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LABORATORIES

Environmental Scientists and Engineers
"Protecting People and the Environment"

NOV 14 2001

November 16, 2001

Gary Martin, Director of Facilities
Westport Public Schools
110 Myrtle Avenue
Westport, CT 06880

Dear Mr. Martin:

A limited indoor air quality study was conducted at Kings Highway Elementary School. The study consisted of continuous measurement of carbon dioxide concentration, temperature, and relative humidity for three selected rooms using a TSI Incorporated Q-Track monitor model 8550. The results can be used to evaluate the performance of the room's environmental controls.

Carbon dioxide concentration is an indicator of whether or not the exchange between indoor and outdoor air is sufficient to keep up with the respiratory load and body emissions of the occupants. Standard air is considered to contain 300 ppm at sea level and as much as 600 ppm in cities. The recommended ventilation guideline is 1000 ppm. Carbon dioxide is not a toxic gas, but can depress respiration above 25,000 ppm. OSHA permits 10,000 ppm in work environments where carbon dioxide is used. Air exhaled by people is typically 40,000 ppm. Carbon dioxide concentrations above 1000 ppm indicate conditions that cause drowsiness and unrelated symptoms, such as headache, to seem worse. Levels above 2000 indicate conditions where a significant improvement in indoor air quality can be achieved by improved ventilation. Levels from 1000 to 2000 indicate increasing improvements in air quality with increased ventilation. A graph labeled "CO₂, ppm" on the left axis is enclosed for each room tested. (Note on reading graphs: The time marked only with a date is midnight. Noon is half-way between each date marker). Some statistics for each room are presented in the table below. The results should be correlated with occupancy and ventilator settings for complete interpretation, but in general, increased fresh air would improve indoor air quality in room 206 and the Music Room, but not room 33.

CO₂ Statistics
9AM - 3PM time period
(ppm)

Room	Date	Average	Low	High	% time above 1000
206	11/7/01	1723	850	2371	90%
206	11/8/01	1751	760	2375	95%
Music	11/9/01	2481	998	3974	98%
33	11/12/01	859	610	1046	15%
33	11/13/01	836	529	1208	20%
33	11/14/01	700	514	1010	3%
33	11/15/01	743	522	987	0%
33	11/16/01	658	503	894	0%

Norwalk Office: 9 Isaac Street ▼ Norwalk, Connecticut 06850 ▼ 203.853.9792 ▼ CT Wats: 800.843.1631 ▼ Fax: 203.853.0273

New Haven Office: 120 Forbes Avenue ▼ New Haven, CT 06512 ▼ 203.466.3579 ▼ CT Wats: 877.684.LABS (5227) ▼ Fax: 203.466.3583

New York Office: P.O. Box 904 ▼ Mahopac, New York 10541 ▼ 845.628.8324 ▼ Fax: 845.628.8056

E-Mail: brookslabs@aol.com ▼ Web Site: www.brookslabs.com

Temperature is a general comfort factor for indoor air quality. Individual response is highly subjective and depends on many other factors. A graph labeled "Temp, deg F" on the left axis is enclosed for each room tested. (Note on reading graphs: The time marked only with a date is midnight. Noon is half-way between each date marker). Some statistics for each room are presented in the table below.

Temperature Statistics
9AM - 3PM time period
 (degrees Fahrenheit)

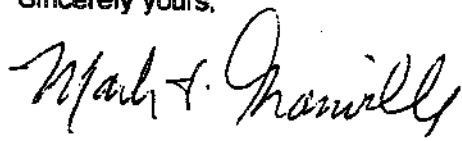
Room	Date	Average	Low	High
206	11/7/01	71.6	69.9	73.2
206	11/8/01	71.9	69.6	74.3
Music	11/9/01	70.5	64.4	74.1
33	11/12/01	72.8	71.7	75.1
33	11/13/01	72.4	70.6	74.8
33	11/14/01	72.0	69.8	74.0
33	11/15/01	71.6	68.8	74.1
33	11/16/01	72.8	68.6	76.1

Relative humidity is also a general comfort factor for indoor air quality. Individual response is highly subjective and depends on many other factors. Relative humidity above 70% is considered high and below 20% is considered dry. A graph labeled "rh, %" on the left axis is enclosed for each room tested. (Note on reading graphs: The time marked only with a date is midnight. Noon is half-way between each date marker). Some statistics for each room are presented in the table below.

