APPENDIX 4.23
Calibration Logs

Calibration Log Sheet (2004)

Equipment: GEM | Type: 500 | Serial #: 356

Date 2004	4-23	4-28	5-3	5-14	5-19	5-21	5-26	6-3	6-7	6-15	6-23	6-30	7-14
Time	12:06	9:18	1:35	1:10	3:02	8:58	10:57	3:10	11:30	3:06	3:18	3:28	3:49
Initials	DP	DP	DP	DP	DP	DP	DP	DP	DP	DP	DP	DP	DP
Status Check	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Calibration Gas Values													
Methane (CH4) 15% vol	15%	15%	15	15	15	15	15	15%	15%	15%	15%	15%	15%
Carbon Dioxide (CO2) 15% vol	15%	15%	15	15	15	15	15	15%	15%	15%	15%	15%	15%
Oxygen (O2) 4% vol	4%	4%	4	4	4	4	4	4%	4%	4%	4%	4%	4%
Methane (CH4) 39.66 % vol													
Carbon Dioxide (CO2) 40.30 % vol													
Oxygen (O2) 02.00% vol													
Reading Before Calibration													
Ambient (HC)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Gas Select	CH4,02	CH4/02	CH4/02	CH4/02	CH4/02	CH4/02	CH4/02	CH4/02	CH4/02	CH4/02	CH4/02	CH4/02	CH4/02
Methane (CH4) 15% vol	14.6	15.2	14.6	14.9	14.2	14.7	15.4	14.6	15.6%	10.0	15.4	14.7	15%
Carbon Dioxide (CO2) 15% vol	14.8	14.6	14.8	14.7	14.6	14.7	15.3	15%	15.1%	15.2	16.0	14.6	14.9%
Oxygen (O2) 4% vol	4.1	4.3	4.1	3.9	4.1	3.9	4%	4%	4.1%	3.8	3.3	4%	3.7%
Methane (CH4) 39.66 % vol													
Carbon Dioxide (CO2) 40.30 % vol													
Oxygen (O2) 02.00% vol													
Reading After Calibration													
Ambient (HC)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Gas Select	CH4/02	CH4/02	CH4/02	CH4/02	CH4/02	CH4/02	CH4/02	CH4/02	CH4/02	CH4/02	CH4/02	CH4/02	CH4/02
Methane (CH4) 15% vol	15%	15%	15%	15	15	15	15%	15%	15%	15%	15%	15%	15%
Carbon Dioxide (CO2) 15% vol	15%	15%	15%	15	15	15	15%	15%	15%	15%	15%	15%	15%
Oxygen (O2) 4% vol	4%	4%	4%	4	4	4	4%	4%	4%	4%	4%	4%	4%
Methane (CH4) 39.66 % vol													
Carbon Dioxide (CO2) 40.30 % vol													
Oxygen (O2) 02.00% vol													

(A status check requires a quick examination of the over-all condition of the equipment.)

SCS Engineers 3711 Long Beach Blvd 9th Floor Long Beach CA 90807 Phone (562) 426-9544 Fax (562) 427-0805 (Prepared By: Drew Priolo)

Pressure Transducer Calibration

Pressure transducers used in the tidal analysis were initially setup in each well so that the internal data loggers would report the weight of the water column above it in terms of depth of water below the top of well casing. This was done by measuring the depth of water below the top of each wells casing (by the same interface probe) and entering this value into the transducer setup procedures prior to the start of data collection. These initial and subsequent measurements with the interface probe during the transducer data collection process calibrated the measurements to a known real world value (depth to water below top of casing).

Environmental Consultants

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SCS ENGINEERS

INSTRUMENT MODEL Horiba U22XD SERIAL NUMBER T003031

COMPANY NAME SCS Engineers CONTACT PERSON K. Etchells
PHONE NUMBER

RENTAL PERIOD FROM: N/A TO: N/A

HORIBA U-10 WATER QUALITY CHECKER

- ☐ READOUT
- ☐ PROBE
- ☐ INSTRUCTION MANUAL
- ☐ STND. SOLUTION (100-4)
- ☐ REFERENCE SOLUTION
- ☐ CALIBRATION BEAKER
- ☐ CARRYING CASE
- ☐ CARRYING STRAP
- ☐ D.O. SENSOR TOOL
- ☐ ESS LABELS
- ☐ 9 V BATTERY
- ☐ FLOW THRU CELL
- ☐ _____
- ☐ _____
- ☐ Ph READING _____
- ☐ TEMP. READING _____
- ☐ COND. READING _____
- ☐ D.O. READING _____
- ☐ TURB. READING _____
- ☐ _____
- ☐ _____

HORIBA U-22 WATER QUALITY CHECKER

- ☐ READOUT
- ☐ PROBE
- ☐ INSTRUCTION MANUAL
- ☐ STND. SOLUTION (100-4)
- ☐ REFERENCE SOLUTION
- ☐ CALIBRATION BEAKER
- ☐ CARRYING CASE
- ☐ CARRYING STRAP
- ☐ D.O. SENSOR TOOL
- ☐ ESS LABELS
- ☐ 9 V BATTERY
- ☐ AAA BATTERY
- ☐ FLOW THRU CELL
- ☐ _____
- ☑ Ph READING 4.01
- ☑ TEMP. READING 22.8°C
- ☑ COND. READING 0.447
- ☑ D.O. READING 8.52
- ☑ TURB. READING 0.0
- ☑ ORP READING 279
- ☑ TDS READING 2.87

INSTRUMENT INSPECTED BY: K. Etchells VERIFIED BY: _____
TODAY'S DATE: 10/10/04 CALIBRATION SOLUTION: AUTO CAL
INSTRUMENT READINGS: SEE ABOVE
COMMENTS: No errors observed

Environmental Consultants

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SCS ENGINEERS

INSTRUMENT MODEL Horiba U22XD SERIAL NUMBER T0030031

COMPANY NAME SCS Engineers CONTACT PERSON K. Etchells
PHONE NUMBER

RENTAL PERIOD FROM: N/A TO: N/A

HORIBA U-10 WATER QUALITY CHECKER

☐ READOUT	☐ CARRYING STRAP	☐ Ph READING
☐ PROBE	☐ D.O. SENSOR TOOL	☐ TEMP. READING
☐ INSTRUCTION MANUAL	☐ ESS LABELS	☐ COND. READING
☐ STND. SOLUTION (100-4)	☐ 9 V BATTERY	☐ D.O. READING
☐ REFERENCE SOLUTION	☐ FLOW THRU CELL	☐ TURB. READING
☐ CALIBRATION BEAKER	☐	☐
☐ CARRYING CASE	☐	☐

