APPENDIX 5.23
Calibration Logs

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 2.82

INSTRUMENT INSPECTED BY: K. Etchells
TODAY'S DATE: 10/10/04
INSTRUMENT READINGS: SEE ABOVE
COMMENTS: No errors observed

VERIFIED BY: _____
CALIBRATION SOLUTION: AUTO CAL

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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 3.99
- ☑ TEMP. READING 23.2°C
- ☑ COND. READING 0.431
- ☑ D.O. READING 8.63
- ☑ TURB. READING 0.0
- ☑ ORP READING 280
- ☑ 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.

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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 4.00
- ☑ TEMP. READING 23.3°C
- ☑ COND. READING 0.449
- ☑ D.O. READING 8.23
- ☑ TURB. READING -0.0
- ☑ ORP READING 781
- ☑ 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.

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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
- ☐ INSTRUMENT 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 22.6°C
- ☑ COND. READING 0.432
- ☑ D.O. READING 8.72
- ☑ TURB. READING 0.0
- ☑ ORP READING 281
- ☑ 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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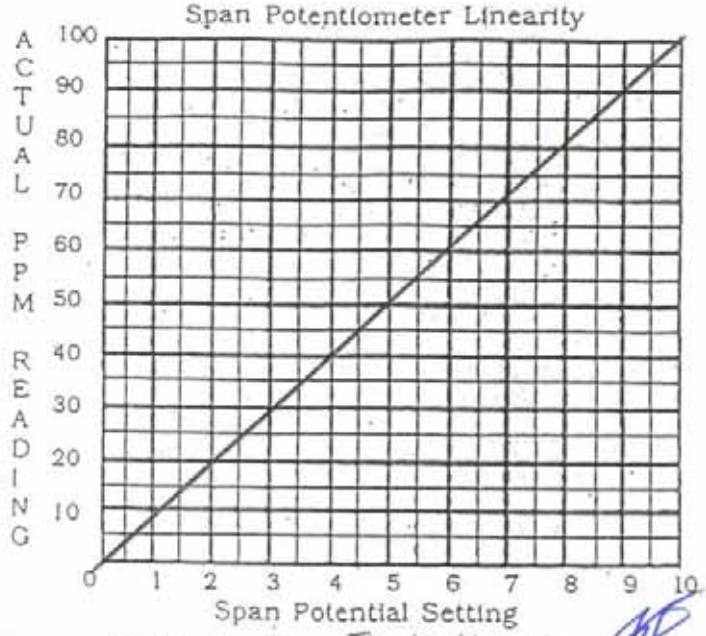
SCS ENGINEERS

