APPENDIX B

VOC Emissions Data – Vessel Transfer

B1. VOC Emission Rate Calculations / Data Sheets

B2. Tank Displacement Rate Calculations / Transfer Log

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B1. VOC Emission Rate Calculations / Data Sheets

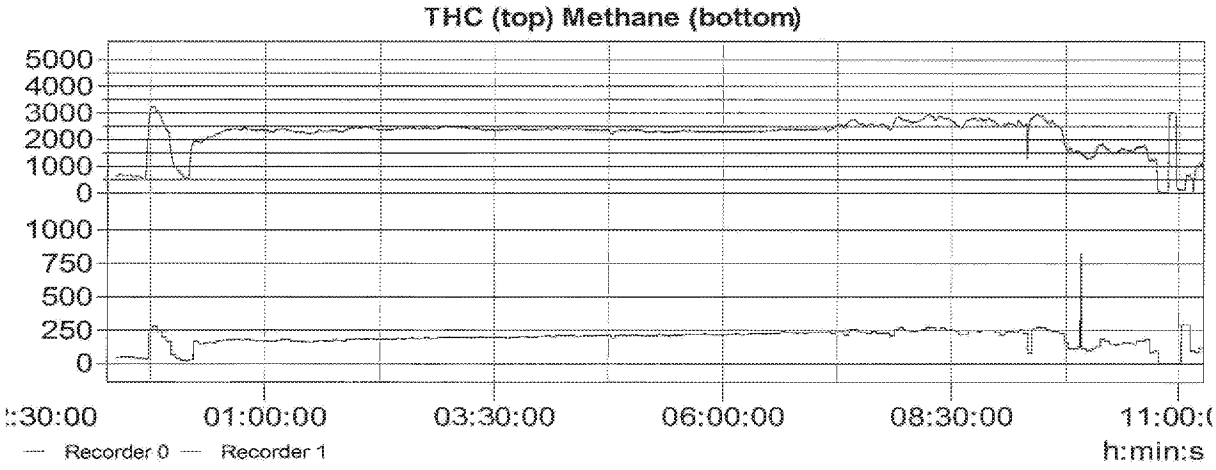
Global South Portland - Residual Oil Storage Tank #3
Vessel Transfer Hourly VOC Emissions
4/16/2013

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	0:10	1:10	3213	298	500	4.54	0.12	4.42	2.21E-03
2	1:10	2:10	2754	255	501	4.11	0.11	4.00	2.00E-03
3	2:10	3:10	2907	269	502	4.48	0.13	4.36	2.18E-03
4-5.5 (2.33 hrs)	3:10	5:30	6426	255	503	4.14	0.13	4.01	2.01E-03
6.5	5:30	6:30	2754	255	504	4.05	0.14	3.91	1.96E-03
7.5	6:30	7:30	2601	241	502	4.05	0.14	3.91	1.96E-03
8.5	7:30	8:30	2754	255	499	4.71	0.16	4.56	2.28E-03
9.5	8:30	9:30	2448	227	498	4.14	0.13	4.01	2.01E-03
10.5	9:30	10:30	1530	142	491	1.74	0.06	1.68	8.40E-04
Average:			**3043**	**244**	**500**	**4.00**	**0.12**	**3.87**	**1.94E-03**
Total Tons NMHC Per Vessel Transfer = 2.01E-02									

Note 1: One barrel = 5.56 cubic feet

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

Note 3: One transfer takes approximately 10.5 hours.



Emission Rate Calculation Sheet
Total Hydrocarbon Emissions

Facility :	Sprague Searsport	**Date:**	**04/16/13**
Source/Location:	Asphalt Tank No. 2	**Start Time:**	**0:10**
Run No.:	Vessel Transfer - Hour 1	**End Time:**	**1:10**

Average Concentration:		2,219 ppmvw
Average Flow Rate:		298 scfm
Molecular Weight:	Propane	44.09 g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol. PPM)	=	**4067.69** mg/m^3
mg/SCF =	(mg/m^3) (m^3/35.31 SCF)	=	**115.20** mg/SCF
lb/SCF =	(1 lb/ 4.536E+5 mg) * (mg/SCF)	=	**2.54E-04** lb/SCF
THC lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**4.54** lb/hr
CH4 lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**0.119** lb/hr
NMHC lb/hr =	THC lb/hr - CH4 lb/hr	=	**4.42** lb/hr
NMHC ton/hr =	NHMC lb/hr / 2000	=	**0.00221** ton/hr

Emission Rate Calculation Sheet
Total Hydrocarbon Emissions

Facility :	Sprague Searsport	**Date:**	**04/16/13**
Source/Location:	Asphalt Tank No. 2	**Start Time:**	**1:10**
Run No.:	Vessel Transfer - Hour 2	**End Time:**	**2:10**

Average Concentration:		2,348 ppmvw
Average Flow Rate:		255 scfm
Molecular Weight:	Propane	44.09 g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol. PPM)	=	**4302.85**	mg/m^3
mg/SCF =	(mg/m^3) (m^3/35.31 SCF)	=	**121.86**	mg/SCF
lb/SCF =	(1 lb/ 4.536E+5 mg) * (mg/SCF)	=	**2.69E-04**	lb/SCF
THC lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**4.11**	lb/hr
CH4 lb/hr =	(lb/SCF * SCFM * 60 min/hr)		**0.111**	lb/hr
NMHC lb/hr =	THC lb/hr - CH4 lb/hr	=	**4.00**	lb/hr
NMHC ton/hr =	NHMC lb/hr / 2000	=	**0.00200**	ton/hr

Emission Rate Calculation Sheet
Total Hydrocarbon Emissions

Facility :	Sprague Searsport	**Date:**	**04/16/13**
Source/Location:	Asphalt Tank No. 2	**Start Time:**	**2:10**
Run No.:	Vessel Transfer - Hour 3	**End Time:**	**3:10**

Average Concentration:		2,425 ppmvw
Average Flow Rate:		269 scfm
Molecular Weight:	Propane	44.09 g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol. PPM)	=	**4444.07** mg/m^3
mg/SCF =	(mg/m^3) (m^3/35.31 SCF)	=	**125.86** mg/SCF
lb/SCF =	(1 lb/ 4.536E+5 mg) * (mg/SCF)	=	**2.77E-04** lb/SCF
THC lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**4.48** lb/hr
CH4 lb/hr =	(lb/SCF * SCFM * 60 min/hr)		**0.127** lb/hr
NMHC lb/hr =	THC lb/hr - CH4 lb/hr	=	**4.36** lb/hr
NMHC ton/hr =	NHMC lb/hr / 2000	=	**0.00218** ton/hr

Emission Rate Calculation Sheet
Total Hydrocarbon Emissions

Facility :	Sprague Searsport	**Date:**	**04/16/13**
Source/Location:	Asphalt Tank No. 2	**Start Time:**	**3:10**
Run No.:	Vessel Transfer - Hour 4-5.5	**End Time:**	**5:30**

Average Concentration:		2,365 ppmvw
Average Flow Rate:		255 scfm
Molecular Weight:	Propane	44.09 g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol. PPM)	=	**4335.41**	mg/m^3
mg/SCF =	(mg/m^3) (m^3/35.31 SCF)	=	**122.78**	mg/SCF
lb/SCF =	(1 lb/ 4.536E+5 mg) * (mg/SCF)	=	**2.71E-04**	lb/SCF
THC lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**4.14**	lb/hr
CH4 lb/hr =	(lb/SCF * SCFM * 60 min/hr)		**0.131**	lb/hr
NMHC lb/hr =	THC lb/hr - CH4 lb/hr	=	**4.01**	lb/hr
NMHC ton/hr =	NHMC lb/hr / 2000	=	**0.00201**	ton/hr

Emission Rate Calculation Sheet
Total Hydrocarbon Emissions

Facility :	Sprague Searsport	**Date:**	**04/16/13**
Source/Location:	Asphalt Tank No. 2	**Start Time:**	**5:30**
Run No.:	Vessel Transfer - Hour 6.5	**End Time:**	**6:30**

Average Concentration:		2,313 ppmvw
Average Flow Rate:		255 scfm
Molecular Weight:	Propane	44.09 g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol. PPM)	=	**4238.88** mg/m^3
mg/SCF =	(mg/m^3) (m^3/35.31 SCF)	=	**120.05** mg/SCF
lb/SCF =	(1 lb/ 4.536E+5 mg) * (mg/SCF)	=	**2.65E-04** lb/SCF
THC lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**4.05** lb/hr
CH4 lb/hr =	(lb/SCF * SCFM * 60 min/hr)		**0.140** lb/hr
NMHC lb/hr =	THC lb/hr - CH4 lb/hr	=	**3.91** lb/hr
NMHC ton/hr =	NHMC lb/hr / 2000	=	**0.00196** ton/hr

Emission Rate Calculation Sheet
Total Hydrocarbon Emissions

Facility :	Sprague Searsport	**Date:**	**04/16/13**
Source/Location:	Asphalt Tank No. 2	**Start Time:**	**6:30**
Run No.:	Vessel Transfer - Hour 7.5	**End Time:**	**7:30**

Average Concentration:		2,450 ppmvw
Average Flow Rate:		241 scfm
Molecular Weight:	Propane	44.09 g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol. PPM)	=	**4490.81** mg/m^3
mg/SCF =	(mg/m^3) (m^3/35.31 SCF)	=	**127.18** mg/SCF
lb/SCF =	(1 lb/ 4.536E+5 mg) * (mg/SCF)	=	**2.80E-04** lb/SCF
THC lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**4.05** lb/hr
CH4 lb/hr =	(lb/SCF * SCFM * 60 min/hr)		**0.141** lb/hr
NMHC lb/hr =	THC lb/hr - CH4 lb/hr	=	**3.91** lb/hr
NMHC ton/hr =	NHMC lb/hr / 2000	=	**0.00196** ton/hr

Emission Rate Calculation Sheet
Total Hydrocarbon Emissions

Facility :	Sprague Searsport	**Date:**	**04/16/13**
Source/Location:	Asphalt Tank No. 2	**Start Time:**	**7:30**
Run No.:	Vessel Transfer - Hour 8.5	**End Time:**	**8:30**

