APPENDIX B

VOC Emissions Data – Vessel Transfer

B1. VOC Emission Rate Calculations / Data Sheets

B2. Tank Displacement Rate Calculations / Transfer Log

B1. VOC Emission Rate Calculations / Data Sheets

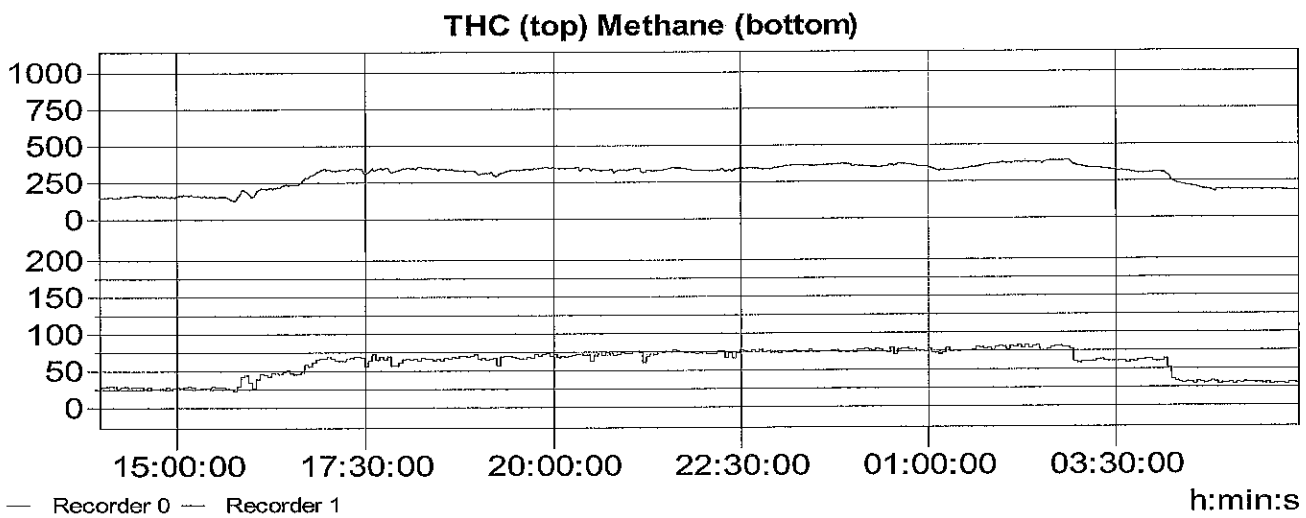
Sprague Searsport - Asphalt Storage Tank #2
Vessel Transfer Hourly VOC Emissions
May 9-10, 2013

Hour No.	Start Time	End Time	Transfer Rate (barrels/hr)	Displ. Flow Rate (scfm)	Measured Flow Rate (scfm)	THC as C3H8 (lb/hr)	CH4 (lb/hr)	NMHC (lb/hr)	NMHC (tons/hr)
1	15:30	16:30	919	85	486	0.11	0.01	0.10	5.06E-05
2	16:30	17:30	4218	391	464	0.84	0.06	0.78	3.90E-04
3	17:30	18:30	4218	391	460	0.92	0.06	0.85	4.26E-04
4	18:30	19:30	4429	410	467	0.91	0.07	0.84	4.22E-04
5	19:30	20:30	4429	410	463	0.97	0.07	0.90	4.49E-04
6	20:30	21:30	4430	411	470	0.94	0.07	0.86	4.32E-04
7	21:30	22:30	4430	411	477	0.95	0.08	0.87	4.35E-04
8	22:30	23:30	4684	434	468	1.05	0.08	0.97	4.84E-04
9	23:30	0:30	4684	434	465	1.08	0.08	1.00	4.98E-04
10	0:30	1:30	4518	419	472	1.03	0.08	0.95	4.76E-04
11	1:30	2:30	4518	419	463	1.06	0.08	0.98	4.90E-04
12	2:30	3:30	2972	275	464	0.68	0.05	0.64	3.18E-04
13	3:30	4:06	1486	229	472	0.49	0.04	0.46	2.28E-04
Average:			**3841**	**363**	**468**	**0.85**	**0.06**	**0.78**	**3.92E-04**
Total Tons NMHC Per Vessel Transfer = 5.10E-03									

Note 1: One barrel = 5.56 cubic feet

Note 2: NHMC emisisons calculating using measured volumetric flow rate.

Note 3: One transfer takes approximately 12.5 hours.



Emission Rate Calculation Sheet
Total Hydrocarbon Emissions

Facility :	Sprague Searsport	**Date:**	**05/09/13**
Source/Location:	Asphalt Tank No. 2	**Start Time:**	**15:30**
Run No.:	Vessel Transfer - Hour 1	**End Time:**	**16:30**

Average Concentration:		187 ppmvw
Average Flow Rate:		85 scfm
Molecular Weight:	Propane	44.09 g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol. PPM)	=	**342.63** mg/m^3
mg/SCF =	(mg/m^3) (m^3/35.31 SCF)	=	**9.70** mg/SCF
lb/SCF =	(1 lb/ 4.536E+5 mg) * (mg/SCF)	=	**2.14E-05** lb/SCF
THC lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**0.11** lb/hr
CH4 lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**0.008** lb/hr
NMHC lb/hr =	THC lb/hr - CH4 lb/hr	=	**0.10** lb/hr
NMHC ton/hr =	NHMC lb/hr / 2000	=	**0.00005** ton/hr

Emission Rate Calculation Sheet
Total Hydrocarbon Emissions

Facility :	Sprague Searsport	**Date:**	**05/09/13**
Source/Location:	Asphalt Tank No. 2	**Start Time:**	**16:30**
Run No.:	Vessel Transfer - Hour 2	**End Time:**	**17:30**

Average Concentration:		313 ppmvw
Average Flow Rate:		391 scfm
Molecular Weight:	Propane	44.09 g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol. PPM)	=	**574.12** mg/m^3
mg/SCF =	(mg/m^3) (m^3/35.31 SCF)	=	**16.26** mg/SCF
lb/SCF =	(1 lb/ 4.536E+5 mg) * (mg/SCF)	=	**3.58E-05** lb/SCF
THC lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**0.84** lb/hr
CH4 lb/hr =	(lb/SCF * SCFM * 60 min/hr)		**0.060** lb/hr
NMHC lb/hr =	THC lb/hr - CH4 lb/hr	=	**0.78** lb/hr
NMHC ton/hr =	NHMC lb/hr / 2000	=	**0.00039** ton/hr

Emission Rate Calculation Sheet
Total Hydrocarbon Emissions

Facility :	Sprague Searsport	**Date:**	**05/09/13**
Source/Location:	Asphalt Tank No. 2	**Start Time:**	**17:30**
Run No.:	Vessel Transfer - Hour 3	**End Time:**	**18:30**

Average Concentration:		341 ppmvw
Average Flow Rate:		391 scfm
Molecular Weight:	Propane	44.09 g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol. PPM)	=	**625.72** mg/m^3
mg/SCF =	(mg/m^3) (m^3/35.31 SCF)	=	**17.72** mg/SCF
lb/SCF =	(1 lb/ 4.536E+5 mg) * (mg/SCF)	=	**3.91E-05** lb/SCF
THC lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**0.92** lb/hr
CH4 lb/hr =	(lb/SCF * SCFM * 60 min/hr)		**0.063** lb/hr
NMHC lb/hr =	THC lb/hr - CH4 lb/hr	=	**0.85** lb/hr
NMHC ton/hr =	NHMC lb/hr / 2000	=	**0.00043** ton/hr

Emission Rate Calculation Sheet
Total Hydrocarbon Emissions

Facility :	Sprague Searsport	**Date:**	**05/09/13**
Source/Location:	Asphalt Tank No. 2	**Start Time:**	**18:30**
Run No.:	Vessel Transfer - Hour 4	**End Time:**	**19:30**

Average Concentration:		324 ppmvw
Average Flow Rate:		410 scfm
Molecular Weight:	Propane	44.09 g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol. PPM)	=	**594.43** mg/m^3
mg/SCF =	(mg/m^3) (m^3/35.31 SCF)	=	**16.83** mg/SCF
lb/SCF =	(1 lb/ 4.536E+5 mg) * (mg/SCF)	=	**3.71E-05** lb/SCF
THC lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**0.91** lb/hr
CH4 lb/hr =	(lb/SCF * SCFM * 60 min/hr)		**0.069** lb/hr
NMHC lb/hr =	THC lb/hr - CH4 lb/hr	=	**0.84** lb/hr
NMHC ton/hr =	NHMC lb/hr / 2000	=	**0.00042** ton/hr

Emission Rate Calculation Sheet
Total Hydrocarbon Emissions

Facility :	Sprague Searsport	**Date:**	**05/09/13**
Source/Location:	Asphalt Tank No. 2	**Start Time:**	**19:30**
Run No.:	Vessel Transfer - Hour 5	**End Time:**	**20:30**

Average Concentration:		344 ppmvw
Average Flow Rate:		410 scfm
Molecular Weight:	Propane	44.09 g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol. PPM)	=	**630.88** mg/m^3
mg/SCF =	(mg/m^3) (m^3/35.31 SCF)	=	**17.87** mg/SCF
lb/SCF =	(1 lb/ 4.536E+5 mg) * (mg/SCF)	=	**3.94E-05** lb/SCF
THC lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**0.97** lb/hr
CH4 lb/hr =	(lb/SCF * SCFM * 60 min/hr)		**0.071** lb/hr
NMHC lb/hr =	THC lb/hr - CH4 lb/hr	=	**0.90** lb/hr
NMHC ton/hr =	NHMC lb/hr / 2000	=	**0.00045** ton/hr

Emission Rate Calculation Sheet
Total Hydrocarbon Emissions

Facility :	Sprague Searsport	**Date:**	**05/09/13**
Source/Location:	Asphalt Tank No. 2	**Start Time:**	**20:30**
Run No.:	Vessel Transfer - Hour 6	**End Time:**	**21:30**

Average Concentration:		333 ppmvw
Average Flow Rate:		411 scfm
Molecular Weight:	Propane	44.09 g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol. PPM)	=	**609.65** mg/m^3
mg/SCF =	(mg/m^3) (m^3/35.31 SCF)	=	**17.27** mg/SCF
lb/SCF =	(1 lb/ 4.536E+5 mg) * (mg/SCF)	=	**3.81E-05** lb/SCF
THC lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**0.94** lb/hr
CH4 lb/hr =	(lb/SCF * SCFM * 60 min/hr)		**0.074** lb/hr
NMHC lb/hr =	THC lb/hr - CH4 lb/hr	=	**0.86** lb/hr
NMHC ton/hr =	NHMC lb/hr / 2000	=	**0.00043** ton/hr

Emission Rate Calculation Sheet
Total Hydrocarbon Emissions

Facility :	Sprague Searsport	**Date:**	**05/09/13**
Source/Location:	Asphalt Tank No. 2	**Start Time:**	**21:30**
Run No.:	Vessel Transfer - Hour 7	**End Time:**	**22:30**

Average Concentration:		336 ppmvw
Average Flow Rate:		411 scfm
Molecular Weight:	Propane	44.09 g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol. PPM)	=	**615.12** mg/m^3
mg/SCF =	(mg/m^3) (m^3/35.31 SCF)	=	**17.42** mg/SCF
lb/SCF =	(1 lb/ 4.536E+5 mg) * (mg/SCF)	=	**3.84E-05** lb/SCF
THC lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**0.95** lb/hr
CH4 lb/hr =	(lb/SCF * SCFM * 60 min/hr)		**0.075** lb/hr
NMHC lb/hr =	THC lb/hr - CH4 lb/hr	=	**0.87** lb/hr
NMHC ton/hr =	NHMC lb/hr / 2000	=	**0.00044** ton/hr

Emission Rate Calculation Sheet
Total Hydrocarbon Emissions

Facility :	Sprague Searsport	**Date:**	**05/09/13**
Source/Location:	Asphalt Tank No. 2	**Start Time:**	**22:30**
Run No.:	Vessel Transfer - Hour 8	**End Time:**	**23:30**

Average Concentration:		352 ppmvw
Average Flow Rate:		434 scfm
Molecular Weight:	Propane	44.09 g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol. PPM)	=	**645.51** mg/m^3
mg/SCF =	(mg/m^3) (m^3/35.31 SCF)	=	**18.28** mg/SCF
lb/SCF =	(1 lb/ 4.536E+5 mg) * (mg/SCF)	=	**4.03E-05** lb/SCF
THC lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**1.05** lb/hr
CH4 lb/hr =	(lb/SCF * SCFM * 60 min/hr)		**0.081** lb/hr
NMHC lb/hr =	THC lb/hr - CH4 lb/hr	=	**0.97** lb/hr
NMHC ton/hr =	NHMC lb/hr / 2000	=	**0.00048** ton/hr