Instrument Description: MiniRae Plus

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

Serial #: N/A Technician: KE

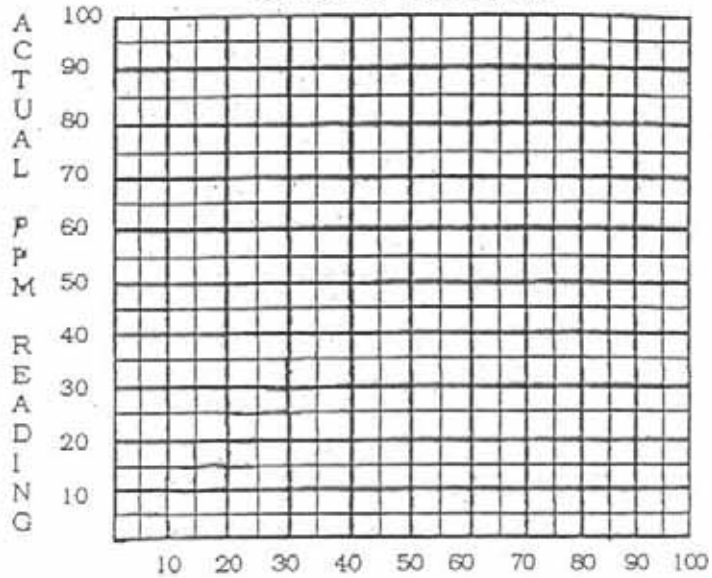
Span Potentiometer Linearity



Calibration Gas: Isobutylene KE

Calibration Points: 100ppm KE

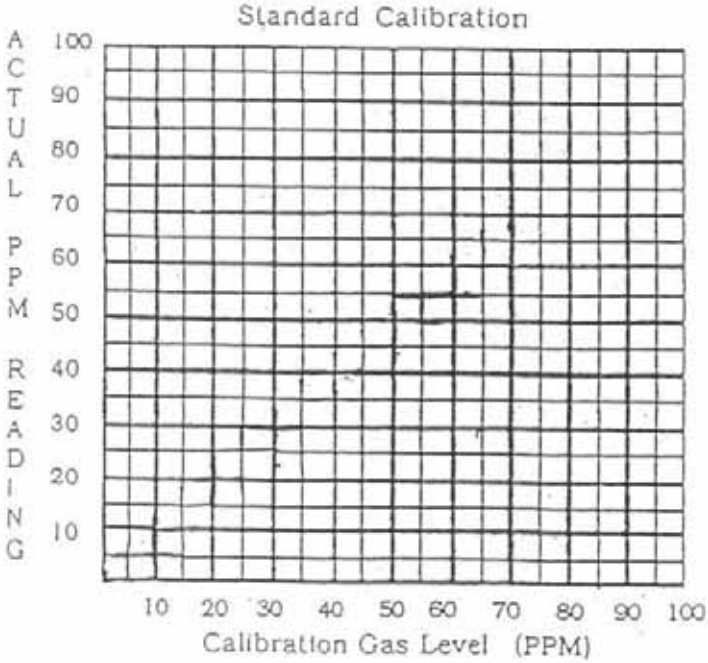
Standard Calibration



Calibration Gas: _____

Calibration Points: _____

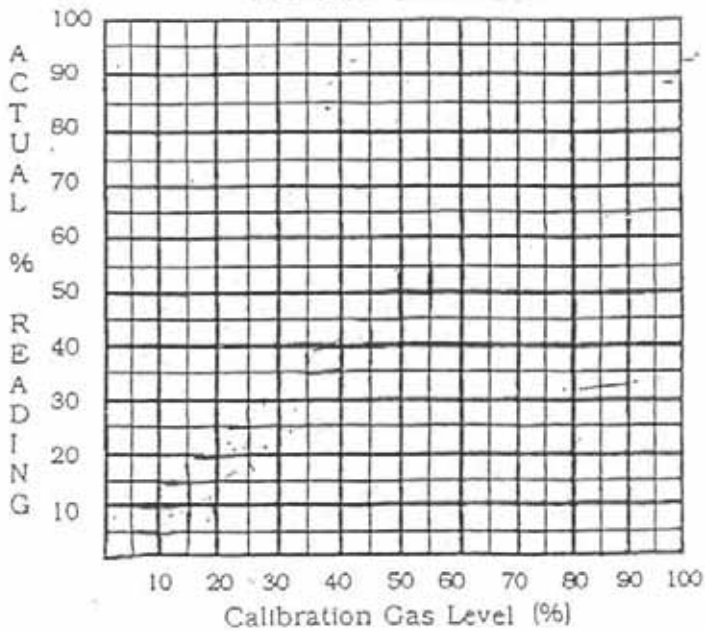
Standard Calibration



Calibration Points: _____

Calibration Gas: _____

Standard Calibration



Calibration Points: _____

Calibration Gas: _____

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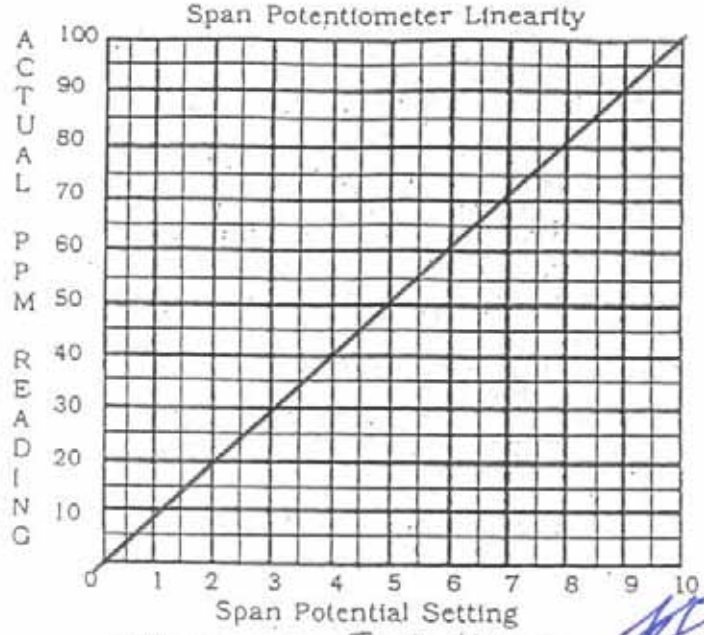
SCS ENGINEERS