Average Concentration:		2,689 ppmvw
Average Flow Rate:		255 scfm
Molecular Weight:	Propane	44.09 g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol. PPM)	=	**4929.51**	mg/m^3
mg/SCF =	(mg/m^3) (m^3/35.31 SCF)	=	**139.61**	mg/SCF
lb/SCF =	(1 lb/ 4.536E+5 mg) * (mg/SCF)	=	**3.08E-04**	lb/SCF
THC lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**4.71**	lb/hr
CH4 lb/hr =	(lb/SCF * SCFM * 60 min/hr)		**0.156**	lb/hr
NMHC lb/hr =	THC lb/hr - CH4 lb/hr	=	**4.56**	lb/hr
NMHC ton/hr =	NHMC lb/hr / 2000	=	**0.00228**	ton/hr

Emission Rate Calculation Sheet
Total Hydrocarbon Emissions

Facility :	Sprague Searsport	**Date:**	**04/16/13**
Source/Location:	Asphalt Tank No. 2	**Start Time:**	**8:30**
Run No.:	Vessel Transfer - Hour 9.5	**End Time:**	**9:30**

Average Concentration:		2,660 ppmvw
Average Flow Rate:		227 scfm
Molecular Weight:	Propane	44.09 g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol. PPM)	=	**4874.95**	mg/m^3
mg/SCF =	(mg/m^3) (m^3/35.31 SCF)	=	**138.06**	mg/SCF
lb/SCF =	(1 lb/ 4.536E+5 mg) * (mg/SCF)	=	**3.04E-04**	lb/SCF
THC lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**4.14**	lb/hr
CH4 lb/hr =	(lb/SCF * SCFM * 60 min/hr)		**0.133**	lb/hr
NMHC lb/hr =	THC lb/hr - CH4 lb/hr	=	**4.01**	lb/hr
NMHC ton/hr =	NHMC lb/hr / 2000	=	**0.00201**	ton/hr

Emission Rate Calculation Sheet
Total Hydrocarbon Emissions

Facility :	Sprague Searsport	**Date:**	**04/16/13**
Source/Location:	Asphalt Tank No. 2	**Start Time:**	**9:30**
Run No.:	Vessel Transfer - Hour 10.5	**End Time:**	**10:30**

Average Concentration:		1,785 ppmvw
Average Flow Rate:		142 scfm
Molecular Weight:	Propane	44.09 g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol. PPM)	=	**3272.06** mg/m^3
mg/SCF =	(mg/m^3) (m^3/35.31 SCF)	=	**92.67** mg/SCF
lb/SCF =	(1 lb/ 4.536E+5 mg) * (mg/SCF)	=	**2.04E-04** lb/SCF
THC lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**1.74** lb/hr
CH4 lb/hr =	(lb/SCF * SCFM * 60 min/hr)		**0.058** lb/hr
NMHC lb/hr =	THC lb/hr - CH4 lb/hr	=	**1.68** lb/hr
NMHC ton/hr =	NHMC lb/hr / 2000	=	**0.00084** ton/hr

Emission Rate Calculation Sheet
Methane Emissions

Facility :	Sprague Searsport	**Date:**	**04/16/13**
Source/Location:	Asphalt Tank No. 2	**Start Time:**	**0:10**
Run No.:	Vessel Transfer - Hour 1	**End Time:**	**1:10**

Average Concentration:	160 ppmvw
Average Flow Rate:	298 scfm
Molecular Weight: (Methane)	16.04 g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol. PPM) =		**106.60** mg/m^3
mg/SCF =	(mg/m^3) $(m^3/35.31$ SCF)	=	**3.02** mg/SCF
lb/SCF =	(1 lb/ 4.536E+5 mg) * (mg/SCF)	=	**6.65558E-06** lb/SCF
lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**0.119** lb/hr

Emission Rate Calculation Sheet
Methane Emissions

Facility :	Sprague Searsport	**Date:**	**04/16/13**
Source/Location:	Asphalt Tank No. 2	**Start Time:**	**1:10**
Run No.:	Vessel Transfer - Hour 2	**End Time:**	**2:10**

Average Concentration:	174 ppmvw
Average Flow Rate:	255 scfm
Molecular Weight: (Methane)	16.04 g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol. PPM) =		**115.77** mg/m^3
mg/SCF =	(mg/m^3) $(m^3/35.31$ SCF)	=	**3.28** mg/SCF
lb/SCF =	(1 lb/ 4.536E+5 mg) * (mg/SCF)	=	**7.22803E-06** lb/SCF
lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**0.111** lb/hr

Emission Rate Calculation Sheet
Methane Emissions

Facility :	Sprague Searsport	**Date:**	**04/16/13**
Source/Location:	Asphalt Tank No. 2	**Start Time:**	**2:10**
Run No.:	Vessel Transfer - Hour 3	**End Time:**	**3:10**

Average Concentration:	**189** ppmvw
Average Flow Rate:	269 scfm
Molecular Weight: (Methane)	16.04 g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol. PPM)	=	**126.15** mg/m^3
mg/SCF =	(mg/m^3) (m^3/35.31 SCF)	=	**3.57** mg/SCF
lb/SCF =	(1 lb/ 4.536E+5 mg) * (mg/SCF)	=	**7.8761E-06** lb/SCF
lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**0.127** lb/hr

Emission Rate Calculation Sheet
Methane Emissions

Facility :	Sprague Searsport	**Date:**	**04/16/13**
Source/Location:	Asphalt Tank No. 2	**Start Time:**	**3:10**
Run No.:	Vessel Transfer - Hour 4-5.5	**End Time:**	**5:30**

Average Concentration:	205 ppmvw
Average Flow Rate:	255 scfm
Molecular Weight: (Methane)	16.04 g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol. PPM)	=	**136.73** mg/m^3
mg/SCF =	(mg/m^3) (m^3/35.31 SCF)	=	**3.87** mg/SCF
lb/SCF =	(1 lb/ 4.536E+5 mg) * (mg/SCF)	=	**8.53666E-06** lb/SCF
lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**0.131** lb/hr

Emission Rate Calculation Sheet
Methane Emissions

Facility :	Sprague Searsport	**Date:**	**04/16/13**
Source/Location:	Asphalt Tank No. 2	**Start Time:**	**5:30**
Run No.:	Vessel Transfer - Hour 6.5	**End Time:**	**6:30**

Average Concentration:		220 ppmvw
Average Flow Rate:		255 scfm
Molecular Weight:	(Methane)	16.04 g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol. PPM) =		**146.87** mg/m^3
mg/SCF =	(mg/m^3) (m^3/35.31 SCF)	=	**4.16** mg/SCF
lb/SCF =	(1 lb/ 4.536E+5 mg) * (mg/SCF)	=	**9.17016E-06** lb/SCF
lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**0.140** lb/hr

Emission Rate Calculation Sheet
Methane Emissions

Facility :	Sprague Searsport	**Date:**	**04/16/13**
Source/Location:	Asphalt Tank No. 2	**Start Time:**	**6:30**
Run No.:	Vessel Transfer - Hour 7.5	**End Time:**	**7:30**

Average Concentration:	235 ppmvw
Average Flow Rate:	241 scfm
Molecular Weight: (Methane)	16.04 g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol. PPM)	=	**156.48** mg/m^3
mg/SCF =	(mg/m^3) (m^3/35.31 SCF)	=	**4.43** mg/SCF
lb/SCF =	(1 lb/ 4.536E+5 mg) * (mg/SCF)	=	**9.76966E-06** lb/SCF
lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**0.141** lb/hr

Emission Rate Calculation Sheet
Methane Emissions

Facility :	Sprague Searsport	**Date:**	**04/16/13**
Source/Location:	Asphalt Tank No. 2	**Start Time:**	**7:30**
Run No.:	Vessel Transfer - Hour 8.5	**End Time:**	**8:30**

Average Concentration:	245 ppmvw
Average Flow Rate:	255 scfm
Molecular Weight: (Methane)	16.04 g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol. PPM) =		**163.59** mg/m^3
mg/SCF =	(mg/m^3) $(m^3/35.31$ SCF)	=	**4.63** mg/SCF
lb/SCF =	(1 lb/ 4.536E+5 mg) * (mg/SCF)	=	**1.02137E-05** lb/SCF
lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**0.156** lb/hr

Emission Rate Calculation Sheet
Methane Emissions

Facility :	Sprague Searsport	**Date:**	**04/16/13**
Source/Location:	Asphalt Tank No. 2	**Start Time:**	**8:30**
Run No.:	Vessel Transfer - Hour 9.5	**End Time:**	**9:30**

Average Concentration:	234 ppmvw
Average Flow Rate:	227 scfm
Molecular Weight: (Methane)	16.04 g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol. PPM)	=	**155.97** mg/m^3
mg/SCF =	(mg/m^3) (m^3/35.31 SCF)	=	**4.42** mg/SCF
lb/SCF =	(1 lb/ 4.536E+5 mg) * (mg/SCF)	=	**9.73775E-06** lb/SCF
lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**0.133** lb/hr

Emission Rate Calculation Sheet
Methane Emissions

Facility :	Sprague Searsport	**Date:**	**04/16/13**
Source/Location:	Asphalt Tank No. 2	**Start Time:**	**9:30**
Run No.:	Vessel Transfer - Hour 10.5	**End Time:**	**10:30**

Average Concentration:	163 ppmvw
Average Flow Rate:	142 scfm
Molecular Weight: (Methane)	16.04 g/mole

mg/m^3 =	(MW * PPM) / (24.055 l/mol. PPM)	=	**108.91**	mg/m^3
mg/SCF =	(mg/m^3) $(m^3/35.31$ SCF)	=	**3.08**	mg/SCF
lb/SCF =	(1 lb/ 4.536E+5 mg) * (mg/SCF)	=	**6.79991E-06**	lb/SCF
lb/hr =	(lb/SCF * SCFM * 60 min/hr)	=	**0.058**	lb/hr