HORIBA U-22 WATER QUALITY CHECKER

☐ READOUT	☐ CARRYING STRAP	☑ Ph READING 3.99
☐ PROBE	☐ D.O. SENSOR TOOL	☑ TEMP. READING 23.2°C
☐ INSTRUCTION MANUAL	☐ ESS LABELS	☑ COND. READING 0.431
☐ STND. SOLUTION (100-4)	☐ 9 V BATTERY	☑ D.O. READING 8.63
☐ REFERENCE SOLUTION	☐ AAA BATTERY	☑ TURB. READING 0.0
☐ CALIBRATION BEAKER	☐ FLOW THRU CELL	☑ ORP READING 280
☐ CARRYING CASE	☐	☑ TDS READING 2.83

INSTRUMENT INSPECTED BY: K. Etchells VERIFIED BY:
TODAY'S DATE: 10/11/04 CALIBRATION SOLUTION: AUTO CAL
INSTRUMENT READINGS: SEE ABOVE
COMMENTS: No errors observed during bump test.

Environmental Consultants

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SCS ENGINEERS

INSTRUMENT MODEL Horiba U22XD SERIAL NUMBER T003031

COMPANY NAME SCS Engineers CONTACT PERSON K. Etchells
PHONE NUMBER

RENTAL PERIOD FROM: N/A TO: N/A

HORIBA U-10 WATER QUALITY CHECKER

☐ READOUT	☐ CARRYING STRAP	☐ Ph READING
☐ PROBE	☐ D.O. SENSOR TOOL	☐ TEMP. READING
☐ INSTRUCTION MANUAL	☐ ESS LABELS	☐ COND. READING
☐ STND. SOLUTION (100-4)	☐ 9 V BATTERY	☐ D.O. READING
☐ REFERENCE SOLUTION	☐ FLOW THRU CELL	☐ TURB. READING
☐ CALIBRATION BEAKER	☐	☐
☐ CARRYING CASE	☐	☐

HORIBA U-22 WATER QUALITY CHECKER

☐ READOUT	☐ CARRYING STRAP	☑ Ph READING 4.00
☐ PROBE	☐ D.O. SENSOR TOOL	☑ TEMP. READING 23.3°C
☐ INSTRUCTION MANUAL	☐ ESS LABELS	☑ COND. READING 0.449
☑ STND. SOLUTION (100-4)	☐ 9 V BATTERY	☑ D.O. READING 8.23
☐ REFERENCE SOLUTION	☐ AAA BATTERY	☑ TURB. READING -0.0
☐ CALIBRATION BEAKER	☑ FLOW THRU CELL	☑ ORP READING 781
☐ CARRYING CASE	☐	☑ TDS READING 2.87

INSTRUMENT INSPECTED BY: K. Etchells VERIFIED BY:
TODAY'S DATE: 11/22/04 CALIBRATION SOLUTION: AUTO CAL
INSTRUMENT READINGS: SEE ABOVE
COMMENTS: No errors observed during bump test calibration.

Environmental Consultants

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SCS ENGINEERS

INSTRUMENT MODEL Horiba U22XD SERIAL NUMBER T003031

COMPANY NAME SCS Engineers CONTACT PERSON K. Etchells
PHONE NUMBER

RENTAL PERIOD FROM: N/A TO: N/A

HORIBA U-10 WATER QUALITY CHECKER

☐	READOUT	☐	CARRYING STRAP	☐	Ph READING
☐	PROBE	☐	D.O. SENSOR TOOL	☐	TEMP. READING
☐	INSTRUCTION MANUAL	☐	ESS LABELS	☐	COND. READING
☐	STND. SOLUTION (100-4)	☐	9 V BATTERY	☐	D.O. READING
☐	REFERENCE SOLUTION	☐	FLOW THRU CELL	☐	TURB. READING
☐	CALIBRATION BEAKER	☐		☐	
☐	CARRYING CASE	☐		☐	

HORIBA U-22 WATER QUALITY CHECKER

☐	READOUT	☐	CARRYING STRAP	☑	Ph READING 4.01
☐	PROBE	☐	D.O. SENSOR TOOL	☑	TEMP. READING 22.6°C
☐	INSTRUCTION MANUAL	☐	ESS LABELS	☑	COND. READING 0.432
☑	STND. SOLUTION (100-4)	☐	9 V BATTERY	☑	D.O. READING 8.72
☐	REFERENCE SOLUTION	☐	AAA BATTERY	☑	TURB. READING 0.0
☐	CALIBRATION BEAKER	☐	FLOW THRU CELL	☑	ORP READING 281
☐	CARRYING CASE	☐		☑	TDS READING 2.7

INSTRUMENT INSPECTED BY: K. Etchells VERIFIED BY:
TODAY'S DATE: 11/23/04 CALIBRATION SOLUTION: AUTO CAL
INSTRUMENT READINGS: SEE ABOVE
COMMENTS: No errors observed during bump test calibration.