Instrument Description: MiniRae Plus

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

Serial #: N/A Technician: MF

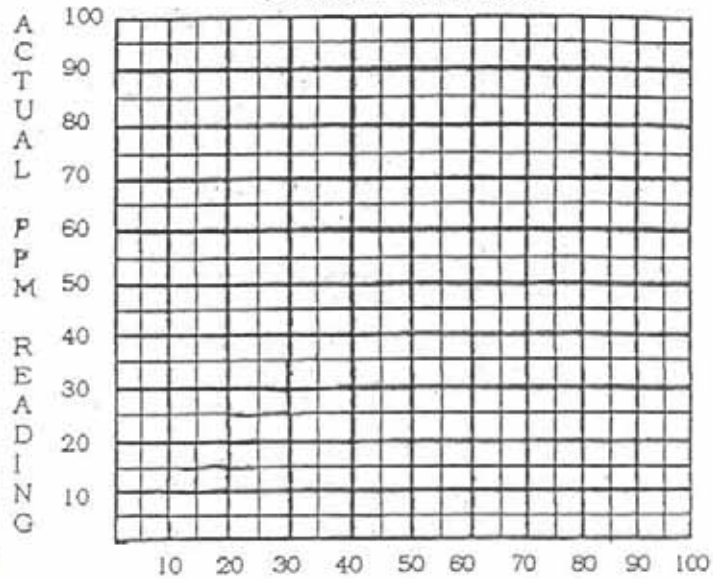
Span Potentiometer Linearity



Calibration Gas: Isobutylene MF

Calibration Points: 100ppm MF

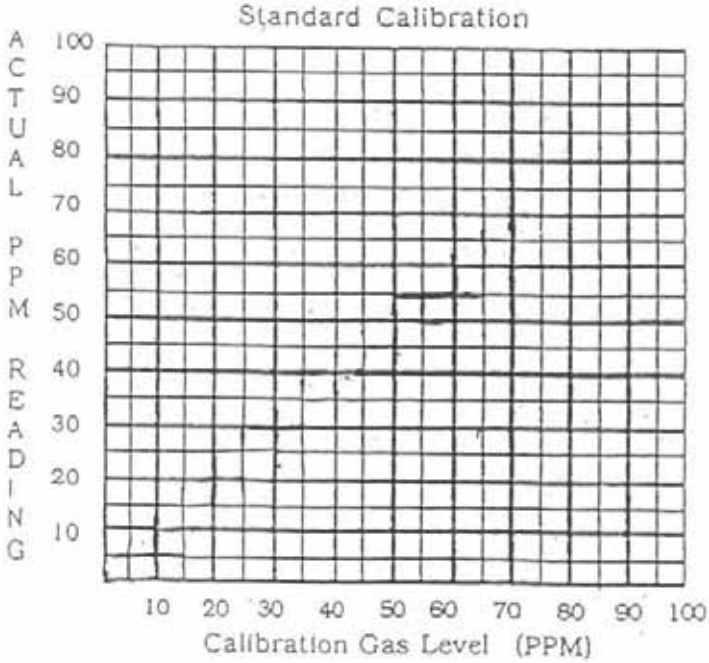
Standard Calibration



Calibration Gas: _____

Calibration Points: _____

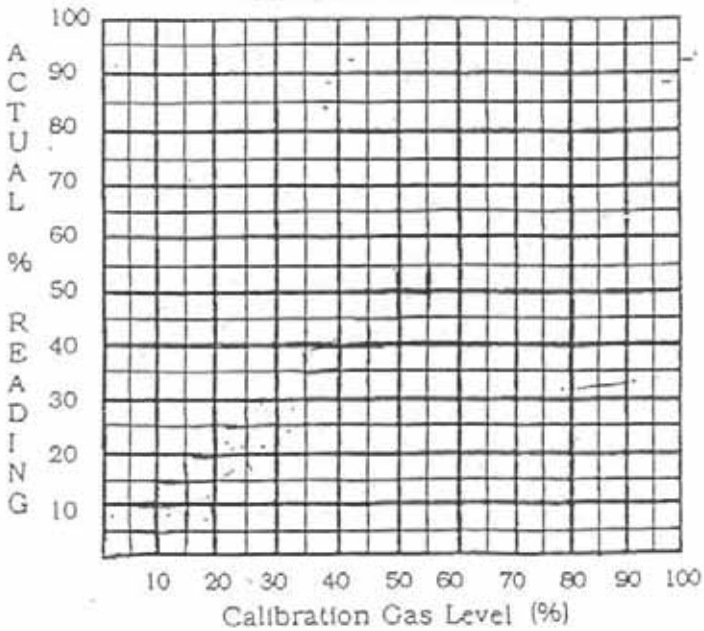
Standard Calibration



Calibration Points: _____

Calibration Gas: _____

Standard Calibration



Calibration Points: _____

Calibration Gas: _____

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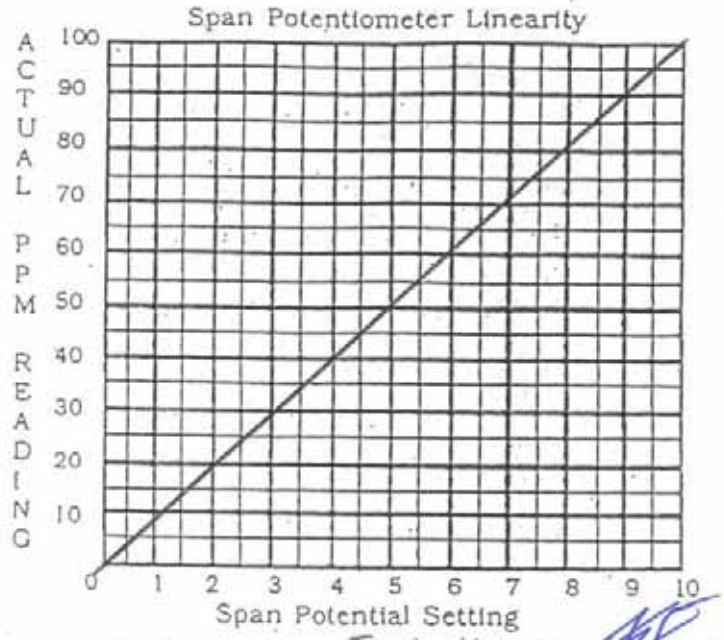
SCS ENGINEERS

