APPENDIX A

VOC Emissions Data – Tank Breathing

A1. Daily VOC Emission Rate Calculations

A2. Daily One-Minute Data

A3. Daily Analyzer Calibrations and Data Sheets

A4. Daily Equipment Checks

A1. Daily VOC Emission Rate Calculations

Emission Rate Calculation Sheet
Total Hydrocarbon Emissions

Facility :	Global South Portland	**Start Date:**	11-Apr-13
Source/Location:	Residual Oil Tank #3	**End Date**	11-Apr-13
		Start Time:	18:00
		End Time:	23:59

Average Concentration:		660 ppmvw
Average Flow Rate:		230 scfm
Molecular Weight:	Propane	44.09 g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol. PPM)	=	**1208.89** mg/m^3
mg/SCF =	(mg/m^3) (m^3/35.31 SCF)	=	**34.24** mg/SCF
lb/SCF =	(1 lb/ 4.536E+5 mg) * (mg/SCF)	=	**7.55E-05** lb/SCF
THC lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**1.04** lb/hr
CH4 lb/hr =	(lb/SCF * SCFM * 60 min/hr)		**0.027** lb/hr
NMHC lb/hr =			**1.01** lb/hr
NMHC TPY =			**4.44** tons/year

Emission Rate Calculation Sheet
Total Hydrocarbon Emissions

Facility :	Global South Portland	**Start Date:**	12-Apr-13
Source/Location:	Residual Oil Tank #3	**End Date**	12-Apr-13
		Start Time:	0:00
		End Time:	23:59

Average Concentration:		783 ppmvw
Average Flow Rate:		221 scfm
Molecular Weight:	Propane	44.09 g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol. PPM) =		**1434.52** mg/m^3
mg/SCF =	(mg/m^3) (m^3/35.31 SCF)	=	**40.63** mg/SCF
lb/SCF =	(1 lb/ 4.536E+5 mg) * (mg/SCF)	=	**8.96E-05** lb/SCF
THC lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**1.19** lb/hr
CH4 lb/hr =	(lb/SCF * SCFM * 60 min/hr)		**0.031** lb/hr
NMHC lb/hr =			**1.16** lb/hr
NMHC TPY =			**5.06** tons/year

Emission Rate Calculation Sheet
Total Hydrocarbon Emissions

Facility :	Global South Portland	**Start Date:**	13-Apr-13
Source/Location:	Residual Oil Tank #3	**End Date**	13-Apr-13
		Start Time:	0:00
		End Time:	23:59

Average Concentration:		1,092 ppmvw
Average Flow Rate:		245 scfm
Molecular Weight:	Propane	44.09 g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol. PPM) =		**2001.11** mg/m^3
mg/SCF =	(mg/m^3) (m^3/35.31 SCF)	=	**56.67** mg/SCF
lb/SCF =	(1 lb/ 4.536E+5 mg) * (mg/SCF)	=	**1.25E-04** lb/SCF
THC lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**1.84** lb/hr
CH4 lb/hr =	(lb/SCF * SCFM * 60 min/hr)		**0.039** lb/hr
NMHC lb/hr =			**1.80** lb/hr
NMHC TPY =			**7.89** tons/year

Emission Rate Calculation Sheet
Total Hydrocarbon Emissions

Facility :	Global South Portland	**Start Date:**	14-Apr-13
Source/Location:	Residual Oil Tank #3	**End Date**	14-Apr-13
		Start Time:	0:00
		End Time:	23:59

Average Concentration:		714 ppmvw
Average Flow Rate:		248 scfm
Molecular Weight:	Propane	44.09 g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol. PPM)	=	**1308.41**	mg/m^3
mg/SCF =	(mg/m^3) (m^3/35.31 SCF)	=	**37.06**	mg/SCF
lb/SCF =	(1 lb/ 4.536E+5 mg) * (mg/SCF)	=	**8.17E-05**	lb/SCF
THC lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**1.22**	lb/hr
CH4 lb/hr =	(lb/SCF * SCFM * 60 min/hr)		**0.027**	lb/hr
NMHC lb/hr =			**1.19**	lb/hr
NMHC TPY =			**5.21**	tons/year

Emission Rate Calculation Sheet
Total Hydrocarbon Emissions

Facility :	Global South Portland	**Start Date:**	15-Apr-13
Source/Location:	Residual Oil Tank #3	**End Date**	15-Apr-13
		Start Time:	0:00
		End Time:	20:43

Average Concentration:		1,201 ppmvw
Average Flow Rate:		255 scfm
Molecular Weight:	Propane	44.09 g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol. PPM) =		**2201.42** mg/m^3
mg/SCF =	(mg/m^3) $(m^3/35.31$ SCF)	=	**62.35** mg/SCF
lb/SCF =	(1 lb/ 4.536E+5 mg) * (mg/SCF)	=	**1.37E-04** lb/SCF
THC lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**2.10** lb/hr
CH4 lb/hr =	(lb/SCF * SCFM * 60 min/hr)		**0.040** lb/hr
NMHC lb/hr =			**2.06** lb/hr
NMHC TPY =			**9.04** tons/year

Emission Rate Calculation Sheet
Total Hydrocarbon Emissions

Facility :	Global South Portland	**Start Date:**	16-Apr-13
Source/Location:	Residual Oil Tank #3	**End Date**	16-Apr-13
		Start Time:	11:30
		End Time:	23:59

Average Concentration:		1,069 ppmvw
Average Flow Rate:		241 scfm
Molecular Weight:	Propane	44.09 g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol. PPM)	=	**1959.06** mg/m^3
mg/SCF =	(mg/m^3) (m^3/35.31 SCF)	=	**55.48** mg/SCF
lb/SCF =	(1 lb/ 4.536E+5 mg) * (mg/SCF)	=	**1.22E-04** lb/SCF
THC lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**1.77** lb/hr
CH4 lb/hr =	(lb/SCF * SCFM * 60 min/hr)		**0.067** lb/hr
NMHC lb/hr =			**1.71** lb/hr
NMHC TPY =			**7.47** tons/year

Emission Rate Calculation Sheet
Total Hydrocarbon Emissions

Facility :	Global South Portland	**Start Date:**	17-Apr-13
Source/Location:	Residual Oil Tank #3	**End Date**	17-Apr-13
		Start Time:	0:00
		End Time:	23:59

Average Concentration:		950	ppmvw
Average Flow Rate:		244	scfm
Molecular Weight:	Propane	44.09	g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol. PPM)	=	**1742.07**	mg/m^3
mg/SCF =	(mg/m^3) (m^3/35.31 SCF)	=	**49.34**	mg/SCF
lb/SCF =	(1 lb/ 4.536E+5 mg) * (mg/SCF)	=	**1.09E-04**	lb/SCF
THC lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**1.59**	lb/hr
CH4 lb/hr =	(lb/SCF * SCFM * 60 min/hr)		**0.046**	lb/hr
NMHC lb/hr =			**1.55**	lb/hr
NMHC TPY =			**6.77**	tons/year

Emission Rate Calculation Sheet
Total Hydrocarbon Emissions

Facility : Global South Portland	**Start Date:** 18-Apr-13
Source/Location: Residual Oil Tank #3	**End Date** 18-Apr-13
	Start Time: 0:00
	End Time: 23:59

Average Concentration:		847 ppmvw
Average Flow Rate:		256 scfm
Molecular Weight:	Propane	44.09 g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol. PPM)	=	**1551.99** mg/m^3
mg/SCF =	(mg/m^3) (m^3/35.31 SCF)	=	**43.95** mg/SCF
lb/SCF =	(1 lb/ 4.536E+5 mg) * (mg/SCF)	=	**9.69E-05** lb/SCF
THC lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**1.49** lb/hr
CH4 lb/hr =	(lb/SCF * SCFM * 60 min/hr)		**0.045** lb/hr
NMHC lb/hr =			**1.44** lb/hr
NMHC TPY =			**6.32** tons/year

Emission Rate Calculation Sheet
Total Hydrocarbon Emissions

Facility :	Global South Portland	**Start Date:**	19-Apr-13
Source/Location:	Residual Oil Tank #3	**End Date**	19-Apr-13
		Start Time:	0:00
		End Time:	23:59

Average Concentration:		1,274 ppmvw
Average Flow Rate:		264 scfm
Molecular Weight:	Propane	44.09 g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol. PPM) =		**2335.56** mg/m^3
mg/SCF =	(mg/m^3) $(m^3/35.31$ SCF)	=	**66.14** mg/SCF
lb/SCF =	(1 lb/ 4.536E+5 mg) * (mg/SCF)	=	**1.46E-04** lb/SCF
THC lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**2.31** lb/hr
CH4 lb/hr =	(lb/SCF * SCFM * 60 min/hr)		**0.066** lb/hr
NMHC lb/hr =			**2.25** lb/hr
NMHC TPY =			**9.85** tons/year

Emission Rate Calculation Sheet
Total Hydrocarbon Emissions

Facility :	Global South Portland	**Start Date:**	20-Apr-13
Source/Location:	Residual Oil Tank #3	**End Date**	20-Apr-13
		Start Time:	0:00
		End Time:	23:59

Average Concentration:		1,066 ppmvw
Average Flow Rate:		270 scfm
Molecular Weight:	Propane	44.09 g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol. PPM) =	**1952.99**	mg/m^3
mg/SCF =	(mg/m^3) (m^3/35.31 SCF) =	**55.31**	mg/SCF
lb/SCF =	(1 lb/ 4.536E+5 mg) * (mg/SCF) =	**1.22E-04**	lb/SCF
THC lb/hr =	(lb/SCF * SCFM * 60 min/hr) =	**1.97**	lb/hr
CH4 lb/hr =	(lb/SCF * SCFM * 60 min/hr)	**0.057**	lb/hr
NMHC lb/hr =		**1.92**	lb/hr
NMHC TPY =		**8.39**	tons/year

Emission Rate Calculation Sheet
Total Hydrocarbon Emissions

Facility :	Global South Portland	**Start Date:**	21-Apr-13
Source/Location:	Residual Oil Tank #3	**End Date**	21-Apr-13
		Start Time:	0:00
		End Time:	23:59

Average Concentration:		1,001 ppmvw
Average Flow Rate:		276 scfm
Molecular Weight:	Propane	44.09 g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol. PPM) =		**1833.96** mg/m^3
mg/SCF =	(mg/m^3) (m^3/35.31 SCF)	=	**51.94** mg/SCF
lb/SCF =	(1 lb/ 4.536E+5 mg) * (mg/SCF)	=	**1.15E-04** lb/SCF
THC lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**1.90** lb/hr
CH4 lb/hr =	(lb/SCF * SCFM * 60 min/hr)		**0.058** lb/hr
NMHC lb/hr =			**1.84** lb/hr
NMHC TPY =			**8.06** tons/year

Emission Rate Calculation Sheet
Total Hydrocarbon Emissions

Facility :	Global South Portland	**Start Date:**	22-Apr-13
Source/Location:	Residual Oil Tank #3	**End Date**	22-Apr-13
		Start Time:	0:00
		End Time:	23:59

Average Concentration:		965 ppmvw
Average Flow Rate:		268 scfm
Molecular Weight:	Propane	44.09 g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol. PPM)	=	**1768.97**	mg/m^3
mg/SCF =	(mg/m^3) $(m^3/35.31$ SCF)	=	**50.10**	mg/SCF
lb/SCF =	(1 lb/ 4.536E+5 mg) * (mg/SCF)	=	**1.10E-04**	lb/SCF
THC lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**1.77**	lb/hr
CH4 lb/hr =	(lb/SCF * SCFM * 60 min/hr)		**0.059**	lb/hr
NMHC lb/hr =			**1.72**	lb/hr
NMHC TPY =			**7.51**	tons/year

Emission Rate Calculation Sheet
Total Hydrocarbon Emissions

Facility :	Global South Portland	**Start Date:**	23-Apr-13
Source/Location:	Residual Oil Tank #3	**End Date**	23-Apr-13
		Start Time:	0:00
		End Time:	23:59

Average Concentration:		1,128 ppmvw
Average Flow Rate:		272 scfm
Molecular Weight:	Propane	44.09 g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol. PPM) =		**2068.14** mg/m^3
mg/SCF =	(mg/m^3) $(m^3/35.31$ SCF)	=	**58.57** mg/SCF
lb/SCF =	(1 lb/ 4.536E+5 mg) * (mg/SCF)	=	**1.29E-04** lb/SCF
THC lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**2.11** lb/hr
CH4 lb/hr =	(lb/SCF * SCFM * 60 min/hr)		**0.071** lb/hr
NMHC lb/hr =			**2.04** lb/hr
NMHC TPY =			**8.93** tons/year

Emission Rate Calculation Sheet
Total Hydrocarbon Emissions

Facility :	Global South Portland	**Start Date:**	24-Apr-13
Source/Location:	Residual Oil Tank #3	**End Date**	24-Apr-13
		Start Time:	0:00
		End Time:	23:59

Average Concentration:		1,220 ppmvw
Average Flow Rate:		271 scfm
Molecular Weight:	Propane	44.09 g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol. PPM) =		**2236.94** mg/m^3
mg/SCF =	(mg/m^3) $(m^3/35.31$ SCF)	=	**63.35** mg/SCF
lb/SCF =	(1 lb/ 4.536E+5 mg) * (mg/SCF)	=	**1.40E-04** lb/SCF
THC lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**2.28** lb/hr
CH4 lb/hr =	(lb/SCF * SCFM * 60 min/hr)		**0.055** lb/hr
NMHC lb/hr =			**2.22** lb/hr
NMHC TPY =			**9.72** tons/year

Emission Rate Calculation Sheet
Total Hydrocarbon Emissions

Facility :	Global South Portland	**Start Date:**	25-Apr-13
Source/Location:	Residual Oil Tank #3	**End Date**	25-Apr-13
		Start Time:	0:00
		End Time:	23:59

Average Concentration:		935 ppmvw
Average Flow Rate:		272 scfm
Molecular Weight:	Propane	44.09 g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol. PPM)	=	**1713.72** mg/m^3
mg/SCF =	(mg/m^3) $(m^3/35.31$ SCF)	=	**48.53** mg/SCF
lb/SCF =	(1 lb/ 4.536E+5 mg) * (mg/SCF)	=	**1.07E-04** lb/SCF
THC lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**1.75** lb/hr
CH4 lb/hr =	(lb/SCF * SCFM * 60 min/hr)		**0.043** lb/hr
NMHC lb/hr =			**1.71** lb/hr
NMHC TPY =			**7.47** tons/year

Emission Rate Calculation Sheet
Total Hydrocarbon Emissions

Facility : Global South Portland	**Start Date:** 26-Apr-13
Source/Location: Residual Oil Tank #3	**End Date** 26-Apr-13
	Start Time: 0:00
	End Time: 12:44

Average Concentration:		842 ppmvw
Average Flow Rate:		273 scfm
Molecular Weight:	Propane	44.09 g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol. PPM) =		**1543.13** mg/m^3
mg/SCF =	(mg/m^3) $(m^3/35.31$ SCF)	=	**43.70** mg/SCF
lb/SCF =	(1 lb/ 4.536E+5 mg) * (mg/SCF)	=	**9.63E-05** lb/SCF
THC lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**1.58** lb/hr
CH4 lb/hr =	(lb/SCF * SCFM * 60 min/hr)		**0.045** lb/hr
NMHC lb/hr =			**1.54** lb/hr
NMHC TPY =			**6.73** tons/year

Emission Rate Calculation Sheet
Methane Emissions

Facility :	Global South Portland	**Start Date:**	04/11/13
Source/Location:	Residual Oil Tank #3	**End Date**	11-Apr-13
		Start Time:	18:00
		End Time:	23:59

Average Concentration:	47	ppmvw
Average Flow Rate:	230	scfm
Molecular Weight: (Methane)	16.04	g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol. PPM)	=	**31.15**	mg/m^3
mg/SCF =	(mg/m^3) $(m^3/35.31$ SCF)	=	**0.88**	mg/SCF
lb/SCF =	(1 lb/ 4.536E+5 mg) * (mg/SCF)	=	**1.9448E-06**	lb/SCF
lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**0.027**	lb/hr

Emission Rate Calculation Sheet
Methane Emissions

Facility :	Global South Portland	**Start Date:**	04/12/13
Source/Location:	Residual Oil Tank #3	**End Date**	12-Apr-13
		Start Time:	0:00
		End Time:	23:59

Average Concentration:		56 ppmvw
Average Flow Rate:		221 scfm
Molecular Weight:	(Methane)	16.04 g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol. PPM)	=	**37.30**	mg/m^3
mg/SCF =	(mg/m^3) $(m^3/35.31$ SCF)	=	**1.06**	mg/SCF
lb/SCF =	(1 lb/ 4.536E+5 mg) * (mg/SCF)	=	**2.32891E-06**	lb/SCF
lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**0.031**	lb/hr

Emission Rate Calculation Sheet
Methane Emissions

Facility :	Global South Portland	**Start Date:**	04/13/13
Source/Location:	Residual Oil Tank #3	**End Date**	13-Apr-13
		Start Time:	0:00
		End Time:	23:59

Average Concentration:		64 ppmvw
Average Flow Rate:		245 scfm
Molecular Weight:	(Methane)	16.04 g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol. PPM)	=	**42.66**	mg/m^3
mg/SCF =	(mg/m^3) $(m^3/35.31$ SCF)	=	**1.21**	mg/SCF
lb/SCF =	(1 lb/ 4.536E+5 mg) * (mg/SCF)	=	**2.66357E-06**	lb/SCF
lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**0.039**	lb/hr

Emission Rate Calculation Sheet
Methane Emissions

Facility :	Global South Portland	**Start Date:**	04/14/13
Source/Location:	Residual Oil Tank #3	**End Date**	14-Apr-13
		Start Time:	0:00
		End Time:	23:59

Average Concentration:	43	ppmvw
Average Flow Rate:	248	scfm
Molecular Weight: (Methane)	16.04	g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol. PPM)	=	**28.83**	mg/m^3
mg/SCF =	(mg/m^3) $(m^3/35.31$ SCF)	=	**0.82**	mg/SCF
lb/SCF =	(1 lb/ 4.536E+5 mg) * (mg/SCF)	=	**1.79977E-06**	lb/SCF
lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**0.027**	lb/hr

Emission Rate Calculation Sheet
Methane Emissions

Facility :	Global South Portland	**Start Date:**	04/15/13
Source/Location:	Residual Oil Tank #3	**End Date**	15-Apr-13
		Start Time:	0:00
		End Time:	20:43

Average Concentration:		62 ppmvw
Average Flow Rate:		255 scfm
Molecular Weight:	(Methane)	16.04 g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol. PPM)	=	**41.58**	mg/m^3
mg/SCF =	(mg/m^3) $(m^3/35.31$ SCF)	=	**1.18**	mg/SCF
lb/SCF =	(1 lb/ 4.536E+5 mg) * (mg/SCF)	=	**2.59599E-06**	lb/SCF
lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**0.040**	lb/hr

Emission Rate Calculation Sheet
Methane Emissions

Facility :	Global South Portland	**Start Date:**	04/16/13
Source/Location:	Residual Oil Tank #3	**End Date**	16-Apr-13
		Start Time:	11:30
		End Time:	23:59

Average Concentration:		110 ppmvw
Average Flow Rate:		241 scfm
Molecular Weight:	(Methane)	16.04 g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol. PPM)	=	**73.55**	mg/m^3
mg/SCF =	(mg/m^3) $(m^3/35.31$ SCF)	=	**2.08**	mg/SCF
lb/SCF =	(1 lb/ 4.536E+5 mg) * (mg/SCF)	=	**4.59196E-06**	lb/SCF
lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**0.067**	lb/hr

Emission Rate Calculation Sheet
Methane Emissions

Facility :	Global South Portland	**Start Date:**	04/17/13
Source/Location:	Residual Oil Tank #3	**End Date**	17-Apr-13
		Start Time:	0:00
		End Time:	23:59

Average Concentration:		75 ppmvw
Average Flow Rate:		244 scfm
Molecular Weight:	(Methane)	16.04 g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol. PPM)	=	**50.07**	mg/m^3
mg/SCF =	(mg/m^3) $(m^3/35.31$ SCF)	=	**1.42**	mg/SCF
lb/SCF =	(1 lb/ 4.536E+5 mg) * (mg/SCF)	=	**3.12594E-06**	lb/SCF
lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**0.046**	lb/hr

Emission Rate Calculation Sheet
Methane Emissions

Facility :	Global South Portland	**Start Date:**	04/18/13
Source/Location:	Residual Oil Tank #3	**End Date**	18-Apr-13
		Start Time:	0:00
		End Time:	23:59

Average Concentration:		70 ppmvw
Average Flow Rate:		256 scfm
Molecular Weight:	(Methane)	16.04 g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol. PPM)	=	**46.57**	mg/m^3
mg/SCF =	(mg/m^3) $(m^3/35.31$ SCF)	=	**1.32**	mg/SCF
lb/SCF =	(1 lb/ 4.536E+5 mg) * (mg/SCF)	=	**2.90785E-06**	lb/SCF
lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**0.045**	lb/hr

Emission Rate Calculation Sheet
Methane Emissions

Facility :	Global South Portland	**Start Date:**	04/19/13
Source/Location:	Residual Oil Tank #3	**End Date**	19-Apr-13
		Start Time:	0:00
		End Time:	23:59

Average Concentration:	99	ppmvw
Average Flow Rate:	264	scfm
Molecular Weight: (Methane)	16.04	g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol. PPM)	=	**66.29**	mg/m^3
mg/SCF =	(mg/m^3) $(m^3/35.31$ SCF)	=	**1.88**	mg/SCF
lb/SCF =	(1 lb/ 4.536E+5 mg) * (mg/SCF)	=	**4.13897E-06**	lb/SCF
lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**0.066**	lb/hr

Emission Rate Calculation Sheet
Methane Emissions

Facility :	Global South Portland	**Start Date:**	04/20/13
Source/Location:	Residual Oil Tank #3	**End Date**	20-Apr-13
		Start Time:	0:00
		End Time:	23:59

Average Concentration:	85	ppmvw
Average Flow Rate:	270	scfm
Molecular Weight: (Methane)	16.04	g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol. PPM)	=	**56.73**	mg/m^3
mg/SCF =	(mg/m^3) (m^3/35.31 SCF)	=	**1.61**	mg/SCF
lb/SCF =	(1 lb/ 4.536E+5 mg) * (mg/SCF)	=	**3.54181E-06**	lb/SCF
lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**0.057**	lb/hr

Emission Rate Calculation Sheet
Methane Emissions

Facility :	Global South Portland	**Start Date:**	04/21/13
Source/Location:	Residual Oil Tank #3	**End Date**	21-Apr-13
		Start Time:	0:00
		End Time:	23:59

Average Concentration:	84	ppmvw
Average Flow Rate:	276	scfm
Molecular Weight: (Methane)	16.04	g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol. PPM)	=	**56.29**	mg/m^3
mg/SCF =	(mg/m^3) $(m^3/35.31$ SCF)	=	**1.59**	mg/SCF
lb/SCF =	(1 lb/ 4.536E+5 mg) * (mg/SCF)	=	**3.51464E-06**	lb/SCF
lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**0.058**	lb/hr

Emission Rate Calculation Sheet
Methane Emissions

Facility :	Global South Portland	**Start Date:**	04/22/13
Source/Location:	Residual Oil Tank #3	**End Date**	22-Apr-13
		Start Time:	0:00
		End Time:	23:59

Average Concentration:	88	ppmvw
Average Flow Rate:	268	scfm
Molecular Weight: (Methane)	16.04	g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol. PPM)	=	**58.39**	mg/m^3
mg/SCF =	(mg/m^3) $(m^3/35.31$ SCF)	=	**1.65**	mg/SCF
lb/SCF =	(1 lb/ 4.536E+5 mg) * (mg/SCF)	=	**3.64541E-06**	lb/SCF
lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**0.059**	lb/hr