Relative Humidity Statistics
9AM - 3PM time period
 (%)

Room	Date	Average	Low	High
206	11/7/01	34.0	27.1	36.9
206	11/8/01	33.5	29.2	36.6
Music	11/9/01	47.0	44.9	51.1
33	11/12/01	23.4	21.0	24.6
33	11/13/01	25.3	21.9	27.9
33	11/14/01	31.0	27.0	33.6
33	11/15/01	38.6	34.0	41.3
33	11/16/01	37.3	33.1	39.1

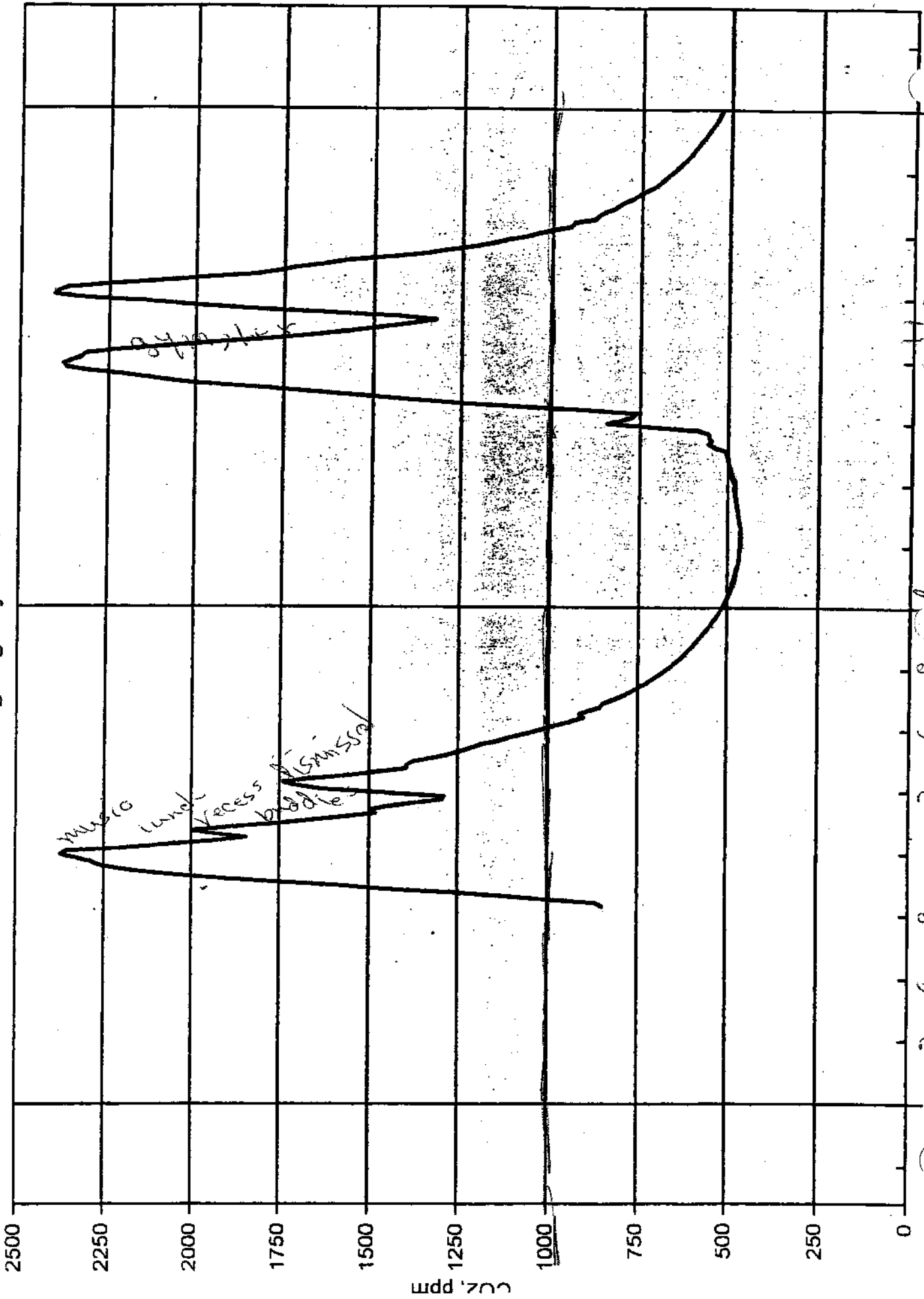
Sincerely yours,

A handwritten signature in black ink, reading "Mark F. Granville". The signature is written in a cursive, flowing style.