Instrument Description: MiniRae Plus

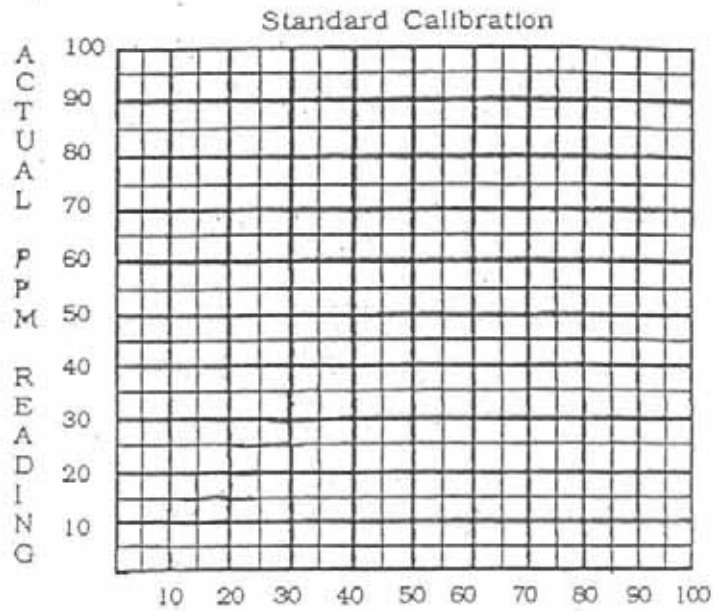
Mfg. Serial #: 103614 Calibration Date: 9/13/04