Emission Rate Calculation Sheet
Total Hydrocarbon Emissions

Facility :	Sprague Searsport	**Date:**	**05/09/13**
Source/Location:	Asphalt Tank No. 2	**Start Time:**	**23:30**
Run No.:	Vessel Transfer - Hour 9	**End Time:**	**0:30**

Average Concentration:		362 ppmvw
Average Flow Rate:		434 scfm
Molecular Weight:	Propane	44.09 g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol. PPM)	=	**662.71** mg/m^3
mg/SCF =	(mg/m^3) (m^3/35.31 SCF)	=	**18.77** mg/SCF
lb/SCF =	(1 lb/ 4.536E+5 mg) * (mg/SCF)	=	**4.14E-05** lb/SCF
THC lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**1.08** lb/hr
CH4 lb/hr =	(lb/SCF * SCFM * 60 min/hr)		**0.082** lb/hr
NMHC lb/hr =	THC lb/hr - CH4 lb/hr	=	**1.00** lb/hr
NMHC ton/hr =	NHMC lb/hr / 2000	=	**0.00050** ton/hr

Emission Rate Calculation Sheet
Total Hydrocarbon Emissions

Facility :	Sprague Searsport	**Date:**	**05/10/13**
Source/Location:	Asphalt Tank No. 2	**Start Time:**	**0:30**
Run No.:	Vessel Transfer - Hour 10	**End Time:**	**1:30**

Average Concentration:		347 ppmvw
Average Flow Rate:		434 scfm
Molecular Weight:	Propane	44.09 g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol. PPM)	=	**636.41** mg/m^3
mg/SCF =	(mg/m^3) (m^3/35.31 SCF)	=	**18.02** mg/SCF
lb/SCF =	(1 lb/ 4.536E+5 mg) * (mg/SCF)	=	**3.97E-05** lb/SCF
THC lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**1.03** lb/hr
CH4 lb/hr =	(lb/SCF * SCFM * 60 min/hr)		**0.082** lb/hr
NMHC lb/hr =	THC lb/hr - CH4 lb/hr	=	**0.95** lb/hr
NMHC ton/hr =	NHMC lb/hr / 2000	=	**0.00048** ton/hr

Emission Rate Calculation Sheet
Total Hydrocarbon Emissions

Facility :	Sprague Searsport	**Date:**	**05/10/13**
Source/Location:	Asphalt Tank No. 2	**Start Time:**	**1:30**
Run No.:	Vessel Transfer - Hour 11	**End Time:**	**2:30**

Average Concentration:		370 ppmvw
Average Flow Rate:		419 scfm
Molecular Weight:	Propane	44.09 g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol. PPM)	=	**678.23** mg/m^3
mg/SCF =	(mg/m^3) (m^3/35.31 SCF)	=	**19.21** mg/SCF
lb/SCF =	(1 lb/ 4.536E+5 mg) * (mg/SCF)	=	**4.23E-05** lb/SCF
THC lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**1.06** lb/hr
CH4 lb/hr =	(lb/SCF * SCFM * 60 min/hr)		**0.083** lb/hr
NMHC lb/hr =	THC lb/hr - CH4 lb/hr	=	**0.98** lb/hr
NMHC ton/hr =	NHMC lb/hr / 2000	=	**0.00049** ton/hr

Emission Rate Calculation Sheet
Total Hydrocarbon Emissions

Facility :	Sprague Searsport	**Date:**	**05/10/13**
Source/Location:	Asphalt Tank No. 2	**Start Time:**	**2:30**
Run No.:	Vessel Transfer - Hour 12	**End Time:**	**3:30**

Average Concentration:		361 ppmvw
Average Flow Rate:		275 scfm
Molecular Weight:	Propane	44.09 g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol. PPM)	=	**661.46** mg/m^3
mg/SCF =	(mg/m^3) (m^3/35.31 SCF)	=	**18.73** mg/SCF
lb/SCF =	(1 lb/ 4.536E+5 mg) * (mg/SCF)	=	**4.13E-05** lb/SCF
THC lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**0.68** lb/hr
CH4 lb/hr =	(lb/SCF * SCFM * 60 min/hr)		**0.047** lb/hr
NMHC lb/hr =	THC lb/hr - CH4 lb/hr	=	**0.64** lb/hr
NMHC ton/hr =	NHMC lb/hr / 2000	=	**0.00032** ton/hr

Emission Rate Calculation Sheet
Total Hydrocarbon Emissions

Facility :	Sprague Searsport	**Date:**	**05/10/13**
Source/Location:	Asphalt Tank No. 2	**Start Time:**	**3:30**
Run No.:	Vessel Transfer - Hour 13	**End Time:**	**4:06**

Average Concentration:		311 ppmvw
Average Flow Rate:		229 scfm
Molecular Weight:	Propane	44.09 g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol. PPM)	=	**570.27** mg/m^3
mg/SCF =	(mg/m^3) (m^3/35.31 SCF)	=	**16.15** mg/SCF
lb/SCF =	(1 lb/ 4.536E+5 mg) * (mg/SCF)	=	**3.56E-05** lb/SCF
THC lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**0.49** lb/hr
CH4 lb/hr =	(lb/SCF * SCFM * 60 min/hr)		**0.035** lb/hr
NMHC lb/hr =	THC lb/hr - CH4 lb/hr	=	**0.46** lb/hr
NMHC ton/hr =	NHMC lb/hr / 2000	=	**0.00023** ton/hr

Emission Rate Calculation Sheet
Methane Emissions

Facility :	Sprague Searsport	**Date:**	**05/09/13**
Source/Location:	Asphalt Tank No. 2	**Start Time:**	**15:30**
Run No.:	Vessel Transfer - Hour 1	**End Time:**	**16:30**

Average Concentration:		38 ppmvw
Average Flow Rate:		85 scfm
Molecular Weight:	(Methane)	16.04 g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol. PPM)	=	**25.03** mg/m^3
mg/SCF =	(mg/m^3) $(m^3/35.31$ SCF)	=	**0.71** mg/SCF
lb/SCF =	(1 lb/ 4.536E+5 mg) * (mg/SCF)	=	**1.56259E-06** lb/SCF
lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**0.008** lb/hr

Emission Rate Calculation Sheet
Methane Emissions

Facility :	Sprague Searsport	**Date:**	**05/09/13**
Source/Location:	Asphalt Tank No. 2	**Start Time:**	**16:30**
Run No.:	Vessel Transfer - Hour 2	**End Time:**	**17:30**

Average Concentration:		61 ppmvw
Average Flow Rate:		391 scfm
Molecular Weight:	(Methane)	16.04 g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol, PPM) =		**40.83** mg/m^3
mg/SCF =	(mg/m^3) $(m^3/35.31$ SCF)	=	**1.16** mg/SCF
lb/SCF =	(1 lb/ 4.536E+5 mg) * (mg/SCF)	=	**2.54927E-06** lb/SCF
lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**0.060** lb/hr

Emission Rate Calculation Sheet
Methane Emissions

Facility :	Sprague Searsport	**Date:**	**05/09/13**
Source/Location:	Asphalt Tank No. 2	**Start Time:**	**17:30**
Run No.:	Vessel Transfer - Hour 3	**End Time:**	**18:30**

Average Concentration:		65 ppmvw
Average Flow Rate:		391 scfm
Molecular Weight:	(Methane)	16.04 g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol. PPM)	=	**43.13** mg/m^3
mg/SCF =	(mg/m^3) (m^3/35.31 SCF)	=	**1.22** mg/SCF
lb/SCF =	(1 lb/ 4.536E+5 mg) * (mg/SCF)	=	**2.6929E-06** lb/SCF
lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**0.063** lb/hr

Emission Rate Calculation Sheet
Methane Emissions

Facility :	Sprague Searsport	**Date:**	**05/09/13**
Source/Location:	Asphalt Tank No. 2	**Start Time:**	**18:30**
Run No.:	Vessel Transfer - Hour 4	**End Time:**	**19:30**

Average Concentration:	67 ppmvw
Average Flow Rate:	410 scfm
Molecular Weight: (Methane)	16.04 g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol. PPM) =		**44.92** mg/m^3
mg/SCF =	(mg/m^3) $(m^3/35.31$ SCF)	=	**1.27** mg/SCF
lb/SCF =	(1 lb/ 4.536E+5 mg) * (mg/SCF)	=	**2.80462E-06** lb/SCF
lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**0.069** lb/hr

Emission Rate Calculation Sheet
Methane Emissions

Facility :	Sprague Searsport	**Date:**	**05/09/13**
Source/Location:	Asphalt Tank No. 2	**Start Time:**	**19:30**
Run No.:	Vessel Transfer - Hour 5	**End Time:**	**20:30**

Average Concentration:		70 ppmvw
Average Flow Rate:		410 scfm
Molecular Weight:	(Methane)	16.04 g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol. PPM) =		**46.40** mg/m^3
mg/SCF =	(mg/m^3) $(m^3/35.31$ SCF)	=	**1.31** mg/SCF
lb/SCF =	(1 lb/ 4.536E+5 mg) * (mg/SCF)	=	**2.8969E-06** lb/SCF
lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**0.071** lb/hr

Emission Rate Calculation Sheet
Methane Emissions

Facility :	Sprague Searsport	**Date:**	**05/09/13**
Source/Location:	Asphalt Tank No. 2	**Start Time:**	**20:30**
Run No.:	Vessel Transfer - Hour 6	**End Time:**	**21:30**

Average Concentration:		72 ppmvw
Average Flow Rate:		411 scfm
Molecular Weight:	(Methane)	16.04 g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol. PPM)	=	**47.85** mg/m^3
mg/SCF =	(mg/m^3) $(m^3/35.31$ SCF)	=	**1.36** mg/SCF
lb/SCF =	(1 lb/ 4.536E+5 mg) * (mg/SCF)	=	**2.9878E-06** lb/SCF
lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**0.074** lb/hr

Emission Rate Calculation Sheet
Methane Emissions

Facility :	Sprague Searsport	**Date:**	**05/09/13**
Source/Location:	Asphalt Tank No. 2	**Start Time:**	**21:30**
Run No.:	Vessel Transfer - Hour 7	**End Time:**	**22:30**

Average Concentration:		74 ppmvw
Average Flow Rate:		411 scfm
Molecular Weight:	(Methane)	16.04 g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol. PPM) =		**49.04** mg/m^3
mg/SCF =	(mg/m^3) $(m^3/35.31$ SCF)	=	**1.39** mg/SCF
lb/SCF =	(1 lb/ 4.536E+5 mg) * (mg/SCF)	=	**3.06204E-06** lb/SCF
lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**0.075** lb/hr

Emission Rate Calculation Sheet
Methane Emissions

Facility :	Sprague Searsport	**Date:**	**05/09/13**
Source/Location:	Asphalt Tank No. 2	**Start Time:**	**22:30**
Run No.:	Vessel Transfer - Hour 8	**End Time:**	**23:30**

Average Concentration:		75 ppmvw
Average Flow Rate:		434 scfm
Molecular Weight:	(Methane)	16.04 g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol. PPM)	=	**50.11** 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)	=	**3.12865E-06** lb/SCF
lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**0.081** lb/hr

Emission Rate Calculation Sheet
Methane Emissions

Facility :	Sprague Searsport	**Date:**	**05/09/13**
Source/Location:	Asphalt Tank No. 2	**Start Time:**	**23:30**
Run No.:	Vessel Transfer - Hour 9	**End Time:**	**0:30**

Average Concentration:		76 ppmvw
Average Flow Rate:		434 scfm
Molecular Weight:	(Methane)	16.04 g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol. PPM) =		**50.53** mg/m^3
mg/SCF =	(mg/m^3) $(m^3/35.31$ SCF)	=	**1.43** mg/SCF
lb/SCF =	(1 lb/ 4.536E+5 mg) * (mg/SCF)	=	**3.15502E-06** lb/SCF
lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**0.082** lb/hr

Emission Rate Calculation Sheet
Methane Emissions

Facility :	Sprague Searsport	**Date:**	**05/10/13**
Source/Location:	Asphalt Tank No. 2	**Start Time:**	**0:30**
Run No.:	Vessel Transfer - Hour 10	**End Time:**	**1:30**

Average Concentration:		76 ppmvw
Average Flow Rate:		434 scfm
Molecular Weight:	(Methane)	16.04 g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol. PPM)	=	**50.41** mg/m^3
mg/SCF =	(mg/m^3) $(m^3/35.31$ SCF)	=	**1.43** mg/SCF
lb/SCF =	(1 lb/ 4.536E+5 mg) * (mg/SCF)	=	**3.14739E-06** lb/SCF
lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**0.082** lb/hr

Emission Rate Calculation Sheet
Methane Emissions

Facility :	Sprague Searsport	**Date:**	**05/10/13**
Source/Location:	Asphalt Tank No. 2	**Start Time:**	**1:30**
Run No.:	Vessel Transfer - Hour 11	**End Time:**	**2:30**