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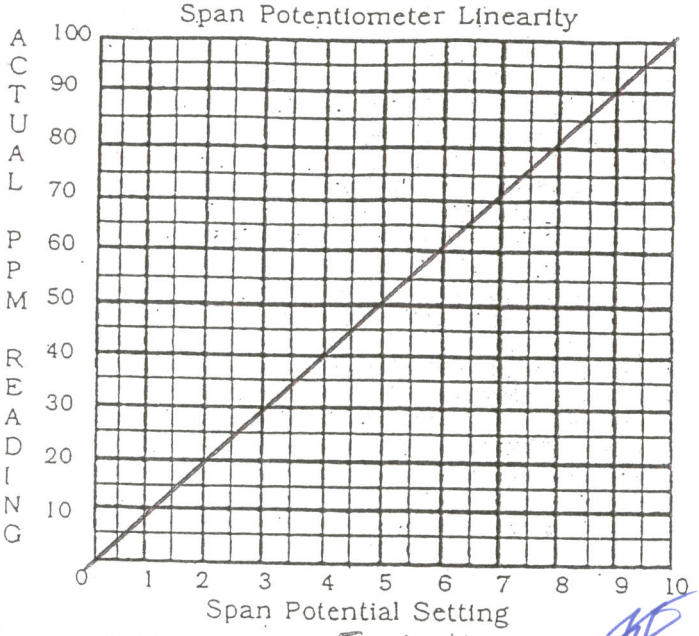
SCS ENGINEERS

Instrument Description: MiniRae Plus

Mfg. Serial #: 103614 Calibration Date: 6/15/04

Serial #: N/A Technician: KB

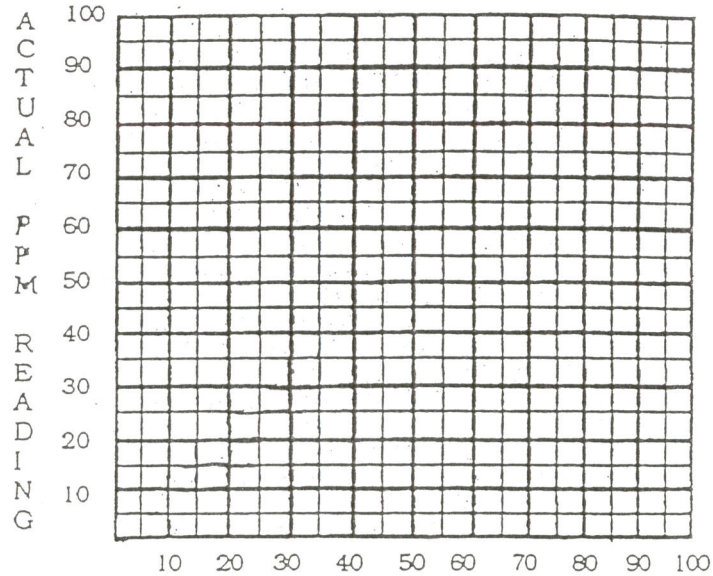
Span Potentiometer Linearity



Calibration Gas Isobutylene KB

Calibration Points 100ppm KB

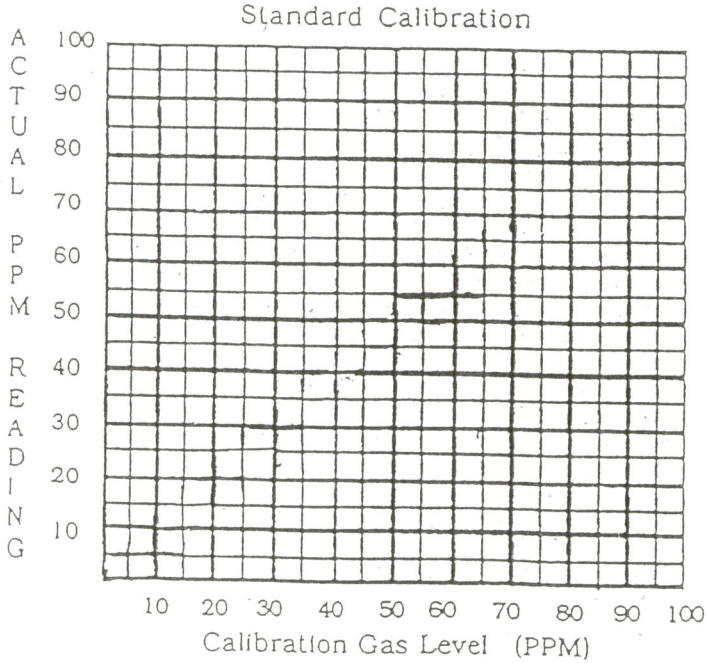
Standard Calibration



Calibration Gas

Calibration Points

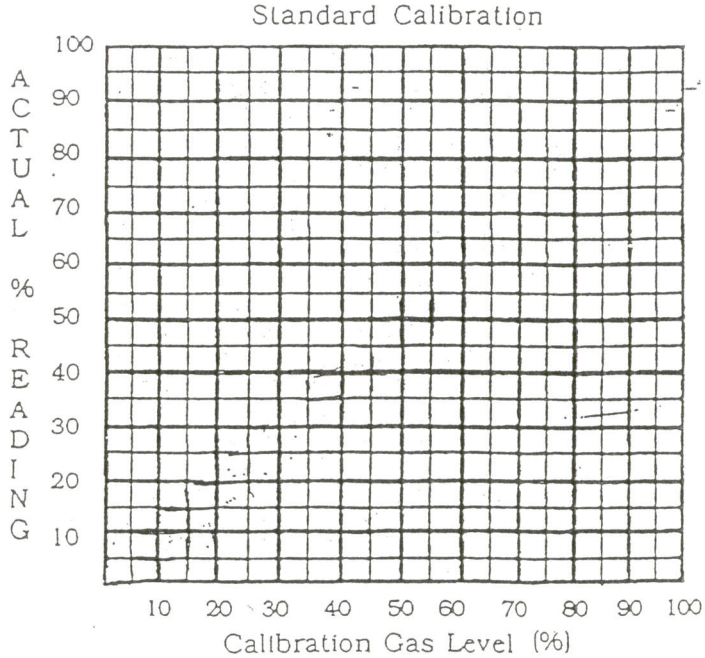
Standard Calibration



Calibration Points

Calibration Gas

Standard Calibration



Calibration Points

Calibration Gas

Environmental Consultants

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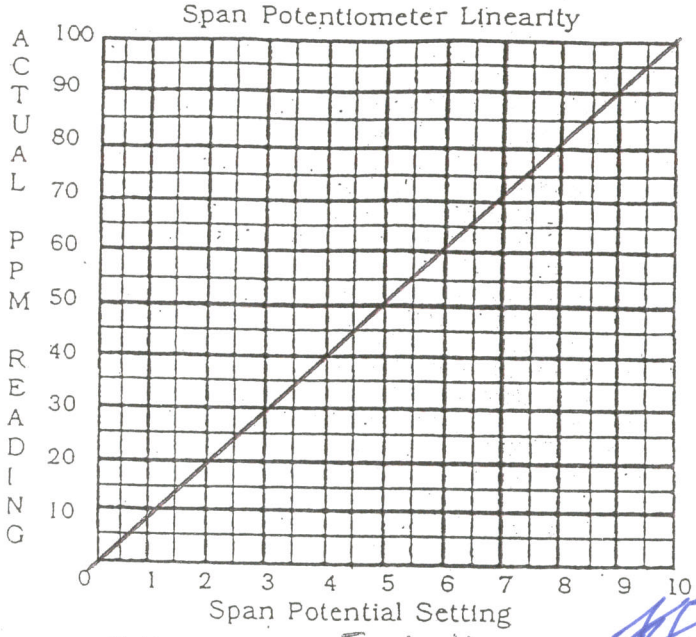
SCS ENGINEERS