Serial #: N/A Technician: RE



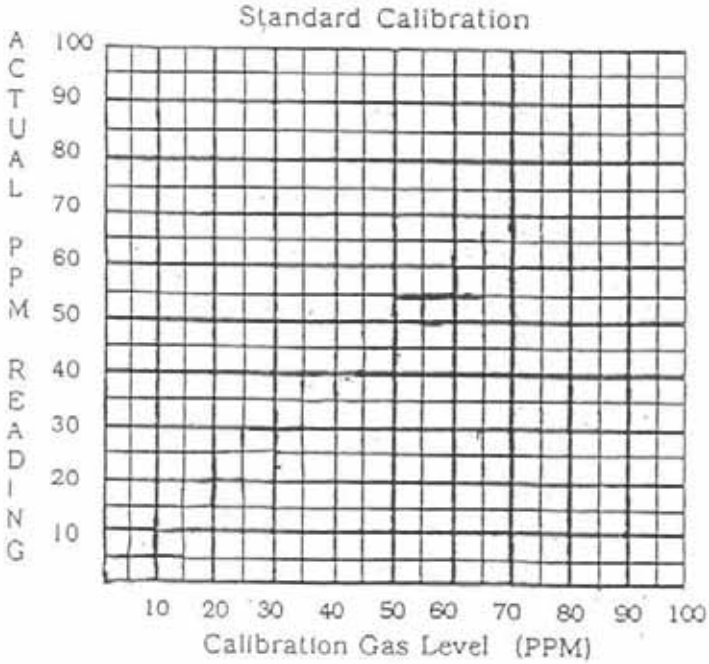
Calibration Gas Isobutylene RE

Calibration Points 100ppm RE



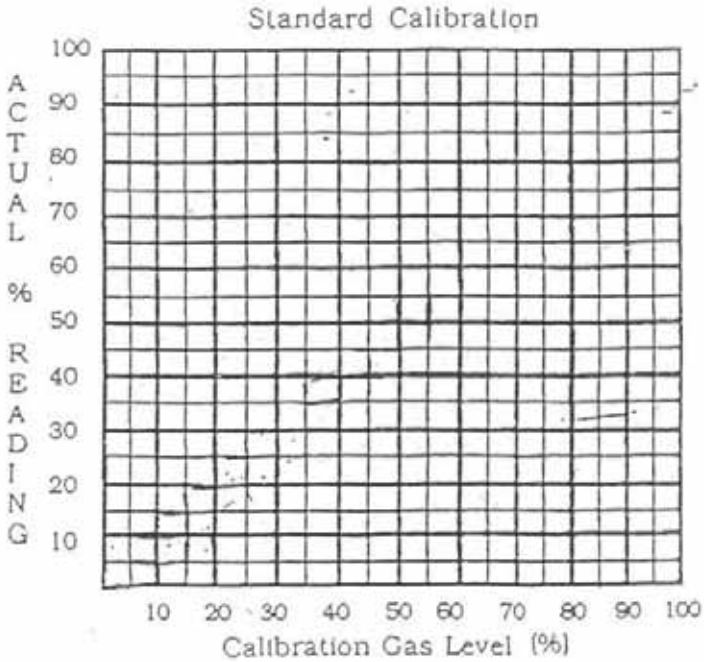
Calibration Gas

Calibration Points



Calibration Points

Calibration Gas



Calibration Points

Calibration Gas

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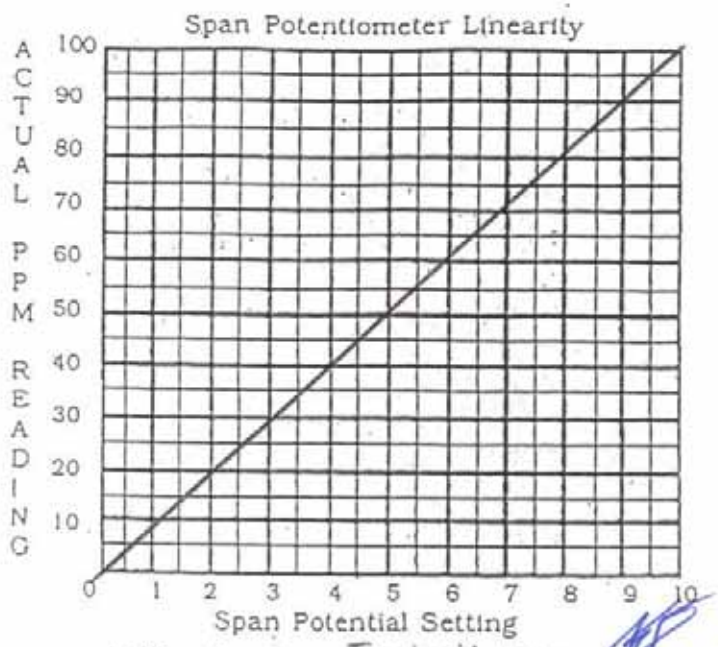
SCS ENGINEERS

Instrument Description: MiniRae Plus

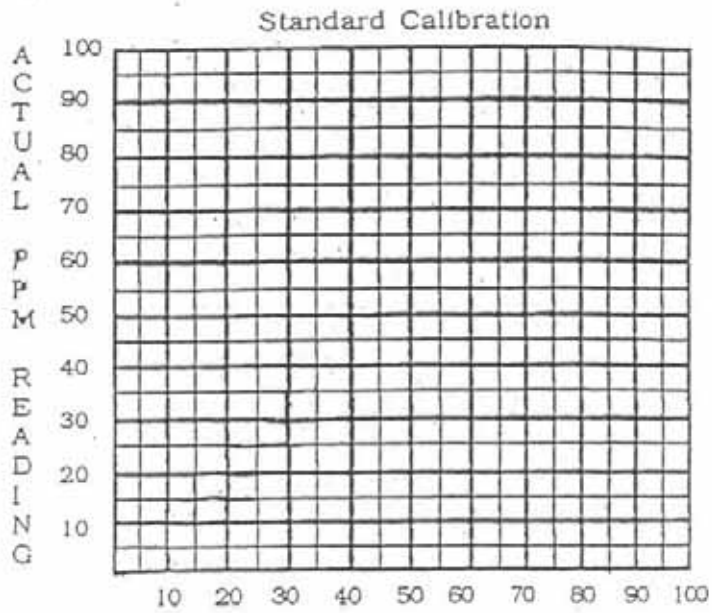
Mfg. Serial #: 103614 Calibration Date: 9/14/04