Emission Rate Calculation Sheet
Methane Emissions

Facility :	Global South Portland	**Start Date:**	04/23/13
Source/Location:	Residual Oil Tank #3	**End Date**	23-Apr-13
		Start Time:	0:00
		End Time:	23:59

Average Concentration:		104 ppmvw
Average Flow Rate:		272 scfm
Molecular Weight:	(Methane)	16.04 g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol. PPM)	=	**69.64**	mg/m^3
mg/SCF =	(mg/m^3) $(m^3/35.31$ SCF)	=	**1.97**	mg/SCF
lb/SCF =	(1 lb/ 4.536E+5 mg) * (mg/SCF)	=	**4.34814E-06**	lb/SCF
lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**0.071**	lb/hr

Emission Rate Calculation Sheet
Methane Emissions

Facility :	Global South Portland	**Start Date:**	04/24/13
Source/Location:	Residual Oil Tank #3	**End Date**	24-Apr-13
		Start Time:	0:00
		End Time:	23:59

Average Concentration:	81	ppmvw
Average Flow Rate:	271	scfm
Molecular Weight: (Methane)	16.04	g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol. PPM)	=	**53.96**	mg/m^3
mg/SCF =	(mg/m^3) (m^3/35.31 SCF)	=	**1.53**	mg/SCF
lb/SCF =	(1 lb/ 4.536E+5 mg) * (mg/SCF)	=	**3.36881E-06**	lb/SCF
lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**0.055**	lb/hr

Emission Rate Calculation Sheet
Methane Emissions

Facility :	Global South Portland	**Start Date:**	04/25/13
Source/Location:	Residual Oil Tank #3	**End Date**	25-Apr-13
		Start Time:	0:00
		End Time:	23:59

Average Concentration:		63 ppmvw
Average Flow Rate:		272 scfm
Molecular Weight:	(Methane)	16.04 g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol. PPM)	=	**41.93**	mg/m^3
mg/SCF =	(mg/m^3) $(m^3/35.31$ SCF)	=	**1.19**	mg/SCF
lb/SCF =	(1 lb/ 4.536E+5 mg) * (mg/SCF)	=	**2.61799E-06**	lb/SCF
lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**0.043**	lb/hr

Emission Rate Calculation Sheet
Methane Emissions

Facility :	Global South Portland	**Start Date:**	04/26/13
Source/Location:	Residual Oil Tank #3	**End Date**	26-Apr-13
		Start Time:	0:00
		End Time:	12:44

Average Concentration:		66 ppmvw
Average Flow Rate:		273 scfm
Molecular Weight:	(Methane)	16.04 g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol. PPM)	=	**43.88**	mg/m^3
mg/SCF =	(mg/m^3) $(m^3/35.31$ SCF)	=	**1.24**	mg/SCF
lb/SCF =	(1 lb/ 4.536E+5 mg) * (mg/SCF)	=	**2.73938E-06**	lb/SCF
lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**0.045**	lb/hr

A2. Daily One-Minute Data

A3. Daily Analyzer Calibrations and Data Sheets

Method 25A Calibration Data Sheet - Total Hydrocarbons

Source Summary			
Facility:	Global South Portland		
Source/Location:	Residual Oil Tank #3		
Start Date	11-Apr-13	End Date:	11-Apr-13
Start Time:	18:00	End Time:	23:59

THC Analyzer Data		
Manufacturer -	VIG	
Model/Serial Number -	200 / 2660406	
Fuel Pressure -	6.5	
Combustion Air Pressure -	5.5	
Sample Pressure -	1.5	
Range -	0 - 10,000	
Calibrant (choose one, x in box)	Propane	x
	Methane	
Cal Gas Molecular Weight:	**44.09**	**g/mol**

Initial Calibration Summary	
Operator:	A. Stratton
Date:	11-Apr-13
Time:	16:30

Initial Calibration Data (Hi / Zero)

Calibration Gas	Cylinder Conc.	Actual Response
Zero Gas	0.0	1
High Gas	8367	8364
Response Line	1.000	

Where: Response Line = (Ha-Za)/(Hc-Zc)

Initial Calibration Data (Mid / Low)

Calibration Gas	Cylinder Conc.	Predicted Response	Actual Response	Calibration Error	Acceptance Criteria
Low Gas	2961	2960	3005	1.5	< 5% of cylinder concentration
Mid Gas	5052	5050	5029	0.4	< 5% of cylinder concentration

Where:

Predicted Response = (Cylinder Concentration) x (Response Line)

Calibration Error = (Actual Response - Predicted Response) / Cylinder Concentration x 100

Post Calibration Summary	
Operator:	AMS
Date:	12-Apr-13
Time:	11:30

Post Calibration Drift Data

Calibration Gas	Cylinder Conc.	Initial Test Response	Final Test Response	Calibration Drift	Acceptance Criteria
Post Cal 1 Zero	0	1	15	**0.14**	< 3% of the measurement range
Post Cal 1 Upscale	2961	3005	2955	**0.50**	< 3% of the measurement range
				Test Avg. Conc.	**660**

Where:

Calibration Drift = (Final Test Response - Initial Test Response) * 100

Gas Cylinder Data

Calibration Gas	Required % of Span	Cylinder Conc.	Cylinder Composition	Cylinder Number	Expiration Date	Actual % of Span
Fuel	N/A		UHP H2		N/A	N/A
Combustion Air			UHP Air		N/A	
Zero Gas	<0.1%	0	UHP Air		N/A	0%
Low Gas	25-35	2,961	Propane/Air	CC103130	7/10/2015	30%
Mid Gas	45-55	5,052	Propane/Air	CC311566	2/22/2015	51%
High Gas	80-90	8,367	Propane/Air	C111354	3/2/2016	84%

System Response Time = 120 seconds

Method 25A Calibration Data Sheet - Total Hydrocarbons

Source Summary			
Facility:	Global South Portland		
Source/Location:	Residual Oil Tank #3		
Start Date	12-Apr-13	End Date:	12-Apr-13
Start Time:	0:00	End Time:	23:59

THC Analyzer Data		
Manufacturer -	VIG	
Model/Serial Number -	200 / 2660406	
Fuel Pressure -	6.5	
Combustion Air Pressure -	5.5	
Sample Pressure -	1.5	
Range -	0 - 10,000	
Calibrant (choose one, x in box)	Propane	x
	Methane	
Cal Gas Molecular Weight:	**44.09**	**g/mol**

Initial Calibration Summary	
Operator:	A. Stratton
Date:	11-Apr-13
Time:	16:30

Initial Calibration Data (Hi / Zero)		
Calibration Gas	Cylinder Conc.	Actual Response
Zero Gas	0.0	1
High Gas	8367	8364
Response Line	1.000	

Where: Response Line = (Ha-Za)/(Hc-Zc)

Initial Calibration Data (Mid / Low)					
Calibration Gas	**Cylinder Conc.**	**Predicted Response**	**Actual Response**	**Calibration Error**	**Acceptance Criteria**
Low Gas	2961	2960	3005	1.5	< 5% of cylinder concentration
Mid Gas	5052	5050	5029	0.4	< 5% of cylinder concentration

Where:

Predicted Response = (Cylinder Concentration) x (Response Line)

Calibration Error = (Actual Response - Predicted Response) / Cylinder Concentration x 100

Post Calibration Summary	
Operator:	SO
Date:	13-Apr-13
Time:	7:22

Post Calibration Drift Data						
Calibration Gas	**Cylinder Conc.**	**Initial Test Response**	**Final Test Response**	**Calibration Drift**	**Acceptance Criteria**	
Post Cal 1 Zero	0	1	16	**0.15**	< 3% of the measurement range	
Post Cal 1 Upscale	2961	3005	3025	**0.20**	< 3% of the measurement range	
					Test Avg. Conc.	**783**

Where:

Calibration Drift = (Final Test Response - Initial Test Response) * 100

Gas Cylinder Data						
Calibration Gas	**Required % of Span**	**Cylinder Conc.**	**Cylinder Composition**	**Cylinder Number**	**Expiration Date**	**Actual % of Span**
Fuel	N/A		UHP H2		N/A	N/A
Combustion Air			UHP Air		N/A	
Zero Gas	<0.1%	0	UHP Air		N/A	0%
Low Gas	25-35	2,961	Propane/Air	CC103130	7/10/2015	30%
Mid Gas	45-55	5,052	Propane/Air	CC311566	2/22/2015	51%
High Gas	80-90	8,367	Propane/Air	C111354	3/2/2016	84%

System Response Time = **120 seconds**

Method 25A Calibration Data Sheet - Total Hydrocarbons

Source Summary			
Facility:	Global South Portland		
Source/Location:	Residual Oil Tank #3		
Start Date	13-Apr-13	End Date:	13-Apr-13
Start Time:	0:00	End Time:	23:59

THC Analyzer Data		
Manufacturer -	VIG	
Model/Serial Number -	200 / 2660406	
Fuel Pressure -	6.5	
Combustion Air Pressure -	5.5	
Sample Pressure -	1.5	
Range -	0 - 10,000	
Calibrant (choose one, x in box)	Propane	x
	Methane	
Cal Gas Molecular Weight:	**44.09**	**g/mol**

Initial Calibration Summary	
Operator:	A. Stratton
Date:	11-Apr-13
Time:	16:30

Initial Calibration Data (Hi / Zero)

Calibration Gas	Cylinder Conc.	Actual Response
Zero Gas	0.0	1
High Gas	8367	8364
Response Line	1.000	

Where: Response Line = (Ha-Za)/(Hc-Zc)

Initial Calibration Data (Mid / Low)

Calibration Gas	Cylinder Conc.	Predicted Response	Actual Response	Calibration Error	Acceptance Criteria
Low Gas	2961	2960	3005	1.5	< 5% of cylinder concentration
Mid Gas	5052	5050	5029	0.4	< 5% of cylinder concentration

Where:

Predicted Response = (Cylinder Concentration) x (Response Line)

Calibration Error = (Actual Response - Predicted Response) / Cylinder Concentration x 100

Post Calibration Summary	
Operator:	SO
Date:	14-Apr-13
Time:	8:30

Post Calibration Drift Data

Calibration Gas	Cylinder Conc.	Initial Test Response	Final Test Response	Calibration Drift	Acceptance Criteria
Post Cal 1 Zero	0	1	14	**0.13**	< 3% of the measurement range
Post Cal 1 Upscale	2961	3005	2995	**0.10**	< 3% of the measurement range
					Test Avg. Conc. **1,092**

Where:

Calibration Drift = (Final Test Response - Initial Test Response) * 100

Gas Cylinder Data

Calibration Gas	Required % of Span	Cylinder Conc.	Cylinder Composition	Cylinder Number	Expiration Date	Actual % of Span
Fuel	N/A		UHP H2		N/A	N/A
Combustion Air			UHP Air		N/A	
Zero Gas	<0.1%	0	UHP Air		N/A	0%
Low Gas	25-35	2,961	Propane/Air	CC103130	7/10/2015	30%
Mid Gas	45-55	5,052	Propane/Air	CC311566	2/22/2015	51%
High Gas	80-90	8,367	Propane/Air	C111354	3/2/2016	84%

System Response Time = 120 seconds

Method 25A Calibration Data Sheet - Total Hydrocarbons

Source Summary			
Facility:	Global South Portland		
Source/Location:	Residual Oil Tank #3		
Start Date	14-Apr-13	End Date:	14-Apr-13
Start Time:	0:00	End Time:	23:59

THC Analyzer Data		
Manufacturer -	VIG	
Model/Serial Number -	200 / 2660406	
Fuel Pressure -	6.5	
Combustion Air Pressure -	5.5	
Sample Pressure -	1.5	
Range -	0 - 10,000	
Calibrant (choose one, x in box)	Propane	x
	Methane	
Cal Gas Molecular Weight:	**44.09**	**g/mol**

Initial Calibration Summary	
Operator:	A. Stratton
Date:	11-Apr-13
Time:	16:30

Initial Calibration Data (Hi / Zero)		
Calibration Gas	Cylinder Conc.	Actual Response
Zero Gas	0.0	1
High Gas	8367	8364
Response Line	1.000	

Where: Response Line = (Ha-Za)/(Hc-Zc)

Initial Calibration Data (Mid / Low)

Calibration Gas	Cylinder Conc.	Predicted Response	Actual Response	Calibration Error	Acceptance Criteria
Low Gas	2961	2960	3005	1.5	< 5% of cylinder concentration
Mid Gas	5052	5050	5029	0.4	< 5% of cylinder concentration

Where:

Predicted Response = (Cylinder Concentration) x (Response Line)

Calibration Error = (Actual Response - Predicted Response) / Cylinder Concentration x 100

Post Calibration Summary	
Operator:	SO
Date:	15-Apr-13
Time:	8:30

Post Calibration Drift Data

Calibration Gas	Cylinder Conc.	Initial Test Response	Final Test Response	Calibration Drift	Acceptance Criteria
Post Cal 1 Zero	0	1	3	**0.02**	< 3% of the measurement range
Post Cal 1 Upscale	2961	3005	2999	**0.06**	< 3% of the measurement range
				Test Avg. Conc.	**714**

Where:

Calibration Drift = (Final Test Response - Initial Test Response) * 100

Gas Cylinder Data

Calibration Gas	Required % of Span	Cylinder Conc.	Cylinder Composition	Cylinder Number	Expiration Date	Actual % of Span
Fuel	N/A		UHP H2		N/A	N/A
Combustion Air			UHP Air		N/A	
Zero Gas	<0.1%	0	UHP Air		N/A	0%
Low Gas	25-35	2,961	Propane/Air	CC103130	7/10/2015	30%
Mid Gas	45-55	5,052	Propane/Air	CC311566	2/22/2015	51%
High Gas	80-90	8,367	Propane/Air	C111354	3/2/2016	84%

System Response Time = 120 seconds

Method 25A Calibration Data Sheet - Total Hydrocarbons

Source Summary			
Facility:	Global South Portland		
Source/Location:	Residual Oil Tank #3		
Start Date	15-Apr-13	End Date:	15-Apr-13
Start Time:	0:00	End Time:	20:43

THC Analyzer Data		
Manufacturer -	VIG	
Model/Serial Number -	200 / 2660406	
Fuel Pressure -	6.5	
Combustion Air Pressure -	5.5	
Sample Pressure -	1.5	
Range -	0 - 10,000	
Calibrant (choose one, x in box)	Propane	x
	Methane	
Cal Gas Molecular Weight:	**44.09**	**g/mol**

Initial Calibration Summary	
Operator:	A. Stratton
Date:	11-Apr-13
Time:	16:30

Initial Calibration Data (Hi / Zero)		
Calibration Gas	Cylinder Conc.	Actual Response
Zero Gas	0.0	1
High Gas	8367	8364
Response Line	1.000	

Where: Response Line = (Ha-Za)/(Hc-Zc)

Initial Calibration Data (Mid / Low)

Calibration Gas	Cylinder Conc.	Predicted Response	Actual Response	Calibration Error	Acceptance Criteria
Low Gas	2961	2960	3005	1.5	< 5% of cylinder concentration
Mid Gas	5052	5050	5029	0.4	< 5% of cylinder concentration

Where:

Predicted Response = (Cylinder Concentration) x (Response Line)

Calibration Error = (Actual Response - Predicted Response) / Cylinder Concentration x 100

Post Calibration Summary	
Operator:	AMS
Date:	15-Apr-13
Time:	21:30

Post Calibration Drift Data

Calibration Gas	Cylinder Conc.	Initial Test Response	Final Test Response	Calibration Drift	Acceptance Criteria
Post Cal 1 Zero	0	1	1	**0.00**	< 3% of the measurement range
Post Cal 1 Upscale	2961	3005	2989	**0.16**	< 3% of the measurement range
					Test Avg. Conc. **1,201**

Where:

Calibration Drift = (Final Test Response - Initial Test Response) * 100

Gas Cylinder Data

Calibration Gas	Required % of Span	Cylinder Conc.	Cylinder Composition	Cylinder Number	Expiration Date	Actual % of Span
Fuel	N/A		UHP H2		N/A	N/A
Combustion Air			UHP Air		N/A	
Zero Gas	<0.1%	0	UHP Air		N/A	0%
Low Gas	25-35	2,961	Propane/Air	CC103130	7/10/2015	30%
Mid Gas	45-55	5,052	Propane/Air	CC311566	2/22/2015	51%
High Gas	80-90	8,367	Propane/Air	C111354	3/2/2016	84%

System Response Time = 120 seconds

Method 25A Calibration Data Sheet - Total Hydrocarbons

Source Summary			
Facility:	Global South Portland		
Source/Location:	Residual Oil Tank #3		
Start Date	16-Apr-13	End Date:	16-Apr-13
Start Time:	11:30	End Time:	23:59

THC Analyzer Data		
Manufacturer -	VIG	
Model/Serial Number -	200 / 2660406	
Fuel Pressure -	6.5	
Combustion Air Pressure -	5.5	
Sample Pressure -	1.5	
Range -	0 - 10,000	
Calibrant (choose one, x in box)	Propane	x
	Methane	
Cal Gas Molecular Weight:	**44.09**	**g/mol**

Initial Calibration Summary	
Operator:	A. Stratton
Date:	15-Apr-13
Time:	21:30

Initial Calibration Data (Hi / Zero)		
Calibration Gas	Cylinder Conc.	Actual Response
Zero Gas	0.0	1
High Gas	8367	8367
Response Line	1.000	

Where: Response Line = (Ha-Za)/(Hc-Zc)

Initial Calibration Data (Mid / Low)

Calibration Gas	Cylinder Conc.	Predicted Response	Actual Response	Calibration Error	Acceptance Criteria
Low Gas	2961	2961	2989	1.0	< 5% of cylinder concentration
Mid Gas	5052	5051	5040	0.2	< 5% of cylinder concentration

Where:

Predicted Response = (Cylinder Concentration) x (Response Line)

Calibration Error = (Actual Response - Predicted Response) / Cylinder Concentration x 100

Post Calibration Summary	
Operator:	MP
Date:	17-Apr-13
Time:	8:05

Post Calibration Drift Data

Calibration Gas	Cylinder Conc.	Initial Test Response	Final Test Response	Calibration Drift	Acceptance Criteria
Post Cal 1 Zero	0	1	8	**0.07**	< 3% of the measurement range
Post Cal 1 Upscale	2961	2989	2931	**0.58**	< 3% of the measurement range
					Test Avg. Conc. **1,069**

Where:

Calibration Drift = (Final Test Response - Initial Test Response) * 100

Gas Cylinder Data

Calibration Gas	Required % of Span	Cylinder Conc.	Cylinder Composition	Cylinder Number	Expiration Date	Actual % of Span
Fuel	N/A		UHP H2		N/A	N/A
Combustion Air			UHP Air		N/A	
Zero Gas	<0.1%	0	UHP Air		N/A	0%
Low Gas	25-35	2,961	Propane/Air	CC103130	7/10/2015	30%
Mid Gas	45-55	5,052	Propane/Air	CC311566	2/22/2015	51%
High Gas	80-90	8,367	Propane/Air	C111354	3/2/2016	84%

System Response Time = 120 seconds

Method 25A Calibration Data Sheet - Total Hydrocarbons

Source Summary			
Facility:	Global South Portland		
Source/Location:	Residual Oil Tank #3		
Start Date	17-Apr-13	End Date:	17-Apr-13
Start Time:	0:00	End Time:	23:59

THC Analyzer Data		
Manufacturer -	VIG	
Model/Serial Number -	200 / 2660406	
Fuel Pressure -	6.5	
Combustion Air Pressure -	5.5	
Sample Pressure -	1.5	
Range -	0 - 10,000	
Calibrant (choose one, x in box)	Propane	x
	Methane	
Cal Gas Molecular Weight:	**44.09**	**g/mol**

Initial Calibration Summary	
Operator:	A. Stratton
Date:	15-Apr-13
Time:	21:30

Initial Calibration Data (Hi / Zero)

Calibration Gas	Cylinder Conc.	Actual Response
Zero Gas	0.0	1
High Gas	8367	8367
Response Line	1.000	

Where: Response Line = (Ha-Za)/(Hc-Zc)

Initial Calibration Data (Mid / Low)

Calibration Gas	Cylinder Conc.	Predicted Response	Actual Response	Calibration Error	Acceptance Criteria
Low Gas	2961	2961	2989	1.0	< 5% of cylinder concentration
Mid Gas	5052	5051	5040	0.2	< 5% of cylinder concentration

Where:

Predicted Response = (Cylinder Concentration) x (Response Line)

Calibration Error = (Actual Response - Predicted Response) / Cylinder Concentration x 100

Post Calibration Summary	
Operator:	MP
Date:	18-Apr-13
Time:	8:10

Post Calibration Drift Data

Calibration Gas	Cylinder Conc.	Initial Test Response	Final Test Response	Calibration Drift	Acceptance Criteria
Post Cal 1 Zero	0	1	10	**0.09**	< 3% of the measurement range
Post Cal 1 Upscale	2961	2989	2920	**0.69**	< 3% of the measurement range
					Test Avg. Conc. **950**

Where:

Calibration Drift = (Final Test Response - Initial Test Response) * 100

Gas Cylinder Data

Calibration Gas	Required % of Span	Cylinder Conc.	Cylinder Composition	Cylinder Number	Expiration Date	Actual % of Span
Fuel	N/A		UHP H2		N/A	N/A
Combustion Air			UHP Air		N/A	
Zero Gas	<0.1%	0	UHP Air		N/A	0%
Low Gas	25-35	2,961	Propane/Air	CC103130	7/10/2015	30%
Mid Gas	45-55	5,052	Propane/Air	CC311566	2/22/2015	51%
High Gas	80-90	8,367	Propane/Air	C111354	3/2/2016	84%

System Response Time = 120 seconds

Method 25A Calibration Data Sheet - Total Hydrocarbons

Source Summary			
Facility:	Global South Portland		
Source/Location:	Residual Oil Tank #3		
Start Date	18-Apr-13	End Date:	18-Apr-13
Start Time:	0:00	End Time:	23:59

THC Analyzer Data		
Manufacturer -	VIG	
Model/Serial Number -	200 / 2660406	
Fuel Pressure -	6.5	
Combustion Air Pressure -	5.5	
Sample Pressure -	1.5	
Range -	0 - 10,000	
Calibrant (choose one, x in box)	Propane	x
	Methane	
Cal Gas Molecular Weight:	**44.09**	**g/mol**

Initial Calibration Summary	
Operator:	A. Stratton
Date:	15-Apr-13
Time:	21:30

Initial Calibration Data (Hi / Zero)

Calibration Gas	Cylinder Conc.	Actual Response
Zero Gas	0.0	1
High Gas	8367	8367
Response Line	1.000	

Where: Response Line = (Ha-Za)/(Hc-Zc)

Initial Calibration Data (Mid / Low)

Calibration Gas	Cylinder Conc.	Predicted Response	Actual Response	Calibration Error	Acceptance Criteria
Low Gas	2961	2961	2989	1.0	< 5% of cylinder concentration
Mid Gas	5052	5051	5040	0.2	< 5% of cylinder concentration

Where:

Predicted Response = (Cylinder Concentration) x (Response Line)

Calibration Error = (Actual Response - Predicted Response) / Cylinder Concentration x 100

Post Calibration Summary	
Operator:	MP
Date:	19-Apr-13
Time:	8:35

Post Calibration Drift Data

Calibration Gas	Cylinder Conc.	Initial Test Response	Final Test Response	Calibration Drift	Acceptance Criteria
Post Cal 1 Zero	0	1	10	**0.09**	< 3% of the measurement range
Post Cal 1 Upscale	2961	2989	2920	**0.69**	< 3% of the measurement range
					Test Avg. Conc. **847**

Where:

Calibration Drift = (Final Test Response - Initial Test Response) * 100

Gas Cylinder Data

Calibration Gas	Required % of Span	Cylinder Conc.	Cylinder Composition	Cylinder Number	Expiration Date	Actual % of Span
Fuel	N/A		UHP H2		N/A	N/A
Combustion Air			UHP Air		N/A	
Zero Gas	<0.1%	0	UHP Air		N/A	0%
Low Gas	25-35	2,961	Propane/Air	CC103130	7/10/2015	30%
Mid Gas	45-55	5,052	Propane/Air	CC311566	2/22/2015	51%
High Gas	80-90	8,367	Propane/Air	C111354	3/2/2016	84%

System Response Time = 120 seconds

Method 25A Calibration Data Sheet - Total Hydrocarbons

Source Summary			
Facility:	Global South Portland		
Source/Location:	Residual Oil Tank #3		
Start Date	19-Apr-13	End Date:	19-Apr-13
Start Time:	0:00	End Time:	23:59

THC Analyzer Data		
Manufacturer -	VIG	
Model/Serial Number -	200 / 2660406	
Fuel Pressure -	6.5	
Combustion Air Pressure -	5.5	
Sample Pressure -	1.5	
Range -	0 - 10,000	
Calibrant (choose one, x in box)	Propane	x
	Methane	
Cal Gas Molecular Weight:	**44.09**	**g/mol**

Initial Calibration Summary	
Operator:	A. Stratton
Date:	15-Apr-13
Time:	21:30

Initial Calibration Data (Hi / Zero)

Calibration Gas	Cylinder Conc.	Actual Response
Zero Gas	0.0	1
High Gas	8367	8367
Response Line	1.000	

Where: Response Line = (Ha-Za)/(Hc-Zc)

Initial Calibration Data (Mid / Low)

Calibration Gas	Cylinder Conc.	Predicted Response	Actual Response	Calibration Error	Acceptance Criteria
Low Gas	2961	2961	2989	1.0	< 5% of cylinder concentration
Mid Gas	5052	5051	5040	0.2	< 5% of cylinder concentration

Where:

Predicted Response = (Cylinder Concentration) x (Response Line)

Calibration Error = (Actual Response - Predicted Response) / Cylinder Concentration x 100

Post Calibration Summary	
Operator:	SO
Date:	20-Apr-13
Time:	8:01

Post Calibration Drift Data

Calibration Gas	Cylinder Conc.	Initial Test Response	Final Test Response	Calibration Drift	Acceptance Criteria
Post Cal 1 Zero	0	1	2	**0.01**	< 3% of the measurement range
Post Cal 1 Upscale	2961	2989	2990	**0.01**	< 3% of the measurement range
					Test Avg. Conc. **1,274**

Where:

Calibration Drift = (Final Test Response - Initial Test Response) * 100

Gas Cylinder Data

Calibration Gas	Required % of Span	Cylinder Conc.	Cylinder Composition	Cylinder Number	Expiration Date	Actual % of Span
Fuel	N/A		UHP H2		N/A	N/A
Combustion Air			UHP Air		N/A	
Zero Gas	<0.1%	0	UHP Air		N/A	0%
Low Gas	25-35	2,961	Propane/Air	CC103130	7/10/2015	30%
Mid Gas	45-55	5,052	Propane/Air	CC311566	2/22/2015	51%
High Gas	80-90	8,367	Propane/Air	C111354	3/2/2016	84%

System Response Time = 120 seconds

Method 25A Calibration Data Sheet - Total Hydrocarbons

Source Summary			
Facility:	Global South Portland		
Source/Location:	Residual Oil Tank #3		
Start Date	20-Apr-13	End Date:	20-Apr-13
Start Time:	0:00	End Time:	23:59

THC Analyzer Data		
Manufacturer -	VIG	
Model/Serial Number -	200 / 2660406	
Fuel Pressure -	6.5	
Combustion Air Pressure -	5.5	
Sample Pressure -	1.5	
Range -	0 -	10,000
Calibrant (choose one, x in box)	Propane	x
	Methane	
Cal Gas Molecular Weight:	**44.09**	**g/mol**

Initial Calibration Summary	
Operator:	A. Stratton
Date:	15-Apr-13
Time:	21:30

Initial Calibration Data (Hi / Zero)		
Calibration Gas	Cylinder Conc.	Actual Response
Zero Gas	0.0	1
High Gas	8367	8367
Response Line	1.000	

Where: Response Line = (Ha-Za)/(Hc-Zc)

Initial Calibration Data (Mid / Low)

Calibration Gas	Cylinder Conc.	Predicted Response	Actual Response	Calibration Error	Acceptance Criteria
Low Gas	2961	2961	2989	1.0	< 5% of cylinder concentration
Mid Gas	5052	5051	5040	0.2	< 5% of cylinder concentration

Where:

Predicted Response = (Cylinder Concentration) x (Response Line)

Calibration Error = (Actual Response - Predicted Response) / Cylinder Concentration x 100

Post Calibration Summary	
Operator:	SO
Date:	22-Apr-13
Time:	7:34

Post Calibration Drift Data

Calibration Gas	Cylinder Conc.	Initial Test Response	Final Test Response	Calibration Drift	Acceptance Criteria
Post Cal 1 Zero	0	1	2	**0.01**	< 3% of the measurement range
Post Cal 1 Upscale	2961	2989	2940	**0.49**	< 3% of the measurement range
					Test Avg. Conc. **1,066**

Where:

Calibration Drift = (Final Test Response - Initial Test Response) * 100

Gas Cylinder Data

Calibration Gas	Required % of Span	Cylinder Conc.	Cylinder Composition	Cylinder Number	Expiration Date	Actual % of Span
Fuel	N/A		UHP H2		N/A	N/A
Combustion Air			UHP Air		N/A	
Zero Gas	<0.1%	0	UHP Air		N/A	0%
Low Gas	25-35	2,961	Propane/Air	CC103130	7/10/2015	30%
Mid Gas	45-55	5,052	Propane/Air	CC311566	2/22/2015	51%
High Gas	80-90	8,367	Propane/Air	C111354	3/2/2016	84%

System Response Time = 120 seconds

Method 25A Calibration Data Sheet - Total Hydrocarbons

Source Summary			
Facility:	Global South Portland		
Source/Location:	Residual Oil Tank #3		
Start Date	21-Apr-13	End Date:	21-Apr-13
Start Time:	0:00	End Time:	23:59

THC Analyzer Data		
Manufacturer -	VIG	
Model/Serial Number -	200 / 2660406	
Fuel Pressure -	6.5	
Combustion Air Pressure -	5.5	
Sample Pressure -	1.5	
Range -	0 - 10,000	
Calibrant (choose one, x in box)	Propane	x
	Methane	
Cal Gas Molecular Weight:	**44.09**	**g/mol**

Initial Calibration Summary	
Operator:	A. Stratton
Date:	15-Apr-13
Time:	21:30

Initial Calibration Data (Hi / Zero)

Calibration Gas	Cylinder Conc.	Actual Response
Zero Gas	0.0	1
High Gas	8367	8367
Response Line	1.000	

Where: Response Line = (Ha-Za)/(Hc-Zc)

Initial Calibration Data (Mid / Low)

Calibration Gas	Cylinder Conc.	Predicted Response	Actual Response	Calibration Error	Acceptance Criteria
Low Gas	2961	2961	2989	1.0	< 5% of cylinder concentration
Mid Gas	5052	5051	5040	0.2	< 5% of cylinder concentration

Where:

Predicted Response = (Cylinder Concentration) x (Response Line)

Calibration Error = (Actual Response - Predicted Response) / Cylinder Concentration x 100

Post Calibration Summary	
Operator:	SO
Date:	22-Apr-13
Time:	7:34

Post Calibration Drift Data

Calibration Gas	Cylinder Conc.	Initial Test Response	Final Test Response	Calibration Drift	Acceptance Criteria
Post Cal 1 Zero	0	1	2	**0.01**	< 3% of the measurement range
Post Cal 1 Upscale	2961	2989	2940	**0.49**	< 3% of the measurement range
					Test Avg. Conc. **1,001**

Where:

Calibration Drift = (Final Test Response - Initial Test Response) * 100

Gas Cylinder Data

Calibration Gas	Required % of Span	Cylinder Conc.	Cylinder Composition	Cylinder Number	Expiration Date	Actual % of Span
Fuel	N/A		UHP H2		N/A	N/A
Combustion Air			UHP Air		N/A	
Zero Gas	<0.1%	0	UHP Air		N/A	0%
Low Gas	25-35	2,961	Propane/Air	CC103130	7/10/2015	30%
Mid Gas	45-55	5,052	Propane/Air	CC311566	2/22/2015	51%
High Gas	80-90	8,367	Propane/Air	C111354	3/2/2016	84%

System Response Time = 120 seconds

Method 25A Calibration Data Sheet - Total Hydrocarbons

Source Summary			
Facility:	Global South Portland		
Source/Location:	Residual Oil Tank #3		
Start Date	22-Apr-13	End Date:	22-Apr-13
Start Time:	0:00	End Time:	23:59

THC Analyzer Data		
Manufacturer -	VIG	
Model/Serial Number -	200 / 2660406	
Fuel Pressure -	6.5	
Combustion Air Pressure -	5.5	
Sample Pressure -	1.5	
Range -	0 - 10,000	
Calibrant (choose one, x in box)	Propane	x
	Methane	
Cal Gas Molecular Weight:	**44.09**	**g/mol**

Initial Calibration Summary	
Operator:	A. Stratton
Date:	15-Apr-13
Time:	21:30

Initial Calibration Data (Hi / Zero)

Calibration Gas	Cylinder Conc.	Actual Response
Zero Gas	0.0	1
High Gas	8367	8367
Response Line	1.000	

Where: Response Line = (Ha-Za)/(Hc-Zc)

Initial Calibration Data (Mid / Low)

Calibration Gas	Cylinder Conc.	Predicted Response	Actual Response	Calibration Error	Acceptance Criteria
Low Gas	2961	2961	2989	1.0	< 5% of cylinder concentration
Mid Gas	5052	5051	5040	0.2	< 5% of cylinder concentration

Where:

Predicted Response = (Cylinder Concentration) x (Response Line)

Calibration Error = (Actual Response - Predicted Response) / Cylinder Concentration x 100

Post Calibration Summary	
Operator:	SO
Date:	23-Apr-13
Time:	7:58

Post Calibration Drift Data

Calibration Gas	Cylinder Conc.	Initial Test Response	Final Test Response	Calibration Drift	Acceptance Criteria
Post Cal 1 Zero	0	1	48	**0.47**	< 3% of the measurement range
Post Cal 1 Upscale	2961	2989	2970	**0.19**	< 3% of the measurement range
					Test Avg. Conc. **965**

Where:

Calibration Drift = (Final Test Response - Initial Test Response) * 100

Gas Cylinder Data

Calibration Gas	Required % of Span	Cylinder Conc.	Cylinder Composition	Cylinder Number	Expiration Date	Actual % of Span
Fuel	N/A		UHP H2		N/A	N/A
Combustion Air			UHP Air		N/A	
Zero Gas	<0.1%	0	UHP Air		N/A	0%
Low Gas	25-35	2,961	Propane/Air	CC103130	7/10/2015	30%
Mid Gas	45-55	5,052	Propane/Air	CC311566	2/22/2015	51%
High Gas	80-90	8,367	Propane/Air	C111354	3/2/2016	84%

System Response Time = 120 seconds

Method 25A Calibration Data Sheet - Total Hydrocarbons

Source Summary			
Facility:	Global South Portland		
Source/Location:	Residual Oil Tank #3		
Start Date	23-Apr-13	End Date:	23-Apr-13
Start Time:	0:00	End Time:	23:59

THC Analyzer Data		
Manufacturer -	VIG	
Model/Serial Number -	200 / 2660406	
Fuel Pressure -	6.5	
Combustion Air Pressure -	5.5	
Sample Pressure -	1.5	
Range -	0 -	10,000
Calibrant (choose one, x in box)	Propane	x
	Methane	
Cal Gas Molecular Weight:	**44.09**	**g/mol**

Initial Calibration Summary	
Operator:	A. Stratton
Date:	15-Apr-13
Time:	21:30

Initial Calibration Data (Hi / Zero)

Calibration Gas	Cylinder Conc.	Actual Response
Zero Gas	0.0	1
High Gas	8367	8367
Response Line	1.000	

Where: Response Line = (Ha-Za)/(Hc-Zc)

Initial Calibration Data (Mid / Low)

Calibration Gas	Cylinder Conc.	Predicted Response	Actual Response	Calibration Error	Acceptance Criteria
Low Gas	2961	2961	2989	1.0	< 5% of cylinder concentration
Mid Gas	5052	5051	5040	0.2	< 5% of cylinder concentration

Where:

Predicted Response = (Cylinder Concentration) x (Response Line)

Calibration Error = (Actual Response - Predicted Response) / Cylinder Concentration x 100

Post Calibration Summary	
Operator:	MP
Date:	24-Apr-13
Time:	9:55

Post Calibration Drift Data

Calibration Gas	Cylinder Conc.	Initial Test Response	Final Test Response	Calibration Drift	Acceptance Criteria
Post Cal 1 Zero	0	1	12	**0.11**	< 3% of the measurement range
Post Cal 1 Upscale	2961	2989	2970	**0.19**	< 3% of the measurement range
					Test Avg. Conc. **1,128**

Where:

Calibration Drift = (Final Test Response - Initial Test Response) * 100

Gas Cylinder Data

Calibration Gas	Required % of Span	Cylinder Conc.	Cylinder Composition	Cylinder Number	Expiration Date	Actual % of Span
Fuel	N/A		UHP H2		N/A	N/A
Combustion Air			UHP Air		N/A	
Zero Gas	<0.1%	0	UHP Air		N/A	0%
Low Gas	25-35	2,961	Propane/Air	CC103130	7/10/2015	30%
Mid Gas	45-55	5,052	Propane/Air	CC311566	2/22/2015	51%
High Gas	80-90	8,367	Propane/Air	C111354	3/2/2016	84%

System Response Time = 120 seconds

Method 25A Calibration Data Sheet - Total Hydrocarbons

Source Summary			
Facility:	Global South Portland		
Source/Location:	Residual Oil Tank #3		
Start Date	24-Apr-13	End Date:	24-Apr-13
Start Time:	0:00	End Time:	23:59

THC Analyzer Data			
Manufacturer -	VIG		
Model/Serial Number -	200 / 2660406		
Fuel Pressure -	6.5		
Combustion Air Pressure -	5.5		
Sample Pressure -	1.5		
Range -	0	-	10,000
Calibrant (choose one, x in box)	Propane		x
	Methane		
Cal Gas Molecular Weight:	**44.09**		**g/mol**

Initial Calibration Summary	
Operator:	A. Stratton
Date:	15-Apr-13
Time:	21:30

Initial Calibration Data (Hi / Zero)

Calibration Gas	Cylinder Conc.	Actual Response
Zero Gas	0.0	1
High Gas	8367	8367
Response Line	1.000	

Where: Response Line = (Ha-Za)/(Hc-Zc)

Initial Calibration Data (Mid / Low)

Calibration Gas	Cylinder Conc.	Predicted Response	Actual Response	Calibration Error	Acceptance Criteria
Low Gas	2961	2961	2989	1.0	< 5% of cylinder concentration
Mid Gas	5052	5051	5040	0.2	< 5% of cylinder concentration

Where:

Predicted Response = (Cylinder Concentration) x (Response Line)

Calibration Error = (Actual Response - Predicted Response) / Cylinder Concentration x 100

Post Calibration Summary	
Operator:	MP
Date:	25-Apr-13
Time:	8:00

Post Calibration Drift Data

Calibration Gas	Cylinder Conc.	Initial Test Response	Final Test Response	Calibration Drift	Acceptance Criteria
Post Cal 1 Zero	0	1	12	**0.11**	< 3% of the measurement range
Post Cal 1 Upscale	2961	2989	3070	**0.81**	< 3% of the measurement range
					Test Avg. Conc. **1,220**

Where:

Calibration Drift = (Final Test Response - Initial Test Response) * 100

Gas Cylinder Data

Calibration Gas	Required % of Span	Cylinder Conc.	Cylinder Composition	Cylinder Number	Expiration Date	Actual % of Span
Fuel	N/A		UHP H2		N/A	N/A
Combustion Air			UHP Air		N/A	
Zero Gas	<0.1%	0	UHP Air		N/A	0%
Low Gas	25-35	2,961	Propane/Air	CC103130	7/10/2015	30%
Mid Gas	45-55	5,052	Propane/Air	CC311566	2/22/2015	51%
High Gas	80-90	8,367	Propane/Air	C111354	3/2/2016	84%

System Response Time = 120 seconds

Method 25A Calibration Data Sheet - Total Hydrocarbons

Source Summary			
Facility:	Global South Portland		
Source/Location:	Residual Oil Tank #3		
Start Date	25-Apr-13	End Date:	25-Apr-13
Start Time:	0:00	End Time:	23:59

THC Analyzer Data		
Manufacturer -	VIG	
Model/Serial Number -	200 / 2660406	
Fuel Pressure -	6.5	
Combustion Air Pressure -	5.5	
Sample Pressure -	1.5	
Range -	0 - 10,000	
Calibrant (choose one, x in box)	Propane	x
	Methane	
Cal Gas Molecular Weight:	**44.09**	**g/mol**

Initial Calibration Summary	
Operator:	A. Stratton
Date:	15-Apr-13
Time:	21:30

Initial Calibration Data (Hi / Zero)

Calibration Gas	Cylinder Conc.	Actual Response
Zero Gas	0.0	1
High Gas	8367	8367
Response Line	1.000	

Where: Response Line = (Ha-Za)/(Hc-Zc)

Initial Calibration Data (Mid / Low)

Calibration Gas	Cylinder Conc.	Predicted Response	Actual Response	Calibration Error	Acceptance Criteria
Low Gas	2961	2961	2989	1.0	< 5% of cylinder concentration
Mid Gas	5052	5051	5040	0.2	< 5% of cylinder concentration

Where:

Predicted Response = (Cylinder Concentration) x (Response Line)

Calibration Error = (Actual Response - Predicted Response) / Cylinder Concentration x 100

Post Calibration Summary	
Operator:	MP
Date:	26-Apr-13
Time:	12:45

Post Calibration Drift Data

Calibration Gas	Cylinder Conc.	Initial Test Response	Final Test Response	Calibration Drift	Acceptance Criteria
Post Cal 1 Zero	0	1	15	**0.14**	< 3% of the measurement range
Post Cal 1 Upscale	2961	2989	3040	**0.51**	< 3% of the measurement range
					Test Avg. Conc. **935**

Where:

Calibration Drift = (Final Test Response - Initial Test Response) * 100

Gas Cylinder Data

Calibration Gas	Required % of Span	Cylinder Conc.	Cylinder Composition	Cylinder Number	Expiration Date	Actual % of Span
Fuel	N/A		UHP H2		N/A	N/A
Combustion Air			UHP Air		N/A	
Zero Gas	<0.1%	0	UHP Air		N/A	0%
Low Gas	25-35	2,961	Propane/Air	CC103130	7/10/2015	30%
Mid Gas	45-55	5,052	Propane/Air	CC311566	2/22/2015	51%
High Gas	80-90	8,367	Propane/Air	C111354	3/2/2016	84%

System Response Time = 120 seconds

Method 25A Calibration Data Sheet - Total Hydrocarbons

Source Summary			
Facility:	Global South Portland		
Source/Location:	Residual Oil Tank #3		
Start Date	26-Apr-13	End Date:	26-Apr-13
Start Time:	0:00	End Time:	12:44

THC Analyzer Data		
Manufacturer -	VIG	
Model/Serial Number -	200 / 2660406	
Fuel Pressure -	6.5	
Combustion Air Pressure -	5.5	
Sample Pressure -	1.5	
Range -	0 - 10,000	
Calibrant (choose one, x in box)	Propane	x
	Methane	
Cal Gas Molecular Weight:	**44.09**	**g/mol**

Initial Calibration Summary	
Operator:	A. Stratton
Date:	15-Apr-13
Time:	21:30

Initial Calibration Data (Hi / Zero)

Calibration Gas	Cylinder Conc.	Actual Response
Zero Gas	0.0	1
High Gas	8367	8367
Response Line	1.000	

Where: Response Line = (Ha-Za)/(Hc-Zc)

Initial Calibration Data (Mid / Low)

Calibration Gas	Cylinder Conc.	Predicted Response	Actual Response	Calibration Error	Acceptance Criteria
Low Gas	2961	2961	2989	1.0	< 5% of cylinder concentration
Mid Gas	5052	5051	5040	0.2	< 5% of cylinder concentration

Where:

Predicted Response = (Cylinder Concentration) x (Response Line)

Calibration Error = (Actual Response - Predicted Response) / Cylinder Concentration x 100

Post Calibration Summary	
Operator:	MP
Date:	26-Apr-13
Time:	12:45

Post Calibration Drift Data

Calibration Gas	Cylinder Conc.	Initial Test Response	Final Test Response	Calibration Drift	Acceptance Criteria
Post Cal 1 Zero	0	1	15	**0.14**	< 3% of the measurement range
Post Cal 1 Upscale	2961	2989	3040	**0.51**	< 3% of the measurement range
					Test Avg. Conc. **842**

Where:

Calibration Drift = (Final Test Response - Initial Test Response) * 100

Gas Cylinder Data

Calibration Gas	Required % of Span	Cylinder Conc.	Cylinder Composition	Cylinder Number	Expiration Date	Actual % of Span
Fuel	N/A		UHP H2		N/A	N/A
Combustion Air			UHP Air		N/A	
Zero Gas	<0.1%	0	UHP Air		N/A	0%
Low Gas	25-35	2,961	Propane/Air	CC103130	7/10/2015	30%
Mid Gas	45-55	5,052	Propane/Air	CC311566	2/22/2015	51%
High Gas	80-90	8,367	Propane/Air	C111354	3/2/2016	84%

System Response Time = 120 seconds

Method 25A Calibration Data Sheet - Methane

Source Summary			
Facility:	Global South Portland		
Source/Location:	Residual Oil Tank #3		
Start Date	11-Apr-13	End Date:	11-Apr-13
Start Time:	18:00	End Time:	23:59

THC Analyzer Data		
Manufacturer -	VIG	
Model/Serial Number -	200 / 2660406	
Fuel Pressure -	7.0	
Combustion Air Pressure -	5.5	
Carrier Gas Pressure -	22.0	
Range -	0 - 1,000	
Calibrant (choose one, x in box)	Propane	
	Methane	x
Cal Gas Molecular Weight:	**16.039**	**g/mol**

Initial Calibration Summary	
Operator:	A. Stratton
Date:	11-Apr-13
Time:	16:30

Initial Calibration Data (Hi / Zero)

Calibration Gas	Cylinder Conc.	Actual Response
Zero Gas	0.0	1
High Gas	860	869.0
Response Line	1.009	

Where: Response Line = (Ha-Za)/(Hc-Zc)

Initial Calibration Data (Mid / Low)

Calibration Gas	Cylinder Conc.	Predicted Response	Actual Response	Calibration Error	Acceptance Criteria
Low Gas	290	293	300	2.5	< 5% of cylinder concentration
Mid Gas	504	509	511	0.5	< 5% of cylinder concentration

Where:

Predicted Response = (Cylinder Concentration) x (Response Line)

Calibration Error = (Actual Response - Predicted Response) / Cylinder Concentration x 100

Post Calibration Summary	
Operator:	AMS
Date:	12-Apr-13
Time:	11:30

Post Calibration Drift Data

Calibration Gas	Cylinder Conc.	Initial Test Response	Final Test Response	Calibration Drift	Acceptance Criteria
Post Cal 1 Zero	0	1	2	**0.1**	< 3% of the measurement range
Post Cal 1 Upscale	290	300	289	**1.1**	< 3% of the measurement range
				Test Avg. Conc.	**47**

Where:

Calibration Drift = (Final Test Response - Initial Test Response) * 100

Gas Cylinder Data

Calibration Gas	Required % of Span	Cylinder Conc.	Cylinder Composition	Cylinder Number	Expiration Date	Actual % of Span
Fuel	N/A		UHP H2		N/A	N/A
Combustion Air			UHP Air		N/A	
Zero Gas	<0.1%	0	UHP Air		N/A	0%
Low Gas	25-35	290	CH4/Air	CC198791	4/2/2015	29%
Mid Gas	45-55	504	CH4/Air	CC72704	7/1/2015	50%
High Gas	80-90	860	CH4/Air	CC246069	7/10/2015	86%

System Response Time = 180 seconds

Method 25A Calibration Data Sheet - Methane

Source Summary			
Facility:	Global South Portland		
Source/Location:	Residual Oil Tank #3		
Start Date	12-Apr-13	End Date:	12-Apr-13
Start Time:	0:00	End Time:	23:59

THC Analyzer Data		
Manufacturer -	VIG	
Model/Serial Number -	200 / 2660406	
Fuel Pressure -	7.0	
Combustion Air Pressure -	5.5	
Carrier Gas Pressure -	22.0	
Range -	0 - 1,000	
Calibrant (choose one, x in box)	Propane	
	Methane	x
Cal Gas Molecular Weight:	**16.039**	**g/mol**

Initial Calibration Summary	
Operator:	A. Stratton
Date:	11-Apr-13
Time:	16:30

Initial Calibration Data (Hi / Zero)

Calibration Gas	Cylinder Conc.	Actual Response
Zero Gas	0.0	1
High Gas	860	869.0
Response Line	1.009	

Where: Response Line = (Ha-Za)/(Hc-Zc)

Initial Calibration Data (Mid / Low)

Calibration Gas	Cylinder Conc.	Predicted Response	Actual Response	Calibration Error	Acceptance Criteria
Low Gas	290	293	300	2.5	< 5% of cylinder concentration
Mid Gas	504	509	511	0.5	< 5% of cylinder concentration

Where:

Predicted Response = (Cylinder Concentration) x (Response Line)

Calibration Error = (Actual Response - Predicted Response) / Cylinder Concentration x 100

Post Calibration Summary	
Operator:	SO
Date:	13-Apr-13
Time:	7:22

Post Calibration Drift Data

Calibration Gas	Cylinder Conc.	Initial Test Response	Final Test Response	Calibration Drift	Acceptance Criteria
Post Cal 1 Zero	0	1	2	**0.1**	< 3% of the measurement range
Post Cal 1 Upscale	290	300	287	**1.3**	< 3% of the measurement range
				Test Avg. Conc.	**56**

Where:

Calibration Drift = (Final Test Response - Initial Test Response) * 100

Gas Cylinder Data

Calibration Gas	Required % of Span	Cylinder Conc.	Cylinder Composition	Cylinder Number	Expiration Date	Actual % of Span
Fuel	N/A		UHP H2		N/A	N/A
Combustion Air			UHP Air		N/A	
Zero Gas	<0.1%	0	UHP Air		N/A	0%
Low Gas	25-35	290	CH4/Air	CC198791	4/2/2015	29%
Mid Gas	45-55	504	CH4/Air	CC72704	7/1/2015	50%
High Gas	80-90	860	CH4/Air	CC246069	7/10/2015	86%

System Response Time = 180 seconds

Method 25A Calibration Data Sheet - Methane

Source Summary			
Facility:	Global South Portland		
Source/Location:	Residual Oil Tank #3		
Start Date	13-Apr-13	End Date:	13-Apr-13
Start Time:	0:00	End Time:	23:59

THC Analyzer Data		
Manufacturer -	VIG	
Model/Serial Number -	200 / 2660406	
Fuel Pressure -	7.0	
Combustion Air Pressure -	5.5	
Carrier Gas Pressure -	22.0	
Range -	0 - 1,000	
Calibrant (choose one, x in box)	Propane	
	Methane	x
Cal Gas Molecular Weight:	**16.039**	**g/mol**

Initial Calibration Summary	
Operator:	A. Stratton
Date:	11-Apr-13
Time:	16:30

Initial Calibration Data (Hi / Zero)		
Calibration Gas	Cylinder Conc.	Actual Response
Zero Gas	0.0	1
High Gas	860	869.0
Response Line	1.009	

Where: Response Line = (Ha-Za)/(Hc-Zc)

Initial Calibration Data (Mid / Low)

Calibration Gas	Cylinder Conc.	Predicted Response	Actual Response	Calibration Error	Acceptance Criteria
Low Gas	290	293	300	2.5	< 5% of cylinder concentration
Mid Gas	504	509	511	0.5	< 5% of cylinder concentration

Where:

Predicted Response = (Cylinder Concentration) x (Response Line)

Calibration Error = (Actual Response - Predicted Response) / Cylinder Concentration x 100

Post Calibration Summary	
Operator:	SO
Date:	14-Apr-13
Time:	8:30

Post Calibration Drift Data

Calibration Gas	Cylinder Conc.	Initial Test Response	Final Test Response	Calibration Drift	Acceptance Criteria
Post Cal 1 Zero	0	1	2	**0.1**	< 3% of the measurement range
Post Cal 1 Upscale	290	300	289	**1.1**	< 3% of the measurement range
				Test Avg. Conc.	**64**

Where:

Calibration Drift = (Final Test Response - Initial Test Response) * 100

Gas Cylinder Data

Calibration Gas	Required % of Span	Cylinder Conc.	Cylinder Composition	Cylinder Number	Expiration Date	Actual % of Span
Fuel	N/A		UHP H2		N/A	N/A
Combustion Air			UHP Air		N/A	
Zero Gas	<0.1%	0	UHP Air		N/A	0%
Low Gas	25-35	290	CH4/Air	CC198791	4/2/2015	29%
Mid Gas	45-55	504	CH4/Air	CC72704	7/1/2015	50%
High Gas	80-90	860	CH4/Air	CC246069	7/10/2015	86%

System Response Time = 180 seconds

Method 25A Calibration Data Sheet - Methane

Source Summary			
Facility:	Global South Portland		
Source/Location:	Residual Oil Tank #3		
Start Date	14-Apr-13	End Date:	14-Apr-13
Start Time:	0:00	End Time:	23:59

THC Analyzer Data		
Manufacturer -	VIG	
Model/Serial Number -	200 / 2660406	
Fuel Pressure -	7.0	
Combustion Air Pressure -	5.5	
Carrier Gas Pressure -	22.0	
Range -	0 -	1,000
Calibrant (choose one, x in box)	Propane	
	Methane	x
Cal Gas Molecular Weight:	**16.039**	**g/mol**

Initial Calibration Summary	
Operator:	A. Stratton
Date:	11-Apr-13
Time:	16:30

Initial Calibration Data (Hi / Zero)

Calibration Gas	Cylinder Conc.	Actual Response
Zero Gas	0.0	1
High Gas	860	869.0
Response Line	1.009	

Where: Response Line = (Ha-Za)/(Hc-Zc)

Initial Calibration Data (Mid / Low)

Calibration Gas	Cylinder Conc.	Predicted Response	Actual Response	Calibration Error	Acceptance Criteria
Low Gas	290	293	300	2.5	< 5% of cylinder concentration
Mid Gas	504	509	511	0.5	< 5% of cylinder concentration

Where:

Predicted Response = (Cylinder Concentration) x (Response Line)

Calibration Error = (Actual Response - Predicted Response) / Cylinder Concentration x 100

Post Calibration Summary	
Operator:	SO
Date:	15-Apr-13
Time:	8:30

Note: Technician did not wait long enough for 3 minute cal cycle. AMS checked zero at 21:30, and respinse was 3 ppm. However, 24 ppm still passes zero drift test.

Post Calibration Drift Data

Calibration Gas	Cylinder Conc.	Initial Test Response	Final Test Response	Calibration Drift	Acceptance Criteria
Post Cal 1 Zero	0	1	24	**2.3**	< 3% of the measurement range
Post Cal 1 Upscale	290	300	299	**0.1**	< 3% of the measurement range
				Test Avg. Conc.	**43**

Where:

Calibration Drift = (Final Test Response - Initial Test Response) * 100

Gas Cylinder Data

Calibration Gas	Required % of Span	Cylinder Conc.	Cylinder Composition	Cylinder Number	Expiration Date	Actual % of Span
Fuel	N/A		UHP H2		N/A	N/A
Combustion Air			UHP Air		N/A	
Zero Gas	<0.1%	0	UHP Air		N/A	0%
Low Gas	25-35	290	CH4/Air	CC198791	4/2/2015	29%
Mid Gas	45-55	504	CH4/Air	CC72704	7/1/2015	50%
High Gas	80-90	860	CH4/Air	CC246069	7/10/2015	86%

System Response Time = 180 seconds

Method 25A Calibration Data Sheet - Methane

Source Summary			
Facility:	Global South Portland		
Source/Location:	Residual Oil Tank #3		
Start Date	15-Apr-13	End Date:	15-Apr-13
Start Time:	0:00	End Time:	20:43

THC Analyzer Data		
Manufacturer -	VIG	
Model/Serial Number -	200 / 2660406	
Fuel Pressure -	7.0	
Combustion Air Pressure -	5.5	
Carrier Gas Pressure -	22.0	
Range -	0 -	1,000
Calibrant (choose one, x in box)	Propane	
	Methane	x
Cal Gas Molecular Weight:	**16.039**	**g/mol**

Initial Calibration Summary	
Operator:	A. Stratton
Date:	11-Apr-13
Time:	16:30

Initial Calibration Data (Hi / Zero)		
Calibration Gas	Cylinder Conc.	Actual Response
Zero Gas	0.0	1
High Gas	860	869.0
Response Line	1.009	

Where: Response Line = (Ha-Za)/(Hc-Zc)

Initial Calibration Data (Mid / Low)

Calibration Gas	Cylinder Conc.	Predicted Response	Actual Response	Calibration Error	Acceptance Criteria
Low Gas	290	293	300	2.5	< 5% of cylinder concentration
Mid Gas	504	509	511	0.5	< 5% of cylinder concentration

Where:

Predicted Response = (Cylinder Concentration) x (Response Line)

Calibration Error = (Actual Response - Predicted Response) / Cylinder Concentration x 100

Post Calibration Summary	
Operator:	AMS
Date:	15-Apr-13
Time:	21:30

Note: Technician did not wait long enough for 3 minute cal cycle. AMS checked zero at 21:30, and respinse was 3 ppm. However, 24 ppm still passes zero drift test.

Post Calibration Drift Data

Calibration Gas	Cylinder Conc.	Initial Test Response	Final Test Response	Calibration Drift	Acceptance Criteria
Post Cal 1 Zero	0	1	2	0.1	< 3% of the measurement range
Post Cal 1 Upscale	290	300	301	0.1	< 3% of the measurement range
				Test Avg. Conc.	62

Where:

Calibration Drift = (Final Test Response - Initial Test Response) * 100

Gas Cylinder Data

Calibration Gas	Required % of Span	Cylinder Conc.	Cylinder Composition	Cylinder Number	Expiration Date	Actual % of Span
Fuel	N/A		UHP H2		N/A	N/A
Combustion Air			UHP Air		N/A	
Zero Gas	<0.1%	0	UHP Air		N/A	0%
Low Gas	25-35	290	CH4/Air	CC198791	4/2/2015	29%
Mid Gas	45-55	504	CH4/Air	CC72704	7/1/2015	50%
High Gas	80-90	860	CH4/Air	CC246069	7/10/2015	86%

System Response Time = 180 seconds

Method 25A Calibration Data Sheet - Methane

Source Summary			
Facility:	Global South Portland		
Source/Location:	Residual Oil Tank #3		
Start Date	16-Apr-13	End Date:	16-Apr-13
Start Time:	11:30	End Time:	23:59

THC Analyzer Data		
Manufacturer -	VIG	
Model/Serial Number -	200 / 2660406	
Fuel Pressure -	7.0	
Combustion Air Pressure -	5.5	
Carrier Gas Pressure -	22.0	
Range -	0 - 1,000	
Calibrant (choose one, x in box)	Propane	
	Methane	x
Cal Gas Molecular Weight:	**16.039**	**g/mol**

Initial Calibration Summary	
Operator:	A. Stratton
Date:	15-Apr-13
Time:	21:30

Initial Calibration Data (Hi / Zero)

Calibration Gas	Cylinder Conc.	Actual Response
Zero Gas	0.0	2
High Gas	860	867.0
Response Line	1.006	

Where: Response Line = (Ha-Za)/(Hc-Zc)

Initial Calibration Data (Mid / Low)

Calibration Gas	Cylinder Conc.	Predicted Response	Actual Response	Calibration Error	Acceptance Criteria
Low Gas	290	292	301	3.2	< 5% of cylinder concentration
Mid Gas	504	507	512	1.0	< 5% of cylinder concentration

Where:

Predicted Response = (Cylinder Concentration) x (Response Line)

Calibration Error = (Actual Response - Predicted Response) / Cylinder Concentration x 100

Post Calibration Summary	
Operator:	MP
Date:	17-Apr-13
Time:	8:05

Note: Technician did not wait long enough for 3 minute cal cycle. AMS checked zero at 21:30, and respinse was 3 ppm. However, 24 ppm still passes zero drift test.

Post Calibration Drift Data

Calibration Gas	Cylinder Conc.	Initial Test Response	Final Test Response	Calibration Drift	Acceptance Criteria
Post Cal 1 Zero	0	2	1	**0.1**	< 3% of the measurement range
Post Cal 1 Upscale	290	301	290	**1.1**	< 3% of the measurement range
					Test Avg. Conc. **110**

Where:

Calibration Drift = (Final Test Response - Initial Test Response) * 100

Gas Cylinder Data

Calibration Gas	Required % of Span	Cylinder Conc.	Cylinder Composition	Cylinder Number	Expiration Date	Actual % of Span
Fuel	N/A		UHP H2		N/A	N/A
Combustion Air			UHP Air		N/A	
Zero Gas	<0.1%	0	UHP Air		N/A	0%
Low Gas	25-35	290	CH4/Air	CC198791	4/2/2015	29%
Mid Gas	45-55	504	CH4/Air	CC72704	7/1/2015	50%
High Gas	80-90	860	CH4/Air	CC246069	7/10/2015	86%

System Response Time = 180 seconds

Method 25A Calibration Data Sheet - Methane

Source Summary			
Facility:	Global South Portland		
Source/Location:	Residual Oil Tank #3		
Start Date	17-Apr-13	End Date:	17-Apr-13
Start Time:	0:00	End Time:	23:59

THC Analyzer Data		
Manufacturer -	VIG	
Model/Serial Number -	200 / 2660406	
Fuel Pressure -	7.0	
Combustion Air Pressure -	5.5	
Carrier Gas Pressure -	22.0	
Range -	0 - 1,000	
Calibrant (choose one, x in box)	Propane	
	Methane	x
Cal Gas Molecular Weight:	**16.039**	**g/mol**

Initial Calibration Summary	
Operator:	A. Stratton
Date:	15-Apr-13
Time:	21:30

Initial Calibration Data (Hi / Zero)

Calibration Gas	Cylinder Conc.	Actual Response
Zero Gas	0.0	2
High Gas	860	867.0
Response Line	1.006	

Where: Response Line = (Ha-Za)/(Hc-Zc)

Initial Calibration Data (Mid / Low)

Calibration Gas	Cylinder Conc.	Predicted Response	Actual Response	Calibration Error	Acceptance Criteria
Low Gas	290	292	301	3.2	< 5% of cylinder concentration
Mid Gas	504	507	512	1.0	< 5% of cylinder concentration

Where:

Predicted Response = (Cylinder Concentration) x (Response Line)

Calibration Error = (Actual Response - Predicted Response) / Cylinder Concentration x 100

Post Calibration Summary	
Operator:	MP
Date:	18-Apr-13
Time:	8:10

Note: Technician did not wait long enough for 3 minute cal cycle. AMS checked zero at 21:30, and respinse was 3 ppm. However, 24 ppm still passes zero drift test.

Post Calibration Drift Data

Calibration Gas	Cylinder Conc.	Initial Test Response	Final Test Response	Calibration Drift	Acceptance Criteria
Post Cal 1 Zero	0	2	2	0.0	< 3% of the measurement range
Post Cal 1 Upscale	290	301	298	0.3	< 3% of the measurement range
					Test Avg. Conc. 75

Where:

Calibration Drift = (Final Test Response - Initial Test Response) * 100

Gas Cylinder Data

Calibration Gas	Required % of Span	Cylinder Conc.	Cylinder Composition	Cylinder Number	Expiration Date	Actual % of Span
Fuel	N/A		UHP H2		N/A	N/A
Combustion Air			UHP Air		N/A	
Zero Gas	<0.1%	0	UHP Air		N/A	0%
Low Gas	25-35	290	CH4/Air	CC198791	4/2/2015	29%
Mid Gas	45-55	504	CH4/Air	CC72704	7/1/2015	50%
High Gas	80-90	860	CH4/Air	CC246069	7/10/2015	86%

System Response Time = 180 seconds

Method 25A Calibration Data Sheet - Methane

Source Summary			
Facility:	Global South Portland		
Source/Location:	Residual Oil Tank #3		
Start Date	18-Apr-13	End Date:	18-Apr-13
Start Time:	0:00	End Time:	23:59

THC Analyzer Data		
Manufacturer -	VIG	
Model/Serial Number -	200 / 2660406	
Fuel Pressure -	7.0	
Combustion Air Pressure -	5.5	
Carrier Gas Pressure -	22.0	
Range -	0 -	1,000
Calibrant (choose one, x in box)	Propane	
	Methane	x
Cal Gas Molecular Weight:	**16.039**	**g/mol**

Initial Calibration Summary	
Operator:	A. Stratton
Date:	15-Apr-13
Time:	21:30

Initial Calibration Data (Hi / Zero)

Calibration Gas	Cylinder Conc.	Actual Response
Zero Gas	0.0	2
High Gas	860	867.0
Response Line	1.006	

Where: Response Line = (Ha-Za)/(Hc-Zc)

Initial Calibration Data (Mid / Low)

Calibration Gas	Cylinder Conc.	Predicted Response	Actual Response	Calibration Error	Acceptance Criteria
Low Gas	290	292	301	3.2	< 5% of cylinder concentration
Mid Gas	504	507	512	1.0	< 5% of cylinder concentration

Where:

Predicted Response = (Cylinder Concentration) x (Response Line)

Calibration Error = (Actual Response - Predicted Response) / Cylinder Concentration x 100

Post Calibration Summary	
Operator:	MP
Date:	19-Apr-13
Time:	8:35

Note: Technician did not wait long enough for 3 minute cal cycle. AMS checked zero at 21:30, and respinse was 3 ppm. However, 24 ppm still passes zero drift test.

Post Calibration Drift Data

Calibration Gas	Cylinder Conc.	Initial Test Response	Final Test Response	Calibration Drift	Acceptance Criteria
Post Cal 1 Zero	0	2	2	**0.0**	< 3% of the measurement range
Post Cal 1 Upscale	290	301	298	**0.3**	< 3% of the measurement range
					Test Avg. Conc. **70**

Where:

Calibration Drift = (Final Test Response - Initial Test Response) * 100

Gas Cylinder Data

Calibration Gas	Required % of Span	Cylinder Conc.	Cylinder Composition	Cylinder Number	Expiration Date	Actual % of Span
Fuel	N/A		UHP H2		N/A	N/A
Combustion Air			UHP Air		N/A	
Zero Gas	<0.1%	0	UHP Air		N/A	0%
Low Gas	25-35	290	CH4/Air	CC198791	4/2/2015	29%
Mid Gas	45-55	504	CH4/Air	CC72704	7/1/2015	50%
High Gas	80-90	860	CH4/Air	CC246069	7/10/2015	86%

System Response Time = 180 seconds

Method 25A Calibration Data Sheet - Methane

Source Summary			
Facility:	Global South Portland		
Source/Location:	Residual Oil Tank #3		
Start Date	19-Apr-13	End Date:	19-Apr-13
Start Time:	0:00	End Time:	23:59

THC Analyzer Data		
Manufacturer -	VIG	
Model/Serial Number -	200 / 2660406	
Fuel Pressure -	7.0	
Combustion Air Pressure -	5.5	
Carrier Gas Pressure -	22.0	
Range -	0 -	1,000
Calibrant (choose one, x in box)	Propane	
	Methane	x
Cal Gas Molecular Weight:	**16.039**	**g/mol**

Initial Calibration Summary	
Operator:	A. Stratton
Date:	15-Apr-13
Time:	21:30

Initial Calibration Data (Hi / Zero)		
Calibration Gas	Cylinder Conc.	Actual Response
Zero Gas	0.0	2
High Gas	860	867.0
Response Line	1.006	

Where: Response Line = (Ha-Za)/(Hc-Zc)

Initial Calibration Data (Mid / Low)

Calibration Gas	Cylinder Conc.	Predicted Response	Actual Response	Calibration Error	Acceptance Criteria
Low Gas	290	292	301	3.2	< 5% of cylinder concentration
Mid Gas	504	507	512	1.0	< 5% of cylinder concentration

Where:

Predicted Response = (Cylinder Concentration) x (Response Line)

Calibration Error = (Actual Response - Predicted Response) / Cylinder Concentration x 100

Post Calibration Summary	
Operator:	SO
Date:	20-Apr-13
Time:	8:01

Note: Technician did not wait long enough for 3 minute cal cycle. AMS checked zero at 21:30, and respinse was 3 ppm. However, 24 ppm still passes zero drift test.

Post Calibration Drift Data

Calibration Gas	Cylinder Conc.	Initial Test Response	Final Test Response	Calibration Drift	Acceptance Criteria
Post Cal 1 Zero	0	2	2	**0.0**	< 3% of the measurement range
Post Cal 1 Upscale	290	301	283	**1.8**	< 3% of the measurement range
				Test Avg. Conc.	**99**

Where:

Calibration Drift = (Final Test Response - Initial Test Response) * 100

Gas Cylinder Data

Calibration Gas	Required % of Span	Cylinder Conc.	Cylinder Composition	Cylinder Number	Expiration Date	Actual % of Span
Fuel	N/A		UHP H2		N/A	N/A
Combustion Air			UHP Air		N/A	
Zero Gas	<0.1%	0	UHP Air		N/A	0%
Low Gas	25-35	290	CH4/Air	CC198791	4/2/2015	29%
Mid Gas	45-55	504	CH4/Air	CC72704	7/1/2015	50%
High Gas	80-90	860	CH4/Air	CC246069	7/10/2015	86%

System Response Time = 180 seconds

Method 25A Calibration Data Sheet - Methane

Source Summary			
Facility:	Global South Portland		
Source/Location:	Residual Oil Tank #3		
Start Date	20-Apr-13	End Date:	20-Apr-13
Start Time:	0:00	End Time:	23:59

THC Analyzer Data		
Manufacturer -	VIG	
Model/Serial Number -	200 / 2660406	
Fuel Pressure -	7.0	
Combustion Air Pressure -	5.5	
Carrier Gas Pressure -	22.0	
Range -	0 -	1,000
Calibrant (choose one, x in box)	Propane	
	Methane	x
Cal Gas Molecular Weight:	**16.039**	**g/mol**

Initial Calibration Summary	
Operator:	A. Stratton
Date:	15-Apr-13
Time:	21:30

Initial Calibration Data (Hi / Zero)

Calibration Gas	Cylinder Conc.	Actual Response
Zero Gas	0.0	2
High Gas	860	867.0
Response Line	1.006	

Where: Response Line = (Ha-Za)/(Hc-Zc)

Initial Calibration Data (Mid / Low)

Calibration Gas	Cylinder Conc.	Predicted Response	Actual Response	Calibration Error	Acceptance Criteria
Low Gas	290	292	301	3.2	< 5% of cylinder concentration
Mid Gas	504	507	512	1.0	< 5% of cylinder concentration

Where:

Predicted Response = (Cylinder Concentration) x (Response Line)

Calibration Error = (Actual Response - Predicted Response) / Cylinder Concentration x 100

Post Calibration Summary	
Operator:	SO
Date:	22-Apr-13
Time:	7:34

Note: Technician did not wait long enough for 3 minute cal cycle. AMS checked zero at 21:30, and respinse was 3 ppm. However, 24 ppm still passes zero drift test.