Instrument Description: MiniRae Plus

Mfg. Serial #: 103614 Calibration Date: 8/6/04

Serial #: N/A Technician: RE

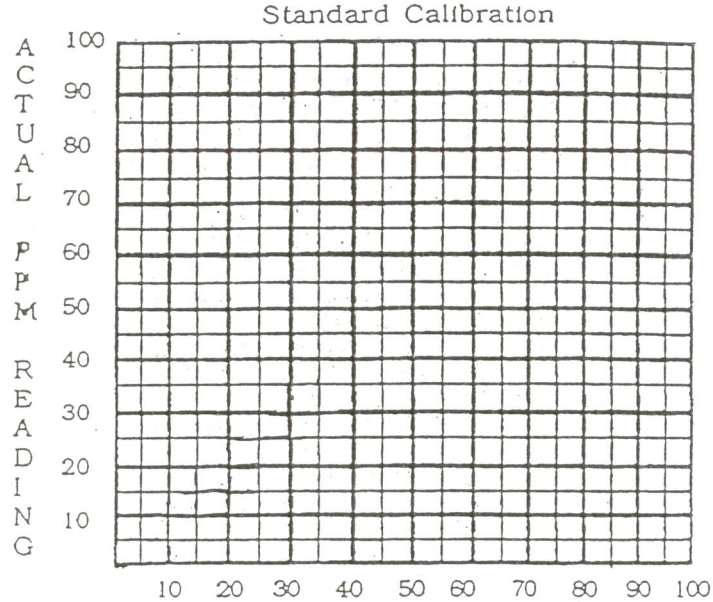
Span Potentiometer Linearity



Calibration Gas Isobutylene RE

Calibration Points 100ppm RE

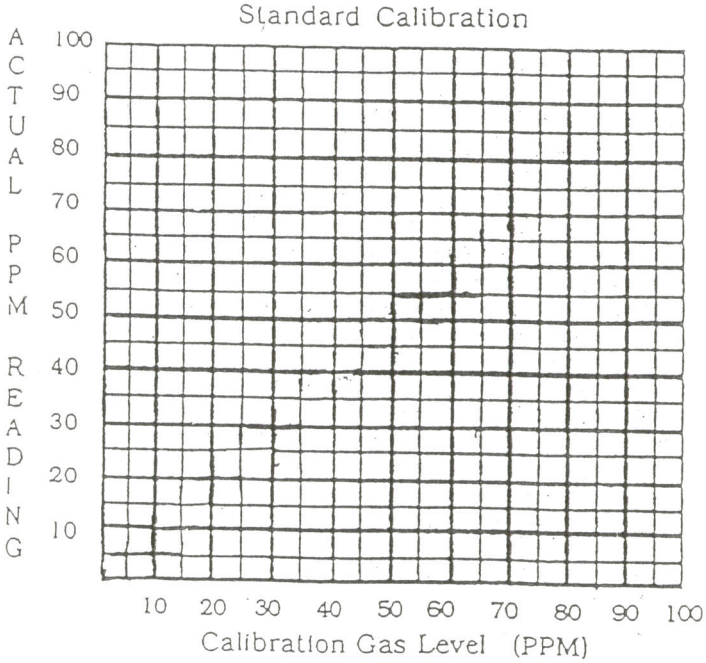
Standard Calibration



Calibration Gas

Calibration Points

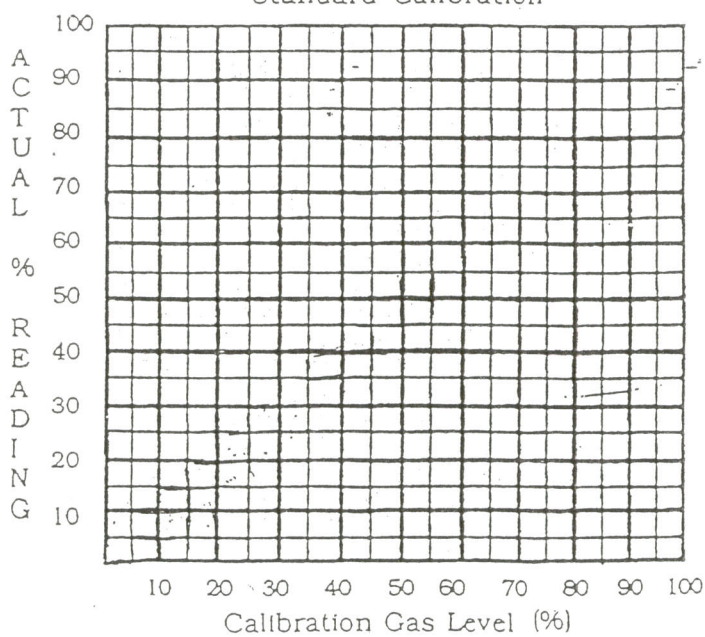
Standard Calibration



Calibration Points

Calibration Gas

Standard Calibration



Calibration Points

Calibration Gas

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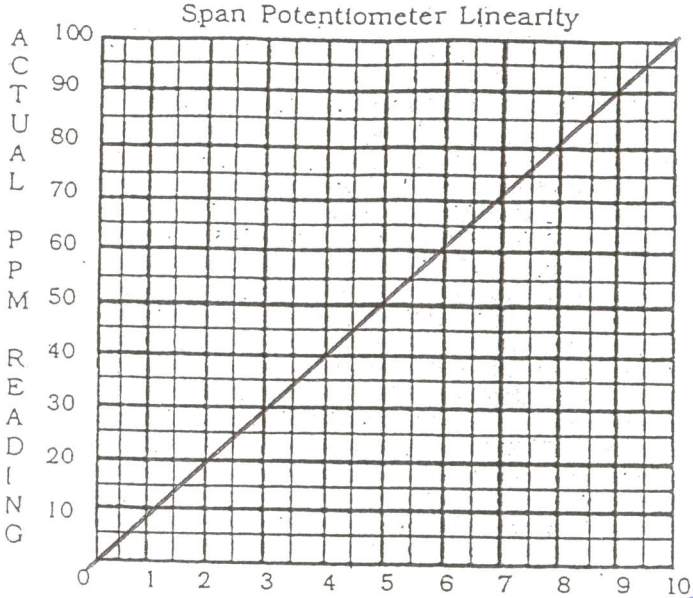
SCS ENGINEERS