Average Concentration:		79 ppmvw
Average Flow Rate:		419 scfm
Molecular Weight:	(Methane)	16.04 g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol. PPM) =		**52.99** mg/m^3
mg/SCF =	(mg/m^3) $(m^3/35.31$ SCF)	=	**1.50** mg/SCF
lb/SCF =	(1 lb/ 4.536E+5 mg) * (mg/SCF)	=	**3.30836E-06** lb/SCF
lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**0.083** lb/hr

Emission Rate Calculation Sheet
Methane Emissions

Facility :	Sprague Searsport	**Date:**	**05/10/13**
Source/Location:	Asphalt Tank No. 2	**Start Time:**	**2:30**
Run No.:	Vessel Transfer - Hour 12	**End Time:**	**3:30**

Average Concentration:		69 ppmvw
Average Flow Rate:		275 scfm
Molecular Weight:	(Methane)	16.04 g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol. PPM)	=	**45.72** mg/m^3
mg/SCF =	(mg/m^3) $(m^3/35.31$ SCF)	=	**1.29** mg/SCF
lb/SCF =	(1 lb/ 4.536E+5 mg) * (mg/SCF)	=	**2.85457E-06** lb/SCF
lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**0.047** lb/hr

Emission Rate Calculation Sheet
Methane Emissions

Facility :	Sprague Searsport	**Date:**	**05/10/13**
Source/Location:	Asphalt Tank No. 2	**Start Time:**	**3:30**
Run No.:	Vessel Transfer - Hour 13	**End Time:**	**4:06**

Average Concentration:		61 ppmvw
Average Flow Rate:		229 scfm
Molecular Weight:	(Methane)	16.04 g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol. PPM)	=	**40.82** mg/m^3
mg/SCF =	(mg/m^3) $(m^3/35.31$ SCF)	=	**1.16** mg/SCF
lb/SCF =	(1 lb/ 4.536E+5 mg) * (mg/SCF)	=	**2.54856E-06** lb/SCF
lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**0.035** lb/hr

Volumetric Flow Calculations

Facility/Site: Sprague Searsport	**Start Date:** 05/09/13
Source: Asphalt Tank No. 2	**Stop Date:** 05/09/13
Run No.: Vessel Transfer - Hour 1	**Start Time:** 15:30
	Stop Time: 16:30

Trav. Point	Delta P ("H_2O)	SQ Root Delta P	Stack Temp (F)
Average	0.29	0.54	74.9

Average Delta P, ("H_2O)	0.29
Average Stack Temp, (F)	74.9
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	0.79	
V_s	30.69	fps
Q_s	28,856	dscfh
	29,147	scfh
	486	scfm
	481	dscfm
	492	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: Sprague Searsport	**Start Date:** 05/09/13
Source: Asphalt Tank No. 2	**Stop Date:** 05/09/13
Run No.: Vessel Transfer - Hour 2	**Start Time:** 16:30
	Stop Time: 17:30

Trav. Point	Delta P ("H_2O)	SQ Root Delta P	Stack Temp (F)
Average	0.28	0.53	102.6

Average Delta P, ("H_2O)	0.28
Average Stack Temp, (F)	102.6
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	0.81	
V_s	30.83	fps
Q_s	27,563	dscfh
	27,841	scfh
	464	scfm
	459	dscfm
	494	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: Sprague Searsport	**Start Date:** 05/09/13
Source: Asphalt Tank No. 2	**Stop Date:** 05/09/13
Run No.: Vessel Transfer - Hour 3	**Start Time:** 17:30
	Stop Time: 18:30

Trav. Point	Delta P ("H_2O)	SQ Root Delta P	Stack Temp (F)
Average	0.28	0.53	108.8

Average Delta P, ("H_2O)	0.28
Average Stack Temp, (F)	108.8
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, ($\%_{vd}$)	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	0.81	
V_s	30.87	fps
Q_s	27,299	dscfh
	27,575	scfh
	460	scfm
	455	dscfm
	495	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:	Sprague Searsport	**Start Date:**	05/09/13
Source:	Asphalt Tank No. 2	**Stop Date:**	05/09/13
Run No.:	Vessel Transfer - Hour 4	**Start Time:**	18:30
		Stop Time:	19:30

Trav. Point	Delta P ("H_2O)	SQ Root Delta P	Stack Temp (F)
Average	0.28	0.53	98.6

Average Delta P, ("H_2O)	0.28
Average Stack Temp, (F)	98.6
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	0.81	
V_s	30.79	fps
Q_s	27,720	dscfh
	28,000	scfh
	467	scfm
	462	dscfm
	494	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: Sprague Searsport	**Start Date:** 05/09/13
Source: Asphalt Tank No. 2	**Stop Date:** 05/09/13
Run No.: Vessel Transfer - Hour 5	**Start Time:** 19:30
	Stop Time: 20:30

Trav. Point	Delta P ("H_2O)	SQ Root Delta P	Stack Temp (F)
Average	0.28	0.53	103.5

Average Delta P, ("H_2O)	0.28
Average Stack Temp, (F)	103.5
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	0.81	
V_s	30.81	fps
Q_s	27,500	dscfh
	27,778	scfh
	463	scfm
	458	dscfm
	494	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: Sprague Searsport	**Start Date:** 05/09/13
Source: Asphalt Tank No. 2	**Stop Date:** 05/09/13
Run No.: Vessel Transfer - Hour 6	**Start Time:** 20:30
	Stop Time: 21:30

Trav. Point	Delta P ("H_2O)	SQ Root Delta P	Stack Temp (F)
Average	0.28	0.53	94.8

Average Delta P, ("H_2O)	0.28
Average Stack Temp, (F)	94.8
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, ($\%_{vd}$)	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	0.80	
V_s	30.78	fps
Q_s	27,904	dscfh
	28,186	scfh
	470	scfm
	465	dscfm
	494	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: Sprague Searsport	**Start Date:** 05/09/13
Source: Asphalt Tank No. 2	**Stop Date:** 05/09/13
Run No.: Vessel Transfer - Hour 7	**Start Time:** 21:30
	Stop Time: 22:30

Trav. Point	Delta P ("H_2O)	SQ Root Delta P	Stack Temp (F)
Average	0.29	0.54	89.8

Average Delta P, ("H_2O)	0.29
Average Stack Temp, (F)	89.8
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, ($\%_{vd}$)	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	0.80	
V_s	30.95	fps
Q_s	28,308	dscfh
	28,594	scfh
	477	scfm
	472	dscfm
	496	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: Sprague Searsport	**Start Date:** 05/09/13
Source: Asphalt Tank No. 2	**Stop Date:** 05/09/13
Run No.: Vessel Transfer - Hour 8	**Start Time:** 22:30
	Stop Time: 23:30

Trav. Point	Delta P ("H_2O)	SQ Root Delta P	Stack Temp (F)
Average	0.28	0.53	98.5

Average Delta P, ("H_2O)	0.28
Average Stack Temp, (F)	98.5
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	0.81	
V_s	30.88	fps
Q_s	27,802	dscfh
	28,083	scfh
	468	scfm
	463	dscfm
	495	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: Sprague Searsport	**Start Date:** 05/09/13
Source: Asphalt Tank No. 2	**Stop Date:** 05/10/13
Run No.: Vessel Transfer - Hour 9	**Start Time:** 23:30
	Stop Time: 0:30

Trav. Point	Delta P ("H_2O)	SQ Root Delta P	Stack Temp (F)
Average	0.28	0.53	101.6

Average Delta P, ("H_2O)	0.28
Average Stack Temp, (F)	101.6
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	0.81	
V_s	30.83	fps
Q_s	27,612	dscfh
	27,891	scfh
	465	scfm
	460	dscfm
	494	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: Sprague Searsport	**Start Date:** 05/10/13
Source: Asphalt Tank No. 2	**Stop Date:** 05/10/13
Run No.: Vessel Transfer - Hour 10	**Start Time:** 0:30
	Stop Time: 1:30

Trav. Point	Delta P ("H_2O)	SQ Root Delta P	Stack Temp (F)
Average	0.29	0.54	94.7

Average Delta P, ("H_2O)	0.29
Average Stack Temp, (F)	94.7
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	0.80	
V_s	30.89	fps
Q_s	28,014	dscfh
	28,297	scfh
	472	scfm
	467	dscfm
	495	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: Sprague Searsport	**Start Date:** 05/10/13
Source: Asphalt Tank No. 2	**Stop Date:** 05/10/13
Run No.: Vessel Transfer - Hour 11	**Start Time:** 1:30
	Stop Time: 2:30

Trav. Point	Delta P ("H_2O)	SQ Root Delta P	Stack Temp (F)
Average	0.28	0.53	103.7

Average Delta P, ("H_2O)	0.28
Average Stack Temp, (F)	103.7
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	0.81	
V_s	30.85	fps
Q_s	27,530	dscfh
	27,808	scfh
	463	scfm
	459	dscfm
	495	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: Sprague Searsport	**Start Date:** 05/10/13
Source: Asphalt Tank No. 2	**Stop Date:** 05/10/13
Run No.: Vessel Transfer - Hour 12	**Start Time:** 2:30
	Stop Time: 3:30

Trav. Point	Delta P ("H_2O)	SQ Root Delta P	Stack Temp (F)
Average	0.28	0.53	105.0

Average Delta P, ("H_2O)	0.28
Average Stack Temp, (F)	105.0
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	0.81	
V_s	30.94	fps
Q_s	27,536	dscfh
	27,815	scfh
	464	scfm
	459	dscfm
	496	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: Sprague Searsport	**Start Date:** 05/10/13
Source: Asphalt Tank No. 2	**Stop Date:** 05/10/13
Run No.: Vessel Transfer - Hour 13	**Start Time:** 3:30
	Stop Time: 4:06

Trav. Point	Delta P ("H_2O)	SQ Root Delta P	Stack Temp (F)
Average	0.29	0.54	96.1

Average Delta P, ("H_2O)	0.29
Average Stack Temp, (F)	96.1
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	0.80	
V_s	31.03	fps
Q_s	28,065	dscfh
	28,348	scfh
	472	scfm
	468	dscfm
	498	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)

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

Instrumental Analyzer Monitoring Data

Facility/Site:	Sprague Searsport	**Start Date:**	**09-May-13**
Source:	Asphalt Tank No. 2	**End Date:**	**09-May-13**
Run No.	Vessel Transfer - Hour 1	**Start Time:**	**15:30**
		End Time:	**16:30**

Date	Time	Delta P (IWC)	Temp (°F)	THC (Propane) (ppm)	Methane (ppm)
5/9/2013	3:30:22 PM	0.29	75	152	28
5/9/2013	3:31:22 PM	0.29	76	154	28
5/9/2013	3:32:22 PM	0.29	76	154	28
5/9/2013	3:33:22 PM	0.29	76	154	27
5/9/2013	3:34:22 PM	0.29	76	156	27
5/9/2013	3:35:22 PM	0.30	76	155	27
5/9/2013	3:36:22 PM	0.30	75	156	27
5/9/2013	3:37:22 PM	0.30	74	156	27
5/9/2013	3:38:22 PM	0.30	71	153	27
5/9/2013	3:39:22 PM	0.30	68	152	26
5/9/2013	3:40:22 PM	0.30	66	146	26
5/9/2013	3:41:22 PM	0.31	65	140	26
5/9/2013	3:42:22 PM	0.31	64	137	25
5/9/2013	3:43:22 PM	0.30	65	134	25
5/9/2013	3:44:22 PM	0.30	66	129	24
5/9/2013	3:45:22 PM	0.30	68	129	23
5/9/2013	3:46:22 PM	0.30	70	137	23
5/9/2013	3:47:22 PM	0.29	71	154	29
5/9/2013	3:48:22 PM	0.29	72	164	29
5/9/2013	3:49:22 PM	0.29	72	174	29
5/9/2013	3:50:22 PM	0.29	72	192	41
5/9/2013	3:51:22 PM	0.29	72	202	42
5/9/2013	3:52:22 PM	0.30	72	200	42
5/9/2013	3:53:22 PM	0.29	72	194	44
5/9/2013	3:54:22 PM	0.30	71	188	44
5/9/2013	3:55:22 PM	0.30	71	183	44
5/9/2013	3:56:22 PM	0.29	70	173	36
5/9/2013	3:57:22 PM	0.29	70	162	34
5/9/2013	3:58:22 PM	0.30	71	155	34
5/9/2013	3:59:22 PM	0.29	73	159	27
5/9/2013	4:00:22 PM	0.29	74	163	26
5/9/2013	4:01:22 PM	0.29	75	173	26
5/9/2013	4:02:22 PM	0.29	76	190	37
5/9/2013	4:03:22 PM	0.29	76	198	39
5/9/2013	4:04:22 PM	0.30	77	204	39
5/9/2013	4:05:22 PM	0.29	77	208	45
5/9/2013	4:06:22 PM	0.29	76	213	46
5/9/2013	4:07:22 PM	0.29	76	212	46