Volumetric Flow Calculations

Facility/Site: Sprague Searsport	**Start Date:** 04/16/13
Source: Asphalt Tank No. 2	**Stop Date:** 04/16/13
Run No.: Vessel Transfer - Hour 1	**Start Time:** 0:10
	Stop Time: 1:10

Trav. Point	Delta P ("H_2O)	SQ Root Delta P	Stack Temp (F)
Average	0.30	0.55	56.1

Average Delta P, ("H_2O)	0.30
Average Stack Temp, (F)	56.1
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	30.48	fps
Q_s	29,702	dscfh
	30,002	scfh
	500	scfm
	495	dscfm
	489	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:**	04/16/13
Source:	Asphalt Tank No. 2	**Stop Date:**	04/16/13
Run No.:	Vessel Transfer - Hour 2	**Start Time:**	1:10
		Stop Time:	2:10

Trav. Point	Delta P ("H_2O)	SQ Root Delta P	Stack Temp (F)
Average	0.30	0.55	54.5

Average Delta P, ("H_2O)	0.30
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	30.44	fps
Q_s	29,755	dscfh
	30,056	scfh
	501	scfm
	496	dscfm
	488	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:**	04/16/13
Source:	Asphalt Tank No. 2	**Stop Date:**	04/16/13
Run No.:	Vessel Transfer - Hour 3	**Start Time:**	2:10
		Stop Time:	3:10

Trav. Point	Delta P ("H_2O)	SQ Root Delta P	Stack Temp (F)
Average	0.30	0.55	53.1

Average Delta P, ("H_2O)	0.30
Average Stack Temp, (F)	53.1
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	30.42	fps
Q_s	29,819	dscfh
	30,120	scfh
	502	scfm
	497	dscfm
	488	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:**	04/16/13
Source:	Asphalt Tank No. 2	**Stop Date:**	04/16/13
Run No.:	Vessel Transfer - Hour 4-5.5	**Start Time:**	3:10
		Stop Time:	5:30

Trav. Point	Delta P ("H_2O)	SQ Root Delta P	Stack Temp (F)
Average	0.30	0.55	51.3

Average Delta P, ("H_2O)	0.30
Average Stack Temp, (F)	51.3
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	30.35	fps
Q_s	29,850	dscfh
	30,152	scfh
	503	scfm
	498	dscfm
	487	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:**	04/16/13
Source:	Asphalt Tank No. 2	**Stop Date:**	04/16/13
Run No.:	Vessel Transfer - Hour 6.5	**Start Time:**	5:30
		Stop Time:	6:30

Trav. Point	Delta P ("H_2O)	SQ Root Delta P	Stack Temp (F)
Average	0.30	0.55	49.8

Average Delta P, ("H_2O)	0.30
Average Stack Temp, (F)	49.8
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	0.77	
V_s	30.35	fps
Q_s	29,942	dscfh
	30,244	scfh
	504	scfm
	499	dscfm
	487	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:**	04/16/13
Source:	Asphalt Tank No. 2	**Stop Date:**	04/16/13
Run No.:	Vessel Transfer - Hour 7.5	**Start Time:**	6:30
		Stop Time:	7:30

Trav. Point	Delta P ("H_2O)	SQ Root Delta P	Stack Temp (F)
Average	0.30	0.55	53.9

Average Delta P, ("H_2O)	0.30
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	30.50	fps
Q_s	29,847	dscfh
	30,149	scfh
	502	scfm
	497	dscfm
	489	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:**	04/16/13
Source:	Asphalt Tank No. 2	**Stop Date:**	04/16/13
Run No.:	Vessel Transfer - Hour 8.5	**Start Time:**	7:30
		Stop Time:	8:30

Trav. Point	Delta P ("H_2O)	SQ Root Delta P	Stack Temp (F)
Average	0.30	0.55	57.9

Average Delta P, ("H_2O)	0.30
Average Stack Temp, (F)	57.9
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	0.78	
V_s	30.52	fps
Q_s	29,641	dscfh
	29,940	scfh
	499	scfm
	494	dscfm
	489	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:**	04/16/13
Source:	Asphalt Tank No. 2	**Stop Date:**	04/16/13
Run No.:	Vessel Transfer - Hour 9.5	**Start Time:**	8:30
		Stop Time:	9:30

Trav. Point	Delta P ("H_2O)	SQ Root Delta P	Stack Temp (F)
Average	0.30	0.55	58.3

Average Delta P, ("H_2O)	0.30
Average Stack Temp, (F)	58.3
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	30.48	fps
Q_s	29,571	dscfh
	29,869	scfh
	498	scfm
	493	dscfm
	489	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:** 04/16/13
Source: Asphalt Tank No. 2	**Stop Date:** 04/16/13
Run No.: Vessel Transfer - Hour 10.5	**Start Time:** 9:30
	Stop Time: 10:30

Trav. Point	Delta P ("H_2O)	SQ Root Delta P	Stack Temp (F)
Average	0.29	0.54	56.1

Average Delta P, ("H_2O)	0.29
Average Stack Temp, (F)	56.1
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	29.92	fps
Q_s	29,158	dscfh
	29,453	scfh
	491	scfm
	486	dscfm
	480	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:**	**16-Apr-13**
Source:	Asphalt Tank No. 2	**End Date:**	**16-Apr-13**
Run No.	Vessel Transfer - Hour 1	**Start Time:**	**0:10**
		End Time:	**1:10**

Date	Time	Delta P (IWC)	Temp (°F)	THC (Propane) (ppm)	Methane (ppm)
4/16/2013	0:10:12 AM	0.30	53	812	23
4/16/2013	0:11:12 AM	0.30	54	1537	31
4/16/2013	0:12:12 AM	0.30	54	1832	31
4/16/2013	0:13:12 AM	0.30	57	1939	73
4/16/2013	0:14:12 AM	0.30	56	1941	166
4/16/2013	0:15:12 AM	0.30	55	1941	166
4/16/2013	0:16:12 AM	0.30	55	1925	160
4/16/2013	0:17:12 AM	0.30	55	1896	146
4/16/2013	0:18:12 AM	0.30	55	1906	146
4/16/2013	0:19:12 AM	0.30	55	1963	148
4/16/2013	0:20:12 AM	0.30	56	1989	150
4/16/2013	0:21:12 AM	0.30	56	2002	150
4/16/2013	0:22:12 AM	0.30	55	2077	153
4/16/2013	0:23:12 AM	0.30	55	2110	160
4/16/2013	0:24:12 AM	0.30	56	2099	160
4/16/2013	0:25:12 AM	0.30	56	2095	159
4/16/2013	0:26:12 AM	0.30	56	2122	156
4/16/2013	0:27:12 AM	0.30	56	2182	156
4/16/2013	0:28:12 AM	0.30	56	2228	160
4/16/2013	0:29:12 AM	0.30	56	2227	169
4/16/2013	0:30:12 AM	0.30	57	2243	169
4/16/2013	0:31:12 AM	0.30	57	2285	171
4/16/2013	0:32:12 AM	0.30	57	2320	174
4/16/2013	0:33:12 AM	0.30	57	2329	174
4/16/2013	0:34:12 AM	0.30	57	2354	175
4/16/2013	0:35:12 AM	0.30	57	2380	178
4/16/2013	0:36:12 AM	0.30	57	2359	178
4/16/2013	0:37:12 AM	0.30	57	2378	178
4/16/2013	0:38:12 AM	0.30	57	2399	177
4/16/2013	0:39:12 AM	0.30	57	2398	177
4/16/2013	0:40:12 AM	0.30	57	2401	178
4/16/2013	0:41:12 AM	0.30	56	2403	178
4/16/2013	0:42:12 AM	0.30	57	2370	178
4/16/2013	0:43:12 AM	0.30	57	2360	177
4/16/2013	0:44:12 AM	0.30	57	2369	172
4/16/2013	0:45:12 AM	0.30	56	2430	172
4/16/2013	0:46:12 AM	0.30	56	2440	175
4/16/2013	0:47:12 AM	0.30	56	2407	181

Instrumental Analyzer Monitoring Data

Facility/Site:	Sprague Searsport	**Start Date:**	**16-Apr-13**
Source:	Asphalt Tank No. 2	**End Date:**	**16-Apr-13**
Run No.	Vessel Transfer - Hour 1	**Start Time:**	**0:10**
		End Time:	**1:10**

Date	Time	Delta P (IWC)	Temp (°F)	THC (Propane) (ppm)	Methane (ppm)
4/16/2013	0:48:12 AM	0.30	56	2380	181
4/16/2013	0:49:12 AM	0.30	56	2398	179
4/16/2013	0:50:12 AM	0.30	56	2374	175
4/16/2013	0:51:12 AM	0.30	56	2363	175
4/16/2013	0:52:12 AM	0.30	56	2348	174
4/16/2013	0:53:12 AM	0.30	57	2325	170
4/16/2013	0:54:12 AM	0.30	57	2340	170
4/16/2013	0:55:12 AM	0.30	56	2354	171
4/16/2013	0:56:12 AM	0.30	56	2369	172
4/16/2013	0:57:12 AM	0.30	56	2381	172
4/16/2013	0:58:12 AM	0.30	56	2355	172
4/16/2013	0:59:12 AM	0.30	56	2335	171
4/16/2013	1:00:12 AM	0.30	56	2339	171
4/16/2013	1:01:12 AM	0.30	56	2336	169
4/16/2013	1:02:12 AM	0.30	56	2308	166
4/16/2013	1:03:12 AM	0.30	56	2307	166
4/16/2013	1:04:12 AM	0.30	56	2286	165
4/16/2013	1:05:12 AM	0.30	56	2300	164
4/16/2013	1:06:12 AM	0.30	56	2350	164
4/16/2013	1:07:12 AM	0.30	56	2387	168
4/16/2013	1:08:12 AM	0.30	56	2388	176
4/16/2013	1:09:12 AM	0.30	56	2386	176
Averages		0.30	56	2219	160

Instrumental Analyzer Monitoring Data

Facility/Site:	Sprague Searsport	**Start Date:**	**16-Apr-13**
Source:	Asphalt Tank No. 2	**End Date:**	**16-Apr-13**
Run No.	Vessel Transfer - Hour 2	**Start Time:**	**1:10**
		End Time:	**2:10**