Post Calibration Drift Data

Calibration Gas	Cylinder Conc.	Initial Test Response	Final Test Response	Calibration Drift	Acceptance Criteria
Post Cal 1 Zero	0	2	1	**0.1**	< 3% of the measurement range
Post Cal 1 Upscale	290	301	300	**0.1**	< 3% of the measurement range
				Test Avg. Conc.	**85**

Where:

Calibration Drift = (Final Test Response - Initial Test Response) * 100

Gas Cylinder Data

Calibration Gas	Required % of Span	Cylinder Conc.	Cylinder Composition	Cylinder Number	Expiration Date	Actual % of Span
Fuel	N/A		UHP H2		N/A	N/A
Combustion Air			UHP Air		N/A	
Zero Gas	<0.1%	0	UHP Air		N/A	0%
Low Gas	25-35	290	CH4/Air	CC198791	4/2/2015	29%
Mid Gas	45-55	504	CH4/Air	CC72704	7/1/2015	50%
High Gas	80-90	860	CH4/Air	CC246069	7/10/2015	86%

System Response Time = 180 seconds

Method 25A Calibration Data Sheet - Methane

Source Summary			
Facility:	Global South Portland		
Source/Location:	Residual Oil Tank #3		
Start Date	21-Apr-13	End Date:	21-Apr-13
Start Time:	0:00	End Time:	23:59

THC Analyzer Data		
Manufacturer -	VIG	
Model/Serial Number -	200 / 2660406	
Fuel Pressure -	7.0	
Combustion Air Pressure -	5.5	
Carrier Gas Pressure -	22.0	
Range -	0 -	1,000
Calibrant (choose one, x in box)	Propane	
	Methane	x
Cal Gas Molecular Weight:	**16.039**	**g/mol**

Initial Calibration Summary	
Operator:	A. Stratton
Date:	15-Apr-13
Time:	21:30

Initial Calibration Data (Hi / Zero)		
Calibration Gas	Cylinder Conc.	Actual Response
Zero Gas	0.0	2
High Gas	860	867.0
Response Line	1.006	

Where: Response Line = (Ha-Za)/(Hc-Zc)

Initial Calibration Data (Mid / Low)

Calibration Gas	Cylinder Conc.	Predicted Response	Actual Response	Calibration Error	Acceptance Criteria
Low Gas	290	292	301	3.2	< 5% of cylinder concentration
Mid Gas	504	507	512	1.0	< 5% of cylinder concentration

Where:

Predicted Response = (Cylinder Concentration) x (Response Line)

Calibration Error = (Actual Response - Predicted Response) / Cylinder Concentration x 100

Post Calibration Summary	
Operator:	SO
Date:	22-Apr-13
Time:	7:34

Note: Technician did not wait long enough for 3 minute cal cycle. AMS checked zero at 21:30, and respinse was 3 ppm. However, 24 ppm still passes zero drift test.

Post Calibration Drift Data

Calibration Gas	Cylinder Conc.	Initial Test Response	Final Test Response	Calibration Drift	Acceptance Criteria
Post Cal 1 Zero	0	2	1	**0.1**	< 3% of the measurement range
Post Cal 1 Upscale	290	301	300	**0.1**	< 3% of the measurement range
					Test Avg. Conc. **84**

Where:

Calibration Drift = (Final Test Response - Initial Test Response) * 100

Gas Cylinder Data

Calibration Gas	Required % of Span	Cylinder Conc.	Cylinder Composition	Cylinder Number	Expiration Date	Actual % of Span
Fuel	N/A		UHP H2		N/A	N/A
Combustion Air			UHP Air		N/A	
Zero Gas	<0.1%	0	UHP Air		N/A	0%
Low Gas	25-35	290	CH4/Air	CC198791	4/2/2015	29%
Mid Gas	45-55	504	CH4/Air	CC72704	7/1/2015	50%
High Gas	80-90	860	CH4/Air	CC246069	7/10/2015	86%

System Response Time = 180 seconds

Method 25A Calibration Data Sheet - Methane

Source Summary			
Facility:	Global South Portland		
Source/Location:	Residual Oil Tank #3		
Start Date	22-Apr-13	End Date:	22-Apr-13
Start Time:	0:00	End Time:	23:59

THC Analyzer Data		
Manufacturer -	VIG	
Model/Serial Number -	200 / 2660406	
Fuel Pressure -	7.0	
Combustion Air Pressure -	5.5	
Carrier Gas Pressure -	22.0	
Range -	0 - 1,000	
Calibrant (choose one, x in box)	Propane	
	Methane	x
Cal Gas Molecular Weight:	**16.039**	**g/mol**

Initial Calibration Summary	
Operator:	A. Stratton
Date:	15-Apr-13
Time:	21:30

Initial Calibration Data (Hi / Zero)		
Calibration Gas	Cylinder Conc.	Actual Response
Zero Gas	0.0	2
High Gas	860	867.0
Response Line	1.006	

Where: Response Line = (Ha-Za)/(Hc-Zc)

Initial Calibration Data (Mid / Low)

Calibration Gas	Cylinder Conc.	Predicted Response	Actual Response	Calibration Error	Acceptance Criteria
Low Gas	290	292	301	3.2	< 5% of cylinder concentration
Mid Gas	504	507	512	1.0	< 5% of cylinder concentration

Where:

Predicted Response = (Cylinder Concentration) x (Response Line)

Calibration Error = (Actual Response - Predicted Response) / Cylinder Concentration x 100

Post Calibration Summary	
Operator:	SO
Date:	23-Apr-13
Time:	7:58

Note: Technician did not wait long enough for 3 minute cal cycle. AMS checked zero at 21:30, and respinse was 3 ppm. However, 24 ppm still passes zero drift test.

Post Calibration Drift Data

Calibration Gas	Cylinder Conc.	Initial Test Response	Final Test Response	Calibration Drift	Acceptance Criteria
Post Cal 1 Zero	0	2	0	**0.2**	< 3% of the measurement range
Post Cal 1 Upscale	290	301	297	**0.4**	< 3% of the measurement range
					Test Avg. Conc. **88**

Where:

Calibration Drift = (Final Test Response - Initial Test Response) * 100

Gas Cylinder Data

Calibration Gas	Required % of Span	Cylinder Conc.	Cylinder Composition	Cylinder Number	Expiration Date	Actual % of Span
Fuel	N/A		UHP H2		N/A	N/A
Combustion Air			UHP Air		N/A	
Zero Gas	<0.1%	0	UHP Air		N/A	0%
Low Gas	25-35	290	CH4/Air	CC198791	4/2/2015	29%
Mid Gas	45-55	504	CH4/Air	CC72704	7/1/2015	50%
High Gas	80-90	860	CH4/Air	CC246069	7/10/2015	86%

System Response Time = 180 seconds

Method 25A Calibration Data Sheet - Methane

Source Summary			
Facility:	Global South Portland		
Source/Location:	Residual Oil Tank #3		
Start Date	23-Apr-13	End Date:	23-Apr-13
Start Time:	0:00	End Time:	23:59

THC Analyzer Data		
Manufacturer -	VIG	
Model/Serial Number -	200 / 2660406	
Fuel Pressure -	7.0	
Combustion Air Pressure -	5.5	
Carrier Gas Pressure -	22.0	
Range -	0 -	1,000
Calibrant (choose one, x in box)	Propane	
	Methane	x
Cal Gas Molecular Weight:	**16.039**	**g/mol**

Initial Calibration Summary	
Operator:	A. Stratton
Date:	15-Apr-13
Time:	21:30

Initial Calibration Data (Hi / Zero)

Calibration Gas	Cylinder Conc.	Actual Response
Zero Gas	0.0	2
High Gas	860	867.0
Response Line	1.006	

Where: Response Line = (Ha-Za)/(Hc-Zc)

Initial Calibration Data (Mid / Low)

Calibration Gas	Cylinder Conc.	Predicted Response	Actual Response	Calibration Error	Acceptance Criteria
Low Gas	290	292	301	3.2	< 5% of cylinder concentration
Mid Gas	504	507	512	1.0	< 5% of cylinder concentration

Where:

Predicted Response = (Cylinder Concentration) x (Response Line)

Calibration Error = (Actual Response - Predicted Response) / Cylinder Concentration x 100

Post Calibration Summary	
Operator:	MP
Date:	24-Apr-13
Time:	9:55

Note: Technician did not wait long enough for 3 minute cal cycle. AMS checked zero at 21:30, and respinse was 3 ppm. However, 24 ppm still passes zero drift test.

Post Calibration Drift Data

Calibration Gas	Cylinder Conc.	Initial Test Response	Final Test Response	Calibration Drift	Acceptance Criteria
Post Cal 1 Zero	0	2	1	**0.1**	< 3% of the measurement range
Post Cal 1 Upscale	290	301	288	**1.3**	< 3% of the measurement range
					Test Avg. Conc. **104**

Where:

Calibration Drift = (Final Test Response - Initial Test Response) * 100

Gas Cylinder Data

Calibration Gas	Required % of Span	Cylinder Conc.	Cylinder Composition	Cylinder Number	Expiration Date	Actual % of Span
Fuel	N/A		UHP H2		N/A	N/A
Combustion Air			UHP Air		N/A	
Zero Gas	<0.1%	0	UHP Air		N/A	0%
Low Gas	25-35	290	CH4/Air	CC198791	4/2/2015	29%
Mid Gas	45-55	504	CH4/Air	CC72704	7/1/2015	50%
High Gas	80-90	860	CH4/Air	CC246069	7/10/2015	86%

System Response Time = 180 seconds

Method 25A Calibration Data Sheet - Methane

Source Summary			
Facility:	Global South Portland		
Source/Location:	Residual Oil Tank #3		
Start Date	24-Apr-13	End Date:	24-Apr-13
Start Time:	0:00	End Time:	23:59

THC Analyzer Data		
Manufacturer -	VIG	
Model/Serial Number -	200 / 2660406	
Fuel Pressure -	7.0	
Combustion Air Pressure -	5.5	
Carrier Gas Pressure -	22.0	
Range -	0 - 1,000	
Calibrant (choose one, x in box)	Propane	
	Methane	x
Cal Gas Molecular Weight:	**16.039**	**g/mol**

Initial Calibration Summary	
Operator:	A. Stratton
Date:	15-Apr-13
Time:	21:30

Initial Calibration Data (Hi / Zero)

Calibration Gas	Cylinder Conc.	Actual Response
Zero Gas	0.0	2
High Gas	860	867.0
Response Line	1.006	

Where: Response Line = (Ha-Za)/(Hc-Zc)

Initial Calibration Data (Mid / Low)

Calibration Gas	Cylinder Conc.	Predicted Response	Actual Response	Calibration Error	Acceptance Criteria
Low Gas	290	292	301	3.2	< 5% of cylinder concentration
Mid Gas	504	507	512	1.0	< 5% of cylinder concentration

Where:

Predicted Response = (Cylinder Concentration) x (Response Line)

Calibration Error = (Actual Response - Predicted Response) / Cylinder Concentration x 100

Post Calibration Summary	
Operator:	MP
Date:	25-Apr-13
Time:	8:00

Note: Technician did not wait long enough for 3 minute cal cycle. AMS checked zero at 21:30, and respinse was 3 ppm. However, 24 ppm still passes zero drift test.

Post Calibration Drift Data

Calibration Gas	Cylinder Conc.	Initial Test Response	Final Test Response	Calibration Drift	Acceptance Criteria
Post Cal 1 Zero	0	2	2	**0.0**	< 3% of the measurement range
Post Cal 1 Upscale	290	301	284	**1.7**	< 3% of the measurement range
				Test Avg. Conc.	**81**

Where:

Calibration Drift = (Final Test Response - Initial Test Response) * 100

Gas Cylinder Data

Calibration Gas	Required % of Span	Cylinder Conc.	Cylinder Composition	Cylinder Number	Expiration Date	Actual % of Span
Fuel	N/A		UHP H2		N/A	N/A
Combustion Air			UHP Air		N/A	
Zero Gas	<0.1%	0	UHP Air		N/A	0%
Low Gas	25-35	290	CH4/Air	CC198791	4/2/2015	29%
Mid Gas	45-55	504	CH4/Air	CC72704	7/1/2015	50%
High Gas	80-90	860	CH4/Air	CC246069	7/10/2015	86%

System Response Time = 180 seconds

Method 25A Calibration Data Sheet - Methane

Source Summary			
Facility:	Global South Portland		
Source/Location:	Residual Oil Tank #3		
Start Date	25-Apr-13	End Date:	25-Apr-13
Start Time:	0:00	End Time:	23:59

THC Analyzer Data		
Manufacturer -	VIG	
Model/Serial Number -	200 / 2660406	
Fuel Pressure -	7.0	
Combustion Air Pressure -	5.5	
Carrier Gas Pressure -	22.0	
Range -	0 -	1,000
Calibrant (choose one, x in box)	Propane	
	Methane	x
Cal Gas Molecular Weight:	**16.039**	**g/mol**

Initial Calibration Summary	
Operator:	A. Stratton
Date:	15-Apr-13
Time:	21:30

Initial Calibration Data (Hi / Zero)		
Calibration Gas	Cylinder Conc.	Actual Response
Zero Gas	0.0	2
High Gas	860	867.0
Response Line	1.006	

Where: Response Line = (Ha-Za)/(Hc-Zc)

Initial Calibration Data (Mid / Low)

Calibration Gas	Cylinder Conc.	Predicted Response	Actual Response	Calibration Error	Acceptance Criteria
Low Gas	290	292	301	3.2	< 5% of cylinder concentration
Mid Gas	504	507	512	1.0	< 5% of cylinder concentration

Where:

Predicted Response = (Cylinder Concentration) x (Response Line)

Calibration Error = (Actual Response - Predicted Response) / Cylinder Concentration x 100

Post Calibration Summary	
Operator:	MP
Date:	26-Apr-13
Time:	12:45

Note: Technician did not wait long enough for 3 minute cal cycle. AMS checked zero at 21:30, and respinse was 3 ppm. However, 24 ppm still passes zero drift test.

Post Calibration Drift Data

Calibration Gas	Cylinder Conc.	Initial Test Response	Final Test Response	Calibration Drift	Acceptance Criteria
Post Cal 1 Zero	0	2	2	**0.0**	< 3% of the measurement range
Post Cal 1 Upscale	290	301	289	**1.2**	< 3% of the measurement range
				Test Avg. Conc.	**63**

Where:

Calibration Drift = (Final Test Response - Initial Test Response) * 100

Gas Cylinder Data

Calibration Gas	Required % of Span	Cylinder Conc.	Cylinder Composition	Cylinder Number	Expiration Date	Actual % of Span
Fuel	N/A		UHP H2		N/A	N/A
Combustion Air			UHP Air		N/A	
Zero Gas	<0.1%	0	UHP Air		N/A	0%
Low Gas	25-35	290	CH4/Air	CC198791	4/2/2015	29%
Mid Gas	45-55	504	CH4/Air	CC72704	7/1/2015	50%
High Gas	80-90	860	CH4/Air	CC246069	7/10/2015	86%

System Response Time = 180 seconds

Method 25A Calibration Data Sheet - Methane

Source Summary			
Facility:	Global South Portland		
Source/Location:	Residual Oil Tank #3		
Start Date	26-Apr-13	End Date:	26-Apr-13
Start Time:	0:00	End Time:	12:44

THC Analyzer Data		
Manufacturer -	VIG	
Model/Serial Number -	200 / 2660406	
Fuel Pressure -	7.0	
Combustion Air Pressure -	5.5	
Carrier Gas Pressure -	22.0	
Range -	0 -	1,000
Calibrant (choose one, x in box)	Propane	
	Methane	x
Cal Gas Molecular Weight:	**16.039**	**g/mol**

Initial Calibration Summary	
Operator:	A. Stratton
Date:	15-Apr-13
Time:	21:30

Initial Calibration Data (Hi / Zero)		
Calibration Gas	Cylinder Conc.	Actual Response
Zero Gas	0.0	2
High Gas	860	867.0
Response Line	1.006	

Where: Response Line = (Ha-Za)/(Hc-Zc)

Initial Calibration Data (Mid / Low)

Calibration Gas	Cylinder Conc.	Predicted Response	Actual Response	Calibration Error	Acceptance Criteria
Low Gas	290	292	301	3.2	< 5% of cylinder concentration
Mid Gas	504	507	512	1.0	< 5% of cylinder concentration

Where:

Predicted Response = (Cylinder Concentration) x (Response Line)

Calibration Error = (Actual Response - Predicted Response) / Cylinder Concentration x 100

Post Calibration Summary	
Operator:	MP
Date:	26-Apr-13
Time:	12:45

Note: Technician did not wait long enough for 3 minute cal cycle. AMS checked zero at 21:30, and respinse was 3 ppm. However, 24 ppm still passes zero drift test.

Post Calibration Drift Data

Calibration Gas	Cylinder Conc.	Initial Test Response	Final Test Response	Calibration Drift	Acceptance Criteria
Post Cal 1 Zero	0	2	2	**0.0**	< 3% of the measurement range
Post Cal 1 Upscale	290	301	289	**1.2**	< 3% of the measurement range
				Test Avg. Conc.	**66**

Where:

Calibration Drift = (Final Test Response - Initial Test Response) * 100

Gas Cylinder Data

Calibration Gas	Required % of Span	Cylinder Conc.	Cylinder Composition	Cylinder Number	Expiration Date	Actual % of Span
Fuel	N/A		UHP H2		N/A	N/A
Combustion Air			UHP Air		N/A	
Zero Gas	<0.1%	0	UHP Air		N/A	0%
Low Gas	25-35	290	CH4/Air	CC198791	4/2/2015	29%
Mid Gas	45-55	504	CH4/Air	CC72704	7/1/2015	50%
High Gas	80-90	860	CH4/Air	CC246069	7/10/2015	86%

System Response Time = 180 seconds

Volumetric Flow Calculations

Facility/Site: Global South Portland	**Start Date:** 04/11/13
Source: Residual Oil Tank #3	**Stop Date:** 04/11/13
	Start Time: 18:00
	Stop Time: 23:59

Trav. Point	Delta P ("H_2O)	SQ Root Delta P	Stack Temp (F)
Average	0.06	0.25	47.4

Average Delta P, ("H_2O)	0.06
Average Stack Temp, (F)	47.4
B_{ws}, (fractional water)	0.010
P_{bar}, ("H_g)	29.9
P_g, ("H_2O)	0.01
CO_2, ($\%_{vd}$)	0.00
O_2, ($\%_{vd}$)	20.90
CO, ($\%_{vd}$)	0
N_2, ($\%_{vd}$)	79.1
Stack Dia (ft)	0.58
L, (ft)	
W, (ft)	
A, (ft^2)	0.267
C_p, (pitot coefficient)	0.84
M_d, (g/mole)	28.84
M_s, (g/mole)	28.73

G	0.77	
V_s	13.76	fps
Q_s	13,639	dscfh
	13,777	scfh
	230	scfm
	227	dscfm
	221	acfm

Equations:

T_s = Temp Stack + 460

$P_s = P_g/13.6 + P_{bar}$

$M_d = .44\ CO_2 + .32\ O_2 + .28\ CO + .28\ N_2$

$M_s = M_d(1-B_{ws}) + 18(B_{ws})$

$G = Sqrt(T_s/P_s/M_s)$

$V_s = 85.9(C_p)(G)(Avg.\ Sqrt\ Delta\ P)$

A = either D^2(PI)/4 or (L)(W)

$Q_s = 3600(1-B_{ws})(V_s)(A)(T_{std}/P_{std})(P_s)/(T_s\ (abs))$

Volumetric Flow Calculations

Facility/Site: Global South Portland	**Start Date:** 04/12/13
Source: Residual Oil Tank #3	**Stop Date:** 04/12/13
	Start Time: 0:00
	Stop Time: 23:59

Trav. Point	Delta P ("H_2O)	SQ Root Delta P	Stack Temp (F)
Average	0.06	0.24	38.0

Average Delta P, ("H_2O)	0.06
Average Stack Temp, (F)	38.0
B_{ws}, (fractional water)	0.010
P_{bar}, ("H_g)	29.9
P_g, ("H_2O)	0.01
CO_2, ($\%_{vd}$)	0.00
O_2, ($\%_{vd}$)	20.90
CO, ($\%_{vd}$)	0
N_2, ($\%_{vd}$)	79.1
Stack Dia (ft)	0.58
L, (ft)	
W, (ft)	
A, (ft^2)	0.267
C_p, (pitot coefficient)	0.84
M_d, (g/mole)	28.84
M_s, (g/mole)	28.73

G	0.76	
V_s	12.99	fps
Q_s	13,117	dscfh
	13,249	scfh
	221	scfm
	219	dscfm
	208	acfm

Equations:

T_s = Temp Stack + 460

$P_s = P_g/13.6 + P_{bar}$

$M_d = .44\ CO_2 + .32\ O_2 + .28\ CO + .28\ N_2$

$M_s = M_d(1-B_{ws})+18(B_{ws})$

$G = Sqrt(T_s/P_s/M_s)$

$V_s = 85.9(C_p)(G)(Avg.\ Sqrt\ Delta\ P)$

A = either D^2(PI)/4 or (L)(W)

$Q_s = 3600(1-B_{ws})(V_s)(A)(T_{std}/P_{std})(P_s)/(T_s\ (abs))$

Volumetric Flow Calculations

Facility/Site: Global South Portland
Source: Residual Oil Tank #3

Start Date: 04/13/13
Stop Date: 04/13/13
Start Time: 0:00
Stop Time: 23:59

Trav. Point	Delta P ("H_2O)	SQ Root Delta P	Stack Temp (F)
Average	0.07	0.27	46.4

Average Delta P, ("H_2O)	0.07
Average Stack Temp, (F)	46.4
B_{ws}, (fractional water)	0.010
P_{bar}, ("H_g)	29.9
P_g, ("H_2O)	0.01
CO_2, ($\%_{vd}$)	0.00
O_2, ($\%_{vd}$)	20.90
CO, ($\%_{vd}$)	0
N_2, ($\%_{vd}$)	79.1
Stack Dia (ft)	0.58
L, (ft)	
W, (ft)	
A, (ft^2)	0.267
C_p, (pitot coefficient)	0.84
M_d, (g/mole)	28.84
M_s, (g/mole)	28.73

G	0.77	
V_s	14.68	fps
Q_s	14,577	dscfh
	14,724	scfh
	245	scfm
	243	dscfm
	235	acfm

Equations:

T_s = Temp Stack + 460

$P_s = P_g/13.6 + P_{bar}$

$M_d = .44\ CO_2 + .32\ O_2 + .28\ CO + .28\ N_2$

$M_s = M_d(1-B_{ws})+18(B_{ws})$

$G = Sqrt(T_s/P_s/M_s)$

$V_s = 85.9(C_p)(G)(Avg.\ Sqrt\ Delta\ P)$

A = either D^2(PI)/4 or (L)(W)

$Q_s = 3600(1-B_{ws})(V_s)(A)(T_{std}/P_{std})(P_s)/(T_s\ (abs))$

Volumetric Flow Calculations

Facility/Site: Global South Portland	**Start Date:** 04/14/13
Source: Residual Oil Tank #3	**Stop Date:** 04/14/13
	Start Time: 0:00
	Stop Time: 23:59

Trav. Point	Delta P ("H_2O)	SQ Root Delta P	Stack Temp (F)
Average	0.07	0.27	50.1

Average Delta P, ("H_2O)	0.07
Average Stack Temp, (F)	50.1
B_{ws}, (fractional water)	0.010
P_{bar}, ("H_g)	29.9
P_g, ("H_2O)	0.01
CO_2, ($\%_{vd}$)	0.00
O_2, ($\%_{vd}$)	20.90
CO, ($\%_{vd}$)	0
N_2, ($\%_{vd}$)	79.1
Stack Dia (ft)	0.58
L, (ft)	
W, (ft)	
A, (ft^2)	0.267
C_p, (pitot coefficient)	0.84
M_d, (g/mole)	28.84
M_s, (g/mole)	28.73