Instrument Description: MiniRae Plus

Mfg. Serial #: 103614 Calibration Date: 9/13/04

Serial #: N/A Technician: KE

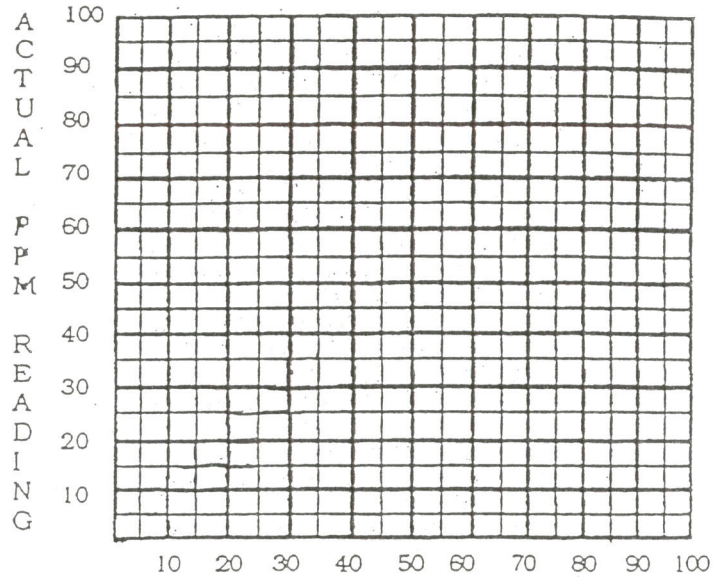
Span Potentiometer Linearity



Calibration Gas Isobutylene KE

Calibration Points 100ppm KE

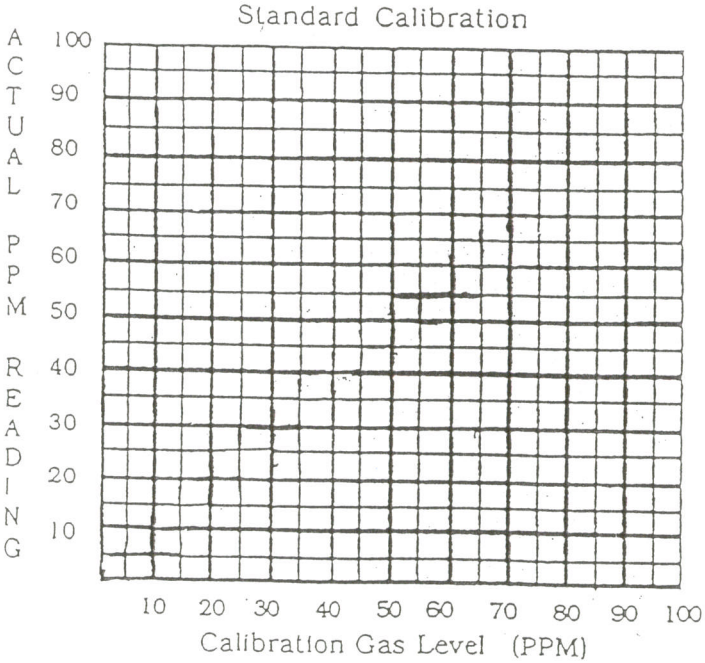
Standard Calibration



Calibration Gas

Calibration Points

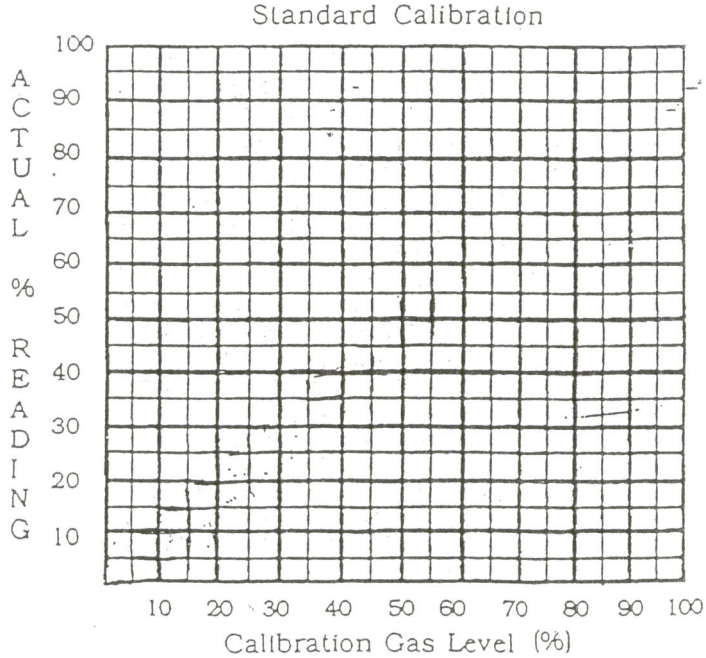
Standard Calibration



Calibration Points

Calibration Gas

Standard Calibration



Calibration Points

Calibration Gas

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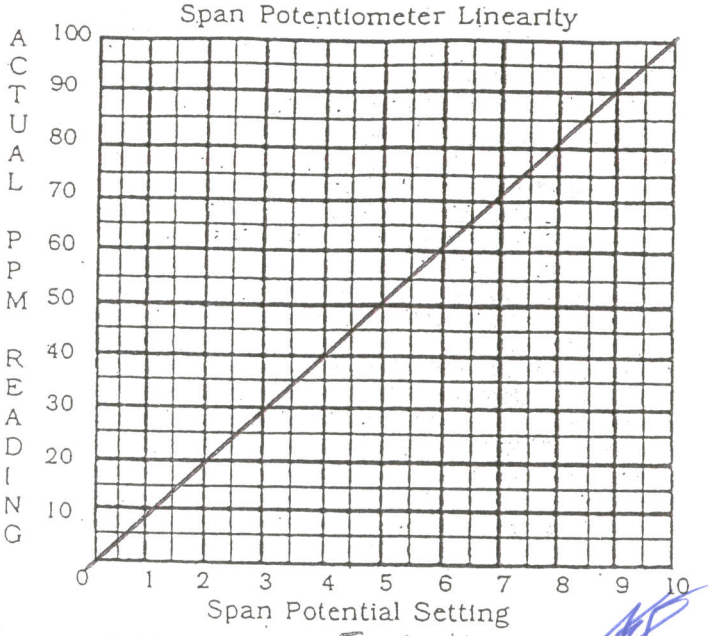
SCS ENGINEERS