Date	Time	Delta P (IWC)	Temp (°F)	THC (Propane) (ppm)	Methane (ppm)
4/16/2013	1:10:12 AM	0.30	56	2406	177
4/16/2013	1:11:12 AM	0.30	55	2391	180
4/16/2013	1:12:12 AM	0.30	55	2404	180
4/16/2013	1:13:12 AM	0.30	54	2394	180
4/16/2013	1:14:12 AM	0.30	54	2353	179
4/16/2013	1:15:12 AM	0.30	54	2317	179
4/16/2013	1:16:12 AM	0.30	54	2333	176
4/16/2013	1:17:12 AM	0.30	54	2326	168
4/16/2013	1:18:12 AM	0.30	54	2283	168
4/16/2013	1:19:12 AM	0.30	54	2276	167
4/16/2013	1:20:12 AM	0.30	54	2275	166
4/16/2013	1:21:12 AM	0.30	54	2269	166
4/16/2013	1:22:12 AM	0.30	54	2260	165
4/16/2013	1:23:12 AM	0.30	54	2291	162
4/16/2013	1:24:12 AM	0.30	54	2277	162
4/16/2013	1:25:12 AM	0.30	54	2257	163
4/16/2013	1:26:12 AM	0.30	54	2240	163
4/16/2013	1:27:12 AM	0.30	54	2227	163
4/16/2013	1:28:12 AM	0.30	55	2216	162
4/16/2013	1:29:12 AM	0.30	55	2238	159
4/16/2013	1:30:12 AM	0.30	55	2243	159
4/16/2013	1:31:12 AM	0.30	55	2254	162
4/16/2013	1:32:12 AM	0.30	55	2267	166
4/16/2013	1:33:12 AM	0.30	55	2304	166
4/16/2013	1:34:12 AM	0.30	55	2346	169
4/16/2013	1:35:12 AM	0.30	55	2348	175
4/16/2013	1:36:12 AM	0.30	55	2323	175
4/16/2013	1:37:12 AM	0.30	55	2321	173
4/16/2013	1:38:12 AM	0.30	55	2320	170
4/16/2013	1:39:12 AM	0.30	55	2311	170
4/16/2013	1:40:12 AM	0.30	54	2312	169
4/16/2013	1:41:12 AM	0.30	54	2333	168
4/16/2013	1:42:12 AM	0.30	54	2341	168
4/16/2013	1:43:12 AM	0.30	54	2351	171
4/16/2013	1:44:12 AM	0.30	54	2340	177
4/16/2013	1:45:12 AM	0.30	54	2339	177
4/16/2013	1:46:12 AM	0.30	54	2321	175
4/16/2013	1:47:12 AM	0.30	54	2306	172

Instrumental Analyzer Monitoring Data

Facility/Site:	Sprague Searsport	**Start Date:**	**16-Apr-13**
Source:	Asphalt Tank No. 2	**End Date:**	**16-Apr-13**
Run No.	Vessel Transfer - Hour 2	**Start Time:**	**1:10**
		End Time:	**2:10**

Date	Time	Delta P (IWC)	Temp (°F)	THC (Propane) (ppm)	Methane (ppm)
4/16/2013	1:48:12 AM	0.30	55	2290	172
4/16/2013	1:49:12 AM	0.30	55	2298	171
4/16/2013	1:50:12 AM	0.30	55	2322	167
4/16/2013	1:51:12 AM	0.30	55	2339	167
4/16/2013	1:52:12 AM	0.30	55	2376	171
4/16/2013	1:53:12 AM	0.30	55	2408	179
4/16/2013	1:54:12 AM	0.30	56	2424	179
4/16/2013	1:55:12 AM	0.30	55	2423	181
4/16/2013	1:56:12 AM	0.30	55	2427	183
4/16/2013	1:57:12 AM	0.31	55	2448	183
4/16/2013	1:58:12 AM	0.30	55	2479	184
4/16/2013	1:59:12 AM	0.30	55	2451	187
4/16/2013	2:00:12 AM	0.30	55	2452	187
4/16/2013	2:01:12 AM	0.30	55	2434	185
4/16/2013	2:02:12 AM	0.30	55	2450	181
4/16/2013	2:03:12 AM	0.30	54	2459	181
4/16/2013	2:04:12 AM	0.30	54	2460	182
4/16/2013	2:05:12 AM	0.30	54	2455	185
4/16/2013	2:06:12 AM	0.30	54	2445	185
4/16/2013	2:07:12 AM	0.30	53	2455	186
4/16/2013	2:08:12 AM	0.30	53	2434	187
4/16/2013	2:09:12 AM	0.30	53	2413	187
Averages		0.30	54	2348	174

Instrumental Analyzer Monitoring Data

Facility/Site:	Sprague Searsport	**Start Date:**	**16-Apr-13**
Source:	Asphalt Tank No. 2	**End Date:**	**16-Apr-13**
Run No.	Vessel Transfer - Hour 3	**Start Time:**	**2:10**
		End Time:	**3:10**

Date	Time	Delta P (IWC)	Temp (°F)	THC (Propane) (ppm)	Methane (ppm)
4/16/2013	2:10:12 AM	0.30	53	2397	185
4/16/2013	2:11:12 AM	0.30	53	2397	180
4/16/2013	2:12:12 AM	0.30	53	2381	180
4/16/2013	2:13:12 AM	0.30	53	2376	180
4/16/2013	2:14:12 AM	0.30	53	2371	179
4/16/2013	2:15:12 AM	0.30	53	2366	179
4/16/2013	2:16:12 AM	0.30	53	2390	181
4/16/2013	2:17:12 AM	0.30	53	2386	184
4/16/2013	2:18:12 AM	0.30	53	2381	184
4/16/2013	2:19:12 AM	0.30	53	2365	183
4/16/2013	2:20:12 AM	0.30	53	2374	180
4/16/2013	2:21:12 AM	0.30	53	2380	180
4/16/2013	2:22:12 AM	0.30	53	2371	181
4/16/2013	2:23:12 AM	0.30	53	2394	181
4/16/2013	2:24:12 AM	0.30	53	2404	181
4/16/2013	2:25:12 AM	0.30	53	2422	184
4/16/2013	2:26:12 AM	0.30	53	2421	189
4/16/2013	2:27:12 AM	0.30	53	2395	189
4/16/2013	2:28:12 AM	0.30	53	2401	188
4/16/2013	2:29:12 AM	0.30	53	2430	185
4/16/2013	2:30:12 AM	0.31	53	2422	185
4/16/2013	2:31:12 AM	0.30	53	2426	186
4/16/2013	2:32:12 AM	0.31	54	2434	189
4/16/2013	2:33:12 AM	0.30	54	2455	189
4/16/2013	2:34:12 AM	0.30	53	2457	190
4/16/2013	2:35:12 AM	0.31	53	2439	192
4/16/2013	2:36:12 AM	0.30	53	2440	192
4/16/2013	2:37:12 AM	0.30	53	2415	190
4/16/2013	2:38:12 AM	0.30	53	2396	186
4/16/2013	2:39:12 AM	0.30	53	2394	186
4/16/2013	2:40:12 AM	0.30	53	2412	187
4/16/2013	2:41:12 AM	0.30	53	2402	189
4/16/2013	2:42:12 AM	0.30	53	2423	189
4/16/2013	2:43:12 AM	0.30	53	2429	191
4/16/2013	2:44:12 AM	0.30	53	2431	193
4/16/2013	2:45:12 AM	0.30	53	2441	193
4/16/2013	2:46:12 AM	0.30	53	2422	191
4/16/2013	2:47:12 AM	0.30	53	2406	188

Instrumental Analyzer Monitoring Data

Facility/Site:	Sprague Searsport	**Start Date:**	**16-Apr-13**
Source;	Asphalt Tank No. 2	**End Date:**	**16-Apr-13**
Run No.	Vessel Transfer - Hour 3	**Start Time:**	**2:10**
		End Time:	**3:10**

Date	Time	Delta P (IWC)	Temp (°F)	THC (Propane) (ppm)	Methane (ppm)
4/16/2013	2:48:12 AM	0.30	53	2409	188
4/16/2013	2:49:12 AM	0.30	53	2407	189
4/16/2013	2:50:12 AM	0.30	53	2404	190
4/16/2013	2:51:12 AM	0.30	53	2406	190
4/16/2013	2:52:12 AM	0.30	54	2441	192
4/16/2013	2:53:12 AM	0.30	54	2447	196
4/16/2013	2:54:12 AM	0.30	54	2468	196
4/16/2013	2:55:12 AM	0.30	54	2470	196
4/16/2013	2:56:12 AM	0.30	54	2499	197
4/16/2013	2:57:12 AM	0.30	54	2487	197
4/16/2013	2:58:12 AM	0.30	53	2468	197
4/16/2013	2:59:12 AM	0.30	53	2475	196
4/16/2013	3:00:12 AM	0.30	53	2469	196
4/16/2013	3:01:12 AM	0.30	53	2465	196
4/16/2013	3:02:12 AM	0.31	53	2476	197
4/16/2013	3:03:12 AM	0.30	53	2476	197
4/16/2013	3:04:12 AM	0.30	53	2472	197
4/16/2013	3:05:12 AM	0.30	53	2452	197
4/16/2013	3:06:12 AM	0.30	53	2460	197
4/16/2013	3:07:12 AM	0.30	53	2454	197
4/16/2013	3:08:12 AM	0.30	53	2462	197
4/16/2013	3:09:12 AM	0.30	53	2465	197
Averages		0.30	53	2425	189

Instrumental Analyzer Monitoring Data

Facility/Site:	Sprague Searsport	**Start Date:**	**16-Apr-13**
Source:	Asphalt Tank No. 2	**End Date:**	**16-Apr-13**
Run No.	Vessel Transfer - Hour 4-5.5	**Start Time:**	**3:10**
		End Time:	**5:30**