G	0.77	
V_s	14.95	fps
Q_s	14,737	dscfh
	14,886	scfh
	248	scfm
	246	dscfm
	240	acfm

Equations:

T_s = Temp Stack + 460

$P_s = P_g/13.6 + P_{bar}$

$M_d = .44\ CO_2 + .32\ O_2 + .28\ CO + .28\ N_2$

$M_s = M_d(1-B_{ws}) + 18(B_{ws})$

$G = Sqrt(T_s/P_s/M_s)$

$V_s = 85.9(C_p)(G)(Avg.\ Sqrt\ Delta\ P)$

A = either D^2(PI)/4 or (L)(W)

$Q_s = 3600(1-B_{ws})(V_s)(A)(T_{std}/P_{std})(P_s)/(T_s(abs))$

Volumetric Flow Calculations

Facility/Site: Global South Portland	**Start Date:** 04/15/13
Source: Residual Oil Tank #3	**Stop Date:** 04/15/13
	Start Time: 0:00
	Stop Time: 20:43

Trav. Point	Delta P ("H_2O)	SQ Root Delta P	Stack Temp (F)
Average	0.08	0.28	53.9

Average Delta P, ("H_2O)	0.08
Average Stack Temp, (F)	53.9
B_{ws}, (fractional water)	0.010
P_{bar}, ("H_g)	29.9
P_g, ("H_2O)	0.01
CO_2, ($\%_{vd}$)	0.00
O_2, ($\%_{vd}$)	20.90
CO, ($\%_{vd}$)	0
N_2, ($\%_{vd}$)	79.1
Stack Dia (ft)	0.58
L, (ft)	
W, (ft)	
A, (ft^2)	0.267
C_p, (pitot coefficient)	0.84
M_d, (g/mole)	28.84
M_s, (g/mole)	28.73

G	0.77	
V_s	15.47	fps
Q_s	15,145	dscfh
	15,298	scfh
	255	scfm
	252	dscfm
	248	acfm

Equations:

T_s = Temp Stack + 460

$P_s = P_g/13.6 + P_{bar}$

$M_d = .44\ CO_2 + .32\ O_2 + .28\ CO + .28\ N_2$

$M_s = M_d(1-B_{ws})+18(B_{ws})$

$G = Sqrt(T_s/P_s/M_s)$

$V_s = 85.9(C_p)(G)(Avg.\ Sqrt\ Delta\ P)$

A = either D^2(PI)/4 or (L)(W)

$Q_s = 3600(1-B_{ws})(V_s)(A)(T_{std}/P_{std})(P_s)/(T_s\ (abs))$

Volumetric Flow Calculations

Facility/Site: Global South Portland	**Start Date:** 04/16/13
Source: Residual Oil Tank #3	**Stop Date:** 04/16/13
	Start Time: 11:30
	Stop Time: 23:59

Trav. Point	Delta P ("H_2O)	SQ Root Delta P	Stack Temp (F)
Average	0.07	0.26	53.4

Average Delta P, ("H_2O)	0.07
Average Stack Temp, (F)	53.4
B_{ws}, (fractional water)	0.010
P_{bar}, ("H_g)	29.9
P_g, ("H_2O)	0.01
CO_2, ($\%_{vd}$)	0.00
O_2, ($\%_{vd}$)	20.90
CO, ($\%_{vd}$)	0
N_2, ($\%_{vd}$)	79.1
Stack Dia (ft)	0.58
L, (ft)	
W, (ft)	
A, (ft^2)	0.267
C_p, (pitot coefficient)	0.84
M_d, (g/mole)	28.84
M_s, (g/mole)	28.73

G	0.77	
V_s	14.64	fps
Q_s	14,339	dscfh
	14,484	scfh
	241	scfm
	239	dscfm
	235	acfm

Equations:

T_s = Temp Stack + 460

$P_s = P_g/13.6 + P_{bar}$

$M_d = .44\ CO_2 + .32\ O_2 + .28\ CO + .28\ N_2$

$M_s = M_d(1-B_{ws}) + 18(B_{ws})$

$G = Sqrt(T_s/P_s/M_s)$

$V_s = 85.9(C_p)(G)(Avg.\ Sqrt\ Delta\ P)$

A = either D^2(PI)/4 or (L)(W)

$Q_s = 3600(1-B_{ws})(V_s)(A)(T_{std}/P_{std})(P_s)/(T_s(abs))$

Volumetric Flow Calculations

Facility/Site: Global South Portland	**Start Date:** 04/17/13
Source: Residual Oil Tank #3	**Stop Date:** 04/17/13
	Start Time: 0:00
	Stop Time: 23:59

Trav. Point	Delta P ("H_2O)	SQ Root Delta P	Stack Temp (F)
Average	0.07	0.27	60.2

Average Delta P, ("H_2O)	0.07
Average Stack Temp, (F)	60.2
B_{ws}, (fractional water)	0.010
P_{bar}, ("H_g)	29.9
P_g, ("H_2O)	0.01
CO_2, ($\%_{vd}$)	0.00
O_2, ($\%_{vd}$)	20.90
CO, ($\%_{vd}$)	0
N_2, ($\%_{vd}$)	79.1
Stack Dia (ft)	0.58
L, (ft)	
W, (ft)	
A, (ft^2)	0.267
C_p, (pitot coefficient)	0.84
M_d, (g/mole)	28.84
M_s, (g/mole)	28.73

G	0.78	
V_s	14.99	fps
Q_s	14,490	dscfh
	14,637	scfh
	244	scfm
	242	dscfm
	240	acfm

Equations:

T_s = Temp Stack + 460

$P_s = P_g/13.6 + P_{bar}$

$M_d = .44\ CO_2 + .32\ O_2 + .28\ CO + .28\ N_2$

$M_s = M_d(1-B_{ws}) + 18(B_{ws})$

$G = Sqrt(T_s/P_s/M_s)$

$V_s = 85.9(C_p)(G)(Avg.\ Sqrt\ Delta\ P)$

A = either D^2(PI)/4 or (L)(W)

$Q_s = 3600(1-B_{ws})(V_s)(A)(T_{std}/P_{std})(P_s)/(T_s\ (abs))$

Volumetric Flow Calculations

Facility/Site: Global South Portland	**Start Date:** 04/18/13
Source: Residual Oil Tank #3	**Stop Date:** 04/18/13
	Start Time: 0:00
	Stop Time: 23:59

Trav. Point	Delta P ("H_2O)	SQ Root Delta P	Stack Temp (F)
Average	0.08	0.28	51.4

Average Delta P, ("H_2O)	0.08
Average Stack Temp, (F)	51.4
B_{ws}, (fractional water)	0.010
P_{bar}, ("H_g)	29.9
P_g, ("H_2O)	0.01
CO_2, ($\%_{vd}$)	0.00
O_2, ($\%_{vd}$)	20.90
CO, ($\%_{vd}$)	0
N_2, ($\%_{vd}$)	79.1
Stack Dia (ft)	0.58
L, (ft)	
W, (ft)	
A, (ft^2)	0.267
C_p, (pitot coefficient)	0.84
M_d, (g/mole)	28.84
M_s, (g/mole)	28.73

G	0.77	
V_s	15.46	fps
Q_s	15,203	dscfh
	15,356	scfh
	256	scfm
	253	dscfm
	248	acfm

Equations:

T_s = Temp Stack + 460

$P_s = P_g/13.6 + P_{bar}$

$M_d = .44\ CO_2 + .32\ O_2 + .28\ CO + .28\ N_2$

$M_s = M_d(1-B_{ws})+18(B_{ws})$

$G = Sqrt(T_s/P_s/M_s)$

$V_s = 85.9(C_p)(G)(Avg.\ Sqrt\ Delta\ P)$

A = either D^2(PI)/4 or (L)(W)

$Q_s = 3600(1-B_{ws})(V_s)(A)(T_{std}/P_{std})(P_s)/(T_s\ (abs))$

Volumetric Flow Calculations

Facility/Site: Global South Portland	**Start Date:** 04/19/13
Source: Residual Oil Tank #3	**Stop Date:** 04/19/13
	Start Time: 0:00
	Stop Time: 23:59

Trav. Point	Delta P ("H_2O)	SQ Root Delta P	Stack Temp (F)
Average	0.08	0.29	58.2

Average Delta P, ("H_2O)	0.08
Average Stack Temp, (F)	58.2
B_{ws}, (fractional water)	0.010
P_{bar}, ("H_g)	29.9
P_g, ("H_2O)	0.01
CO_2, ($\%_{vd}$)	0.00
O_2, ($\%_{vd}$)	20.90
CO, ($\%_{vd}$)	0
N_2, ($\%_{vd}$)	79.1
Stack Dia (ft)	0.58
L, (ft)	
W, (ft)	
A, (ft^2)	0.267
C_p, (pitot coefficient)	0.84
M_d, (g/mole)	28.84
M_s, (g/mole)	28.73

G	0.78	
V_s	16.18	fps
Q_s	15,706	dscfh
	15,865	scfh
	264	scfm
	262	dscfm
	260	acfm

Equations:

T_s = Temp Stack + 460

$P_s = P_g/13.6 + P_{bar}$

$M_d = .44\ CO_2 + .32\ O_2 + .28\ CO + .28\ N_2$

$M_s = M_d(1-B_{ws}) + 18(B_{ws})$

$G = Sqrt(T_s/P_s/M_s)$

$V_s = 85.9(C_p)(G)$(Avg. Sqrt Delta P)

A = either D^2(PI)/4 or (L)(W)

$Q_s = 3600(1-B_{ws})(V_s)(A)(T_{std}/P_{std})(P_s)/(T_s\,(abs))$

Volumetric Flow Calculations

Facility/Site: Global South Portland	**Start Date:** 04/20/13
Source: Residual Oil Tank #3	**Stop Date:** 04/20/13
	Start Time: 0:00
	Stop Time: 23:59

Trav. Point	Delta P ("H_2O)	SQ Root Delta P	Stack Temp (F)
Average	0.09	0.30	55.9

Average Delta P, ("H_2O)	0.09
Average Stack Temp, (F)	55.9
B_{ws}, (fractional water)	0.010
P_{bar}, ("H_g)	29.9
P_g, ("H_2O)	0.01
CO_2, ($\%_{vd}$)	0.00
O_2, ($\%_{vd}$)	20.90
CO, ($\%_{vd}$)	0
N_2, ($\%_{vd}$)	79.1
Stack Dia (ft)	0.58
L, (ft)	
W, (ft)	
A, (ft^2)	0.267
C_p, (pitot coefficient)	0.84
M_d, (g/mole)	28.84
M_s, (g/mole)	28.73

G	0.77	
V_s	16.43	fps
Q_s	16,016	dscfh
	16,178	scfh
	270	scfm
	267	dscfm
	263	acfm

Equations:

T_s = Temp Stack + 460

$P_s = P_g/13.6 + P_{bar}$

$M_d = .44\ CO_2 + .32\ O_2 + .28\ CO + .28\ N_2$

$M_s = M_d(1-B_{ws}) + 18(B_{ws})$

$G = Sqrt(T_s/P_s/M_s)$

$V_s = 85.9(C_p)(G)$(Avg. Sqrt Delta P)

A = either D^2(PI)/4 or (L)(W)

$Q_s = 3600(1-B_{ws})(V_s)(A)(T_{std}/P_{std})(P_s)/(T_s\,(abs))$

Volumetric Flow Calculations

Facility/Site: Global South Portland	**Start Date:** 04/21/13
Source: Residual Oil Tank #3	**Stop Date:** 04/21/13
	Start Time: 0:00
	Stop Time: 23:59

Trav. Point	Delta P ("H_2O)	SQ Root Delta P	Stack Temp (F)
Average	0.09	0.30	50.2

Average Delta P, ("H_2O)	0.09
Average Stack Temp, (F)	50.2
B_{ws}, (fractional water)	0.010
P_{bar}, ("H_g)	29.9
P_g, ("H_2O)	0.01
CO_2, ($\%_{vd}$)	0.00
O_2, ($\%_{vd}$)	20.90
CO, ($\%_{vd}$)	0
N_2, ($\%_{vd}$)	79.1
Stack Dia (ft)	0.58
L, (ft)	
W, (ft)	
A, (ft^2)	0.267
C_p, (pitot coefficient)	0.84
M_d, (g/mole)	28.84
M_s, (g/mole)	28.73

G	0.77	
V_s	16.65	fps
Q_s	16,416	dscfh
	16,582	scfh
	276	scfm
	274	dscfm
	267	acfm

Equations:

T_s = Temp Stack + 460

$P_s = P_g/13.6 + P_{bar}$

$M_d = .44\ CO_2 + .32\ O_2 + .28\ CO + .28\ N_2$

$M_s = M_d(1-B_{ws}) + 18(B_{ws})$

$G = Sqrt(T_s/P_s/M_s)$

$V_s = 85.9(C_p)(G)(Avg.\ Sqrt\ Delta\ P)$

A = either D^2(PI)/4 or (L)(W)

$Q_s = 3600(1-B_{ws})(V_s)(A)(T_{std}/P_{std})(P_s)/(T_s(abs))$

Volumetric Flow Calculations

Facility/Site: Global South Portland	**Start Date:** 04/22/13
Source: Residual Oil Tank #3	**Stop Date:** 04/22/13
	Start Time: 0:00
	Stop Time: 23:59

Trav. Point	Delta P ("H_2O)	SQ Root Delta P	Stack Temp (F)
Average	0.08	0.29	48.2

Average Delta P, ("H_2O)	0.08
Average Stack Temp, (F)	48.2
B_{ws}, (fractional water)	0.010
P_{bar}, ("H_g)	29.9
P_g, ("H_2O)	0.01
CO_2, ($\%_{vd}$)	0.00
O_2, ($\%_{vd}$)	20.90
CO, ($\%_{vd}$)	0
N_2, ($\%_{vd}$)	79.1
Stack Dia (ft)	0.58
L, (ft)	
W, (ft)	
A, (ft^2)	0.267
C_p, (pitot coefficient)	0.84
M_d, (g/mole)	28.84
M_s, (g/mole)	28.73

G	0.77	
V_s	16.07	fps
Q_s	15,903	dscfh
	16,063	scfh
	268	scfm
	265	dscfm
	258	acfm

Equations:

T_s = Temp Stack + 460

$P_s = P_g/13.6 + P_{bar}$

$M_d = .44\ CO_2 + .32\ O_2 + .28\ CO + .28\ N_2$

$M_s = M_d(1-B_{ws}) + 18(B_{ws})$

$G = Sqrt(T_s/P_s/M_s)$

$V_s = 85.9(C_p)(G)(Avg.\ Sqrt\ Delta\ P)$

A = either D^2(PI)/4 or (L)(W)

$Q_s = 3600(1-B_{ws})(V_s)(A)(T_{std}/P_{std})(P_s)/(T_s(abs))$

Volumetric Flow Calculations

Facility/Site: Global South Portland	**Start Date:** 04/23/13
Source: Residual Oil Tank #3	**Stop Date:** 04/23/13
	Start Time: 0:00
	Stop Time: 23:59

Trav. Point	Delta P ("H_2O)	SQ Root Delta P	Stack Temp (F)
Average	0.09	0.29	42.5

Average Delta P, ("H_2O)	0.09
Average Stack Temp, (F)	42.5
B_{ws}, (fractional water)	0.010
P_{bar}, ("H_g)	29.9
P_g, ("H_2O)	0.01
CO_2, ($\%_{vd}$)	0.00
O_2, ($\%_{vd}$)	20.90
CO, ($\%_{vd}$)	0
N_2, ($\%_{vd}$)	79.1
Stack Dia (ft)	0.58
L, (ft)	
W, (ft)	
A, (ft^2)	0.267
C_p, (pitot coefficient)	0.84
M_d, (g/mole)	28.84
M_s, (g/mole)	28.73

G	0.76	
V_s	16.17	fps
Q_s	16,180	dscfh
	16,344	scfh
	272	scfm
	270	dscfm
	259	acfm

Equations:

T_s = Temp Stack + 460

$P_s = P_g/13.6 + P_{bar}$

$M_d = .44\ CO_2 + .32\ O_2 + .28\ CO + .28\ N_2$

$M_s = M_d(1-B_{ws})+18(B_{ws})$

$G = Sqrt(T_s/P_s/M_s)$

$V_s = 85.9(C_p)(G)(Avg.\ Sqrt\ Delta\ P)$

A = either D^2(PI)/4 or (L)(W)

$Q_s = 3600(1-B_{ws})(V_s)(A)(T_{std}/P_{std})(P_s)/(T_s\ (abs))$

Volumetric Flow Calculations

Facility/Site: Global South Portland	**Start Date:** 04/24/13
Source: Residual Oil Tank #3	**Stop Date:** 04/24/13
	Start Time: 0:00
	Stop Time: 23:59

Trav. Point	Delta P ("H_2O)	SQ Root Delta P	Stack Temp (F)
Average	0.09	0.30	54.5

Average Delta P, ("H_2O)	0.09
Average Stack Temp, (F)	54.5
B_{ws}, (fractional water)	0.010
P_{bar}, ("H_g)	29.9
P_g, ("H_2O)	0.01
CO_2, ($\%_{vd}$)	0.00
O_2, ($\%_{vd}$)	20.90
CO, ($\%_{vd}$)	0
N_2, ($\%_{vd}$)	79.1
Stack Dia (ft)	0.58
L, (ft)	
W, (ft)	
A, (ft^2)	0.267
C_p, (pitot coefficient)	0.84
M_d, (g/mole)	28.84
M_s, (g/mole)	28.73

G	0.77	
V_s	16.50	fps
Q_s	16,127	dscfh
	16,290	scfh
	271	scfm
	269	dscfm
	265	acfm

Equations:

T_s = Temp Stack + 460

$P_s = P_g/13.6 + P_{bar}$

$M_d = .44\ CO_2 + .32\ O_2 + .28\ CO + .28\ N_2$

$M_s = M_d(1-B_{ws}) + 18(B_{ws})$

$G = \mathrm{Sqrt}(T_s/P_s/M_s)$

$V_s = 85.9(C_p)(G)(\text{Avg. Sqrt Delta P})$

A = either D^2(PI)/4 or (L)(W)

$Q_s = 3600(1-B_{ws})(V_s)(A)(T_{std}/P_{std})(P_s)/(T_s\,(abs))$

Volumetric Flow Calculations

Facility/Site: Global South Portland	**Start Date:** 04/25/13
Source: Residual Oil Tank #3	**Stop Date:** 04/25/13
	Start Time: 0:00
	Stop Time: 23:59

Trav. Point	Delta P ("H_2O)	SQ Root Delta P	Stack Temp (F)
Average	0.09	0.30	59.8

Average Delta P, ("H_2O)	0.09
Average Stack Temp, (F)	59.8
B_{ws}, (fractional water)	0.010
P_{bar}, ("H_g)	29.9
P_g, ("H_2O)	0.01
CO_2, ($\%_{vd}$)	0.00
O_2, ($\%_{vd}$)	20.90
CO_2 ($\%_{vd}$)	0
N_2, ($\%_{vd}$)	79.1
Stack Dia (ft)	0.58
L, (ft)	
W, (ft)	
A, (ft^2)	0.267
C_p, (pitot coefficient)	0.84
M_d, (g/mole)	28.84
M_s, (g/mole)	28.73

G	0.78	
V_s	16.73	fps
Q_s	16,182	dscfh
	16,345	scfh
	272	scfm
	270	dscfm
	268	acfm

Equations:

T_s = Temp Stack + 460

$P_s = P_g/13.6 + P_{bar}$

$M_d = .44\ CO_2 + .32\ O_2 + .28\ CO + .28\ N_2$

$M_s = M_d(1-B_{ws}) + 18(B_{ws})$

$G = Sqrt(T_s/P_s/M_s)$

$V_s = 85.9(C_p)(G)(Avg.\ Sqrt\ Delta\ P)$

A = either D^2(PI)/4 or (L)(W)

$Q_s = 3600(1-B_{ws})(V_s)(A)(T_{std}/P_{std})(P_s)/(T_s\ (abs))$

Volumetric Flow Calculations

Facility/Site: Global South Portland	**Start Date:** 04/26/13
Source: Residual Oil Tank #3	**Stop Date:** 04/26/13
	Start Time: 0:00
	Stop Time: 12:44

Trav. Point	Delta P ("H_2O)	SQ Root Delta P	Stack Temp (F)
Average	0.09	0.30	54.7

Average Delta P, ("H_2O)	0.09
Average Stack Temp, (F)	54.7
B_{ws}, (fractional water)	0.010
P_{bar}, ("H_g)	29.9
P_g, ("H_2O)	0.01
CO_2, ($\%_{vd}$)	0.00
O_2, ($\%_{vd}$)	20.90
CO, ($\%_{vd}$)	0
N_2, ($\%_{vd}$)	79.1
Stack Dia (ft)	0.58
L, (ft)	
W, (ft)	
A, (ft^2)	0.267
C_p, (pitot coefficient)	0.84
M_d, (g/mole)	28.84
M_s, (g/mole)	28.73

G	0.77	
V_s	16.62	fps
Q_s	16,243	dscfh
	16,407	scfh
	273	scfm
	271	dscfm
	267	acfm

Equations:

T_s = Temp Stack + 460

$P_s = P_g/13.6 + P_{bar}$

$M_d = .44\ CO_2 + .32\ O_2 + .28\ CO + .28\ N_2$

$M_s = M_d(1-B_{ws}) + 18(B_{ws})$

$G = Sqrt(T_s/P_s/M_s)$

$V_s = 85.9(C_p)(G)(Avg.\ Sqrt\ Delta\ P)$

A = either D^2(PI)/4 or (L)(W)

$Q_s = 3600(1-B_{ws})(V_s)(A)(T_{std}/P_{std})(P_s)/(T_s\ (abs))$

EASTMOUNT ENVIRONMENTAL SERVICES
Air Quality Specialists

EPA Method 2 Field Data Sheet

Client:	Global S. Portland
Site Location:	Tank 43
Source:	Residual TTE
Test Location:	Exhaust Duct
Duct Diameter:	7"
Test Number:	Prelim. Traverse
Test Time:	1330
Test Date:	April 11, 2013
Testers:	AMS, ARS
Pitot Number:	
Pitot Coefficient:	
Ambient Temperature:	
Wet Bulb Temp:	
Barometric Pressure:	
Duct Static Pressure:	
	Pre / Post
Leak Checks:	/

Pump Calibration		
	Initial	Final
1		
2		
3		

Impinger Volume		
1		
2		
3		

Port Number	Traverse Point	Velocity Pressure	Stack Temp.
A1	In	0.07	
2	↓	0.09	
3	↓	0.10	
4	Out	0.09	
B1	In	0.08	
2	↓	0.12	
3	↓	0.11	
4	Out	0.11	
Locate Pitot at Point A2			

A = Horizontal Port
B = Vertical Port

Method 25A Data Sheet

Client	Global
Facility	South Portland
Source	Residual Oil Tank #3
Test Location	TTE Exhaust Duct
Date	April 11, 2013

THC Analyzer Data

Manufacturer	VIG	
Model/Serial Number	200 / 266 0406	
Fuel Pressure	6.5	PSI
Combustion Air Pressure	5.5	PSI
Sample Pressure	1.5	PSI
Measurement Range	0 – 10000	
Response Time	3 min	

Test Data

Test Number	1	2	3
Start Time			
Stop Time			
Testers			

Calibration Error Test Data

Calibration Gas	Cylinder Concentration	Actual Response
Zero Gas	0	1
High Gas	8367	8364
Response Line		

Response Line = (Ha/Za)/(Hc-Zc)

Calibration Gas	Cylinder Concentration	Predicted Response	Actual Response	Calibration Error	Criteria Acceptance
Low Gas	2961		3005		< 5% of cylinder concentration
Mid Gas	5052		5029		< 5% of cylinder concentration

Predicted Response = (Cylinder Concentration) x (Response Line)
Calibration Error = (Actual Response - Predicted Response) / Cylinder Concentration x 100

Calibration Drift Test Data

Calibration Gas	Cylinder Concentration	CE Test Response	Actual Response	Calibration Drift	Criteria Acceptance	
Test Run 1 Zero					< 3% of the measurement range	
Test Run 1 Mid					< 3% of the measurement range	
					Test Run 1 Avg. Conc.	
Test Run 2 Zero					< 3% of the measurement range	
Test Run 2 Mid					< 3% of the measurement range	
					Test Run 2 Avg. Conc.	
Test Run 3 Zero					< 3% of the measurement range	
Test Run 3 Mid					< 3% of the measurement range	
Calibration Drift = (Actual Response - CE Test Response) * 100 / Measurement Range					Test Run 3 Avg. Conc.	