Serial #: N/A Technician: TE



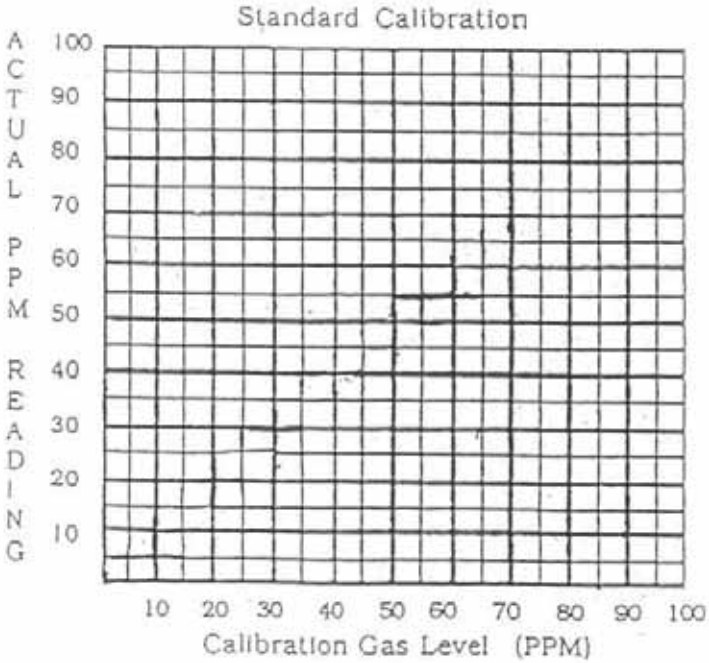
Calibration Gas Isobutylene TE

Calibration Points 100 ppm TE



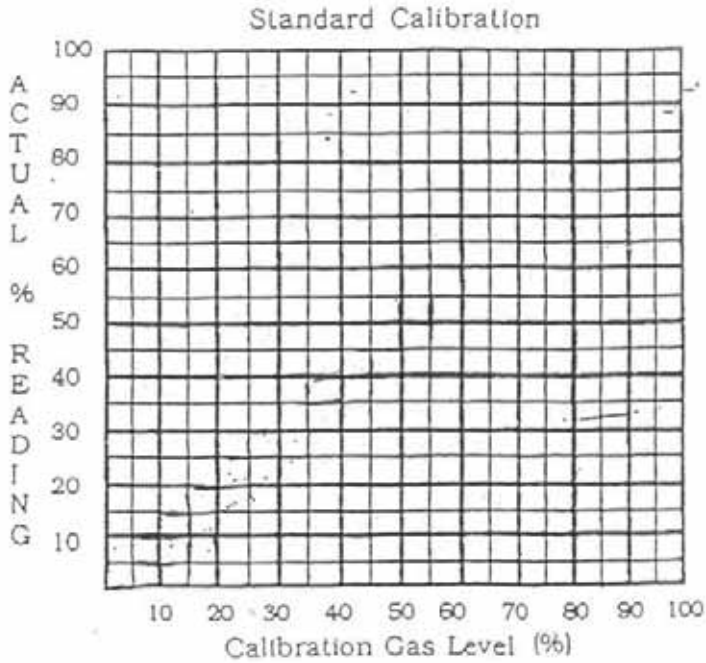
Calibration Gas _____

Calibration Points _____



Calibration Points _____

Calibration Gas _____



Calibration Points _____

Calibration Gas _____

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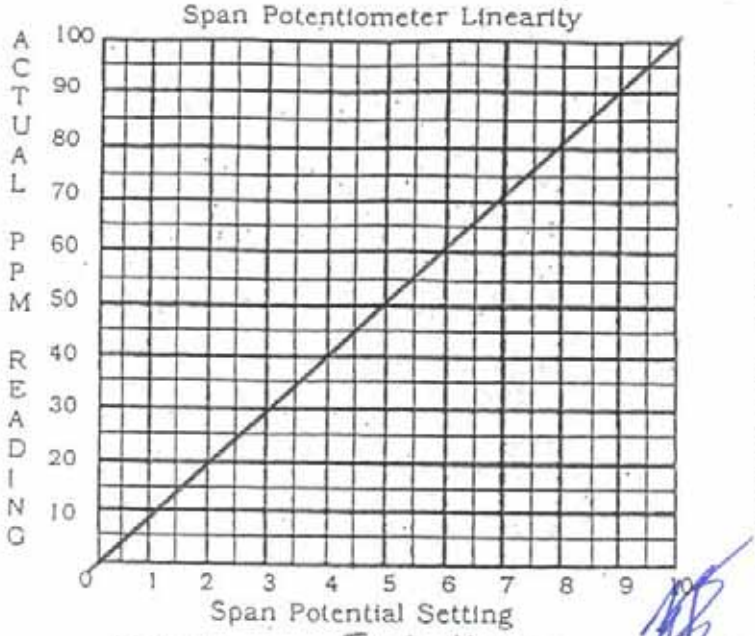
SCS ENGINEERS