Date	Time	Delta P (IWC)	Temp (°F)	THC (Propane) (ppm)	Methane (ppm)
4/16/2013	3:10:12 AM	0.30	52	2443	196
4/16/2013	3:11:12 AM	0.30	52	2444	194
4/16/2013	3:12:12 AM	0.30	52	2425	194
4/16/2013	3:13:12 AM	0.30	52	2405	194
4/16/2013	3:14:12 AM	0.31	52	2403	195
4/16/2013	3:15:12 AM	0.31	52	2411	195
4/16/2013	3:16:12 AM	0.30	52	2416	195
4/16/2013	3:17:12 AM	0.30	52	2423	196
4/16/2013	3:18:12 AM	0.30	52	2417	196
4/16/2013	3:19:12 AM	0.30	51	2415	197
4/16/2013	3:20:12 AM	0.30	51	2396	199
4/16/2013	3:21:12 AM	0.30	51	2389	199
4/16/2013	3:22:12 AM	0.30	51	2381	198
4/16/2013	3:23:12 AM	0.30	51	2346	195
4/16/2013	3:24:12 AM	0.30	51	2364	195
4/16/2013	3:25:12 AM	0.30	51	2374	196
4/16/2013	3:26:12 AM	0.30	51	2368	196
4/16/2013	3:27:12 AM	0.30	51	2374	196
4/16/2013	3:28:12 AM	0.30	51	2378	196
4/16/2013	3:29:12 AM	0.30	52	2357	195
4/16/2013	3:30:12 AM	0.30	51	2337	195
4/16/2013	3:31:12 AM	0.30	51	2365	196
4/16/2013	3:32:12 AM	0.30	51	2343	198
4/16/2013	3:33:12 AM	0.30	52	2358	198
4/16/2013	3:34:12 AM	0.30	52	2369	197
4/16/2013	3:35:12 AM	0.30	52	2400	195
4/16/2013	3:36:12 AM	0.30	52	2397	195
4/16/2013	3:37:12 AM	0.30	52	2380	194
4/16/2013	3:38:12 AM	0.30	52	2388	192
4/16/2013	3:39:12 AM	0.30	52	2395	192
4/16/2013	3:40:12 AM	0.30	52	2383	194
4/16/2013	3:41:12 AM	0.30	51	2398	196
4/16/2013	3:42:12 AM	0.30	52	2403	196
4/16/2013	3:43:12 AM	0.30	52	2383	196
4/16/2013	3:44:12 AM	0.30	52	2396	196
4/16/2013	3:45:12 AM	0.30	52	2420	196
4/16/2013	3:46:12 AM	0.30	52	2419	199
4/16/2013	3:47:12 AM	0.30	52	2394	204

Instrumental Analyzer Monitoring Data

Facility/Site:	Sprague Searsport	**Start Date:**	**16-Apr-13**
Source:	Asphalt Tank No. 2	**End Date:**	**16-Apr-13**
Run No.	Vessel Transfer - Hour 4-5.5	**Start Time:**	**3:10**
		End Time:	**5:30**

Date	Time	Delta P (IWC)	Temp (°F)	THC (Propane) (ppm)	Methane (ppm)
4/16/2013	3:48:12 AM	0.30	52	2368	204
4/16/2013	3:49:12 AM	0.30	51	2374	203
4/16/2013	3:50:12 AM	0.30	51	2378	200
4/16/2013	3:51:12 AM	0.30	51	2374	200
4/16/2013	3:52:12 AM	0.30	51	2366	199
4/16/2013	3:53:12 AM	0.30	51	2370	196
4/16/2013	3:54:12 AM	0.30	51	2384	196
4/16/2013	3:55:12 AM	0.30	51	2388	197
4/16/2013	3:56:12 AM	0.30	52	2379	199
4/16/2013	3:57:12 AM	0.30	52	2389	199
4/16/2013	3:58:12 AM	0.30	52	2394	201
4/16/2013	3:59:12 AM	0.30	52	2393	204
4/16/2013	4:00:12 AM	0.30	52	2379	204
4/16/2013	4:01:12 AM	0.30	52	2408	205
4/16/2013	4:02:12 AM	0.30	52	2399	207
4/16/2013	4:03:12 AM	0.30	52	2403	207
4/16/2013	4:04:12 AM	0.30	52	2420	208
4/16/2013	4:05:12 AM	0.30	51	2412	209
4/16/2013	4:06:12 AM	0.30	52	2393	209
4/16/2013	4:07:12 AM	0.30	52	2381	206
4/16/2013	4:08:12 AM	0.30	52	2403	202
4/16/2013	4:09:12 AM	0.30	52	2419	202
4/16/2013	4:10:12 AM	0.30	52	2441	206
4/16/2013	4:11:12 AM	0.30	51	2416	213
4/16/2013	4:12:12 AM	0.30	51	2399	213
4/16/2013	4:13:12 AM	0.30	51	2406	211
4/16/2013	4:14:12 AM	0.30	51	2393	208
4/16/2013	4:15:12 AM	0.30	51	2383	208
4/16/2013	4:16:12 AM	0.30	51	2406	208
4/16/2013	4:17:12 AM	0.30	51	2408	209
4/16/2013	4:18:12 AM	0.30	51	2427	209
4/16/2013	4:19:12 AM	0.30	51	2427	211
4/16/2013	4:20:12 AM	0.30	51	2399	214
4/16/2013	4:21:12 AM	0.30	52	2390	214
4/16/2013	4:22:12 AM	0.30	51	2396	210
4/16/2013	4:23:12 AM	0.30	51	2408	202
4/16/2013	4:24:12 AM	0.30	51	2400	202
4/16/2013	4:25:12 AM	0.30	51	2391	204

Instrumental Analyzer Monitoring Data

Facility/Site:	Sprague Searsport	**Start Date:**	**16-Apr-13**
Source:	Asphalt Tank No. 2	**End Date:**	**16-Apr-13**
Run No.	Vessel Transfer - Hour 4-5.5	**Start Time:**	**3:10**
		End Time:	**5:30**

Date	Time	Delta P (IWC)	Temp (°F)	THC (Propane) (ppm)	Methane (ppm)
4/16/2013	4:26:12 AM	0.30	51	2395	206
4/16/2013	4:27:12 AM	0.30	51	2394	206
4/16/2013	4:28:12 AM	0.30	51	2392	207
4/16/2013	4:29:12 AM	0.30	51	2389	208
4/16/2013	4:30:12 AM	0.30	51	2375	208
4/16/2013	4:31:12 AM	0.30	51	2364	208
4/16/2013	4:32:12 AM	0.30	51	2355	207
4/16/2013	4:33:12 AM	0.30	51	2355	207
4/16/2013	4:34:12 AM	0.30	51	2364	208
4/16/2013	4:35:12 AM	0.30	51	2360	208
4/16/2013	4:36:12 AM	0.30	51	2391	208
4/16/2013	4:37:12 AM	0.30	51	2378	209
4/16/2013	4:38:12 AM	0.30	51	2347	212
4/16/2013	4:39:12 AM	0.30	51	2326	212
4/16/2013	4:40:12 AM	0.30	51	2360	211
4/16/2013	4:41:12 AM	0.30	51	2362	211
4/16/2013	4:42:12 AM	0.30	51	2381	211
4/16/2013	4:43:12 AM	0.30	50	2374	213
4/16/2013	4:44:12 AM	0.30	50	2386	216
4/16/2013	4:45:12 AM	0.30	50	2291	216
4/16/2013	4:46:12 AM	0.30	50	2213	206
4/16/2013	4:47:12 AM	0.30	50	2240	189
4/16/2013	4:48:12 AM	0.30	50	2294	189
4/16/2013	4:49:12 AM	0.30	51	2324	197
4/16/2013	4:50:12 AM	0.30	51	2325	211
4/16/2013	4:51:12 AM	0.30	51	2331	211
4/16/2013	4:52:12 AM	0.30	51	2367	213
4/16/2013	4:53:12 AM	0.30	51	2357	215
4/16/2013	4:54:12 AM	0.30	51	2363	215
4/16/2013	4:55:12 AM	0.30	51	2350	213
4/16/2013	4:56:12 AM	0.30	51	2343	209
4/16/2013	4:57:12 AM	0.30	51	2334	209
4/16/2013	4:58:12 AM	0.30	51	2363	212
4/16/2013	4:59:12 AM	0.30	50	2378	216
4/16/2013	5:00:12 AM	0.30	50	2377	216
4/16/2013	5:01:12 AM	0.30	50	2358	215
4/16/2013	5:02:12 AM	0.30	64	2345	214
4/16/2013	5:03:12 AM	0.30	67	2375	214

Instrumental Analyzer Monitoring Data

Facility/Site:	Sprague Searsport	**Start Date:**	**16-Apr-13**
Source:	Asphalt Tank No. 2	**End Date:**	**16-Apr-13**
Run No.	Vessel Transfer - Hour 4-5.5	**Start Time:**	**3:10**
		End Time:	**5:30**

Date	Time	Delta P (IWC)	Temp (°F)	THC (Propane) (ppm)	Methane (ppm)
4/16/2013	5:04:12 AM	0.30	56	2354	213
4/16/2013	5:05:12 AM	0.30	50	2362	211
4/16/2013	5:06:12 AM	0.30	50	2339	211
4/16/2013	5:07:12 AM	0.30	50	2320	209
4/16/2013	5:08:12 AM	0.30	50	2294	206
4/16/2013	5:09:12 AM	0.30	50	2284	206
4/16/2013	5:10:12 AM	0.30	50	2283	207
4/16/2013	5:11:12 AM	0.30	50	2285	209
4/16/2013	5:12:12 AM	0.30	50	2291	209
4/16/2013	5:13:12 AM	0.30	50	2278	208
4/16/2013	5:14:12 AM	0.30	50	2296	207
4/16/2013	5:15:12 AM	0.30	50	2310	207
4/16/2013	5:16:12 AM	0.30	50	2329	212
4/16/2013	5:17:12 AM	0.30	50	2329	220
4/16/2013	5:18:12 AM	0.30	50	2321	220
4/16/2013	5:19:12 AM	0.30	50	2311	219
4/16/2013	5:20:12 AM	0.30	50	2270	217
4/16/2013	5:21:12 AM	0.30	50	2272	217
4/16/2013	5:22:12 AM	0.30	50	2279	214
4/16/2013	5:23:12 AM	0.30	50	2281	209
4/16/2013	5:24:12 AM	0.30	50	2284	209
4/16/2013	5:25:12 AM	0.30	50	2287	210
4/16/2013	5:26:12 AM	0.30	50	2285	213
4/16/2013	5:27:12 AM	0.31	50	2294	213
4/16/2013	5:28:12 AM	0.30	50	2305	214
4/16/2013	5:29:12 AM	0.30	50	2309	216
Averages		0.30	51	2365	205