Gas Cylinder Data

Calibration Gas	Required % of Span	Cylinder Concentration	Cylinder Composition	Cylinder Number	Expiration Date	Actual % of Span
Fuel			UHP H2			
Combustion Air			UHP Air			
Zero Gas			UHP Air			
Low Gas	25 - 35	2961	C_3H_8/Air	CC103130	7-10-2015	
Mid Gas	45 - 55	5052	"	CC311566	2-22-2015	
High Gas	80 - 90	8367	"	CC111354	3-2-2016	

Method 18 Data Sheet (Methane)

Client	Global
Facility	South Portland
Source	Residual Tank #3
Test Location	TTE Exhaust Duct
Date	April 11, 2013

THC Analyzer Data

Manufacturer	VIG
Model/Serial Number	200/2660406
Fuel Pressure	7.0 PSI
Combustion Air Pressure	5.5 PSI
Carrier Gas ~~Sample~~ Pressure	22 PSI
Measurement Range	0 – 1000
Response Time	3 min

Test Data

Test Number	1	2	3
Start Time			
Stop Time			
Testers			

Calibration Error Test Data

Calibration Gas	Cylinder Concentration	Actual Response
Zero Gas	0	1
High Gas	860	869
Response Line		

Response Line = (Ha/Za)/(Hc-Zc)

Calibration Gas	Cylinder Concentration	Predicted Response	Actual Response	Calibration Error	Criteria Acceptance
Low Gas	290		300		< 5% of cylinder concentration
Mid Gas	504		511		< 5% of cylinder concentration

Predicted Response = (Cylinder Concentration) x (Response Line)
Calibration Error = (Actual Response - Predicted Response) / Cylinder Concentration x 100

Calibration Drift Test Data

Calibration Gas	Cylinder Concentration	CE Test Response	Actual Response	Calibration Drift	Criteria Acceptance	
Test Run 1 Zero					< 3% of the measurement range	
Test Run 1 Mid					< 3% of the measurement range	
					Test Run 1 Avg. Conc.	
Test Run 2 Zero					< 3% of the measurement range	
Test Run 2 Mid					< 3% of the measurement range	
					Test Run 2 Avg. Conc.	
Test Run 3 Zero					< 3% of the measurement range	
Test Run 3 Mid					< 3% of the measurement range	
Calibration Drift = (Actual Response - CE Test Response) * 100 / Measurement Range					Test Run 3 Avg. Conc.	

Gas Cylinder Data

Calibration Gas	Required % of Span	Cylinder Concentration	Cylinder Composition	Cylinder Number	Expiration Date	Actual % of Span
Fuel			UHP H2			
Combustion Air			UHP Air			
Zero Gas			UHP Air			
Low Gas	25 - 35	290	CH4/Air	CC198791	4-2-15	
Mid Gas	45 - 55	504	"	CC127704	7-10-2015	
High Gas	80 - 90	860	"	CC246069	7-10-2015	

Method 25A Data Sheet

Client: Global
Facility: South Portland, ME
Source: Resid. Tank #3
Test Location: Exhaust Duct
Date: 15 April 2013

THC Analyzer Data

Manufacturer: VIG
Model/Serial Number: 200/2660406
Fuel Pressure: 6.5
Combustion Air Pressure: 5.5
Sample Pressure: 1.5
Measurement Range: 0 – 10000 as C_3H_8
Response Time: 3 min

Test Data

Test Number	1	2	3
Start Time			
Stop Time			
Testers			

Calibration Error Test Data		
Calibration Gas	Cylinder Concentration	Actual Response
Zero Gas	0	1
High Gas	8367	8367
Response Line		
Response Line = (Ha/Za)/(Hc-Zc)		

Calibration Gas	Cylinder Concentration	Predicted Response	Actual Response	Calibration Error	Criteria Acceptance
Low Gas	2961		2989		< 5% of cylinder concentration
Mid Gas	5052		5040		< 5% of cylinder concentration

Predicted Response = (Cylinder Concentration) x (Response Line)
Calibration Error = (Actual Response - Predicted Response) / Cylinder Concentration x 100

Calibration Drift Test Data						
Calibration Gas	Cylinder Concentration	CE Test Response	Actual Response	Calibration Drift	Criteria Acceptance	
Test Run 1 Zero	0		16		< 3% of the measurement range	
Test Run 1 Mid	2961		3021		< 3% of the measurement range	
					Test Run 1 Avg. Conc.	
Test Run 2 Zero					< 3% of the measurement range	
Test Run 2 Mid					< 3% of the measurement range	
					Test Run 2 Avg. Conc.	
Test Run 3 Zero					< 3% of the measurement range	
Test Run 3 Mid					< 3% of the measurement range	
Calibration Drift = (Actual Response - CE Test Response) * 100 / Measurement Range					Test Run 3 Avg. Conc.	

Gas Cylinder Data						
Calibration Gas	Required % of Span	Cylinder Concentration	Cylinder Composition	Cylinder Number	Expiration Date	Actual % of Span
Fuel			UHP H2			
Combustion Air			UHP Air			
Zero Gas			UHP Air			
Low Gas	25 - 35					
Mid Gas	45 - 55					
High Gas	80 - 90					

Method 18 Data Sheet (Methane)

Client	Global
Facility	South Portland, ME
Source	Resid Tank #3
Test Location	Exhaust Duct
Date	15 April 2013

THC Analyzer Data

Manufacturer	VIG
Model/Serial Number	200/26604406
Fuel Pressure	7.0
Combustion Air Pressure	5.5
~~Sample Pressure~~ Carrier Gas	= 22
Measurement Range	0–1000 as Ch4
Response Time	3 Min

Test Data

Test Number	1	2	3
Start Time			
Stop Time			
Testers			

Calibration Error Test Data

Calibration Gas	Cylinder Concentration	Actual Response
Zero Gas	0	2
High Gas	860	867
Response Line		

Response Line = (Ha/Za)/(Hc-Zc)

Calibration Gas	Cylinder Concentration	Predicted Response	Actual Response	Calibration Error	Criteria Acceptance
Low Gas	290		301		< 5% of cylinder concentration
Mid Gas	504		512		< 5% of cylinder concentration

Predicted Response = (Cylinder Concentration) x (Response Line)
Calibration Error = (Actual Response - Predicted Response) / Cylinder Concentration x 100

Calibration Drift Test Data

Calibration Gas	Cylinder Concentration	CE Test Response	Actual Response	Calibration Drift	Criteria Acceptance	
Test Run 1 Zero	0		2		< 3% of the measurement range	
Test Run 1 Mid	290		295		< 3% of the measurement range	
					Test Run 1 Avg. Conc.	
Test Run 2 Zero					< 3% of the measurement range	
Test Run 2 Mid					< 3% of the measurement range	
					Test Run 2 Avg. Conc.	
Test Run 3 Zero					< 3% of the measurement range	
Test Run 3 Mid					< 3% of the measurement range	
Calibration Drift = (Actual Response - CE Test Response) * 100 / Measurement Range					Test Run 3 Avg. Conc.	

Gas Cylinder Data

Calibration Gas	Required % of Span	Cylinder Concentration	Cylinder Composition	Cylinder Number	Expiration Date	Actual % of Span
Fuel			UHP H2			
Combustion Air			UHP Air			
Zero Gas			UHP Air			
Low Gas	25 - 35					
Mid Gas	45 - 55					
High Gas	80 - 90					

VIG Monitor Daily Calibration Data Sheet

Daily Calibration Summary	
Facility:	Global South Portland
Source/Location:	Residual Oil Tank #3
Technician Initials:	DMS
Date:	April 17 2013
Time:	11:30

VIG Monitor Summary	
Manufacturer -	VIG
Model/Serial Number -	200 / 2660406
THC Monitor Hydrogen Fuel Pressure -	Maintain at 6.5 psi
Methane Monitor Hydrogen Fuel Pressure -	Maintain at7.0 psi
Combustion Air Pressure -	Maintain at 5.5 psi
Sample Pressure -	Maintain at ~~2 psi~~ 1.5
Carrier Gas Pressure -	Maintain at 22 psi

Total Hydrocarbon Daily Calibration Data		
Calibration Gas	Cylinder Concentration	Monitor Response
Zero Air	0	15
Propane	2961	2955

Methane Daily Calibration Data		
Calibration Gas	Cylinder Concentration	Monitor Response
Zero Air	0	2
Methane	290	289

VIG Monitor Daily Calibration Data Sheet

Daily Calibration Summary	
Facility:	Global South Portland
Source/Location:	Residual Oil Tank #3
Technician Initials:	DO
Date:	4-13-13
Time:	0722

VIG Monitor Summary	
Manufacturer -	VIG
Model/Serial Number -	200 / 2660406
THC Monitor Hydrogen Fuel Pressure -	Maintain at 6.5 psi
Methane Monitor Hydrogen Fuel Pressure -	Maintain at7.0 psi
Combustion Air Pressure -	Maintain at 5.5 psi
Sample Pressure -	Maintain at ~~2 psi~~ 1.5
Carrier Gas Pressure -	Maintain at 22 psi

Total Hydrocarbon Daily Calibration Data		
Calibration Gas	Cylinder Concentration	Monitor Response
Zero Air	0	16
Propane	2961	3025

Methane Daily Calibration Data		
Calibration Gas	Cylinder Concentration	Monitor Response
Zero Air	0	2
Methane	290	287

VIG Monitor Daily Calibration Data Sheet

Daily Calibration Summary	
Facility:	Global South Portland
Source/Location:	Residual Oil Tank #3
Technician Initials:	SO
Date:	4-14-13
Time:	0830

VIG Monitor Summary	
Manufacturer -	VIG
Model/Serial Number -	200 / 2660406
THC Monitor Hydrogen Fuel Pressure -	Maintain at 6.5 psi
Methane Monitor Hydrogen Fuel Pressure -	Maintain at7.0 psi
Combustion Air Pressure -	Maintain at 5.5 psi
Sample Pressure -	Maintain at ~~2~~ psi 1.5
Carrier Gas Pressure -	Maintain at 22 psi

Total Hydrocarbon Daily Calibration Data		
Calibration Gas	Cylinder Concentration	Monitor Response
Zero Air	0	14
Propane	2961	2995

Methane Daily Calibration Data		
Calibration Gas	Cylinder Concentration	Monitor Response
Zero Air	0	2
Methane	290	289

VIG Monitor Daily Calibration Data Sheet

Daily Calibration Summary	
Facility:	Global South Portland
Source/Location:	Residual Oil Tank #3
Technician Initials:	SCO
Date:	4-15-13
Time:	8:30

VIG Monitor Summary	
Manufacturer -	VIG
Model/Serial Number -	200 / 2660406
THC Monitor Hydrogen Fuel Pressure -	Maintain at 6.5 psi
Methane Monitor Hydrogen Fuel Pressure -	Maintain at7.0 psi
Combustion Air Pressure -	Maintain at 5.5 psi
Sample Pressure -	Maintain at ~~2 psi~~ 15
Carrier Gas Pressure -	Maintain at 22 psi

Total Hydrocarbon Daily Calibration Data		
Calibration Gas	Cylinder Concentration	Monitor Response
Zero Air	0	3
Propane	2961	2999

Methane Daily Calibration Data		
Calibration Gas	Cylinder Concentration	Monitor Response
Zero Air	0	24 *
Methane	290	299

* Calibrating Fed didn't wait long enough for 3 MG Cal cycle. Ans checked zero at ~~22:00~~ 21:30, and it was 3 ppm Ans. (24 still passes)

VIG Monitor Daily Calibration Data Sheet

Daily Calibration Summary	
Facility:	Global South Portland
Source/Location:	Residual Oil Tank #3
Technician Initials:	AMS
Date:	16 Apr 2013
Time:	10:45

Post Vessel Transfer Cal

VIG Monitor Summary	
Manufacturer -	VIG
Model/Serial Number -	200 / 2660406
THC Monitor Hydrogen Fuel Pressure -	Maintain at 6.5 psi
Methane Monitor Hydrogen Fuel Pressure -	Maintain at7.0 psi
Combustion Air Pressure -	Maintain at 5.5 psi
Sample Pressure -	Maintain at ~~2 psi~~ 1.5
Carrier Gas Pressure -	Maintain at 22 psi

Total Hydrocarbon Daily Calibration Data		
Calibration Gas	Cylinder Concentration	Monitor Response
Zero Air	0	~~28~~ 16 (AMS)
Propane	2961	3021

Methane Daily Calibration Data		
Calibration Gas	Cylinder Concentration	Monitor Response
Zero Air	0	~~3~~ 2 (AMS)
Methane	290	295

VIG Monitor Daily Calibration Data Sheet

Daily Calibration Summary	
Facility:	Global South Portland
Source/Location:	Residual Oil Tank #3
Technician Initials:	MAP
Date:	4/17/13
Time:	0805

VIG Monitor Summary	
Manufacturer -	VIG
Model/Serial Number -	200 / 2660406
THC Monitor Hydrogen Fuel Pressure -	Maintain at 6.5 psi
Methane Monitor Hydrogen Fuel Pressure -	Maintain at7.0 psi
Combustion Air Pressure -	Maintain at 5.5 psi
Sample Pressure -	Maintain at ~~2~~ psi 1.5
Carrier Gas Pressure -	Maintain at 22 psi

Total Hydrocarbon Daily Calibration Data		
Calibration Gas	Cylinder Concentration	Monitor Response
Zero Air	0	8
Propane	2961	2931

Methane Daily Calibration Data		
Calibration Gas	Cylinder Concentration	Monitor Response
Zero Air	0	1
Methane	290	290

VIG Monitor Daily Calibration Data Sheet

Daily Calibration Summary	
Facility:	Global South Portland
Source/Location:	Residual Oil Tank #3
Technician Initials:	MAP
Date:	4/18/13
Time:	0810

VIG Monitor Summary	
Manufacturer -	VIG
Model/Serial Number -	200 / 2660406
THC Monitor Hydrogen Fuel Pressure -	Maintain at 6.5 psi
Methane Monitor Hydrogen Fuel Pressure -	Maintain at7.0 psi
Combustion Air Pressure -	Maintain at 5.5 psi
Sample Pressure -	Maintain at ~~2 psi~~ 1.5
Carrier Gas Pressure -	Maintain at 22 psi

Total Hydrocarbon Daily Calibration Data		
Calibration Gas	Cylinder Concentration	Monitor Response
Zero Air	0	10
Propane	2961	2920

Methane Daily Calibration Data		
Calibration Gas	Cylinder Concentration	Monitor Response
Zero Air	0	2
Methane	290	298

VIG Monitor Daily Calibration Data Sheet

Daily Calibration Summary	
Facility:	Global South Portland
Source/Location:	Residual Oil Tank #3
Technician Initials:	MLP
Date:	4/19/13
Time:	0835

VIG Monitor Summary	
Manufacturer -	VIG
Model/Serial Number -	200 / 2660406
THC Monitor Hydrogen Fuel Pressure -	Maintain at 6.5 psi
Methane Monitor Hydrogen Fuel Pressure -	Maintain at7.0 psi
Combustion Air Pressure -	Maintain at 5.5 psi
Sample Pressure -	Maintain at ~~2 psi~~ 1.5
Carrier Gas Pressure -	Maintain at 22 psi

Total Hydrocarbon Daily Calibration Data		
Calibration Gas	Cylinder Concentration	Monitor Response
Zero Air	0	9
Propane	2961	2925

Methane Daily Calibration Data		
Calibration Gas	Cylinder Concentration	Monitor Response
Zero Air	0	2
Methane	290	287

VIG Monitor Daily Calibration Data Sheet

Daily Calibration Summary	
Facility:	Global South Portland
Source/Location:	Residual Oil Tank #3
Technician Initials:	SCO
Date:	4-20-13
Time:	0801

VIG Monitor Summary	
Manufacturer -	VIG
Model/Serial Number -	200 / 2660406
THC Monitor Hydrogen Fuel Pressure -	Maintain at 6.5 psi
Methane Monitor Hydrogen Fuel Pressure -	Maintain at7.0 psi
Combustion Air Pressure -	Maintain at 5.5 psi
Sample Pressure -	Maintain at ~~2 psi~~ 15
Carrier Gas Pressure -	Maintain at 22 psi

Total Hydrocarbon Daily Calibration Data		
Calibration Gas	Cylinder Concentration	Monitor Response
Zero Air	0	2
Propane	2961	2990

Methane Daily Calibration Data		
Calibration Gas	Cylinder Concentration	Monitor Response
Zero Air	0	2
Methane	290	283

VIG Monitor Daily Calibration Data Sheet

Daily Calibration Summary	
Facility:	Global South Portland
Source/Location:	Residual Oil Tank #3
Technician Initials:	SCO
Date:	4-22-13
Time:	0754 (actual 8:00 AM)

VIG Monitor Summary	
Manufacturer -	VIG
Model/Serial Number -	200 / 2660406
THC Monitor Hydrogen Fuel Pressure -	Maintain at 6.5 psi
Methane Monitor Hydrogen Fuel Pressure -	Maintain at7.0 psi
Combustion Air Pressure -	Maintain at 5.5 psi
Sample Pressure -	Maintain at ~~2 psi~~ 1.5
Carrier Gas Pressure -	Maintain at 22 psi

Total Hydrocarbon Daily Calibration Data		
Calibration Gas	Cylinder Concentration	Monitor Response
Zero Air	0	2
Propane	2961	2940

Methane Daily Calibration Data		
Calibration Gas	Cylinder Concentration	Monitor Response
Zero Air	0	1
Methane	290	300

VIG Monitor Daily Calibration Data Sheet

Daily Calibration Summary	
Facility:	Global South Portland
Source/Location:	Residual Oil Tank #3
Technician Initials:	SCO
Date:	4-23-13
Time: 0758	

VIG Monitor Summary	
Manufacturer -	VIG
Model/Serial Number -	200 / 2660406
THC Monitor Hydrogen Fuel Pressure -	Maintain at 6.5 psi
Methane Monitor Hydrogen Fuel Pressure -	Maintain at7.0 psi
Combustion Air Pressure -	Maintain at 5.5 psi
Sample Pressure -	Maintain at ~~2 psi~~ 1.5
Carrier Gas Pressure -	Maintain at 22 psi

Total Hydrocarbon Daily Calibration Data		
Calibration Gas	Cylinder Concentration	Monitor Response
Zero Air	0	48
Propane	2961	2970

Methane Daily Calibration Data		
Calibration Gas	Cylinder Concentration	Monitor Response
Zero Air	0	0
Methane	290	297

VIG Monitor Daily Calibration Data Sheet

Daily Calibration Summary	
Facility:	Global South Portland
Source/Location:	Residual Oil Tank #3
Technician Initials:	MAP
Date:	4-24-13
Time:	0955

VIG Monitor Summary	
Manufacturer -	VIG
Model/Serial Number -	200 / 2660406
THC Monitor Hydrogen Fuel Pressure -	Maintain at 6.5 psi
Methane Monitor Hydrogen Fuel Pressure -	Maintain at7.0 psi
Combustion Air Pressure -	Maintain at 5.5 psi
Sample Pressure -	Maintain at ~~2~~ psi 1.5
Carrier Gas Pressure -	Maintain at 22 psi

Total Hydrocarbon Daily Calibration Data		
Calibration Gas	Cylinder Concentration	Monitor Response
Zero Air	0	12
Propane	2961	2970

Methane Daily Calibration Data		
Calibration Gas	Cylinder Concentration	Monitor Response
Zero Air	0	1
Methane	290	288

VIG Monitor Daily Calibration Data Sheet

Daily Calibration Summary	
Facility:	Global South Portland
Source/Location:	Residual Oil Tank #3
Technician Initials:	MAP
Date:	0800 - 4/25/13
Time:	0800

VIG Monitor Summary	
Manufacturer -	VIG
Model/Serial Number -	200 / 2660406
THC Monitor Hydrogen Fuel Pressure -	Maintain at 6.5 psi
Methane Monitor Hydrogen Fuel Pressure -	Maintain at7.0 psi
Combustion Air Pressure -	Maintain at 5.5 psi
Sample Pressure -	Maintain at ~~2 psi~~ 1.5
Carrier Gas Pressure -	Maintain at 22 psi

Total Hydrocarbon Daily Calibration Data		
Calibration Gas	Cylinder Concentration	Monitor Response
Zero Air	0	12
Propane	2961	3070

Methane Daily Calibration Data		
Calibration Gas	Cylinder Concentration	Monitor Response
Zero Air	0	2
Methane	290	284

VIG Monitor Daily Calibration Data Sheet

Daily Calibration Summary	
Facility:	Global South Portland
Source/Location:	Residual Oil Tank #3
Technician Initials:	MLP
Date:	4/26/13
Time:	1245

VIG Monitor Summary	
Manufacturer -	VIG
Model/Serial Number -	200 / 2660406
THC Monitor Hydrogen Fuel Pressure -	Maintain at 6.5 psi
Methane Monitor Hydrogen Fuel Pressure -	Maintain at7.0 psi
Combustion Air Pressure -	Maintain at 5.5 psi
Sample Pressure -	Maintain at ~~2 psi~~ 1.5
Carrier Gas Pressure -	Maintain at 22 psi

Total Hydrocarbon Daily Calibration Data		
Calibration Gas	Cylinder Concentration	Monitor Response
Zero Air	0	15
Propane	2961	3040

Methane Daily Calibration Data		
Calibration Gas	Cylinder Concentration	Monitor Response
Zero Air	0	2
Methane	290	289

VIG Monitor Peridodic Check Sheet

VIG Monitor Set Points	
THC Monitor Hydrogen (H2) Fuel Pressure -	Maintain at 6.5 psi.
Methane Monitor Hydrogen (H2) Fuel Pressure -	Maintain at 7.0 psi
Combustion Air Pressure -	Maintain at 5.5 psi
Sample Pressure -	Maintain at ~~2 psi~~ 1.5
Carrier Gas Pressure -	Maintain at 22 psi

Date	Time	Initials	THC H_2 PSI	Methane H_2 psi	Comb Air psi	Sample psi	Carrier Gas psi	
4-12-2013	11:25	DMS	6.5	7.0	5.5	1.5	22	OK
4-13-13	0515	MAP	6.5	7.0	5.5	1.5	22	ok
4-14-13	0025	MAP	6.5	7.0	5.5	1.5	22	ok
4-15-13	1500	APM	6.5	7.0	5.5	1.5	22	ok
4-16-13	1620	APM	6.5	7.0	5.5	1.5	22	ok
4/17/13	0015	TJG	6.5	7.0	5.5	1.5	22	ok
4/17/13	1900	ART	6.5	7.0	5.5	1.5	22	
4/18/13	0015	TJG	6.5	7.0	5.5	1.5	22	ok
4-18-13	0941	GT	6.5	7.0	5.5	1.5	22	
4/18/13	1900	APM	6.5	7.0	5.5	1.5	22	
4/19/13	0015	TJG	6.5	7.0	5.5	1.5	22	ok
4/19/13	1600	ART	6.5	7.0	5.5	1.5	22	
4/20/13	0200	MAP	6.5	7.0	5.5	1.5	22	ok
4/20/13	1645	MAP	6.5	7.0	5.5	1.5	22	ok
4/21/13	0045	MAP	6.5	7.0	5.5	1.5	22	ok
4/22/13	0015	TJG	6.5	7.0	5.5	1.5	22	ok

VIG Monitor Peridodic Check Sheet

VIG Monitor Set Points	
THC Monitor Hydrogen (H2) Fuel Pressure -	Maintain at 6.5 psi.
Methane Monitor Hydrogen (H2) Fuel Pressure -	Maintain at 7.0 psi
Combustion Air Pressure -	Maintain at 5.5 psi
Sample Pressure -	Maintain at ~~2 psi~~ 1.5 PSI
Carrier Gas Pressure -	Maintain at 22 psi

Date	Time	Initials	THC H_2 PSI	Methane H_2 psi	Comb Air psi	Sample psi	Carrier Gas psi	
4/22/13	1530	APN	6.5	7.0	5.5	1.5	22	
4/23/13	0015	TJG	6.5	7.0	5.5	1.5	22	
4/23/13	1930	ACT	6.5	7.0	5.5	1.5	22	
4/24/13	0015	TJG	6.5	7.0	5.5	1.5	22	
4/25/13	0015	TJG	6.5	7.0	5.5	1.5	22	ADJUSTED SAMPLE PRESS. WAS 1.75
4/25/13	1945	ACT	6.5	7.0	5.5	1.5	22	
4/26/13	0015	TJG	6.5	7.0	5.5	1.5	22	

GLOBAL SOUTH PORTLAND VOC TEST PROGRAM - DAILY CAL/CHECK LIST

Operator: D. Stratton

Time: 18:15

Date: 11 Apr 2013

Tank ID: Tank #3

The following information should be recorded and post THC/methane calibrations conducted prior to making any adjustments.