Instrumental Analyzer Monitoring Data

Facility/Site:	Sprague Searsport	**Start Date:**	**09-May-13**
Source:	Asphalt Tank No. 2	**End Date:**	**09-May-13**
Run No.	Vessel Transfer - Hour 1	**Start Time:**	**15:30**
		End Time:	**16:30**

Date	Time	Delta P (IWC)	Temp (°F)	THC (Propane) (ppm)	Methane (ppm)
5/9/2013	4:08:22 PM	0.29	76	210	45
5/9/2013	4:09:22 PM	0.30	76	209	45
5/9/2013	4:10:22 PM	0.29	76	209	45
5/9/2013	4:11:22 PM	0.29	76	211	43
5/9/2013	4:12:22 PM	0.29	76	212	43
5/9/2013	4:13:22 PM	0.29	75	214	43
5/9/2013	4:14:22 PM	0.29	75	214	47
5/9/2013	4:15:22 PM	0.30	76	212	47
5/9/2013	4:16:22 PM	0.30	76	213	47
5/9/2013	4:17:22 PM	0.29	78	214	47
5/9/2013	4:18:22 PM	0.29	79	216	47
5/9/2013	4:19:22 PM	0.29	79	218	47
5/9/2013	4:20:22 PM	0.29	80	218	46
5/9/2013	4:21:22 PM	0.29	80	220	45
5/9/2013	4:22:22 PM	0.29	82	226	45
5/9/2013	4:23:22 PM	0.28	83	230	49
5/9/2013	4:24:22 PM	0.29	84	234	49
5/9/2013	4:25:22 PM	0.29	84	238	49
5/9/2013	4:26:22 PM	0.29	85	237	51
5/9/2013	4:27:22 PM	0.29	85	234	51
5/9/2013	4:28:22 PM	0.29	85	235	51
5/9/2013	4:29:22 PM	0.29	85	237	47
Averages		0.29	75	187	38

Instrumental Analyzer Monitoring Data

Facility/Site:	Sprague Searsport	**Start Date:**	**09-May-13**
Source:	Asphalt Tank No. 2	**End Date:**	**09-May-13**
Run No.	Vessel Transfer - Hour 2	**Start Time:**	**16:30**
		End Time:	**17:30**

Date	Time	Delta P (IWC)	Temp (°F)	THC (Propane) (ppm)	Methane (ppm)
5/9/2013	4:30:22 PM	0.29	85	236	47
5/9/2013	4:31:22 PM	0.29	85	235	47
5/9/2013	4:32:22 PM	0.30	85	237	46
5/9/2013	4:33:22 PM	0.29	86	237	45
5/9/2013	4:34:22 PM	0.29	87	237	45
5/9/2013	4:35:22 PM	0.29	89	238	46
5/9/2013	4:36:22 PM	0.29	90	243	46
5/9/2013	4:37:22 PM	0.28	91	247	46
5/9/2013	4:38:22 PM	0.29	93	254	48
5/9/2013	4:39:22 PM	0.29	95	264	48
5/9/2013	4:40:22 PM	0.29	95	273	48
5/9/2013	4:41:22 PM	0.28	95	282	57
5/9/2013	4:42:22 PM	0.28	97	282	58
5/9/2013	4:43:22 PM	0.28	98	283	58
5/9/2013	4:44:22 PM	0.28	99	289	56
5/9/2013	4:45:22 PM	0.28	100	296	56
5/9/2013	4:46:22 PM	0.28	101	300	56
5/9/2013	4:47:22 PM	0.28	101	301	61
5/9/2013	4:48:22 PM	0.28	101	307	61
5/9/2013	4:49:22 PM	0.28	102	313	61
5/9/2013	4:50:22 PM	0.28	102	320	65
5/9/2013	4:51:22 PM	0.28	103	324	65
5/9/2013	4:52:22 PM	0.27	104	329	65
5/9/2013	4:53:22 PM	0.28	106	331	67
5/9/2013	4:54:22 PM	0.27	107	336	67
5/9/2013	4:55:22 PM	0.28	108	339	67
5/9/2013	4:56:22 PM	0.28	109	345	66
5/9/2013	4:57:22 PM	0.28	109	346	66
5/9/2013	4:58:22 PM	0.28	110	338	66
5/9/2013	4:59:22 PM	0.27	109	339	68
5/9/2013	5:00:22 PM	0.28	109	340	68
5/9/2013	5:01:22 PM	0.28	109	338	68
5/9/2013	5:02:22 PM	0.28	108	333	67
5/9/2013	5:03:22 PM	0.28	108	331	67
5/9/2013	5:04:22 PM	0.28	108	332	67
5/9/2013	5:05:22 PM	0.28	108	332	64
5/9/2013	5:06:22 PM	0.28	108	331	64
5/9/2013	5:07:22 PM	0.28	108	334	64

Instrumental Analyzer Monitoring Data

Facility/Site:	Sprague Searsport	**Start Date:**	**09-May-13**
Source:	Asphalt Tank No. 2	**End Date:**	**09-May-13**
Run No.	Vessel Transfer - Hour 2	**Start Time:**	**16:30**
		End Time:	**17:30**

Date	Time	Delta P (IWC)	Temp (°F)	THC (Propane) (ppm)	Methane (ppm)
5/9/2013	5:08:22 PM	0.28	108	335	63
5/9/2013	5:09:22 PM	0.28	108	335	63
5/9/2013	5:10:22 PM	0.28	108	335	63
5/9/2013	5:11:22 PM	0.28	107	340	63
5/9/2013	5:12:22 PM	0.28	107	338	63
5/9/2013	5:13:22 PM	0.28	107	338	63
5/9/2013	5:14:22 PM	0.28	107	333	66
5/9/2013	5:15:22 PM	0.28	107	336	66
5/9/2013	5:16:22 PM	0.28	108	339	66
5/9/2013	5:17:22 PM	0.28	108	344	67
5/9/2013	5:18:22 PM	0.28	108	344	67
5/9/2013	5:19:22 PM	0.28	108	343	67
5/9/2013	5:20:22 PM	0.28	108	342	68
5/9/2013	5:21:22 PM	0.28	109	343	68
5/9/2013	5:22:22 PM	0.28	109	346	68
5/9/2013	5:23:22 PM	0.28	108	344	68
5/9/2013	5:24:22 PM	0.28	108	345	68
5/9/2013	5:25:22 PM	0.29	106	343	68
5/9/2013	5:26:22 PM	0.28	104	342	68
5/9/2013	5:27:22 PM	0.29	102	332	68
5/9/2013	5:28:22 PM	0.28	102	316	68
5/9/2013	5:29:22 PM	0.28	102	309	58
Averages		0.28	103	313	61

Instrumental Analyzer Monitoring Data

Facility/Site:	Sprague Searsport	**Start Date:**	**09-May-13**
Source:	Asphalt Tank No. 2	**End Date:**	**09-May-13**
Run No.	Vessel Transfer - Hour 3	**Start Time:**	**17:30**
		End Time:	**18:30**

Date	Time	Delta P (IWC)	Temp (°F)	THC (Propane) (ppm)	Methane (ppm)
5/9/2013	5:30:22 PM	0.28	102	313	56
5/9/2013	5:31:22 PM	0.28	103	318	56
5/9/2013	5:32:22 PM	0.28	105	323	64
5/9/2013	5:33:22 PM	0.28	106	333	64
5/9/2013	5:34:22 PM	0.28	107	338	64
5/9/2013	5:35:22 PM	0.28	108	341	72
5/9/2013	5:36:22 PM	0.28	108	335	72
5/9/2013	5:37:22 PM	0.27	110	335	72
5/9/2013	5:38:22 PM	0.27	111	338	65
5/9/2013	5:39:22 PM	0.27	111	344	65
5/9/2013	5:40:22 PM	0.28	111	346	65
5/9/2013	5:41:22 PM	0.28	111	347	69
5/9/2013	5:42:22 PM	0.28	111	343	69
5/9/2013	5:43:22 PM	0.28	112	343	69
5/9/2013	5:44:22 PM	0.28	112	344	65
5/9/2013	5:45:22 PM	0.28	112	348	65
5/9/2013	5:46:22 PM	0.28	111	351	65
5/9/2013	5:47:22 PM	0.28	110	348	69
5/9/2013	5:48:22 PM	0.28	110	335	69
5/9/2013	5:49:22 PM	0.28	109	327	69
5/9/2013	5:50:22 PM	0.28	109	322	58
5/9/2013	5:51:22 PM	0.28	108	323	57
5/9/2013	5:52:22 PM	0.28	108	325	57
5/9/2013	5:53:22 PM	0.28	107	327	57
5/9/2013	5:54:22 PM	0.28	107	330	57
5/9/2013	5:55:22 PM	0.28	108	331	57
5/9/2013	5:56:22 PM	0.28	108	335	61
5/9/2013	5:57:22 PM	0.28	109	340	61
5/9/2013	5:58:22 PM	0.28	109	343	61
5/9/2013	5:59:22 PM	0.28	109	346	65
5/9/2013	6:00:22 PM	0.28	110	345	65
5/9/2013	6:01:22 PM	0.28	110	346	65
5/9/2013	6:02:22 PM	0.28	110	349	66
5/9/2013	6:03:22 PM	0.28	111	349	66
5/9/2013	6:04:22 PM	0.28	111	349	66
5/9/2013	6:05:22 PM	0.28	111	348	65
5/9/2013	6:06:22 PM	0.28	111	349	65
5/9/2013	6:07:22 PM	0.28	110	349	65

Instrumental Analyzer Monitoring Data

Facility/Site:	Sprague Searsport	**Start Date:**	**09-May-13**
Source:	Asphalt Tank No. 2	**End Date:**	**09-May-13**
Run No.	Vessel Transfer - Hour 3	**Start Time:**	**17:30**
		End Time:	**18:30**

Date	Time	Delta P (IWC)	Temp (°F)	THC (Propane) (ppm)	Methane (ppm)
5/9/2013	6:08:22 PM	0.27	110	346	66
5/9/2013	6:09:22 PM	0.28	111	344	66
5/9/2013	6:10:22 PM	0.28	111	347	66
5/9/2013	6:11:22 PM	0.28	111	352	64
5/9/2013	6:12:22 PM	0.28	110	356	64
5/9/2013	6:13:22 PM	0.28	110	355	64
5/9/2013	6:14:22 PM	0.28	109	354	68
5/9/2013	6:15:22 PM	0.28	109	350	68
5/9/2013	6:16:22 PM	0.28	109	350	68
5/9/2013	6:17:22 PM	0.28	109	348	67
5/9/2013	6:18:22 PM	0.28	108	348	66
5/9/2013	6:19:22 PM	0.28	108	347	66
5/9/2013	6:20:22 PM	0.28	108	350	66
5/9/2013	6:21:22 PM	0.28	107	347	66
5/9/2013	6:22:22 PM	0.28	108	345	66
5/9/2013	6:23:22 PM	0.28	108	344	65
5/9/2013	6:24:22 PM	0.28	107	344	64
5/9/2013	6:25:22 PM	0.28	106	346	64
5/9/2013	6:26:22 PM	0.28	106	341	65
5/9/2013	6:27:22 PM	0.28	105	333	65
5/9/2013	6:28:22 PM	0.28	105	339	65
5/9/2013	6:29:22 PM	0.28	106	341	64
Averages		0.28	109	341	65

Instrumental Analyzer Monitoring Data

Facility/Site:	Sprague Searsport	**Start Date:**	**09-May-13**
Source:	Asphalt Tank No. 2	**End Date:**	**09-May-13**
Run No.	Vessel Transfer - Hour 4	**Start Time:**	**18:30**
		End Time:	**19:30**

Date	Time	Delta P (IWC)	Temp (°F)	THC (Propane) (ppm)	Methane (ppm)
5/9/2013	6:30:22 PM	0.28	105	342	64
5/9/2013	6:31:22 PM	0.28	105	342	64
5/9/2013	6:32:22 PM	0.28	105	343	68
5/9/2013	6:33:22 PM	0.28	104	342	68
5/9/2013	6:34:22 PM	0.28	103	340	68
5/9/2013	6:35:22 PM	0.28	102	340	67
5/9/2013	6:36:22 PM	0.28	102	339	66
5/9/2013	6:37:22 PM	0.28	102	339	66
5/9/2013	6:38:22 PM	0.28	102	339	68
5/9/2013	6:39:22 PM	0.28	101	338	68
5/9/2013	6:40:22 PM	0.28	100	334	68
5/9/2013	6:41:22 PM	0.29	99	332	67
5/9/2013	6:42:22 PM	0.28	98	331	67
5/9/2013	6:43:22 PM	0.28	98	332	67
5/9/2013	6:44:22 PM	0.29	97	330	70
5/9/2013	6:45:22 PM	0.28	98	330	70
5/9/2013	6:46:22 PM	0.28	98	330	70
5/9/2013	6:47:22 PM	0.29	99	331	70
5/9/2013	6:48:22 PM	0.29	99	329	70
5/9/2013	6:49:22 PM	0.28	99	327	70
5/9/2013	6:50:22 PM	0.28	99	327	69
5/9/2013	6:51:22 PM	0.28	98	329	68
5/9/2013	6:52:22 PM	0.28	98	330	68
5/9/2013	6:53:22 PM	0.29	97	330	70
5/9/2013	6:54:22 PM	0.29	95	331	70
5/9/2013	6:55:22 PM	0.29	94	331	70
5/9/2013	6:56:22 PM	0.29	92	326	72
5/9/2013	6:57:22 PM	0.29	90	322	72
5/9/2013	6:58:22 PM	0.29	89	315	72
5/9/2013	6:59:22 PM	0.29	89	308	66
5/9/2013	7:00:22 PM	0.28	90	304	65
5/9/2013	7:01:22 PM	0.28	92	309	65
5/9/2013	7:02:22 PM	0.28	94	309	67
5/9/2013	7:03:22 PM	0.28	95	312	67
5/9/2013	7:04:22 PM	0.28	95	312	67
5/9/2013	7:05:22 PM	0.29	95	315	65
5/9/2013	7:06:22 PM	0.29	95	313	65
5/9/2013	7:07:22 PM	0.29	96	313	65