Instrument Description: Mini Rae Plus

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

Serial #: N/A Technician: KE

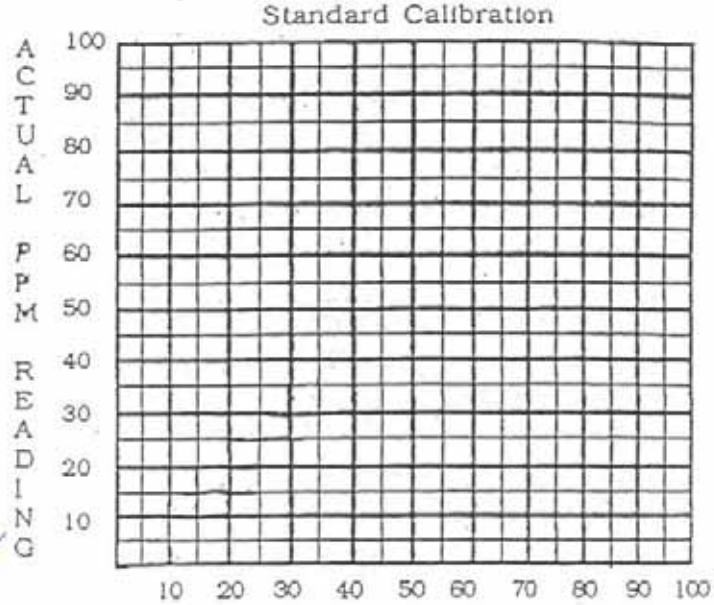
Span Potentiometer Linearity



Calibration Gas: Isobutylene

Calibration Points: 100ppm

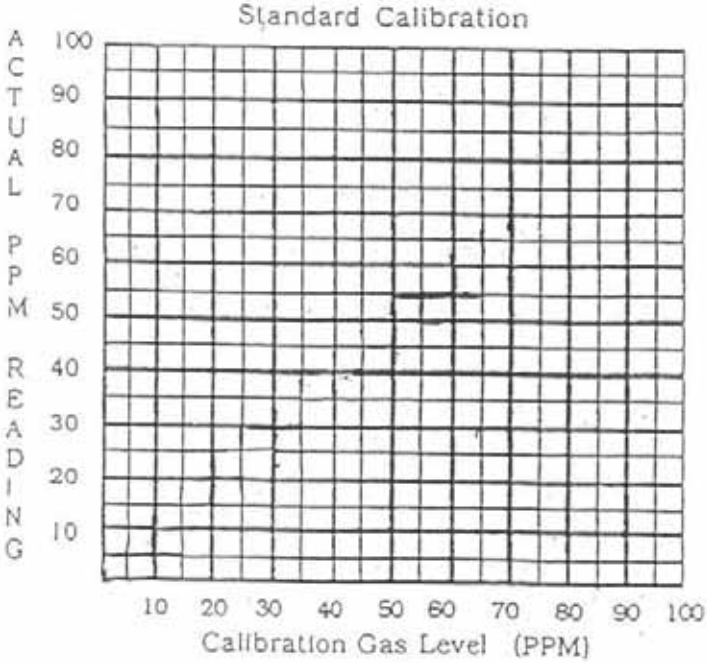
Standard Calibration



Calibration Gas: _____

Calibration Points: _____

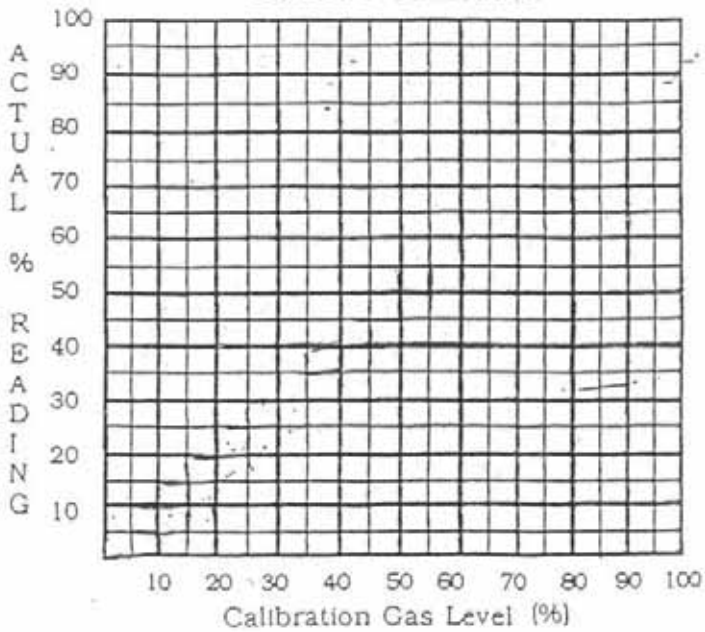
Standard Calibration



Calibration Points: _____

Calibration Gas: _____

Standard Calibration



Calibration Points: _____

Calibration Gas: _____

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www.scsengineers.com

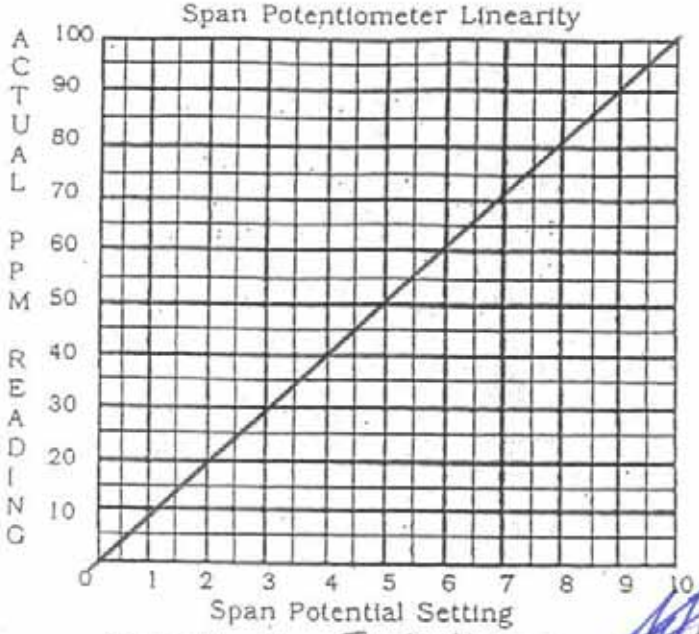
SCS ENGINEERS

Instrument Description: MiniRae Plus

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

Serial #: N/A Technician: [illegible]