Mark F. Granville
Lab Director, New Haven

enclosures
BL# 21071

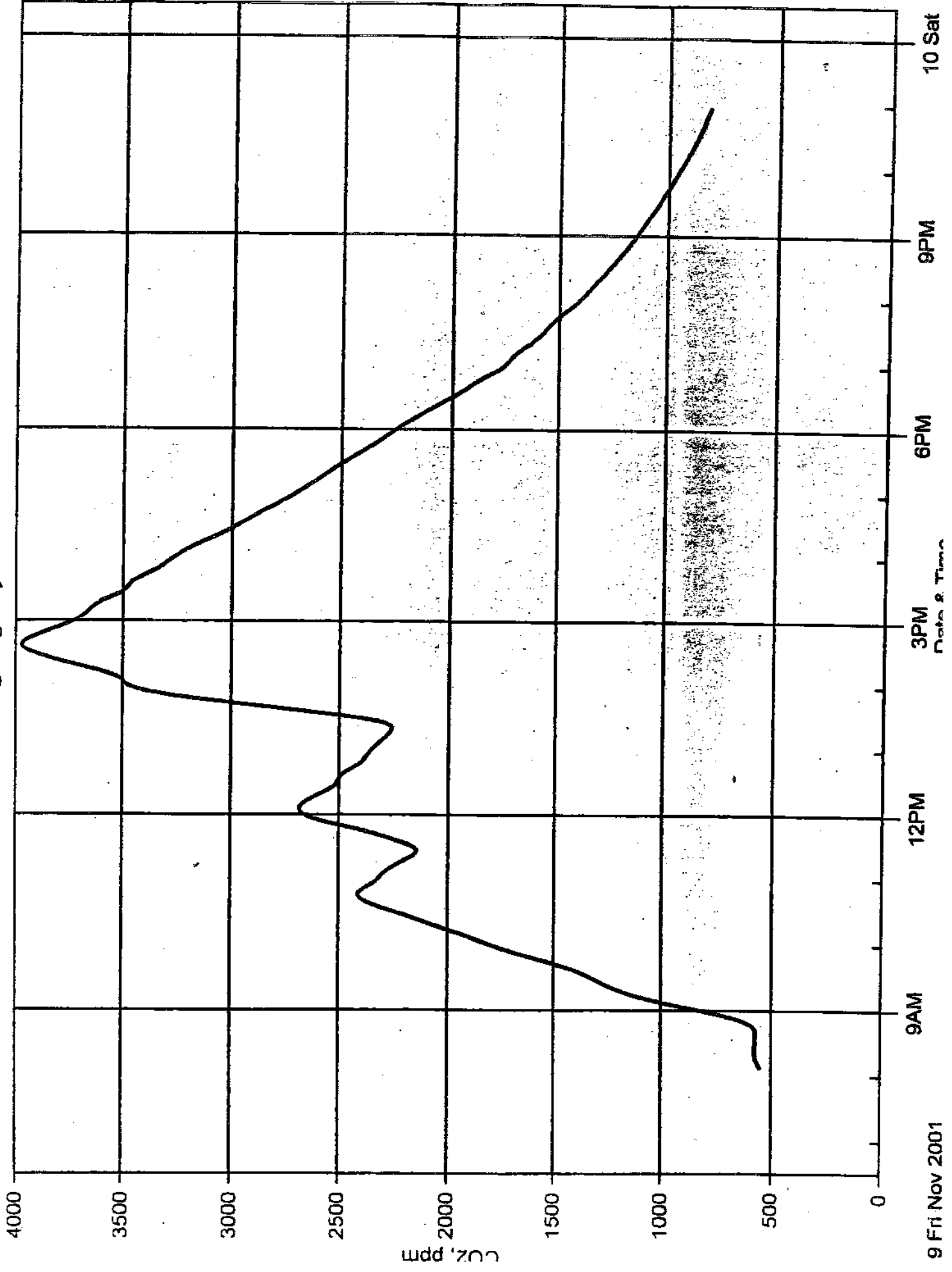
Room 206
Kings Highway School



Nov 2001 7 Wed night 3 6 9 Nov 3 6 9 123 9 Fri

Musi Room