Instrumental Analyzer Monitoring Data

Facility/Site:	Sprague Searsport	**Start Date:**	**09-May-13**
Source:	Asphalt Tank No. 2	**End Date:**	**09-May-13**
Run No.	Vessel Transfer - Hour 4	**Start Time:**	**18:30**
		End Time:	**19:30**

Date	Time	Delta P (IWC)	Temp (°F)	THC (Propane) (ppm)	Methane (ppm)
5/9/2013	7:08:22 PM	0.29	97	314	65
5/9/2013	7:09:22 PM	0.28	96	320	65
5/9/2013	7:10:22 PM	0.28	95	317	65
5/9/2013	7:11:22 PM	0.28	95	302	67
5/9/2013	7:12:22 PM	0.29	94	300	67
5/9/2013	7:13:22 PM	0.29	95	294	67
5/9/2013	7:14:22 PM	0.28	96	296	58
5/9/2013	7:15:22 PM	0.28	97	303	57
5/9/2013	7:16:22 PM	0.28	98	310	57
5/9/2013	7:17:22 PM	0.28	100	314	69
5/9/2013	7:18:22 PM	0.28	102	316	69
5/9/2013	7:19:22 PM	0.28	103	319	69
5/9/2013	7:20:22 PM	0.28	104	323	70
5/9/2013	7:21:22 PM	0.28	105	325	70
5/9/2013	7:22:22 PM	0.28	105	329	70
5/9/2013	7:23:22 PM	0.28	106	330	69
5/9/2013	7:24:22 PM	0.28	105	332	69
5/9/2013	7:25:22 PM	0.28	104	333	69
5/9/2013	7:26:22 PM	0.28	103	335	68
5/9/2013	7:27:22 PM	0.28	103	334	68
5/9/2013	7:28:22 PM	0.28	102	334	68
5/9/2013	7:29:22 PM	0.28	101	333	67
Averages		0.28	99	324	67

Instrumental Analyzer Monitoring Data

Facility/Site:	Sprague Searsport	**Start Date:**	**09-May-13**
Source:	Asphalt Tank No. 2	**End Date:**	**09-May-13**
Run No.	Vessel Transfer - Hour 5	**Start Time:**	**19:30**
		End Time:	**20:30**

Date	Time	Delta P (IWC)	Temp (°F)	THC (Propane) (ppm)	Methane (ppm)
5/9/2013	7:30:22 PM	0.28	101	335	67
5/9/2013	7:31:22 PM	0.28	102	333	67
5/9/2013	7:32:22 PM	0.28	102	332	66
5/9/2013	7:33:22 PM	0.28	103	336	66
5/9/2013	7:34:22 PM	0.28	102	336	66
5/9/2013	7:35:22 PM	0.29	102	339	66
5/9/2013	7:36:22 PM	0.28	101	338	66
5/9/2013	7:37:22 PM	0.28	101	340	66
5/9/2013	7:38:22 PM	0.28	101	340	68
5/9/2013	7:39:22 PM	0.28	101	340	68
5/9/2013	7:40:22 PM	0.29	102	338	68
5/9/2013	7:41:22 PM	0.28	103	339	67
5/9/2013	7:42:22 PM	0.28	104	340	67
5/9/2013	7:43:22 PM	0.28	104	342	67
5/9/2013	7:44:22 PM	0.28	104	345	72
5/9/2013	7:45:22 PM	0.28	105	343	72
5/9/2013	7:46:22 PM	0.28	105	344	72
5/9/2013	7:47:22 PM	0.28	106	345	69
5/9/2013	7:48:22 PM	0.28	106	348	69
5/9/2013	7:49:22 PM	0.28	106	349	69
5/9/2013	7:50:22 PM	0.28	106	351	72
5/9/2013	7:51:22 PM	0.28	107	351	72
5/9/2013	7:52:22 PM	0.28	107	353	72
5/9/2013	7:53:22 PM	0.28	106	354	74
5/9/2013	7:54:22 PM	0.28	106	355	74
5/9/2013	7:55:22 PM	0.28	106	351	74
5/9/2013	7:56:22 PM	0.28	106	348	70
5/9/2013	7:57:22 PM	0.28	105	349	70
5/9/2013	7:58:22 PM	0.28	105	351	70
5/9/2013	7:59:22 PM	0.28	105	349	72
5/9/2013	8:00:22 PM	0.28	105	346	72
5/9/2013	8:01:22 PM	0.28	105	346	72
5/9/2013	8:02:22 PM	0.28	105	344	68
5/9/2013	8:03:22 PM	0.28	105	345	68
5/9/2013	8:04:22 PM	0.28	105	344	68
5/9/2013	8:05:22 PM	0.28	105	347	69
5/9/2013	8:06:22 PM	0.28	105	345	69
5/9/2013	8:07:22 PM	0.28	105	345	69

Instrumental Analyzer Monitoring Data

Facility/Site:	Sprague Searsport	**Start Date:**	**09-May-13**
Source:	Asphalt Tank No. 2	**End Date:**	**09-May-13**
Run No.	Vessel Transfer - Hour 5	**Start Time:**	**19:30**
		End Time:	**20:30**

Date	Time	Delta P (IWC)	Temp (°F)	THC (Propane) (ppm)	Methane (ppm)
5/9/2013	8:08:22 PM	0.28	104	344	68
5/9/2013	8:09:22 PM	0.28	104	345	68
5/9/2013	8:10:22 PM	0.28	104	347	68
5/9/2013	8:11:22 PM	0.28	104	346	69
5/9/2013	8:12:22 PM	0.28	104	347	69
5/9/2013	8:13:22 PM	0.28	103	349	69
5/9/2013	8:14:22 PM	0.28	104	348	71
5/9/2013	8:15:22 PM	0.28	104	346	71
5/9/2013	8:16:22 PM	0.28	103	349	71
5/9/2013	8:17:22 PM	0.28	103	351	72
5/9/2013	8:18:22 PM	0.28	102	352	72
5/9/2013	8:19:22 PM	0.29	100	350	72
5/9/2013	8:20:22 PM	0.28	100	333	72
5/9/2013	8:21:22 PM	0.28	100	331	72
5/9/2013	8:22:22 PM	0.28	101	337	72
5/9/2013	8:23:22 PM	0.29	101	343	70
5/9/2013	8:24:22 PM	0.28	102	344	70
5/9/2013	8:25:22 PM	0.28	102	347	70
5/9/2013	8:26:22 PM	0.28	103	347	71
5/9/2013	8:27:22 PM	0.29	102	347	71
5/9/2013	8:28:22 PM	0.28	101	340	71
5/9/2013	8:29:22 PM	0.28	100	333	63
Averages		0.28	104	344	70

Instrumental Analyzer Monitoring Data

Facility/Site:	Sprague Searsport	**Start Date:**	**09-May-13**
Source:	Asphalt Tank No. 2	**End Date:**	**09-May-13**
Run No.	Vessel Transfer - Hour 6	**Start Time:**	**20:30**
		End Time:	**21:30**

Date	Time	Delta P (IWC)	Temp (°F)	THC (Propane) (ppm)	Methane (ppm)
5/9/2013	8:30:22 PM	0.28	99	334	63
5/9/2013	8:31:22 PM	0.28	97	337	63
5/9/2013	8:32:22 PM	0.29	96	337	70
5/9/2013	8:33:22 PM	0.28	95	334	70
5/9/2013	8:34:22 PM	0.28	94	334	70
5/9/2013	8:35:22 PM	0.28	94	332	72
5/9/2013	8:36:22 PM	0.28	94	332	72
5/9/2013	8:37:22 PM	0.28	95	331	72
5/9/2013	8:38:22 PM	0.28	95	332	71
5/9/2013	8:39:22 PM	0.28	96	333	71
5/9/2013	8:40:22 PM	0.28	95	335	71
5/9/2013	8:41:22 PM	0.28	96	335	74
5/9/2013	8:42:22 PM	0.28	96	334	74
5/9/2013	8:43:22 PM	0.29	96	335	74
5/9/2013	8:44:22 PM	0.28	96	336	72
5/9/2013	8:45:22 PM	0.28	95	337	72
5/9/2013	8:46:22 PM	0.29	94	333	72
5/9/2013	8:47:22 PM	0.28	95	318	70
5/9/2013	8:48:22 PM	0.28	95	318	70
5/9/2013	8:49:22 PM	0.29	96	325	70
5/9/2013	8:50:22 PM	0.28	96	329	71
5/9/2013	8:51:22 PM	0.29	97	331	71
5/9/2013	8:52:22 PM	0.28	97	333	71
5/9/2013	8:53:22 PM	0.28	97	334	74
5/9/2013	8:54:22 PM	0.28	96	334	74
5/9/2013	8:55:22 PM	0.29	96	335	74
5/9/2013	8:56:22 PM	0.28	96	333	73
5/9/2013	8:57:22 PM	0.28	96	331	73
5/9/2013	8:58:22 PM	0.28	96	331	73
5/9/2013	8:59:22 PM	0.28	97	334	73
5/9/2013	9:00:22 PM	0.28	98	336	73
5/9/2013	9:01:22 PM	0.28	98	339	73
5/9/2013	9:02:22 PM	0.28	99	341	75
5/9/2013	9:03:22 PM	0.28	100	342	75
5/9/2013	9:04:22 PM	0.28	100	345	75
5/9/2013	9:05:22 PM	0.28	101	343	76
5/9/2013	9:06:22 PM	0.28	101	345	76
5/9/2013	9:07:22 PM	0.29	100	345	76

Instrumental Analyzer Monitoring Data

Facility/Site:	Sprague Searsport	**Start Date:**	**09-May-13**
Source:	Asphalt Tank No. 2	**End Date:**	**09-May-13**
Run No.	Vessel Transfer - Hour 6	**Start Time:**	**20:30**
		End Time:	**21:30**

Date	Time	Delta P (IWC)	Temp (°F)	THC (Propane) (ppm)	Methane (ppm)
5/9/2013	9:08:22 PM	0.29	99	345	74
5/9/2013	9:09:22 PM	0.29	97	328	74
5/9/2013	9:10:22 PM	0.29	96	322	74
5/9/2013	9:11:22 PM	0.29	94	318	61
5/9/2013	9:12:22 PM	0.29	93	319	61
5/9/2013	9:13:22 PM	0.29	92	322	61
5/9/2013	9:14:22 PM	0.29	91	330	69
5/9/2013	9:15:22 PM	0.29	90	331	69
5/9/2013	9:16:22 PM	0.29	89	329	69
5/9/2013	9:17:22 PM	0.29	89	329	73
5/9/2013	9:18:22 PM	0.29	89	328	73
5/9/2013	9:19:22 PM	0.29	89	327	73
5/9/2013	9:20:22 PM	0.29	90	328	71
5/9/2013	9:21:22 PM	0.29	89	330	71
5/9/2013	9:22:22 PM	0.29	89	331	71
5/9/2013	9:23:22 PM	0.29	89	331	75
5/9/2013	9:24:22 PM	0.29	89	330	75
5/9/2013	9:25:22 PM	0.29	90	333	75
5/9/2013	9:26:22 PM	0.29	92	332	74
5/9/2013	9:27:22 PM	0.29	93	335	74
5/9/2013	9:28:22 PM	0.29	94	338	74
5/9/2013	9:29:22 PM	0.28	95	338	76
Averages		0.28	95	333	72

Instrumental Analyzer Monitoring Data

Facility/Site:	Sprague Searsport	**Start Date:**	**09-May-13**
Source:	Asphalt Tank No. 2	**End Date:**	**09-May-13**
Run No.	Vessel Transfer - Hour 7	**Start Time:**	**21:30**
		End Time:	**22:30**