Instrument Description: MiniRae Plus

Mfg. Serial #: 103614 Calibration Date: 9/14/04

Serial #: N/A Technician: TE

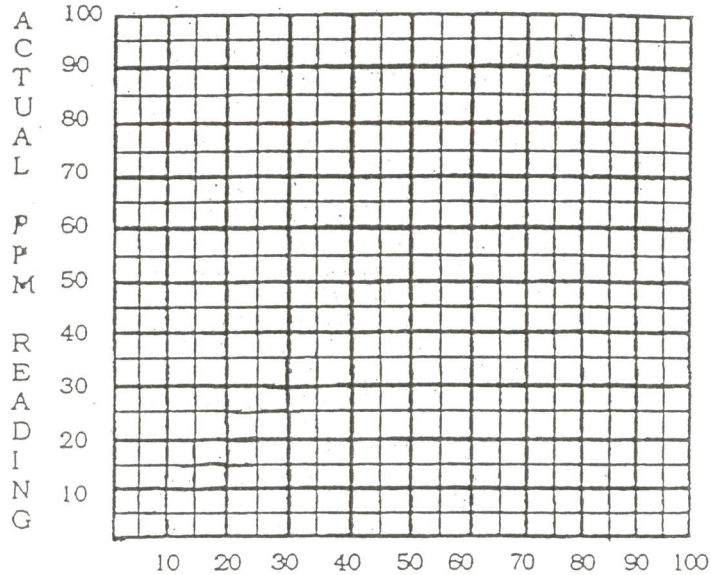
Span Potentiometer Linearity



Calibration Gas Isobutylene TE

Calibration Points 100ppm TE

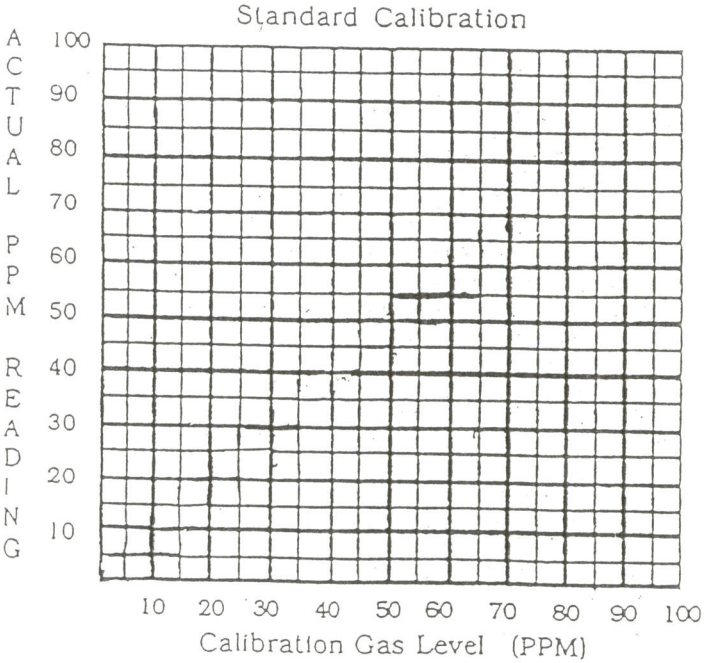
Standard Calibration



Calibration Gas

Calibration Points

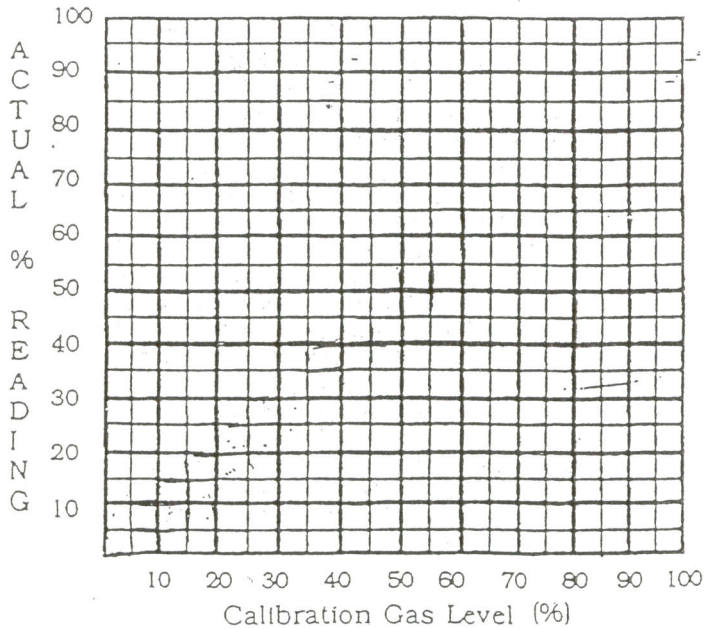
Standard Calibration



Calibration Points

Calibration Gas

Standard Calibration



Calibration Points

Calibration Gas

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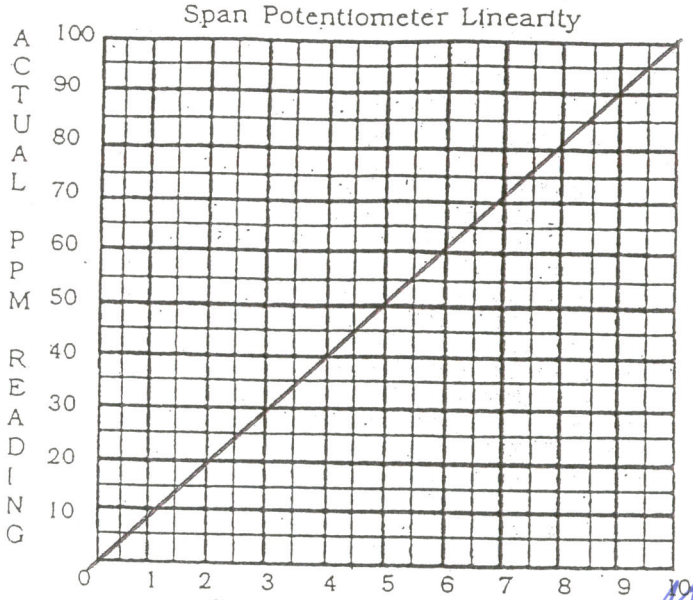
SCS ENGINEERS

