June 25, 2003

Mr. Jeffrey P. Crawford
Principal Environmental Scientist
Office of Waste Management
RIDEM
235 Promenade Street
Providence, RI 02908-5767

Subject: Springfield Street School Carbon Monoxide Investigation Comments
Case # 99-018

Dear Mr. Crawford:

We are submitting this letter in response to your letter to Mr. Alan Sepe dated June 16, 2003. In the letter, you asked for additional explanation of the March 2003 monitoring results when concentrations of carbon monoxide were detected above the action level of 9 ppm set forth in the Remedial Action Work Plan. The subsequent additional monitoring of the schools and ambient air did not reveal exceedances of the action levels.

During the March monitoring event, carbon monoxide concentrations were measured using a Landtec GA-90 rented from US Environmental Rental Corporation. The Landtec GA-90 is a monitoring instrument designed for landfill gas monitoring. A copy of a calibration sheet indicating that the unit was calibrated to a 52 ppm standard for carbon monoxide is attached. Sensors for methane, carbon dioxide, and oxygen are built into the instrument. Carbon monoxide and hydrogen sulfide are measured using analyte specific sensor pods that attach to an auxiliary port on the instrument. These pods were interchanged at each location to obtain readings for five parameters being monitored at the site. Because the pods have to be interchanged at each location, the instrument has to be allowed to run for a period of time after each measurement to allow the internal pump to flush clean air through the pods after each measurement.

The attached figure illustrates the spatial distribution of the carbon monoxide readings collected during the March monitoring. Monitoring began on the southern end of the site and proceeded toward the north and counterclockwise around the site. Indoor monitoring was completed after the exterior monitoring. The monitoring did not detect any hotspots. The readings appeared to be fairly consistent, with slightly higher readings on the northern end of the site.

Possible sources of error in the carbon monoxide measurements include the following:

- Insufficient flushing of the pod between measurements

- The instrument was calibrated for a concentration more than 5 times the expected concentration.

- Malfunction of the pod.

- Drift in the zero setting of the instrument during use.

On April 24 and 25 we used a Metrosonics aq-5000 Indoor Air Quality Monitor to conduct additional investigation in response to the exceedance of the action level for carbon monoxide. The investigation focussed on indoor air quality and possible sources of elevated carbon monoxide concentrations. The Metrosonic aq-5000 is designed for indoor air investigations and has the capability of logging readings throughout a programmed time period to obtain time weighted average concentrations as well as maximum and minimum concentrations. This meter was chosen because it is specifically designed for indoor air investigations, and it is designed for measuring concentrations in the range normally encountered in indoor air. The probe for this unit did not allow for it to be attached to the soil gas wells to collect readings from the wells. We used several similar meters for this investigation and obtained consistent readings throughout the site during this investigation. Results of this monitoring found that all time weighted average concentrations were nearly zero, but some short term readings exceeded the action level.

It is difficult to compare the results of two different rounds of monitoring conducted at different times to determine the reasons for the differences in results. Actual concentrations can vary due to seasonal influences or changes in site conditions.

For the next round of monitoring, we propose to use two meters to measure carbon monoxide as a quality control check. We will use the Landtec GA-90 and a Drager 4 gas meter or equivalent. We will record and report carbon monoxide concentrations at each location using both instruments. We will also collect a sample from one location to submit for laboratory analysis for carbon monoxide as another comparison to the meter readings. The duplicate readings will be conducted at all indoor and soil gas locations. All results will be submitted to RIDEM after the next round of monitoring is complete, along with our explanation of the results.

The next round of monitoring is scheduled for the week of July 14, 2003. Please contact me if you have any questions.

Sincerely,

Donna H. Pallister, P.E.
Senior Engineer

CC: A. Sepe, City of Providence
R. Troiano, PPBA
M. Dunham, Providence School Department

50 Sun Street
Waltham, MA 02453
Ph: (781) 899-1560
Fax: (781) 899-1561

US Environmental Rental Corporation

Packing List
LANDTEC – Models GEM 500, GA 90

Enclosed is a comprehensive packing list that you can use to document the receipt and return of your rental equipment.

	Out	Received	Returned
1. LANDTEC MODEL GA-90 SERIAL # G1166	✓		
2. Charger 110V	✓		
3. 12V Charger / Adapter	✓		
4. Hydrophobic filters	✓		
5. Sample Line	✓		
6. Owners Manual & ~~Software~~	✓		
7. Comm Cable + Adapter	X		
8. H2S Pod SERIAL # 02	✓		
9. CO Pod SERIAL # 11	✓		
10. Temperature Probe	X		

Calibrated with 15 % CH4, 15 % CO2, 25 PPM H2S, 52 PPM CO, 20.9 % O2.