Date	Time	Delta P (IWC)	Temp (°F)	THC (Propane) (ppm)	Methane (ppm)
5/9/2013	9:30:22 PM	0.28	96	340	76
5/9/2013	9:31:22 PM	0.29	96	342	76
5/9/2013	9:32:22 PM	0.29	96	345	75
5/9/2013	9:33:22 PM	0.28	96	346	75
5/9/2013	9:34:22 PM	0.29	95	349	75
5/9/2013	9:35:22 PM	0.29	95	349	77
5/9/2013	9:36:22 PM	0.29	95	348	77
5/9/2013	9:37:22 PM	0.29	95	347	77
5/9/2013	9:38:22 PM	0.29	94	346	76
5/9/2013	9:39:22 PM	0.29	94	346	76
5/9/2013	9:40:22 PM	0.29	94	346	76
5/9/2013	9:41:22 PM	0.29	93	347	75
5/9/2013	9:42:22 PM	0.29	92	346	75
5/9/2013	9:43:22 PM	0.29	91	345	75
5/9/2013	9:44:22 PM	0.29	90	344	74
5/9/2013	9:45:22 PM	0.29	89	342	74
5/9/2013	9:46:22 PM	0.29	89	340	74
5/9/2013	9:47:22 PM	0.29	89	338	73
5/9/2013	9:48:22 PM	0.29	88	338	73
5/9/2013	9:49:22 PM	0.29	86	336	73
5/9/2013	9:50:22 PM	0.29	86	332	74
5/9/2013	9:51:22 PM	0.29	85	329	74
5/9/2013	9:52:22 PM	0.29	85	329	74
5/9/2013	9:53:22 PM	0.29	85	327	73
5/9/2013	9:54:22 PM	0.29	85	328	73
5/9/2013	9:55:22 PM	0.29	85	328	73
5/9/2013	9:56:22 PM	0.29	86	328	73
5/9/2013	9:57:22 PM	0.29	86	328	73
5/9/2013	9:58:22 PM	0.29	85	331	73
5/9/2013	9:59:22 PM	0.29	85	330	75
5/9/2013	10:00:22 PM	0.29	84	329	75
5/9/2013	10:01:22 PM	0.30	84	330	75
5/9/2013	10:02:22 PM	0.30	84	328	73
5/9/2013	10:03:22 PM	0.30	84	328	73
5/9/2013	10:04:22 PM	0.30	84	326	73
5/9/2013	10:05:22 PM	0.29	84	327	73
5/9/2013	10:06:22 PM	0.29	85	327	73
5/9/2013	10:07:22 PM	0.29	86	327	73

Instrumental Analyzer Monitoring Data

Facility/Site:	Sprague Searsport	**Start Date:**	**09-May-13**
Source:	Asphalt Tank No. 2	**End Date:**	**09-May-13**
Run No.	Vessel Transfer - Hour 7	**Start Time:**	**21:30**
		End Time:	**22:30**

Date	Time	Delta P (IWC)	Temp (°F)	THC (Propane) (ppm)	Methane (ppm)
5/9/2013	10:08:22 PM	0.29	87	329	73
5/9/2013	10:09:22 PM	0.29	87	331	73
5/9/2013	10:10:22 PM	0.29	87	333	73
5/9/2013	10:11:22 PM	0.29	88	332	76
5/9/2013	10:12:22 PM	0.29	90	333	76
5/9/2013	10:13:22 PM	0.29	90	335	76
5/9/2013	10:14:22 PM	0.29	91	340	75
5/9/2013	10:15:22 PM	0.29	91	339	75
5/9/2013	10:16:22 PM	0.29	90	332	75
5/9/2013	10:17:22 PM	0.29	91	326	67
5/9/2013	10:18:22 PM	0.29	91	324	67
5/9/2013	10:19:22 PM	0.29	91	330	67
5/9/2013	10:20:22 PM	0.29	91	334	73
5/9/2013	10:21:22 PM	0.29	91	331	73
5/9/2013	10:22:22 PM	0.29	92	325	73
5/9/2013	10:23:22 PM	0.29	93	327	66
5/9/2013	10:24:22 PM	0.29	93	334	66
5/9/2013	10:25:22 PM	0.29	94	338	67
5/9/2013	10:26:22 PM	0.29	95	340	73
5/9/2013	10:27:22 PM	0.29	95	342	73
5/9/2013	10:28:22 PM	0.29	95	345	74
5/9/2013	10:29:22 PM	0.29	94	344	77
Averages		0.29	90	336	74

Instrumental Analyzer Monitoring Data

Facility/Site:	Sprague Searsport	**Start Date:**	**09-May-13**
Source:	Asphalt Tank No. 2	**End Date:**	**09-May-13**
Run No.	Vessel Transfer - Hour 8	**Start Time:**	**22:30**
		End Time:	**23:30**

Date	Time	Delta P (IWC)	Temp (°F)	THC (Propane) (ppm)	Methane (ppm)
5/9/2013	10:30:22 PM	0.29	94	344	77
5/9/2013	10:31:22 PM	0.29	94	344	77
5/9/2013	10:32:22 PM	0.29	94	343	75
5/9/2013	10:33:22 PM	0.29	94	344	75
5/9/2013	10:34:22 PM	0.28	95	344	75
5/9/2013	10:35:22 PM	0.29	95	344	74
5/9/2013	10:36:22 PM	0.29	95	345	74
5/9/2013	10:37:22 PM	0.29	95	347	74
5/9/2013	10:38:22 PM	0.29	94	346	77
5/9/2013	10:39:22 PM	0.29	93	344	77
5/9/2013	10:40:22 PM	0.29	93	344	77
5/9/2013	10:41:22 PM	0.29	92	344	74
5/9/2013	10:42:22 PM	0.29	92	344	74
5/9/2013	10:43:22 PM	0.29	91	343	74
5/9/2013	10:44:22 PM	0.29	90	341	78
5/9/2013	10:45:22 PM	0.29	90	341	78
5/9/2013	10:46:22 PM	0.29	90	340	78
5/9/2013	10:47:22 PM	0.29	90	338	74
5/9/2013	10:48:22 PM	0.29	91	339	74
5/9/2013	10:49:22 PM	0.29	91	339	74
5/9/2013	10:50:22 PM	0.29	92	340	76
5/9/2013	10:51:22 PM	0.29	92	338	76
5/9/2013	10:52:22 PM	0.29	93	339	76
5/9/2013	10:53:22 PM	0.29	94	340	74
5/9/2013	10:54:22 PM	0.29	95	342	74
5/9/2013	10:55:22 PM	0.28	96	345	74
5/9/2013	10:56:22 PM	0.29	96	348	75
5/9/2013	10:57:22 PM	0.29	97	346	75
5/9/2013	10:58:22 PM	0.28	98	346	75
5/9/2013	10:59:22 PM	0.29	98	351	73
5/9/2013	11:00:22 PM	0.28	99	351	73
5/9/2013	11:01:22 PM	0.28	100	353	73
5/9/2013	11:02:22 PM	0.28	101	353	76
5/9/2013	11:03:22 PM	0.28	102	356	76
5/9/2013	11:04:22 PM	0.28	103	358	76
5/9/2013	11:05:22 PM	0.28	104	361	74
5/9/2013	11:06:22 PM	0.28	105	359	74
5/9/2013	11:07:22 PM	0.28	105	362	74

Instrumental Analyzer Monitoring Data

Facility/Site:	Sprague Searsport	**Start Date:**	**09-May-13**
Source:	Asphalt Tank No. 2	**End Date:**	**09-May-13**
Run No.	Vessel Transfer - Hour 8	**Start Time:**	**22:30**
		End Time:	**23:30**

Date Time	Delta P (IWC)	Temp (°F)	THC (Propane) (ppm)	Methane (ppm)
5/9/2013 11:08:22 PM	0.28	105	362	75
5/9/2013 11:09:22 PM	0.28	105	363	75
5/9/2013 11:10:22 PM	0.28	105	366	75
5/9/2013 11:11:22 PM	0.28	105	366	76
5/9/2013 11:12:22 PM	0.28	105	366	76
5/9/2013 11:13:22 PM	0.28	105	365	76
5/9/2013 11:14:22 PM	0.28	105	365	74
5/9/2013 11:15:22 PM	0.28	104	366	74
5/9/2013 11:16:22 PM	0.28	104	366	74
5/9/2013 11:17:22 PM	0.28	104	364	76
5/9/2013 11:18:22 PM	0.28	104	363	76
5/9/2013 11:19:22 PM	0.28	103	361	76
5/9/2013 11:20:22 PM	0.28	103	364	74
5/9/2013 11:21:22 PM	0.28	103	362	74
5/9/2013 11:22:22 PM	0.28	103	362	74
5/9/2013 11:23:22 PM	0.28	103	361	77
5/9/2013 11:24:22 PM	0.28	104	361	77
5/9/2013 11:25:22 PM	0.28	104	362	77
5/9/2013 11:26:22 PM	0.28	104	361	75
5/9/2013 11:27:22 PM	0.28	104	360	75
5/9/2013 11:28:22 PM	0.28	104	359	75
5/9/2013 11:29:22 PM	0.28	103	360	74
Averages	0.28	99	352	75

Instrumental Analyzer Monitoring Data

Facility/Site:	Sprague Searsport	**Start Date:**	**09-May-13**
Source:	Asphalt Tank No. 2	**End Date:**	**10-May-13**
Run No.	Vessel Transfer - Hour 9	**Start Time:**	**23:30**
		End Time:	**0:30**

Date	Time	Delta P (IWC)	Temp (°F)	THC (Propane) (ppm)	Methane (ppm)
5/9/2013	11:30:22 PM	0.28	103	360	74
5/9/2013	11:31:22 PM	0.28	103	362	74
5/9/2013	11:32:22 PM	0.28	103	363	75
5/9/2013	11:33:22 PM	0.28	104	363	75
5/9/2013	11:34:22 PM	0.28	104	364	75
5/9/2013	11:35:22 PM	0.27	104	366	75
5/9/2013	11:36:22 PM	0.28	105	365	75
5/9/2013	11:37:22 PM	0.28	104	366	75
5/9/2013	11:38:22 PM	0.28	105	367	75
5/9/2013	11:39:22 PM	0.28	105	369	75
5/9/2013	11:40:22 PM	0.28	105	370	75
5/9/2013	11:41:22 PM	0.28	106	368	76
5/9/2013	11:42:22 PM	0.27	106	368	76
5/9/2013	11:43:22 PM	0.27	107	370	76
5/9/2013	11:44:22 PM	0.28	107	370	77
5/9/2013	11:45:22 PM	0.27	107	370	77
5/9/2013	11:46:22 PM	0.28	107	372	77
5/9/2013	11:47:22 PM	0.28	107	371	74
5/9/2013	11:48:22 PM	0.28	107	371	74
5/9/2013	11:49:22 PM	0.28	108	373	74
5/9/2013	11:50:22 PM	0.28	108	376	75
5/9/2013	11:51:22 PM	0.28	107	374	75
5/9/2013	11:52:22 PM	0.28	106	374	75
5/9/2013	11:53:22 PM	0.28	104	374	74
5/9/2013	11:54:22 PM	0.28	102	370	74
5/9/2013	11:55:22 PM	0.29	100	370	74
5/9/2013	11:56:22 PM	0.28	98	366	75
5/9/2013	11:57:22 PM	0.29	97	363	75
5/9/2013	11:58:22 PM	0.29	98	357	75
5/9/2013	11:59:22 PM	0.28	99	357	73
5/10/2013	0:00:22 AM	0.28	100	361	73
5/10/2013	0:01:22 AM	0.29	100	361	74
5/10/2013	0:02:22 AM	0.29	100	361	77
5/10/2013	0:03:22 AM	0.29	100	358	77
5/10/2013	0:04:22 AM	0.29	99	360	77
5/10/2013	0:05:22 AM	0.29	98	356	78
5/10/2013	0:06:22 AM	0.29	98	357	78
5/10/2013	0:07:22 AM	0.29	97	357	78

Instrumental Analyzer Monitoring Data

Facility/Site:	Sprague Searsport	**Start Date:**	**09-May-13**
Source:	Asphalt Tank No. 2	**End Date:**	**10-May-13**
Run No.	Vessel Transfer - Hour 9	**Start Time:**	**23:30**
		End Time:	**0:30**