Instrumental Analyzer Monitoring Data

Facility/Site:	Sprague Searsport	**Start Date:**	**16-Apr-13**
Source:	Asphalt Tank No. 2	**End Date:**	**16-Apr-13**
Run No.	Vessel Transfer - Hour 6.5	**Start Time:**	**5:30**
		End Time:	**6:30**

Date	Time	Delta P (IWC)	Temp (°F)	THC (Propane) (ppm)	Methane (ppm)
4/16/2013	5:30:12 AM	0.30	50	2320	216
4/16/2013	5:31:12 AM	0.30	50	2317	216
4/16/2013	5:32:12 AM	0.30	50	2342	217
4/16/2013	5:33:12 AM	0.30	50	2340	217
4/16/2013	5:34:12 AM	0.30	50	2334	218
4/16/2013	5:35:12 AM	0.30	50	2320	221
4/16/2013	5:36:12 AM	0.30	50	2327	221
4/16/2013	5:37:12 AM	0.30	50	2360	220
4/16/2013	5:38:12 AM	0.30	50	2341	220
4/16/2013	5:39:12 AM	0.30	50	2323	220
4/16/2013	5:40:12 AM	0.30	50	2321	219
4/16/2013	5:41:12 AM	0.30	50	2314	219
4/16/2013	5:42:12 AM	0.30	50	2316	219
4/16/2013	5:43:12 AM	0.30	50	2316	219
4/16/2013	5:44:12 AM	0.31	50	2297	219
4/16/2013	5:45:12 AM	0.30	49	2308	219
4/16/2013	5:46:12 AM	0.30	50	2315	221
4/16/2013	5:47:12 AM	0.30	50	2310	222
4/16/2013	5:48:12 AM	0.30	50	2295	222
4/16/2013	5:49:12 AM	0.30	49	2319	221
4/16/2013	5:50:12 AM	0.30	49	2309	219
4/16/2013	5:51:12 AM	0.30	49	2294	219
4/16/2013	5:52:12 AM	0.30	49	2292	218
4/16/2013	5:53:12 AM	0.31	49	2292	217
4/16/2013	5:54:12 AM	0.31	49	2289	217
4/16/2013	5:55:12 AM	0.30	49	2304	217
4/16/2013	5:56:12 AM	0.30	49	2304	217
4/16/2013	5:57:12 AM	0.30	49	2309	217
4/16/2013	5:58:12 AM	0.30	49	2295	217
4/16/2013	5:59:12 AM	0.30	49	2272	217
4/16/2013	6:00:12 AM	0.30	49	2301	217
4/16/2013	6:01:12 AM	0.30	49	2313	218
4/16/2013	6:02:12 AM	0.30	49	2311	220
4/16/2013	6:03:12 AM	0.30	50	2303	220
4/16/2013	6:04:12 AM	0.30	50	2295	220
4/16/2013	6:05:12 AM	0.30	49	2318	220
4/16/2013	6:06:12 AM	0.30	49	2320	220
4/16/2013	6:07:12 AM	0.30	49	2307	222

Instrumental Analyzer Monitoring Data

Facility/Site:	Sprague Searsport	**Start Date:**	**16-Apr-13**
Source:	Asphalt Tank No. 2	**End Date:**	**16-Apr-13**
Run No.	Vessel Transfer - Hour 6.5	**Start Time:**	**5:30**
		End Time:	**6:30**

Date	Time	Delta P (IWC)	Temp (°F)	THC (Propane) (ppm)	Methane (ppm)
4/16/2013	6:08:12 AM	0.30	49	2299	223
4/16/2013	6:09:12 AM	0.30	49	2297	223
4/16/2013	6:10:12 AM	0.30	50	2303	221
4/16/2013	6:11:12 AM	0.30	50	2305	216
4/16/2013	6:12:12 AM	0.30	50	2294	216
4/16/2013	6:13:12 AM	0.30	50	2295	218
4/16/2013	6:14:12 AM	0.30	50	2297	221
4/16/2013	6:15:12 AM	0.31	50	2301	221
4/16/2013	6:16:12 AM	0.30	50	2318	222
4/16/2013	6:17:12 AM	0.30	50	2304	223
4/16/2013	6:18:12 AM	0.31	50	2317	223
4/16/2013	6:19:12 AM	0.30	50	2323	225
4/16/2013	6:20:12 AM	0.30	50	2320	226
4/16/2013	6:21:12 AM	0.30	50	2340	226
4/16/2013	6:22:12 AM	0.30	50	2325	226
4/16/2013	6:23:12 AM	0.31	51	2317	225
4/16/2013	6:24:12 AM	0.30	51	2297	225
4/16/2013	6:25:12 AM	0.30	51	2313	224
4/16/2013	6:26:12 AM	0.31	51	2324	223
4/16/2013	6:27:12 AM	0.30	51	2346	223
4/16/2013	6:28:12 AM	0.30	51	2334	224
4/16/2013	6:29:12 AM	0.30	51	2329	224
Averages		0.30	50	2313	220

Instrumental Analyzer Monitoring Data

Facility/Site:	Sprague Searsport	**Start Date:**	**16-Apr-13**
Source:	Asphalt Tank No. 2	**End Date:**	**16-Apr-13**
Run No.	Vessel Transfer - Hour 7.5	**Start Time:**	**6:30**
		End Time:	**7:30**

Date	Time	Delta P (IWC)	Temp (°F)	THC (Propane) (ppm)	Methane (ppm)
4/16/2013	6:30:12 AM	0.31	51	2321	224
4/16/2013	6:31:12 AM	0.30	51	2347	226
4/16/2013	6:32:12 AM	0.30	52	2342	227
4/16/2013	6:33:12 AM	0.30	52	2338	227
4/16/2013	6:34:12 AM	0.30	52	2342	226
4/16/2013	6:35:12 AM	0.30	52	2363	224
4/16/2013	6:36:12 AM	0.30	52	2377	224
4/16/2013	6:37:12 AM	0.30	53	2408	231
4/16/2013	6:38:12 AM	0.30	53	2401	241
4/16/2013	6:39:12 AM	0.30	53	2387	241
4/16/2013	6:40:12 AM	0.30	53	2387	237
4/16/2013	6:41:12 AM	0.31	53	2396	231
4/16/2013	6:42:12 AM	0.30	53	2402	231
4/16/2013	6:43:12 AM	0.30	53	2389	232
4/16/2013	6:44:12 AM	0.30	53	2399	232
4/16/2013	6:45:12 AM	0.31	53	2406	232
4/16/2013	6:46:12 AM	0.31	52	2375	231
4/16/2013	6:47:12 AM	0.30	52	2388	230
4/16/2013	6:48:12 AM	0.30	53	2386	230
4/16/2013	6:49:12 AM	0.30	53	2377	231
4/16/2013	6:50:12 AM	0.30	53	2386	232
4/16/2013	6:51:12 AM	0.30	53	2374	232
4/16/2013	6:52:12 AM	0.31	53	2368	229
4/16/2013	6:53:12 AM	0.31	53	2380	226
4/16/2013	6:54:12 AM	0.30	53	2390	226
4/16/2013	6:55:12 AM	0.31	53	2398	229
4/16/2013	6:56:12 AM	0.30	54	2383	232
4/16/2013	6:57:12 AM	0.30	53	2377	232
4/16/2013	6:58:12 AM	0.30	54	2389	233
4/16/2013	6:59:12 AM	0.30	54	2379	234
4/16/2013	7:00:12 AM	0.30	54	2382	234
4/16/2013	7:01:12 AM	0.30	54	2406	235
4/16/2013	7:02:12 AM	0.30	54	2418	237
4/16/2013	7:03:12 AM	0.30	54	2402	237
4/16/2013	7:04:12 AM	0.30	54	2409	236
4/16/2013	7:05:12 AM	0.30	53	2409	233
4/16/2013	7:06:12 AM	0.30	53	2407	233
4/16/2013	7:07:12 AM	0.30	54	2389	235

Instrumental Analyzer Monitoring Data

Facility/Site:	Sprague Searsport	**Start Date:**	**16-Apr-13**
Source:	Asphalt Tank No. 2	**End Date:**	**16-Apr-13**
Run No.	Vessel Transfer - Hour 7.5	**Start Time:**	**6:30**
		End Time:	**7:30**

Date	Time	Delta P (IWC)	Temp (°F)	THC (Propane) (ppm)	Methane (ppm)
4/16/2013	7:08:12 AM	0.30	54	2326	237
4/16/2013	7:09:12 AM	0.31	54	2362	237
4/16/2013	7:10:12 AM	0.31	54	2385	233
4/16/2013	7:11:12 AM	0.30	55	2430	228
4/16/2013	7:12:12 AM	0.30	55	2477	228
4/16/2013	7:13:12 AM	0.30	55	2505	236
4/16/2013	7:14:12 AM	0.30	55	2535	247
4/16/2013	7:15:12 AM	0.30	55	2574	247
4/16/2013	7:16:12 AM	0.30	55	2559	245
4/16/2013	7:17:12 AM	0.30	55	2554	243
4/16/2013	7:18:12 AM	0.30	55	2493	243
4/16/2013	7:19:12 AM	0.31	55	2510	232
4/16/2013	7:20:12 AM	0.30	56	2559	217
4/16/2013	7:21:12 AM	0.30	56	2632	217
4/16/2013	7:22:12 AM	0.30	56	2704	234
4/16/2013	7:23:12 AM	0.30	57	2720	256
4/16/2013	7:24:12 AM	0.30	56	2756	256
4/16/2013	7:25:12 AM	0.30	56	2755	256
4/16/2013	7:26:12 AM	0.30	56	2732	256
4/16/2013	7:27:12 AM	0.30	56	2674	256
4/16/2013	7:28:12 AM	0.30	57	2610	247
4/16/2013	7:29:12 AM	0.30	57	2579	236
Averages		0.30	54	2450	235