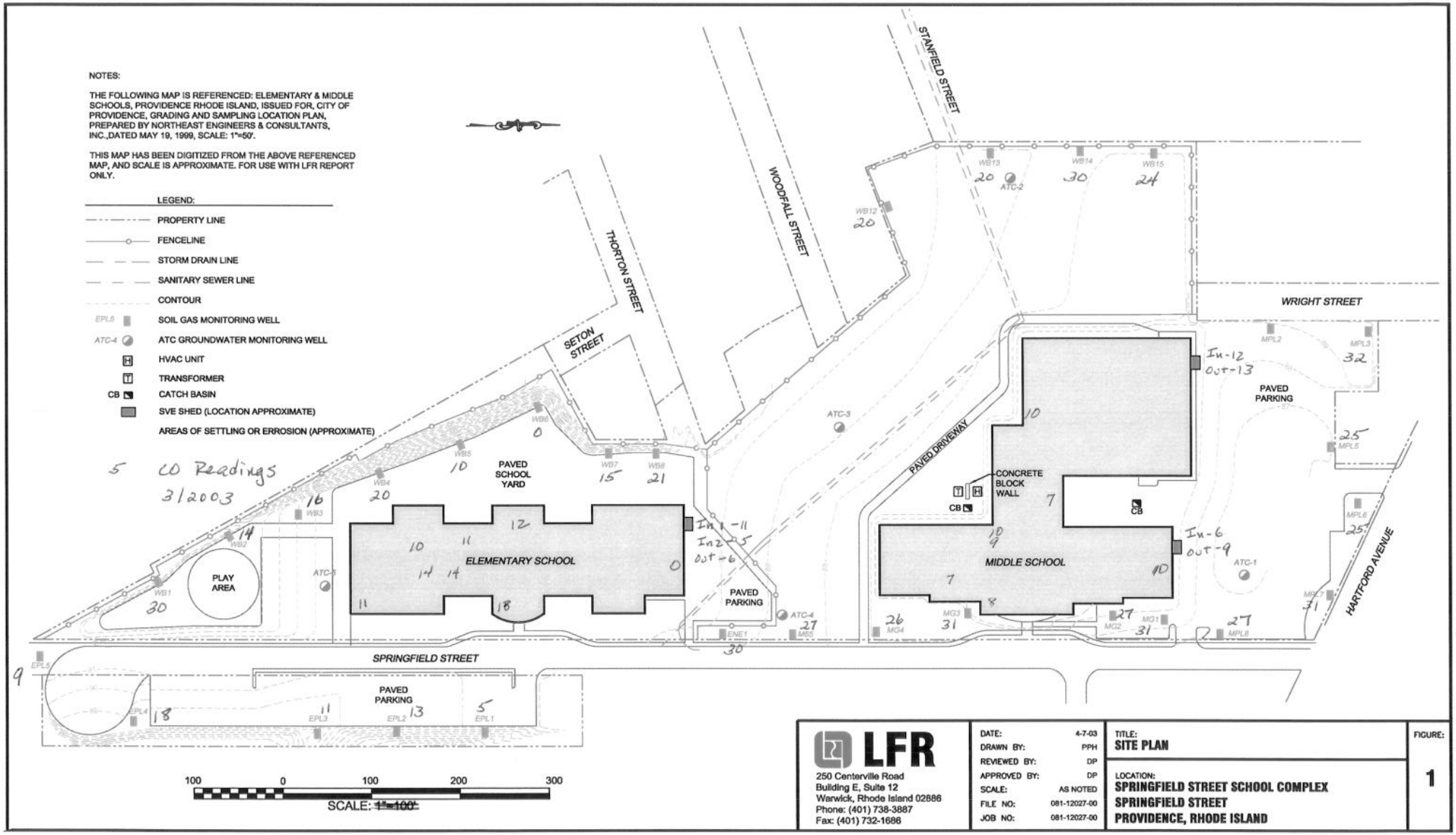
Be sure to verify receipt, and return all units and accessories. Missing components will be billed at the manufacturers list price plus freight.

Please contact us if there are any missing accessories at (781) 899-1560.

Thank you,

US Environmental Rental Corporation

Date: 2/27 Rep: LHO



LFR
250 Centerville Road
Building E, Suite 12
Warwick, Rhode Island 02886
Phone: (401) 738-3887
Fax: (401) 732-1686

DATE:	4-7-03
DRAWN BY:	PPH
REVIEWED BY:	DP
APPROVED BY:	DP
SCALE:	AS NOTED
FILE NO:	081-12027-00
JOB NO:	081-12027-00

TITLE: **SITE PLAN**

LOCATION:
SPRINGFIELD STREET SCHOOL COMPLEX
SPRINGFIELD STREET
PROVIDENCE, RHODE ISLAND

FIGURE: **1**

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