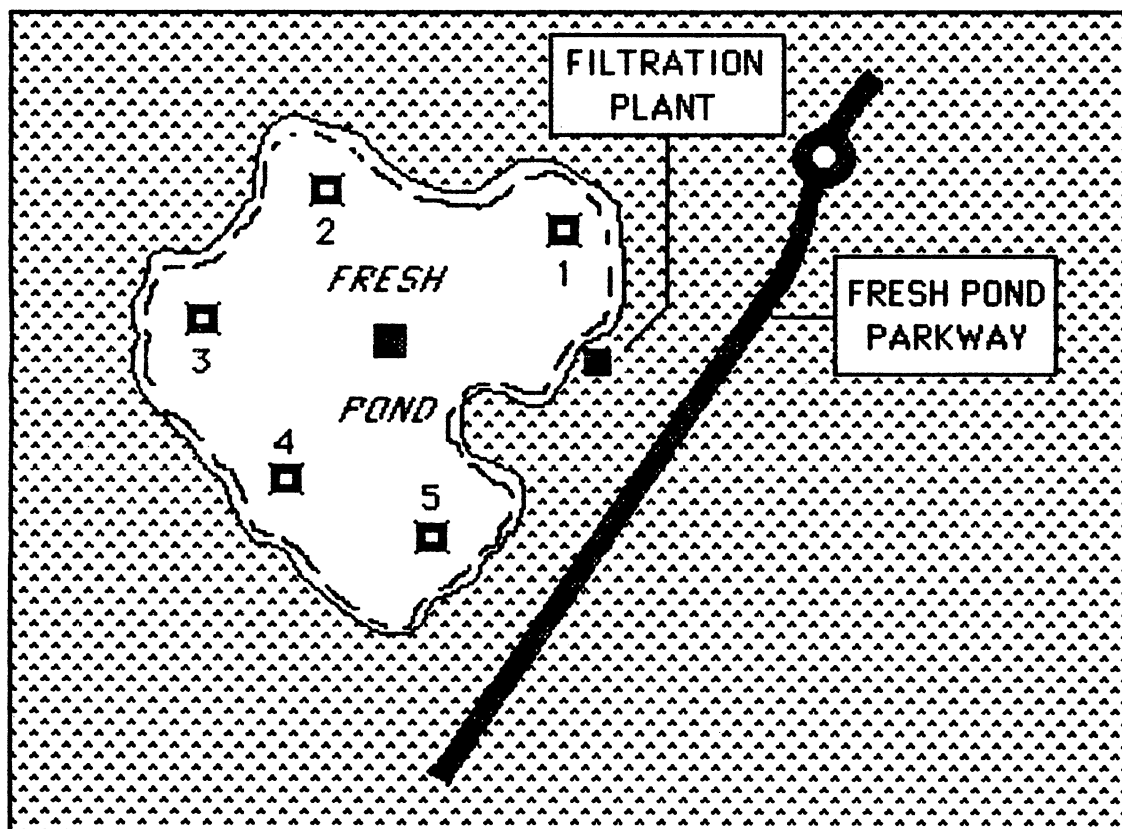


FIGURE 1
LOCATION OF VENT TRENCH AND WELL
CASING SAMPLING LOCATIONS



LEGEND

- LOCATION WHERE PCB WAS DETECTED IN PHASE II PROGRAM
- LOCATION OF SEDIMENT SAMPLE COLLECTED DURING THIS EFFORT

FIGURE 2
LOCATION OF ADDITIONAL SEDIMENT
SAMPLES AT FRESH POND



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20 DECEMBER 1985

FILE NO: 9955-182

LAB NOS: 17547-51

CERTIFICATE OF LABORATORY ANALYSIS

PROJECT: CAMBRIDGE, MA

REPORT TO: DAVID NOONAN
CDM/BOSTON
RE: 139-114-CG-AIR

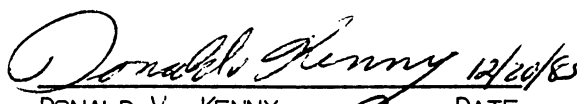
DATE SAMPLES RECEIVED: 10 DECEMBER 1985

DATE SAMPLES COLLECTED: 9 DECEMBER 1985 BY J.ZUPKUS/CDM

ANALYTICAL METHODS: SAMPLES ANALYZED FOR PCB'S IN ACCORDANCE WITH
TEST METHODS FOR EVALUATING SOILD WASTE - PHYSICAL/
CHEMICAL METHODS, EPA SW-846, JULY 1982.

ANALYTICAL RESULTS: ALL VALUES REPORTED AS MG/KG

<u>CDM LAB No.</u>	<u>DESCRIPTION</u>	<u>PCB, MG/KG</u>
17547	STATION #1	<5
17548	STATION #2	<5
17549	STATION #3	<5
17550	STATION #4	<5
17551	STATION #5	<5


DONALD V. KENNY
PROJECT CHEMIST

DATE


RALPH J. TELLA
LABORATORY SUPERVISOR

DATE

DVK,RJT/EK



CITY OF CAMBRIDGE

CAMBRIDGE, MASSACHUSETTS 02139
TEL. 498-9011

EXECUTIVE DEPARTMENT
ROBERT W. HEALY
City Manager

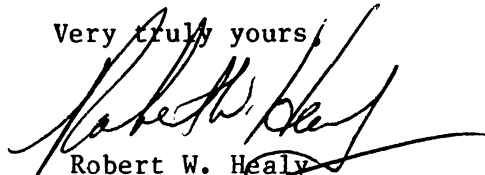
RICHARD C. ROSSI
Deputy City Manager

March 24, 1986

To the Honorable, the City Council:

In response to City Council Order No. 8 of February 24, 1986, I submit the attached update from Camp Dresser & McKee regarding monitoring of the New Street dump site. The City Council's Environment Committee will have an opportunity to discuss this report with the consultants at the next committee meeting to be held on Tuesday, March 25, 1986.

Very truly yours,



Robert W. Healy
City Manager

Re: enclosed update from Camp Dresser &
McKee on monitoring of the New Street dump
site.

In City Council,

March 24, 1986

CW
MS
PK Referred to Committee
on Environment

copy sent to Counsellor Wolf,
Chair, Committee on Environment
3/28/86 mk