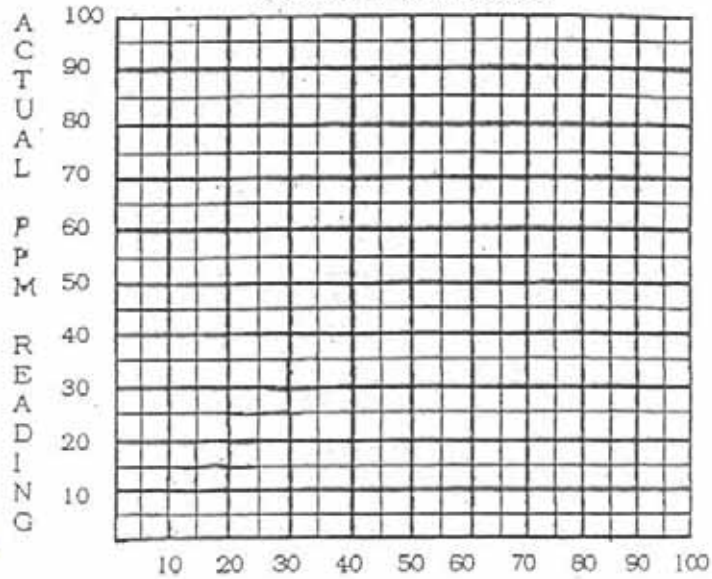
Span Potentiometer Linearity



Calibration Gas: Isobutylene [illegible]

Calibration Points: 100 ppm [illegible]

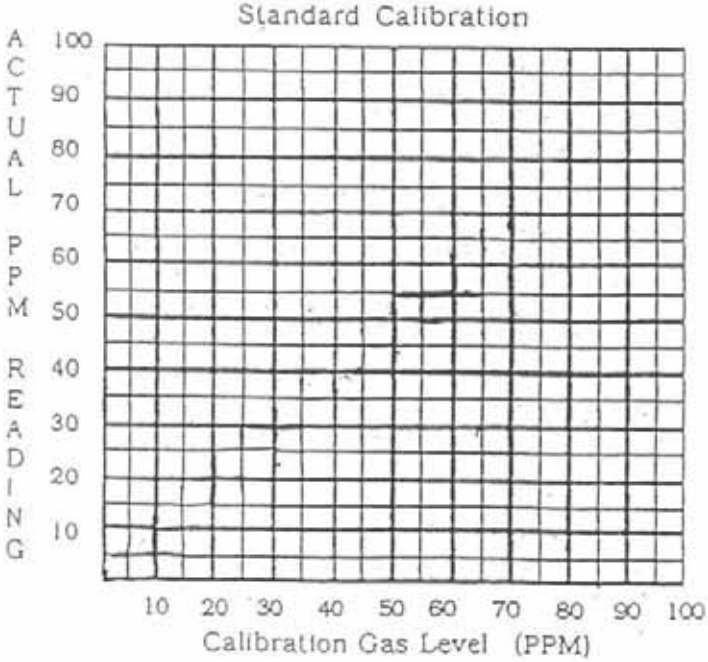
Standard Calibration



Calibration Gas: _____

Calibration Points: _____

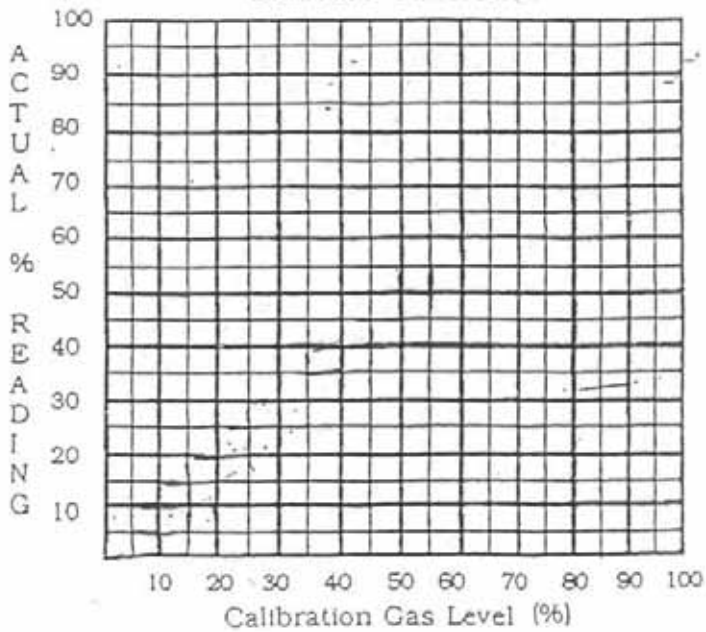
Standard Calibration



Calibration Points: _____

Calibration Gas: _____

Standard Calibration



Calibration Points: _____

Calibration Gas: _____

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	302	8:58	10:57	310	11:30	306	3:18	328	349
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.)

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MOBILE GEOCHEMISTRY
H&P

SCS PROJECT #01203520.00 TASK 2
MISSION BAY LANDFILL
SEA WORLD DRIVE
SAN DIEGO, CA

H&P Project #EB052404-SP2

H2S CALIBRATION LOG

DATE	OPENING READING (ppmv)	CLOSING READING (ppmv)	ACCEPTABLE WINDOW (ppmv)
5/24/2004	0.08	0.08	0.70-1.30
5/25/2004	0.08	0.77	0.70-1.30
5/26/2004	0.77	0.74	0.70-1.30

H2S MEASURED BY JEROME MODEL 631-X
ANALYSES PERFORMED BY: MR. KURT SCHINDLER
ANALYSES REVIEWED BY: DR. BLAYNE HARTMAN

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