Instrumental Analyzer Monitoring Data

Facility/Site:	Sprague Searsport	**Start Date:**	**16-Apr-13**
Source:	Asphalt Tank No. 2	**End Date:**	**16-Apr-13**
Run No.	Vessel Transfer - Hour 8.5	**Start Time:**	**7:30**
		End Time:	**8:30**

Date	Time	Delta P (IWC)	Temp (°F)	THC (Propane) (ppm)	Methane (ppm)
4/16/2013	7:30:12 AM	0.30	57	2603	236
4/16/2013	7:31:12 AM	0.30	57	2569	234
4/16/2013	7:32:12 AM	0.30	57	2543	231
4/16/2013	7:33:12 AM	0.30	57	2543	231
4/16/2013	7:34:12 AM	0.30	56	2548	230
4/16/2013	7:35:12 AM	0.30	57	2561	227
4/16/2013	7:36:12 AM	0.30	56	2562	227
4/16/2013	7:37:12 AM	0.30	56	2590	233
4/16/2013	7:38:12 AM	0.30	57	2537	240
4/16/2013	7:39:12 AM	0.30	57	2515	240
4/16/2013	7:40:12 AM	0.30	57	2521	234
4/16/2013	7:41:12 AM	0.30	57	2543	226
4/16/2013	7:42:12 AM	0.30	57	2549	226
4/16/2013	7:43:12 AM	0.30	57	2563	227
4/16/2013	7:44:12 AM	0.30	56	2576	229
4/16/2013	7:45:12 AM	0.30	56	2574	229
4/16/2013	7:46:12 AM	0.29	56	2526	229
4/16/2013	7:47:12 AM	0.30	56	2453	229
4/16/2013	7:48:12 AM	0.30	56	2402	229
4/16/2013	7:49:12 AM	0.30	57	2387	220
4/16/2013	7:50:12 AM	0.30	57	2420	209
4/16/2013	7:51:12 AM	0.30	57	2562	209
4/16/2013	7:52:12 AM	0.31	57	2709	231
4/16/2013	7:53:12 AM	0.30	58	2815	256
4/16/2013	7:54:12 AM	0.30	58	2851	256
4/16/2013	7:55:12 AM	0.30	59	2839	265
4/16/2013	7:56:12 AM	0.30	59	2797	274
4/16/2013	7:57:12 AM	0.30	59	2777	274
4/16/2013	7:58:12 AM	0.30	59	2729	263
4/16/2013	7:59:12 AM	0.30	58	2717	250
4/16/2013	8:00:12 AM	0.30	58	2728	250
4/16/2013	8:01:12 AM	0.30	58	2706	247
4/16/2013	8:02:12 AM	0.29	58	2672	244
4/16/2013	8:03:12 AM	0.30	58	2657	244
4/16/2013	8:04:12 AM	0.30	58	2641	241
4/16/2013	8:05:12 AM	0.30	58	2672	238
4/16/2013	8:06:12 AM	0.30	58	2660	238
4/16/2013	8:07:12 AM	0.30	59	2686	242

Instrumental Analyzer Monitoring Data

Facility/Site:	Sprague Searsport	**Start Date:**	**16-Apr-13**
Source:	Asphalt Tank No. 2	**End Date:**	**16-Apr-13**
Run No.	Vessel Transfer - Hour 8.5	**Start Time:**	**7:30**
		End Time:	**8:30**

Date	Time	Delta P (IWC)	Temp (°F)	THC (Propane) (ppm)	Methane (ppm)
4/16/2013	8:08:12 AM	0.30	59	2693	246
4/16/2013	8:09:12 AM	0.30	60	2741	246
4/16/2013	8:10:12 AM	0.30	61	2776	251
4/16/2013	8:11:12 AM	0.30	60	2819	255
4/16/2013	8:12:12 AM	0.30	60	2881	255
4/16/2013	8:13:12 AM	0.30	60	2918	264
4/16/2013	8:14:12 AM	0.30	59	2933	274
4/16/2013	8:15:12 AM	0.30	58	2929	274
4/16/2013	8:16:12 AM	0.30	58	2887	271
4/16/2013	8:17:12 AM	0.30	59	2856	268
4/16/2013	8:18:12 AM	0.30	59	2766	268
4/16/2013	8:19:12 AM	0.30	60	2748	258
4/16/2013	8:20:12 AM	0.30	59	2791	247
4/16/2013	8:21:12 AM	0.30	58	2870	247
4/16/2013	8:22:12 AM	0.30	58	2888	256
4/16/2013	8:23:12 AM	0.30	58	2877	267
4/16/2013	8:24:12 AM	0.30	59	2811	267
4/16/2013	8:25:12 AM	0.30	59	2794	260
4/16/2013	8:26:12 AM	0.30	58	2787	252
4/16/2013	8:27:12 AM	0.30	58	2811	252
4/16/2013	8:28:12 AM	0.30	58	2769	252
4/16/2013	8:29:12 AM	0.30	57	2721	252
Averages		0.30	58	2689	245

Instrumental Analyzer Monitoring Data

Facility/Site:	Sprague Searsport	Start Date:	16-Apr-13
Source:	Asphalt Tank No. 2	End Date:	16-Apr-13
Run No.	Vessel Transfer - Hour 9.5	Start Time:	8:30
		End Time:	9:30

Date	Time	Delta P (IWC)	Temp (°F)	THC (Propane) (ppm)	Methane (ppm)
4/16/2013	8:30:12 AM	0.30	56	2675	252
4/16/2013	8:31:12 AM	0.30	56	2646	248
4/16/2013	8:32:12 AM	0.30	56	2568	244
4/16/2013	8:33:12 AM	0.30	56	2525	244
4/16/2013	8:34:12 AM	0.30	57	2505	232
4/16/2013	8:35:12 AM	0.30	58	2469	219
4/16/2013	8:36:12 AM	0.30	59	2448	219
4/16/2013	8:37:12 AM	0.30	60	2534	221
4/16/2013	8:38:12 AM	0.30	60	2644	222
4/16/2013	8:39:12 AM	0.30	60	2727	222
4/16/2013	8:40:12 AM	0.30	60	2729	234
4/16/2013	8:41:12 AM	0.30	60	2760	248
4/16/2013	8:42:12 AM	0.30	59	2784	248
4/16/2013	8:43:12 AM	0.30	59	2778	248
4/16/2013	8:44:12 AM	0.30	58	2808	249
4/16/2013	8:45:12 AM	0.30	59	2782	249
4/16/2013	8:46:12 AM	0.30	59	2705	243
4/16/2013	8:47:12 AM	0.30	59	2739	236
4/16/2013	8:48:12 AM	0.30	59	2794	236
4/16/2013	8:49:12 AM	0.30	59	2752	242
4/16/2013	8:50:12 AM	0.30	59	2745	248
4/16/2013	8:51:12 AM	0.30	60	2724	248
4/16/2013	8:52:12 AM	0.30	59	2755	248
4/16/2013	8:53:12 AM	0.29	58	2771	248
4/16/2013	8:54:12 AM	0.29	58	2809	248
4/16/2013	8:55:12 AM	0.30	58	2724	248
4/16/2013	8:56:12 AM	0.29	57	2708	247
4/16/2013	8:57:12 AM	0.30	56	2687	247
4/16/2013	8:58:12 AM	0.29	56	2617	242
4/16/2013	8:59:12 AM	0.30	56	2575	235
4/16/2013	9:00:12 AM	0.30	57	2485	235
4/16/2013	9:01:12 AM	0.30	58	2482	226
4/16/2013	9:02:12 AM	0.29	57	2476	216
4/16/2013	9:03:12 AM	0.29	57	2531	216
4/16/2013	9:04:12 AM	0.30	58	2560	226
4/16/2013	9:05:12 AM	0.30	57	2573	236
4/16/2013	9:06:12 AM	0.30	57	2618	236
4/16/2013	9:07:12 AM	0.30	57	2598	238

Instrumental Analyzer Monitoring Data

Facility/Site:	Sprague Searsport	**Start Date:**	**16-Apr-13**
Source:	Asphalt Tank No. 2	**End Date:**	**16-Apr-13**
Run No.	Vessel Transfer - Hour 9.5	**Start Time:**	**8:30**
		End Time:	**9:30**

Date	Time	Delta P (IWC)	Temp (°F)	THC (Propane) (ppm)	Methane (ppm)
4/16/2013	9:08:12 AM	0.30	57	2591	240
4/16/2013	9:09:12 AM	0.30	57	2550	240
4/16/2013	9:10:12 AM	0.30	58	2554	238
4/16/2013	9:11:12 AM	0.30	58	2537	235
4/16/2013	9:12:12 AM	0.30	57	2592	235
4/16/2013	9:13:12 AM	0.30	56	2711	244
4/16/2013	9:14:12 AM	0.30	56	2658	252
4/16/2013	9:15:12 AM	0.30	57	2571	252
4/16/2013	9:16:12 AM	0.30	58	2555	240
4/16/2013	9:17:12 AM	0.30	59	2546	228
4/16/2013	9:18:12 AM	0.30	60	2481	228
4/16/2013	9:19:12 AM	0.31	60	1930	154
4/16/2013	9:20:12 AM	0.30	60	2583	80
4/16/2013	9:21:12 AM	0.29	60	2774	80
4/16/2013	9:22:12 AM	0.30	60	2801	170
4/16/2013	9:23:12 AM	0.30	61	2870	260
4/16/2013	9:24:12 AM	0.30	61	2906	260
4/16/2013	9:25:12 AM	0.30	60	2947	267
4/16/2013	9:26:12 AM	0.29	61	2925	274
4/16/2013	9:27:12 AM	0.29	60	2898	274
4/16/2013	9:28:12 AM	0.30	60	2909	271
4/16/2013	9:29:12 AM	0.30	59	2884	268
Averages		0.30	58	2660	234