Date	Time	Delta P (IWC)	Temp (°F)	THC (Propane) (ppm)	Methane (ppm)
5/10/2013	0:08:22 AM	0.29	97	354	79
5/10/2013	0:09:22 AM	0.29	97	354	79
5/10/2013	0:10:22 AM	0.28	98	354	79
5/10/2013	0:11:22 AM	0.28	98	355	77
5/10/2013	0:12:22 AM	0.29	98	353	77
5/10/2013	0:13:22 AM	0.29	98	353	77
5/10/2013	0:14:22 AM	0.29	97	351	76
5/10/2013	0:15:22 AM	0.29	97	353	76
5/10/2013	0:16:22 AM	0.28	96	352	76
5/10/2013	0:17:22 AM	0.28	97	351	78
5/10/2013	0:18:22 AM	0.29	97	349	78
5/10/2013	0:19:22 AM	0.28	98	350	78
5/10/2013	0:20:22 AM	0.28	99	349	77
5/10/2013	0:21:22 AM	0.28	99	351	77
5/10/2013	0:22:22 AM	0.28	99	353	77
5/10/2013	0:23:22 AM	0.28	100	353	75
5/10/2013	0:24:22 AM	0.28	100	355	75
5/10/2013	0:25:22 AM	0.28	101	357	75
5/10/2013	0:26:22 AM	0.28	103	357	73
5/10/2013	0:27:22 AM	0.28	103	360	73
5/10/2013	0:28:22 AM	0.28	103	366	74
5/10/2013	0:29:22 AM	0.28	103	364	80
Averages		0.28	102	362	76

Instrumental Analyzer Monitoring Data

Facility/Site:	Sprague Searsport	**Start Date:**	**10-May-13**
Source:	Asphalt Tank No. 2	**End Date:**	**10-May-13**
Run No.	Vessel Transfer - Hour 10	**Start Time:**	**0:30**
		End Time:	**1:30**

Date	Time	Delta P (IWC)	Temp (°F)	THC (Propane) (ppm)	Methane (ppm)
5/10/2013	0:30:22 AM	0.28	104	363	80
5/10/2013	0:31:22 AM	0.28	105	359	79
5/10/2013	0:32:22 AM	0.28	106	360	71
5/10/2013	0:33:22 AM	0.28	107	364	71
5/10/2013	0:34:22 AM	0.28	107	368	71
5/10/2013	0:35:22 AM	0.28	107	373	78
5/10/2013	0:36:22 AM	0.28	105	373	78
5/10/2013	0:37:22 AM	0.28	104	374	78
5/10/2013	0:38:22 AM	0.28	103	372	78
5/10/2013	0:39:22 AM	0.28	102	371	78
5/10/2013	0:40:22 AM	0.28	102	372	78
5/10/2013	0:41:22 AM	0.28	101	370	79
5/10/2013	0:42:22 AM	0.29	100	367	79
5/10/2013	0:43:22 AM	0.29	100	367	79
5/10/2013	0:44:22 AM	0.28	100	365	78
5/10/2013	0:45:22 AM	0.28	99	366	78
5/10/2013	0:46:22 AM	0.29	99	364	78
5/10/2013	0:47:22 AM	0.28	98	362	78
5/10/2013	0:48:22 AM	0.29	97	362	78
5/10/2013	0:49:22 AM	0.29	96	359	78
5/10/2013	0:50:22 AM	0.28	95	358	76
5/10/2013	0:51:22 AM	0.29	95	355	76
5/10/2013	0:52:22 AM	0.28	95	354	76
5/10/2013	0:53:22 AM	0.29	94	352	75
5/10/2013	0:54:22 AM	0.29	95	352	75
5/10/2013	0:55:22 AM	0.29	96	351	75
5/10/2013	0:56:22 AM	0.29	97	353	74
5/10/2013	0:57:22 AM	0.28	97	354	74
5/10/2013	0:58:22 AM	0.29	96	355	75
5/10/2013	0:59:22 AM	0.29	94	353	78
5/10/2013	1:00:22 AM	0.29	93	349	78
5/10/2013	1:01:22 AM	0.29	91	344	78
5/10/2013	1:02:22 AM	0.29	90	339	73
5/10/2013	1:03:22 AM	0.29	89	337	73
5/10/2013	1:04:22 AM	0.29	88	335	73
5/10/2013	1:05:22 AM	0.29	87	331	72
5/10/2013	1:06:22 AM	0.29	87	328	72
5/10/2013	1:07:22 AM	0.29	87	326	72

Instrumental Analyzer Monitoring Data

Facility/Site:	Sprague Searsport	**Start Date:**	**10-May-13**
Source:	Asphalt Tank No. 2	**End Date:**	**10-May-13**
Run No.	Vessel Transfer - Hour 10	**Start Time:**	**0:30**
		End Time:	**1:30**

Date	Time	Delta P (IWC)	Temp (°F)	THC (Propane) (ppm)	Methane (ppm)
5/10/2013	1:08:22 AM	0.29	87	324	71
5/10/2013	1:09:22 AM	0.29	87	328	71
5/10/2013	1:10:22 AM	0.29	87	326	72
5/10/2013	1:11:22 AM	0.29	87	329	73
5/10/2013	1:12:22 AM	0.29	87	329	73
5/10/2013	1:13:22 AM	0.29	86	329	74
5/10/2013	1:14:22 AM	0.29	86	329	79
5/10/2013	1:15:22 AM	0.29	87	327	79
5/10/2013	1:16:22 AM	0.29	88	326	79
5/10/2013	1:17:22 AM	0.29	89	326	74
5/10/2013	1:18:22 AM	0.29	90	327	74
5/10/2013	1:19:22 AM	0.29	91	328	74
5/10/2013	1:20:22 AM	0.29	91	331	75
5/10/2013	1:21:22 AM	0.29	91	333	75
5/10/2013	1:22:22 AM	0.29	91	333	75
5/10/2013	1:23:22 AM	0.29	91	335	75
5/10/2013	1:24:22 AM	0.29	91	334	75
5/10/2013	1:25:22 AM	0.29	91	335	75
5/10/2013	1:26:22 AM	0.29	92	334	76
5/10/2013	1:27:22 AM	0.29	93	336	76
5/10/2013	1:28:22 AM	0.29	94	337	76
5/10/2013	1:29:22 AM	0.28	94	340	75
Averages		0.29	95	347	76

Instrumental Analyzer Monitoring Data

Facility/Site:	Sprague Searsport	**Start Date:**	**10-May-13**
Source:	Asphalt Tank No. 2	**End Date:**	**10-May-13**
Run No.	Vessel Transfer - Hour 11	**Start Time:**	**1:30**
		End Time:	**2:30**

Date	Time	Delta P (IWC)	Temp (°F)	THC (Propane) (ppm)	Methane (ppm)
5/10/2013	1:30:22 AM	0.29	94	341	75
5/10/2013	1:31:22 AM	0.29	94	342	75
5/10/2013	1:32:22 AM	0.29	94	345	75
5/10/2013	1:33:22 AM	0.29	94	346	75
5/10/2013	1:34:22 AM	0.29	94	347	76
5/10/2013	1:35:22 AM	0.29	94	346	77
5/10/2013	1:36:22 AM	0.29	94	347	77
5/10/2013	1:37:22 AM	0.29	95	348	77
5/10/2013	1:38:22 AM	0.28	96	350	81
5/10/2013	1:39:22 AM	0.29	98	350	81
5/10/2013	1:40:22 AM	0.28	99	354	81
5/10/2013	1:41:22 AM	0.28	100	355	80
5/10/2013	1:42:22 AM	0.28	102	356	80
5/10/2013	1:43:22 AM	0.28	103	357	80
5/10/2013	1:44:22 AM	0.28	104	362	78
5/10/2013	1:45:22 AM	0.28	105	363	78
5/10/2013	1:46:22 AM	0.28	106	365	78
5/10/2013	1:47:22 AM	0.28	107	366	79
5/10/2013	1:48:22 AM	0.28	107	367	79
5/10/2013	1:49:22 AM	0.28	106	368	79
5/10/2013	1:50:22 AM	0.28	105	369	77
5/10/2013	1:51:22 AM	0.28	105	370	77
5/10/2013	1:52:22 AM	0.28	105	371	78
5/10/2013	1:53:22 AM	0.28	105	370	80
5/10/2013	1:54:22 AM	0.28	106	373	80
5/10/2013	1:55:22 AM	0.28	107	375	81
5/10/2013	1:56:22 AM	0.28	108	374	82
5/10/2013	1:57:22 AM	0.28	108	376	82
5/10/2013	1:58:22 AM	0.28	108	378	82
5/10/2013	1:59:22 AM	0.28	108	378	81
5/10/2013	2:00:22 AM	0.28	107	376	81
5/10/2013	2:01:22 AM	0.28	106	375	80
5/10/2013	2:02:22 AM	0.28	106	374	76
5/10/2013	2:03:22 AM	0.28	105	376	76
5/10/2013	2:04:22 AM	0.28	104	377	77
5/10/2013	2:05:22 AM	0.28	105	374	81
5/10/2013	2:06:22 AM	0.28	106	374	81
5/10/2013	2:07:22 AM	0.28	106	377	81

Instrumental Analyzer Monitoring Data

Facility/Site:	Sprague Searsport	**Start Date:**	**10-May-13**
Source:	Asphalt Tank No. 2	**End Date:**	**10-May-13**
Run No.	Vessel Transfer - Hour 11	**Start Time:**	**1:30**
		End Time:	**2:30**

Date	Time	Delta P (IWC)	Temp (°F)	THC (Propane) (ppm)	Methane (ppm)
5/10/2013	2:08:22 AM	0.28	107	380	80
5/10/2013	2:09:22 AM	0.28	107	381	80
5/10/2013	2:10:22 AM	0.28	106	382	81
5/10/2013	2:11:22 AM	0.28	105	382	82
5/10/2013	2:12:22 AM	0.28	104	381	82
5/10/2013	2:13:22 AM	0.28	104	378	82
5/10/2013	2:14:22 AM	0.28	104	378	79
5/10/2013	2:15:22 AM	0.29	103	382	79
5/10/2013	2:16:22 AM	0.28	103	383	79
5/10/2013	2:17:22 AM	0.28	103	382	82
5/10/2013	2:18:22 AM	0.28	104	382	82
5/10/2013	2:19:22 AM	0.28	105	380	82
5/10/2013	2:20:22 AM	0.28	105	380	79
5/10/2013	2:21:22 AM	0.28	106	384	79
5/10/2013	2:22:22 AM	0.28	106	384	80
5/10/2013	2:23:22 AM	0.28	107	383	81
5/10/2013	2:24:22 AM	0.27	107	383	81
5/10/2013	2:25:22 AM	0.28	107	383	81
5/10/2013	2:26:22 AM	0.28	108	380	82
5/10/2013	2:27:22 AM	0.28	108	381	82
5/10/2013	2:28:22 AM	0.28	107	380	82
5/10/2013	2:29:22 AM	0.28	107	381	77
Averages		0.28	104	370	79

Instrumental Analyzer Monitoring Data

Facility/Site:	Sprague Searsport	**Start Date:**	**10-May-13**
Source:	Asphalt Tank No. 2	**End Date:**	**10-May-13**
Run No.	Vessel Transfer - Hour 12	**Start Time:**	**2:30**
		End Time:	**3:30**

Date	Time	Delta P (IWC)	Temp (°F)	THC (Propane) (ppm)	Methane (ppm)
5/10/2013	2:30:22 AM	0.28	107	373	77
5/10/2013	2:31:22 AM	0.28	107	378	77
5/10/2013	2:32:22 AM	0.28	107	381	75
5/10/2013	2:33:22 AM	0.28	108	383	75
5/10/2013	2:34:22 AM	0.28	109	386	76
5/10/2013	2:35:22 AM	0.28	110	388	77
5/10/2013	2:36:22 AM	0.28	111	388	77
5/10/2013	2:37:22 AM	0.28	111	390	78
5/10/2013	2:38:22 AM	0.28	111	392	80
5/10/2013	2:39:22 AM	0.28	111	390	80
5/10/2013	2:40:22 AM	0.28	112	392	80
5/10/2013	2:41:22 AM	0.27	112	390	81
5/10/2013	2:42:22 AM	0.27	112	391	81
5/10/2013	2:43:22 AM	0.28	112	390	81
5/10/2013	2:44:22 AM	0.28	112	391	82
5/10/2013	2:45:22 AM	0.28	112	389	82
5/10/2013	2:46:22 AM	0.28	111	391	82
5/10/2013	2:47:22 AM	0.28	110	390	80
5/10/2013	2:48:22 AM	0.28	110	390	80
5/10/2013	2:49:22 AM	0.28	111	393	80
5/10/2013	2:50:22 AM	0.28	111	392	79
5/10/2013	2:51:22 AM	0.28	112	393	79
5/10/2013	2:52:22 AM	0.28	110	393	79
5/10/2013	2:53:22 AM	0.28	109	386	77
5/10/2013	2:54:22 AM	0.28	107	377	77
5/10/2013	2:55:22 AM	0.28	107	367	75
5/10/2013	2:56:22 AM	0.28	106	363	61
5/10/2013	2:57:22 AM	0.28	105	360	61
5/10/2013	2:58:22 AM	0.28	104	357	61
5/10/2013	2:59:22 AM	0.28	104	355	58
5/10/2013	3:00:22 AM	0.28	104	354	58
5/10/2013	3:01:22 AM	0.28	103	354	59
5/10/2013	3:02:22 AM	0.29	103	352	60
5/10/2013	3:03:22 AM	0.28	103	350	60
5/10/2013	3:04:22 AM	0.28	102	347	60
5/10/2013	3:05:22 AM	0.29	102	345	60
5/10/2013	3:06:22 AM	0.29	102	343	60
5/10/2013	3:07:22 AM	0.28	102	342	60