Kings Highway School



9 Fri Nov 2001

9AM

12PM

3PM

6PM

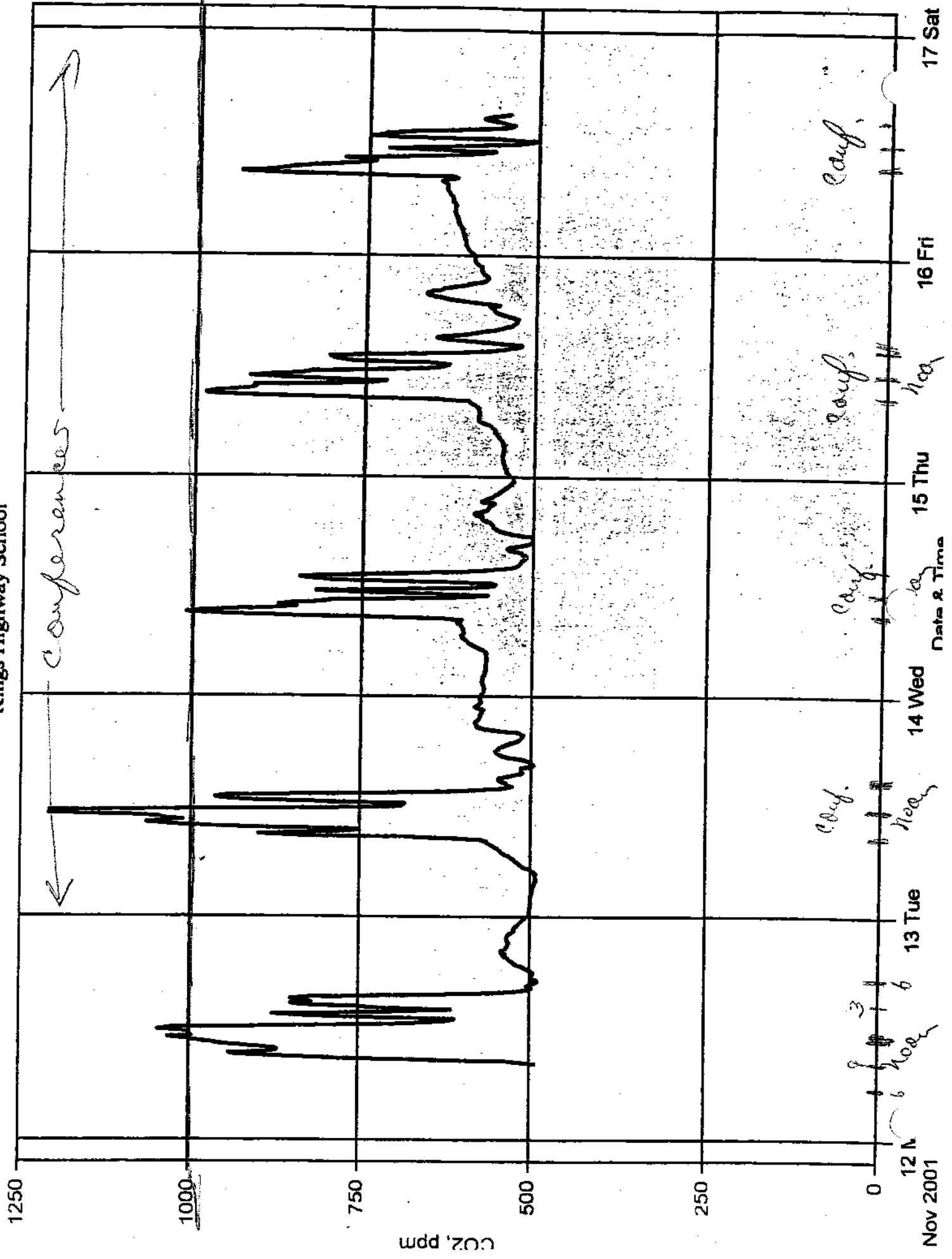
9PM

10 Sat

Date & Time

Room 33

Kings Highway School



Music Room
Kings Highway School