Instrument Description: Mini Rae Plus

Mfg. Serial #: 103614 Calibration Date: 10/13/04

Serial #: N/A Technician: KE

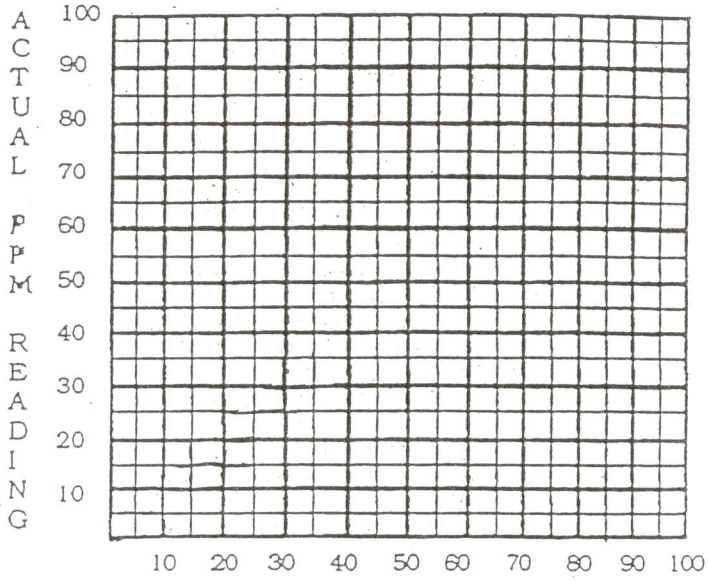
Span Potentiometer Linearity



Calibration Gas: Isobutylene

Calibration Points: 100 ppm

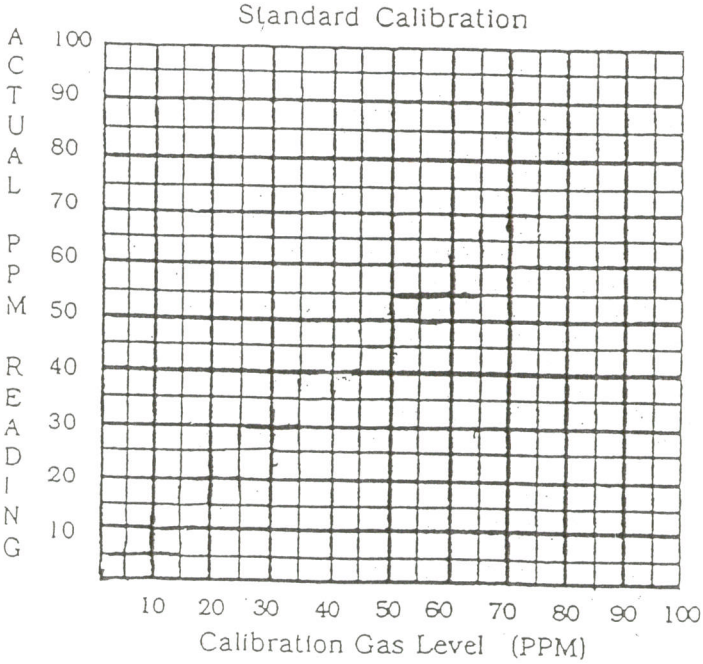
Standard Calibration



Calibration Gas: _____

Calibration Points: _____

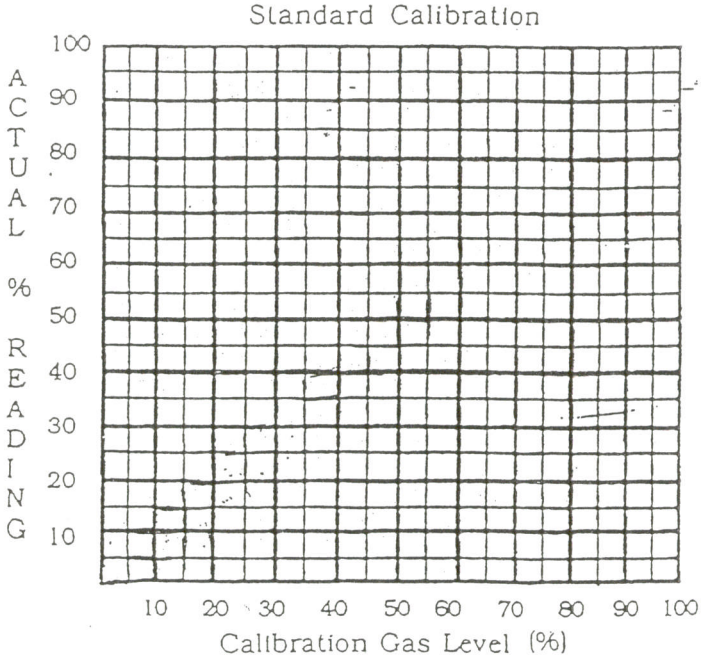
Standard Calibration



Calibration Points: _____

Calibration Gas: _____

Standard Calibration



Calibration Points: _____

Calibration Gas: _____

Environmental Consultants

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www.scsengineers.com