Instrumental Analyzer Monitoring Data

Facility/Site:	Sprague Searsport	**Start Date:**	**16-Apr-13**
Source:	Asphalt Tank No. 2	**End Date:**	**16-Apr-13**
Run No.	Vessel Transfer - Hour 10.5	**Start Time:**	**9:30**
		End Time:	**10:30**

Date	Time	Delta P (IWC)	Temp (°F)	THC (Propane) (ppm)	Methane (ppm)
4/16/2013	9:30:12 AM	0.30	59	2769	268
4/16/2013	9:31:12 AM	0.29	59	2709	260
4/16/2013	9:32:12 AM	0.30	60	2644	252
4/16/2013	9:33:12 AM	0.30	60	2618	252
4/16/2013	9:34:12 AM	0.30	60	2658	248
4/16/2013	9:35:12 AM	0.30	59	2709	245
4/16/2013	9:36:12 AM	0.29	58	2624	245
4/16/2013	9:37:12 AM	0.30	58	2565	242
4/16/2013	9:38:12 AM	0.29	58	2486	239
4/16/2013	9:39:12 AM	0.29	57	2501	239
4/16/2013	9:40:12 AM	0.29	56	2478	233
4/16/2013	9:41:12 AM	0.29	55	2411	227
4/16/2013	9:42:12 AM	0.29	55	2186	227
4/16/2013	9:43:12 AM	0.29	54	1879	193
4/16/2013	9:44:12 AM	0.29	55	1712	159
4/16/2013	9:45:12 AM	0.29	56	1619	159
4/16/2013	9:46:12 AM	0.29	56	1635	136
4/16/2013	9:47:12 AM	0.29	56	1678	113
4/16/2013	9:48:12 AM	0.28	57	1624	113
4/16/2013	9:49:12 AM	0.29	56	1517	111
4/16/2013	9:50:12 AM	0.29	57	1513	109
4/16/2013	9:51:12 AM	0.28	56	1564	109
4/16/2013	9:52:12 AM	0.29	56	1557	117
4/16/2013	9:53:12 AM	0.28	64	1550	131
4/16/2013	9:54:12 AM	0.28	101	1493	271
4/16/2013	9:55:12 AM	0.28	57	1423	130
4/16/2013	9:56:12 AM	0.28	55	1404	109
4/16/2013	9:57:12 AM	0.28	54	1355	109
4/16/2013	9:58:12 AM	0.28	54	1309	103
4/16/2013	9:59:12 AM	0.28	55	1294	96
4/16/2013	10:00:12 AM	0.28	54	1300	96
4/16/2013	10:01:12 AM	0.28	54	1338	101
4/16/2013	10:02:12 AM	0.29	54	1378	106
4/16/2013	10:03:12 AM	0.29	55	1402	106
4/16/2013	10:04:12 AM	0.29	55	1573	119
4/16/2013	10:05:12 AM	0.29	55	1721	132
4/16/2013	10:06:12 AM	0.30	55	1782	132
4/16/2013	10:07:12 AM	0.29	54	1804	158

Instrumental Analyzer Monitoring Data

Facility/Site:	Sprague Searsport	**Start Date:**	**16-Apr-13**
Source:	Asphalt Tank No. 2	**End Date:**	**16-Apr-13**
Run No.	Vessel Transfer - Hour 10.5	**Start Time:**	**9:30**
		End Time:	**10:30**

Date	Time	Delta P (IWC)	Temp (°F)	THC (Propane) (ppm)	Methane (ppm)
4/16/2013	10:08:12 AM	0.29	54	1828	184
4/16/2013	10:09:12 AM	0.29	54	1779	184
4/16/2013	10:10:12 AM	0.29	54	1727	175
4/16/2013	10:11:12 AM	0.29	53	1631	166
4/16/2013	10:12:12 AM	0.29	53	1625	166
4/16/2013	10:13:12 AM	0.29	53	1572	157
4/16/2013	10:14:12 AM	0.29	53	1511	148
4/16/2013	10:15:12 AM	0.29	53	1484	148
4/16/2013	10:16:12 AM	0.29	54	1508	144
4/16/2013	10:17:12 AM	0.29	54	1498	139
4/16/2013	10:18:12 AM	0.29	54	1534	139
4/16/2013	10:19:12 AM	0.29	55	1596	143
4/16/2013	10:20:12 AM	0.29	54	1584	146
4/16/2013	10:21:12 AM	0.28	53	1634	146
4/16/2013	10:22:12 AM	0.29	53	1672	152
4/16/2013	10:23:12 AM	0.29	53	1629	157
4/16/2013	10:24:12 AM	0.29	53	1600	157
4/16/2013	10:25:12 AM	0.29	53	1598	155
4/16/2013	10:26:12 AM	0.29	53	1580	152
4/16/2013	10:27:12 AM	0.29	54	1594	152
4/16/2013	10:28:12 AM	0.29	54	1545	149
4/16/2013	10:29:12 AM	0.29	54	1601	146
Averages		0.29	56	1785	163

Method 25A Calibration Data Sheet - Total Hydrocarbons

Source Summary			
Facility:	Sprague Searsport		
Source/Location:	Asphalt Tank No. 2		
Start Date	16-Apr-13	End Date:	16-Apr-13
Start Time:	0:10	End Time:	10:40

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:	A. Stratton
Date:	16-Apr-13
Time:	10:45

Post Calibration Drift Data					
Calibration Gas	Cylinder Conc.	Initial Test Response	Final Test Response	Calibration Drift	Acceptance Criteria
Post Cal 1 Zero	0	1	16	0.2	< 3% of the measurement range
Post Cal 1 Upscale	2961.0	2989	3021	0.3	< 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	2,961.0	Propane/Air	CC103130	7/10/2015	30%
Mid Gas	45-55	5,052.0	Propane/Air	CC311566	2/22/2015	51%
High Gas	80-90	8,367.0	Propane/Air	C111354	3/2/2016	84%

System Response Time = 120 seconds

Method 25A Calibration Data Sheet - Methane

Source Summary			
Facility:	Sprague Searsport		
Source/Location:	Asphalt Tank No. 2		
Start Date	16-Apr-13	End Date:	16-Apr-13
Start Time:	0:10	End Time:	10:40

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	1
High Gas	860	867
Response Line	1.007	

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	292.0	301	3.1	< 5% of cylinder concentration
Mid Gas	504	507.5	512	0.9	< 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:	16-Apr-13
Time:	10:45

Post Calibration Drift Data					
Calibration Gas	Cylinder Conc.	Initial Test Response	Final Test Response	Calibration Drift	Acceptance Criteria
Post Cal 1 Zero	0	1	2	0.1	< 3% of the measurement range
Post Cal 1 Upscale	290.0	301.0	295	0.6	< 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	290.0	CH4/Air	CC198791	4/2/2015	29%
Mid Gas	45-55	504.0	CH4/Air	CC72704	7/1/2015	50%
High Gas	80-90	860.0	CH4/Air	CC246069	7/10/2015	86%

System Response Time = 180 seconds

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
					Test Run 3 Avg. Conc.

Calibration Drift = (Actual Response - CE Test Response) * 100 / Measurement Range

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 Apr 2013

THC Analyzer Data

Manufacturer	VIG
Model/Serial Number	200/266 0406
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					

B2. Tank Displacement Rate Calculations / Transfer Log

Global South Portland - Residual Oil Storage Tank #3

Vessel Residual Oil Transfer Data and Air Displacement Calculations

Hourly Fill Rate of Tank #3 During Vessel Transfer on April 16, 2013 - *(barrels/hr)*					
Hour 1	Hour 2	Hour 3	Hour 4-Hour 5.5 (barrels/2.33 hr	Hour 6.5	Hour 7.5
3,213	*2,754*	*2,907*	*6,426*	*2,754*	*2,601*
Hour 8.5	Hour 9.5	Hour 10.5			
2,754	*2,448*	*1,530*			

Air Displaced Out of Tank #3 During Vessel Transfer on April 16, 2013 - *(scfh)*					
Hour 1	Hour 2	Hour 3	Hour 4-Hour 5.5	Hour 6.5	Hour 7.5
17,864	*15,312*	*16,163*	*15,334*	*15,312*	*14,462*
Hour 8.5	Hour 9.5	Hour 10.5			
15,312	*13,611*	*8,507*			

Standard Cubic Feet Per Hour (SCFH) = barrels/hr x 5.56

Where: One barrel = 5.56 cubic feet

DATE	4/15/13	TANK NO.	# 3	#	#	#	#
VESSEL	COLUMBIA	PRODUCT	#6 H/S				
FIRST LINE	2000	OPEN	27-10 9/16				
ALL FAST	2020	CLOSE	12'-10 7/16				
GANGWAY	2025	BBLS P/FT	1834				
HOSE(S) ON #/SIZE	2055	BBLS P/IN	153				
START CARGO	2345	SPACE AVAIL	47400				
FINSH CARGO	1035	SAFE FILL	2-0				
HOSE(S) OFF	1055	DYE AMOUNT					
SAILED	1205						
GAUGER / COMPANY	NMSPEC						
EXPEDITER	N/A						
AGENT	N/A	TOTAL SPACE	47,400			PAGE	1 of 1

TANK	TIME	GAUGE	GAIN	BARRELS	HOURS	TOTAL BARRELS	TOT HRS	PRESSURE
3	0110	26-1	21	3213	1	3213	1	65
3	0210	24-7	18	2754	1	5967	2	65
3	0310	23-0	19	2907	1	8874	3	65
3	0530	19-6	42	6426	2.5	15300	5.5	65
3	0630	18-0	18	2754	1	18054	6.5	65
3	0730	16-7	14	2601	1	20655	7.5	66
3	0830	15-1	18	2754	1	23409	8.5	76
3	0920	13-9	16	2448	1	25857	9.5	65
3	1030	12-11	10	1530	1	27387	10.5	48

TIME	WATCH (DOCK/TANK (Circle One)	REMARKS L/F 2345 - 2355
		START BACK UP AT
2300	Cut Mc	
		LINE DISPLACEMENT 2345 - 2355
0100	SAM	START CARGO 0010
		10.5 HOURS DISCHARGE
		27,570 BBLS (GROSS) REC'D
		2626 AVG BBLS PER HOUR