TTE 1 Static Pressure: (should be -0.007 or more negative) Pressure (in. W.C.): -0.038 Adjusted? ✓ New Reading (in. W.C.): ✓

TTE 2 Static Pressure: (should be -0.007 or more negative) Pressure (in. W.C.): -0.029 Adjusted? ✓ New Reading (in. W.C.): ✓

THC Analyzer Conditions: H2 (PSI): 6.5 Air (PSI): 5.5 Sample Pressure (PSI): 1.5

Methane Analyzer Conditions: H2 (PSI): 7.0 Carrier Gas (PSI): 22

Hydrogen Cylinder Pressure (PSI): ✓ Air Cylinder Pressure (PSI): ✓ Nitrogen Cylinder Pressure (PSI): ✓

Sample Line 1 Temperature (°F): 275 Sample Line 2 Temperature (°F): 275 Filter Hot? yes

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Pitot Condition (check weekly) Clear? _____ Clogged? _____ If clogged, is it now clear? _____

Pitot Leak Check (check weekly): Positive Side Leak Check OK?: _____ Negative Side Leak Check OK? _____

Note: If any of the criteria listed above or on the THC/Methane calibration sheets failed, please call Anthony Stratton/Eastmount at 508-989-8996 (cell)

GLOBAL SOUTH PORTLAND VOC TEST PROGRAM - DAILY CAL/CHECK LIST

Operator: A. Stratton

Time: 13:17

Date: 4-12-13

Tank ID: 3

The following information should be recorded and post THC/methane calibrations conducted prior to making any adjustments.

TTE 1 Static Pressure: (should be -0.007 or more negative) Pressure (in. W.C.): -0.048 Adjusted? NO New Reading (in. W.C.): _____

TTE 2 Static Pressure: (should be -0.007 or more negative) Pressure (in. W.C.): -0.045 Adjusted? NO New Reading (in. W.C.): _____

THC Analyzer Conditions: H2 (PSI): 6.5 Air (PSI): 5.5 * Sample Pressure (PSI): 1.5

Methane Analyzer Conditions: H2 (PSI): 7.0 Carrier Gas (PSI): 22

Hydrogen Cylinder Pressure (PSI): 1800 Air Cylinder Pressure (PSI): 2000+ Nitrogen Cylinder Pressure (PSI): 850

Sample Line 1 Temperature (°F): 275 Sample Line 2 Temperature (°F): 275 Filter Hot? _____

Pitot Condition (check weekly) Clear? _____ Clogged? _____ If clogged, is it now clear? _____

Pitot Leak Check (check weekly): Positive Side Leak Check OK?: _____ Negative Side Leak Check OK? _____

Note: If any of the criteria listed above or on the THC/Methane calibration sheets failed, please call Anthony Stratton/Eastmount at 508-989-8996 (cell)

GLOBAL SOUTH PORTLAND VOC TEST PROGRAM - DAILY CAL/CHECK LIST

Operator: Scott Olsen

Time: 0722

Date: 4-13-13

Tank ID: 3

The following information should be recorded and post THC/methane calibrations conducted prior to making any adjustments.

TTE 1 Static Pressure: (should be -0.007 or more negative) Pressure (in. W.C.): -0.010 Adjusted? NO New Reading (in. W.C.): _____

TTE 2 Static Pressure: (should be -0.007 or more negative) Pressure (in. W.C.): -0.023 Adjusted? NO New Reading (in. W.C.): _____

THC Analyzer Conditions: H2 (PSI): 6.5 Air (PSI): 5.5 Sample Pressure (PSI): 1.5

Methane Analyzer Conditions: H2 (PSI): 7.0 Carrier Gas (PSI): 22

Hydrogen Cylinder Pressure (PSI): 1800 Air Cylinder Pressure (PSI): 2000 + Nitrogen Cylinder Pressure (PSI): 800

Sample Line 1 Temperature (°F): 275 Sample Line 2 Temperature (°F): 275 Filter Hot? Good

---

Pitot Condition (check weekly) Clear? _____ Clogged? _____ If clogged, is it now clear? _____

Pitot Leak Check (check weekly): Positive Side Leak Check OK?: _____ Negative Side Leak Check OK? _____

Note: If any of the criteria listed above or on the THC/Methane calibration sheets failed, please call Anthony Stratton/Eastmount at 508-989-8996 (cell)

GLOBAL SOUTH PORTLAND VOC TEST PROGRAM - DAILY CAL/CHECK LIST

Operator: Scott Olsen

Time: 0823

Date: 4-14-13

Tank ID: 3

The following information should be recorded and post THC/methane calibrations conducted prior to making any adjustments.

TTE 1 Static Pressure: (should be -0.007 or more negative) Pressure (in. W.C.): -.020 Adjusted? NO New Reading (in. W.C.): _____

TTE 2 Static Pressure: (should be -0.007 or more negative) Pressure (in. W.C.): -.009 Adjusted? NO New Reading (in. W.C.): _____

THC Analyzer Conditions: H2 (PSI): 6.5 Air (PSI): 5.5 Sample Pressure (PSI): 1.5

Methane Analyzer Conditions: H2 (PSI): 7.0 Carrier Gas (PSI): 22

Hydrogen Cylinder Pressure (PSI): 1800 Air Cylinder Pressure (PSI): 2000 + Nitrogen Cylinder Pressure (PSI): 775

Sample Line 1 Temperature (°F): 275 Sample Line 2 Temperature (°F): 275 Filter Hot? Good

---

Pitot Condition (check weekly) Clear? _____ Clogged? _____ If clogged, is it now clear? _____

Pitot Leak Check (check weekly): Positive Side Leak Check OK?: _____ Negative Side Leak Check OK? _____

Note: If any of the criteria listed above or on the THC/Methane calibration sheets failed, please call Anthony Stratton/Eastmount at 508-989-8996 (cell)

GLOBAL SOUTH PORTLAND VOC TEST PROGRAM - DAILY CAL/CHECK LIST

Operator: Scott Olsen

Time: 0806

Date: 4-15-13

Tank ID: 3

The following information should be recorded and post THC/methane calibrations conducted prior to making any adjustments.

TTE 1 Static Pressure: (should be -0.007 or more negative) Pressure (in. W.C.): -0.015 Adjusted? NO New Reading (in. W.C.): _____

TTE 2 Static Pressure: (should be -0.007 or more negative) Pressure (in. W.C.): -0.010 Adjusted? NO New Reading (in. W.C.): _____

THC Analyzer Conditions: H2 (PSI): 6.5 Air (PSI): 5.5 Sample Pressure (PSI): 1.5

Methane Analyzer Conditions: H2 (PSI): 7.0 Carrier Gas (PSI): 22

Hydrogen Cylinder Pressure (PSI): 1800 Air Cylinder Pressure (PSI): 1925 Nitrogen Cylinder Pressure (PSI): 750

Sample Line 1 Temperature (°F): 275° Sample Line 2 Temperature (°F): 275° Filter Hot? Good

---

Pitot Condition (check weekly) Clear? _____ Clogged? _____ If clogged, is it now clear? _____

Pitot Leak Check (check weekly): Positive Side Leak Check OK?: _____ Negative Side Leak Check OK? _____

Note: If any of the criteria listed above or on the THC/Methane calibration sheets failed, please call Anthony Stratton/Eastmount at 508-989-8996 (cell)

GLOBAL SOUTH PORTLAND VOC TEST PROGRAM - DAILY CAL/CHECK LIST

Operator: A. Stratton

Time: 11:55

Date: 16 Apr 2013

Tank ID:

The following information should be recorded and post THC/methane calibrations conducted prior to making any adjustments.

TTE 1 Static Pressure: (should be -0.007 or more negative) Pressure (in. W.C.): -0.060 Adjusted? no New Reading (in. W.C.):

TTE 2 Static Pressure: (should be -0.007 or more negative) Pressure (in. W.C.): -0.035 Adjusted? no New Reading (in. W.C.):

THC Analyzer Conditions: H2 (PSI): 6.5 Air (PSI): 5.5 Sample Pressure (PSI): 1.5

Methane Analyzer Conditions: H2 (PSI): 7.0 Carrier Gas (PSI): 22

Hydrogen Cylinder Pressure (PSI): 1700 Air Cylinder Pressure (PSI): 1800 Nitrogen Cylinder Pressure (PSI): ~~700~~ Changed tank. now 2450 (AT)

Sample Line 1 Temperature (°F): 275 Sample Line 2 Temperature (°F): 275 Filter Hot? yes

---

Pitot Condition (check weekly) Clear? Clogged? If clogged, is it now clear?

Pitot Leak Check (check weekly): Positive Side Leak Check OK?: Negative Side Leak Check OK?

Note: If any of the criteria listed above or on the THC/Methane calibration sheets failed, please call Anthony Stratton/Eastmount at 508-989-8996 (cell)

GLOBAL SOUTH PORTLAND VOC TEST PROGRAM - DAILY CAL/CHECK LIST

Operator: M. Prokenno

Time: 0800

Date: 4/17/13

Tank ID: 3

The following information should be recorded and post THC/methane calibrations conducted prior to making any adjustments.

TTE 1 Static Pressure: (should be -0.007 or more negative) Pressure (in. W.C.): -0.060 Adjusted? No New Reading (in. W.C.): _____

TTE 2 Static Pressure: (should be -0.007 or more negative) Pressure (in. W.C.): -0.028 Adjusted? No New Reading (in. W.C.): _____

THC Analyzer Conditions: H2 (PSI): 6.5 Air (PSI): 5.5 Sample Pressure (PSI): 1.5

Methane Analyzer Conditions: H2 (PSI): 7.0 Carrier Gas (PSI): 22

Hydrogen Cylinder Pressure (PSI): 1750 Air Cylinder Pressure (PSI): 1700 Nitrogen Cylinder Pressure (PSI): 2400

Sample Line 1 Temperature (°F): 275° Sample Line 2 Temperature (°F): 275° Filter Hot? yes

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Pitot Condition (check weekly) Clear? _____ Clogged? _____ If clogged, is it now clear? _____

Pitot Leak Check (check weekly): Positive Side Leak Check OK?: _____ Negative Side Leak Check OK? _____

Note: If any of the criteria listed above or on the THC/Methane calibration sheets failed, please call Anthony Stratton/Eastmount at 508-989-8996 (cell)

GLOBAL SOUTH PORTLAND VOC TEST PROGRAM - DAILY CAL/CHECK LIST

Operator: Mark Perkins

Time: 0755

Date: 4/18/13

Tank ID: 3

The following information should be recorded and post THC/methane calibrations conducted prior to making any adjustments.

TTE 1 Static Pressure:
(should be -0.007 or more negative)

Pressure (in. W.C.): -.009

Adjusted? ~~No~~ yes

New Reading (in. W.C.): -0.035

TTE 2 Static Pressure:
(should be -0.007 or more negative)

Pressure (in. W.C.): -.050

Adjusted? No

New Reading (in. W.C.): _____

THC Analyzer Conditions: H2 (PSI): 6.5 Air (PSI): 5.5 Sample Pressure (PSI): 1.5

Methane Analyzer Conditions: H2 (PSI): 7.0 Carrier Gas (PSI): 22

Hydrogen Cylinder Pressure (PSI): 1750 Air Cylinder Pressure (PSI): 1600 Nitrogen Cylinder Pressure (PSI): 2350

Sample Line 1 Temperature (°F): 275° Sample Line 2 Temperature (°F): 275° Filter Hot? yes

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Pitot Condition (check weekly) Clear? _____ Clogged? _____ If clogged, is it now clear? _____

Pitot Leak Check (check weekly): Positive Side Leak Check OK?: _____ Negative Side Leak Check OK? _____

Note: If any of the criteria listed above or on the THC/Methane calibration sheets failed, please call Anthony Stratton/Eastmount at 508-989-8996 (cell)

GLOBAL SOUTH PORTLAND VOC TEST PROGRAM - DAILY CAL/CHECK LIST

Operator: Mark Pokrowo

Time: 0755

Date: 4/19/13

Tank ID: 3

The following information should be recorded and post THC/methane calibrations conducted prior to making any adjustments.

TTE 1 Static Pressure: (should be -0.007 or more negative) Pressure (in. W.C.): -0.033 Adjusted? No New Reading (in. W.C.): _____

TTE 2 Static Pressure: (should be -0.007 or more negative) Pressure (in. W.C.): -0.035 Adjusted? No New Reading (in. W.C.): _____

THC Analyzer Conditions: H2 (PSI): 6.5 Air (PSI): 5.5 Sample Pressure (PSI): 1.5

Methane Analyzer Conditions: H2 (PSI): 7.0 Carrier Gas (PSI): 22

Hydrogen Cylinder Pressure (PSI): 1750 Air Cylinder Pressure (PSI): 1500 Nitrogen Cylinder Pressure (PSI): 2300

Sample Line 1 Temperature (°F): 275° Sample Line 2 Temperature (°F): 275° Filter Hot? yes

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Pitot Condition (check weekly) Clear? _____ Clogged? _____ If clogged, is it now clear? _____

Pitot Leak Check (check weekly): Positive Side Leak Check OK?: _____ Negative Side Leak Check OK? _____

Note: If any of the criteria listed above or on the THC/Methane calibration sheets failed, please call Anthony Stratton/Eastmount at 508-989-8996 (cell)

GLOBAL SOUTH PORTLAND VOC TEST PROGRAM - DAILY CAL/CHECK LIST

Operator: Scott Olsen

Time: 0756

Date: 4-20-13

Tank ID: 3

The following information should be recorded and post THC/methane calibrations conducted prior to making any adjustments.

TTE 1 Static Pressure: (should be -0.007 or more negative) Pressure (in. W.C.): -.019 Adjusted? NO New Reading (in. W.C.): _____

TTE 2 Static Pressure: (should be -0.007 or more negative) Pressure (in. W.C.): -.043 Adjusted? NO New Reading (in. W.C.): _____

THC Analyzer Conditions: H2 (PSI): 6.5 Air (PSI): 5.5 Sample Pressure (PSI): 1.5

Methane Analyzer Conditions: H2 (PSI): 7.0 Carrier Gas (PSI): 22

Hydrogen Cylinder Pressure (PSI): 1750 Air Cylinder Pressure (PSI): 1425 Nitrogen Cylinder Pressure (PSI): 2300

Sample Line 1 Temperature (°F): 275° Sample Line 2 Temperature (°F): 275° Filter Hot? Yes

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Pitot Condition (check weekly) Clear? _____ Clogged? _____ If clogged, is it now clear? _____

Pitot Leak Check (check weekly): Positive Side Leak Check OK?: _____ Negative Side Leak Check OK? _____

Note: If any of the criteria listed above or on the THC/Methane calibration sheets failed, please call Anthony Stratton/Eastmount at 508-989-8996 (cell)

GLOBAL SOUTH PORTLAND VOC TEST PROGRAM - DAILY CAL/CHECK LIST

Operator: Scott Olsen

Time: 0754

Date: 4-22-13

Tank ID: 3

The following information should be recorded and post THC/methane calibrations conducted prior to making any adjustments.

TTE 1 Static Pressure: (should be -0.007 or more negative) Pressure (in. W.C.): -0.048 Adjusted? NO New Reading (in. W.C.): _____

TTE 2 Static Pressure: (should be -0.007 or more negative) Pressure (in. W.C.): -0.032 Adjusted? NO New Reading (in. W.C.): _____

THC Analyzer Conditions: H2 (PSI): 6.5 Air (PSI): 5.5 Sample Pressure (PSI): 1.5

Methane Analyzer Conditions: H2 (PSI): 7.0 Carrier Gas (PSI): 22

Hydrogen Cylinder Pressure (PSI): 1675 Air Cylinder Pressure (PSI): 1175 Nitrogen Cylinder Pressure (PSI): 2150

Sample Line 1 Temperature (°F): 275 Sample Line 2 Temperature (°F): 275 Filter Hot? yes

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Pitot Condition (check weekly) Clear? _____ Clogged? _____ If clogged, is it now clear? _____

Pitot Leak Check (check weekly): Positive Side Leak Check OK?: _____ Negative Side Leak Check OK? _____

Note: If any of the criteria listed above or on the THC/Methane calibration sheets failed, please call Anthony Stratton/Eastmount at 508-989-8996 (cell)

GLOBAL SOUTH PORTLAND VOC TEST PROGRAM - DAILY CAL/CHECK LIST

Operator: Scott Olson

Time: 0758

Date: 4-23-13

Tank ID: 3

The following information should be recorded and post THC/methane calibrations conducted prior to making any adjustments.

TTE 1 Static Pressure: (should be -0.007 or more negative) Pressure (in. W.C.): -0.045 Adjusted? NO New Reading (in. W.C.): _____

TTE 2 Static Pressure: (should be -0.007 or more negative) Pressure (in. W.C.): -0.065 Adjusted? NO New Reading (in. W.C.): _____

THC Analyzer Conditions: H2 (PSI): 6.5 Air (PSI): 5.5 Sample Pressure (PSI): 1.5

Methane Analyzer Conditions: H2 (PSI): 7.0 Carrier Gas (PSI): 22

Hydrogen Cylinder Pressure (PSI): 1650 Air Cylinder Pressure (PSI): 1050 Nitrogen Cylinder Pressure (PSI): 2100

Sample Line 1 Temperature (°F): 272° Sample Line 2 Temperature (°F): 275° Filter Hot? YES

Pitot Condition (check weekly) Clear? _____ Clogged? _____ If clogged, is it now clear? _____

Pitot Leak Check (check weekly): Positive Side Leak Check OK?: _____ Negative Side Leak Check OK? _____

Note: If any of the criteria listed above or on the THC/Methane calibration sheets failed, please call Anthony Stratton/Eastmount at 508-989-8996 (cell)

GLOBAL SOUTH PORTLAND VOC TEST PROGRAM - DAILY CAL/CHECK LIST

Operator: Mark Prolenno

Time: 0945

Date: 4-24-13

Tank ID: 3

The following information should be recorded and post THC/methane calibrations conducted prior to making any adjustments.

TTE 1 Static Pressure: (should be -0.007 or more negative) Pressure (in. W.C.): -0.090 Adjusted? yes New Reading (in. W.C.): -0.060

TTE 2 Static Pressure: (should be -0.007 or more negative) Pressure (in. W.C.): -0.060 Adjusted? No New Reading (in. W.C.): _____

THC Analyzer Conditions: H2 (PSI): 6.5 Air (PSI): 5.5 Sample Pressure (PSI): 1.5

Methane Analyzer Conditions: H2 (PSI): 7.0 Carrier Gas (PSI): 22

Hydrogen Cylinder Pressure (PSI): 1625 Air Cylinder Pressure (PSI): 950 Nitrogen Cylinder Pressure (PSI): 2025

Sample Line 1 Temperature (°F): 275° Sample Line 2 Temperature (°F): 275° Filter Hot? yes

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Pitot Condition (check weekly) Clear? _____ Clogged? _____ If clogged, is it now clear? _____

Pitot Leak Check (check weekly): Positive Side Leak Check OK?: _____ Negative Side Leak Check OK? _____

Note: If any of the criteria listed above or on the THC/Methane calibration sheets failed, please call Anthony Stratton/Eastmount at 508-989-8996 (cell)

GLOBAL SOUTH PORTLAND VOC TEST PROGRAM - DAILY CAL/CHECK LIST

Operator: Mark Profenno

Time: 0755

Date: 4/25/13

Tank ID: 3

The following information should be recorded and post THC/methane calibrations conducted prior to making any adjustments.

TTE 1 Static Pressure:
(should be -0.007 or more negative)

Pressure (in. W.C.): -0.060

Adjusted? No

New Reading (in. W.C.): _____

TTE 2 Static Pressure:
(should be -0.007 or more negative)

Pressure (in. W.C.): -0.035

Adjusted? No

New Reading (in. W.C.): _____

THC Analyzer Conditions: H2 (PSI): 6.5 Air (PSI): 5.5 Sample Pressure (PSI): 1.5

Methane Analyzer Conditions: H2 (PSI): 7.0 Carrier Gas (PSI): 22

Hydrogen Cylinder Pressure (PSI): 1625 Air Cylinder Pressure (PSI): 875 Nitrogen Cylinder Pressure (PSI): 2025

Sample Line 1 Temperature (°F): 275° Sample Line 2 Temperature (°F): 275° Filter Hot? yes

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Pitot Condition
(check weekly)

Clear? _____ Clogged? _____ If clogged, is it now clear? _____

Pitot Leak Check
(check weekly):

Positive Side Leak Check OK?: _____ Negative Side Leak Check OK? _____

Note: If any of the criteria listed above or on the THC/Methane calibration sheets failed, please call Anthony Stratton/Eastmount at 508-989-8996 (cell)

GLOBAL SOUTH PORTLAND VOC TEST PROGRAM - DAILY CAL/CHECK LIST

Operator: Mark Pafcuro

Time: 1240

Date: 4/26/13

Tank ID: 3

The following information should be recorded and post THC/methane calibrations conducted prior to making any adjustments.

TTE 1 Static Pressure: (should be -0.007 or more negative) Pressure (in. W.C.): -0.024 Adjusted? No New Reading (in. W.C.): _____

TTE 2 Static Pressure: (should be -0.007 or more negative) Pressure (in. W.C.): -0.018 Adjusted? No New Reading (in. W.C.): _____

THC Analyzer Conditions: H2 (PSI): 6.5 Air (PSI): 5.5 Sample Pressure (PSI): 1.5

Methane Analyzer Conditions: H2 (PSI): 7.0 Carrier Gas (PSI): 22

Hydrogen Cylinder Pressure (PSI): 1650 Air Cylinder Pressure (PSI): 750 Nitrogen Cylinder Pressure (PSI): 2025

Sample Line 1 Temperature (°F): 275° Sample Line 2 Temperature (°F): 275° Filter Hot? yes

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Pitot Condition (check weekly) Clear? _____ Clogged? _____ If clogged, is it now clear? _____

Pitot Leak Check (check weekly): Positive Side Leak Check OK?: _____ Negative Side Leak Check OK? _____

Note: If any of the criteria listed above or on the THC/Methane calibration sheets failed, please call Anthony Stratton/Eastmount at 508-989-8996 (cell)