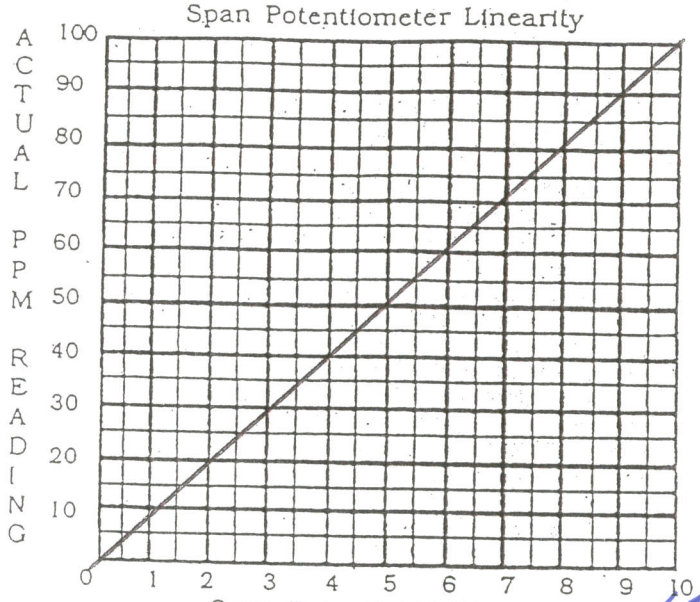
SCS ENGINEERS

Instrument Description: MiniRae Plus

Mfg. Serial #: 103614 Calibration Date: 10/14/04

Serial #: N/A Technician: TE

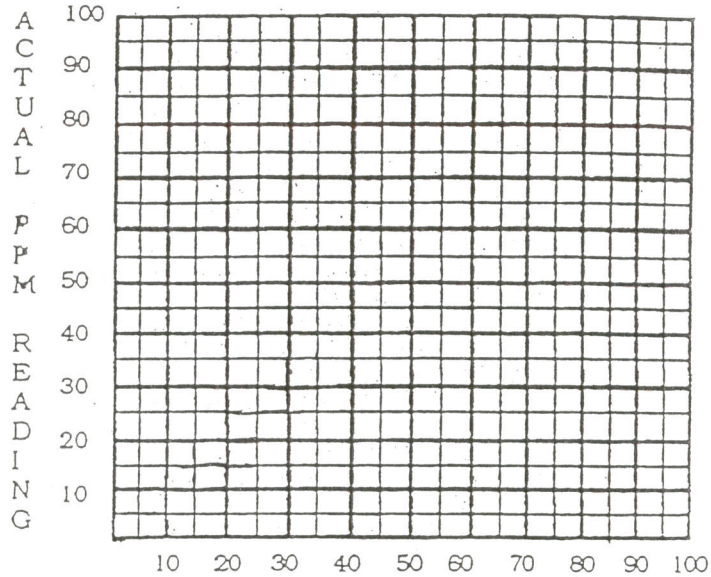
Span Potentiometer Linearity



Calibration Gas: Isobutylene TE

Calibration Points: 100ppm TE

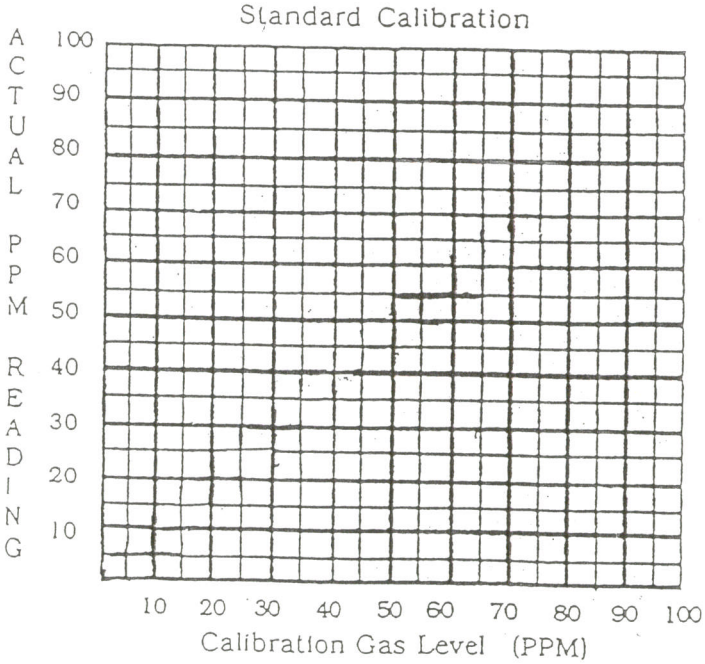
Standard Calibration



Calibration Gas: _____

Calibration Points: _____

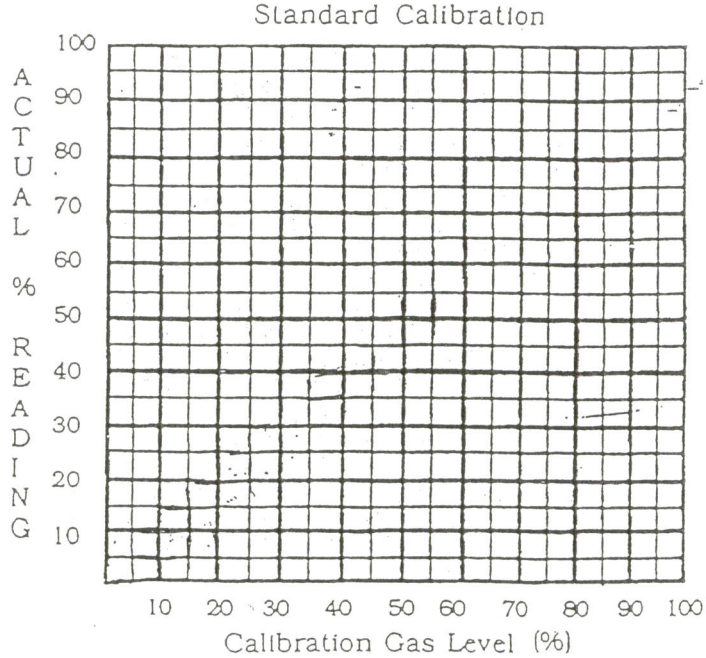
Standard Calibration



Calibration Points: _____

Calibration Gas: _____

Standard Calibration



Calibration Points: _____

Calibration Gas: _____