Instrumental Analyzer Monitoring Data

Facility/Site:	Sprague Searsport	**Start Date:**	**10-May-13**
Source:	Asphalt Tank No. 2	**End Date:**	**10-May-13**
Run No.	Vessel Transfer - Hour 12	**Start Time:**	**2:30**
		End Time:	**3:30**

Date	Time	Delta P (IWC)	Temp (°F)	THC (Propane) (ppm)	Methane (ppm)
5/10/2013	3:08:22 AM	0.28	102	340	60
5/10/2013	3:09:22 AM	0.29	102	339	60
5/10/2013	3:10:22 AM	0.29	102	339	60
5/10/2013	3:11:22 AM	0.28	102	341	61
5/10/2013	3:12:22 AM	0.29	101	342	61
5/10/2013	3:13:22 AM	0.29	100	342	61
5/10/2013	3:14:22 AM	0.28	99	340	62
5/10/2013	3:15:22 AM	0.28	99	339	62
5/10/2013	3:16:22 AM	0.28	99	339	63
5/10/2013	3:17:22 AM	0.29	100	339	63
5/10/2013	3:18:22 AM	0.28	100	336	63
5/10/2013	3:19:22 AM	0.28	100	335	63
5/10/2013	3:20:22 AM	0.28	100	333	61
5/10/2013	3:21:22 AM	0.28	101	332	61
5/10/2013	3:22:22 AM	0.29	100	333	61
5/10/2013	3:23:22 AM	0.29	99	332	61
5/10/2013	3:24:22 AM	0.29	99	331	61
5/10/2013	3:25:22 AM	0.29	99	330	61
5/10/2013	3:26:22 AM	0.29	99	328	61
5/10/2013	3:27:22 AM	0.29	99	326	61
5/10/2013	3:28:22 AM	0.29	99	326	61
5/10/2013	3:29:22 AM	0.29	99	325	61
Averages		0.28	105	361	69

Instrumental Analyzer Monitoring Data

Facility/Site:	Sprague Searsport	**Start Date:**	**10-May-13**
Source:	Asphalt Tank No. 2	**End Date:**	**10-May-13**
Run No.	Vessel Transfer - Hour 13	**Start Time:**	**3:30**
		End Time:	**4:06**

Date	Time	Delta P (IWC)	Temp (°F)	THC (Propane) (ppm)	Methane (ppm)
5/10/2013	3:30:22 AM	0.28	99	323	61
5/10/2013	3:31:22 AM	0.29	99	322	61
5/10/2013	3:32:22 AM	0.29	99	321	61
5/10/2013	3:33:22 AM	0.29	100	323	61
5/10/2013	3:34:22 AM	0.29	99	325	61
5/10/2013	3:35:22 AM	0.29	98	322	61
5/10/2013	3:36:22 AM	0.29	97	321	61
5/10/2013	3:37:22 AM	0.29	97	318	60
5/10/2013	3:38:22 AM	0.29	96	317	58
5/10/2013	3:39:22 AM	0.29	96	318	58
5/10/2013	3:40:22 AM	0.29	95	315	59
5/10/2013	3:41:22 AM	0.29	95	313	61
5/10/2013	3:42:22 AM	0.29	95	311	61
5/10/2013	3:43:22 AM	0.29	95	310	61
5/10/2013	3:44:22 AM	0.29	95	309	60
5/10/2013	3:45:22 AM	0.29	93	308	60
5/10/2013	3:46:22 AM	0.29	92	307	61
5/10/2013	3:47:22 AM	0.29	92	305	62
5/10/2013	3:48:22 AM	0.29	92	304	62
5/10/2013	3:49:22 AM	0.29	92	304	62
5/10/2013	3:50:22 AM	0.29	92	304	62
5/10/2013	3:51:22 AM	0.29	92	302	62
5/10/2013	3:52:22 AM	0.29	93	303	63
5/10/2013	3:53:22 AM	0.29	94	303	63
5/10/2013	3:54:22 AM	0.29	96	304	63
5/10/2013	3:55:22 AM	0.28	96	306	63
5/10/2013	3:56:22 AM	0.29	97	307	64
5/10/2013	3:57:22 AM	0.29	98	306	64
5/10/2013	3:58:22 AM	0.28	98	307	63
5/10/2013	3:59:22 AM	0.28	99	309	61
5/10/2013	4:00:22 AM	0.29	99	309	61
5/10/2013	4:01:22 AM	0.29	98	310	61
5/10/2013	4:02:22 AM	0.28	98	310	60
5/10/2013	4:03:22 AM	0.29	98	309	60
5/10/2013	4:04:22 AM	0.29	98	310	61
5/10/2013	4:05:22 AM	0.29	98	309	61
5/10/2013	4:06:22 AM	0.29	97	308	61
Averages		0.29	96	311	61

Method 25A Calibration Data Sheet - Total Hydrocarbons

Source Summary			
Facility:	Sprague Searsport		
Source/Location:	Asphalt Tank No. 2		
Start Date	9-May-13	End Date:	10-May-13
Start Time:	15:30	End Time:	4:06

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 - 1,000	
Calibrant (choose one, x in box)	Propane	x
	Methane	
Cal Gas Molecular Weight:	44.09	g/mol

Initial Calibration Summary	
Operator:	A. Stratton
Date:	07-May-13
Time:	17:00

Initial Calibration Data (Hi / Zero)		
Calibration Gas	Cylinder Conc.	Actual Response
Zero Gas	0.0	5
High Gas	866.9	869
Response Line	0.997	

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	297.3	296	304	2.6	< 5% of cylinder concentration
Mid Gas	515.4	514	520	1.2	< 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:	A. Stratton
Date:	10-May-13
Time:	9:00

Post Calibration Drift Data					
Calibration Gas	**Cylinder Conc.**	**Initial Test Response**	**Final Test Response**	**Calibration Drift**	**Acceptance Criteria**
Post Cal 1 Zero	0	5	7	**0.2**	< 3% of the measurement range
Post Cal 1 Upscale	297.3	304	300	**0.4**	< 3% of the measurement range

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	297.3	Propane/Air	CC350652	3/12/2015	30%
Mid Gas	45-55	515.4	Propane/Air	CC248679	3/26/2015	52%
High Gas	80-90	866.9	Propane/Air	CC50868	3/26/2015	87%

System Response Time = 120 seconds

Method 25A Calibration Data Sheet - Methane

Source Summary			
Facility:	Sprague Searsport		
Source/Location:	Asphalt Tank No. 2		
Start Date	9-May-13	End Date:	10-May-13
Start Time:	15:30	End Time:	4:06

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 - 100	
Calibrant (choose one, x in box)	Propane	
	Methane	x
Cal Gas Molecular Weight:	16.039	g/mol

Initial Calibration Summary	
Operator:	A. Stratton
Date:	07-May-13
Time:	17:00

Initial Calibration Data (Hi / Zero)		
Calibration Gas	Cylinder Conc.	Actual Response
Zero Gas	0.0	0
High Gas	88.1	88.0
Response Line	0.999	

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	30.5	30.5	30.0	1.5	< 5% of cylinder concentration
Mid Gas	51.9	51.8	52.0	0.3	< 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:	A. Stratton
Date:	10-May-13
Time:	9:00

Post Calibration Drift Data					
Calibration Gas	**Cylinder Conc.**	**Initial Test Response**	**Final Test Response**	**Calibration Drift**	**Acceptance Criteria**
Post Cal 1 Zero	0	0	1	**1.0**	< 3% of the measurement range
Post Cal 1 Upscale	30.5	30.0	29	**1.0**	< 3% of the measurement range

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	30.5	CH4/Air	CC80798	8/26/2014	31%
Mid Gas	45-55	51.9	CH4/Air	CC86223	5/21/2015	52%
High Gas	80-90	88.1	CH4/Air	SGAL1691	11/9/2014	88%

System Response Time = 180 seconds

B2. Tank Displacement Rate Calculations / Transfer Log

Sprague Searsport - Asphalt Tank Tank #2

Vessel Asphalt Transfer Data and Air Displacement Calculations

Hourly Fill Rate of Tank #2 During Vessel Transfer on May 9-10,2013 - *(barrels/hr)*					
Hour 1	**Hour 2**	**Hour 3**	**Hour 4**	**Hour 5**	**Hour 6**
918.62	*4,217.69*	*4,217.69*	*4,429.26*	*4,429.26*	*4,429.89*
Hour 7	**Hour 8**	**Hour 9**	**Hour 10**	**Hour 11**	**Hour 12**
4,429.89	*4,683.67*	*4,683.67*	*4,517.93*	*4,517.93*	*2,971.60*
Hour 13					
1,485.80					

Air Displaced Out of Tank #2 During Vessel Transfer on May 9-10, 2013 - *(scfh)*					
Hour 1	**Hour 2**	**Hour 3**	**Hour 4**	**Hour 5**	**Hour 6**
5,108	*23,450*	*23,450*	*24,627*	*24,627*	*24,630*
Hour 7	**Hour 8**	**Hour 9**	**Hour 10**	**Hour 11**	**Hour 12**
24,630	*26,041*	*26,041*	*25,120*	*25,120*	*16,522*
Hour 13					
8,264					

Standard Cubic Feet Per Hour (SCFH) = barrels/hr x 5.56
Where: One barrel = 5.56 cubic feet

HOURLY TRANSFER OF ASPHALT

MAY 9 2013 THRU MAY 10 2013

Commenced disch. Time / Date: 1536hrs 5/9/2013

Sprague

PRODUCT FLOW RATE & GAUGING REPORT

TANK NUMBER:	(1.) TANK GAUGE	(2.) SAFE FILL HEIGHT	(3.) SAFE FILL CAPACITY:	(4.) on top of tank gauging continually :
sears #2	HEIGHT: 48' 11 3/4"	46' 11 3/4" @2' outage	94045 BBLS	For 30 minutes minimum before finish time
(5.) OPENING GAUGE:	(6.) Opening quantity	(7.)Amt. To go into tank	(8)Est.closing quantity	
37 11 0"	BBLS in tank 21941.61	50000.00 BBLS	#6+#7 71941.61 BBLS	
feet inches fraction				

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
INITIALS	EXACT TIME OF GAUGE	HOURS BETWEEN GAUGES	GAUGE OPEN WITH #5 (1-C=D) THEN PUT NEW GAUGE IN NEXT BOX THERE AFTER			BBLS. IN TANK OPEN W/#6	BBLS DIFF. EQUAL TO BBLS IN TANK LESS PREVIOUS BBLS IN TANK (G)-(G)=(H)	SALES OUT OF OIL OFFICE BBLS.	TOTAL BBLS. DIFF./ SALES (H)+(I)=(J)	RATE COLUMN J DIVIDED BY HOURS	BBLS. SPACE REMAINING (3)-(G)=(L)	BBLS REMAINING TO GO INTO TANK START WITH (7) THEN USE: (M)-(J)=(M)	ESTIMATED TIME TO FINISH IN HRS. (M) DIV. (K)=N	ESTIMATED TO FINISH GAUGE HOUR ADDED TO ESTIMATED TIME TO FINISH IN HRS. (B)+(N)=(O)
			FEET	INCHES	FRACTION									MUST BE DONE MANUALLY
dh	1530hrs	0	37	11	0"	21941.61					72103.39	50000.00		
dh	1630hrs	1	37	5	1/2"	22860.23	918.62		918.62	918.62	71184.77	49081.39	53.4	
tm	1830hrs	2	33	9	0"	31295.61	8435.38	0	8435.38	4217.69	62749.39	40646.00	9.6	
tm	2030hrs	2	28	10	0"	40154.13	8858.52	0	8858.52	4429.26	53890.87	31787.48	7.2	
gws	2230hrs	2	24	5	0"	49013.90	8859.77	0	8859.77	4429.89	45031.10	22927.71	5.2	
tm	0030hrs	2	19	9	0"	58381.25	9367.34	0	9367.34	4683.67	35663.75	13560.37	2.9	
tm	0230hrs	2	15	3	0"	67417.10	9035.85	0	9035.85	4517.93	26627.90	4524.51	1.0	
tm	0405hrs	1.5	13	0	3/8"	71874.50	4457.40	0	4457.40	2971.60	22170.50	67.11	0.0	0405complete
						#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	
						#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	
						#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	
						#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	
						#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	
						#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	
						#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	
						#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	
						#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	
						#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	
						#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	
						#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	
						#VALUE!	#VALUE!		#VALUE!	#VALUE!	#VALUE!	#N/A	#N/A	
						#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	
						#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	

NOTES: (CHECK) TOTAL OF COLUMN J PLUS LAST BOX IN COLUMN M = #7

(CHECK) LAST BOX IN COLUMN G PLUS LAST BOX IN COLUMN L = #3