APPENDIX C

Baseline Emission Calculations

Baseline Boiler and Heater Emissions

Unit	Fire Duty (BTUs/hr)	Heating Value (BTU/scf)	Natural Gas Usage (scf/hr)	Annual Operating Hours	Annual Fuel Usage (mmscf/yr)	VOC Emissions (lbs/yr)	Methane Emissions (lbs/yr)	NOx Emissions (lbs/yr)	SOx Emissions (lbs/yr)	CO Emissions (lbs/yr)	PM10 Emissions (lbs/yr)	VOC Emissions (lbs/day)	NOx Emissions (lbs/day)	SOx Emissions (lbs/day)	CO Emissions (lbs/day)	PM10 Emissions (lbs/day)
Boiler #1	1995000	1020	1956	8760	17.13	94.2	39.4	1713.4	10.3	1439.2	130.2	0.26	4.69	0.03	3.94	0.36
Boiler #2	1995000	1020	1956	8760	17.13	94.2	39.4	1713.4	10.3	1439.2	130.2	0.26	4.69	0.03	3.94	0.36
Oil Heater(1)	12600000	1020	12353	8760	108.21	757.5	248.9	5388.9	64.9	3787.4	811.6	2.08	14.76	0.18	10.38	2.22
Total Boiler and Heater Emissions						946.0	327.7	8815.7	85.5	6665.8	1072.0	2.59	24.15	0.23	18.26	2.94

(1) Oil heater is equipped with low NOx burners.

Unit	Diesel Fuel Use (gal/hr)	Annual Operating Hours(2)	Annual Fuel Usage (1000 gal/yr)	VOC Emissions (lbs/yr)	NOx Emissions (lbs/yr)	SOx Emissions (lbs/yr)	CO Emissions (lbs/yr)	PM10 Emissions (lbs/yr)
Backup Generator(2)	7	250	1.75	65.625	820.75	12.4	178.5	58.6
Emissions (lbs/day)				0.18	2.25	0.03	0.49	0.16

(2) Annual Operating Hours are limited by SCAQMD permit conditions.

	Natural Gas Emission Factors (lb/mmcf)(3)					
	VOC	Methane	NOx	SOx	CO	PM10
Boilers	5.5	2.3	100	0.6	84	7.6
Heater with Low NOx Burners	7	2.3	49.8	0.6	35	7.5
Other	7	2.3	130	0.6	35	7.5

(3) From SCAQMD 2003-2004 Annual Emission Report Form B-1 Instructions

	Diesel Emission Factors (lb/1000)(3)					
	VOC	Methane	NOx	SOx	CO	PM10
Boilers	37.5	NA	469	7.1	102	33.5

(3) From SCAQMD 2003-2004 Annual Emission Report Form B-1 Instructions

Baseline Storage Tank Emissions

Tank Number	100	200	300	400	500	600	700
Tank Contents	Used / Recycled Oil	Used / Recycled Oil	Used / Recycled Oil	Used / Recycled Oil	Used / Recycled Oil	Used / Recycled Oil	Used / Recycled Oil
Speciation Profile[1]	3	3	3	3	3	3	3
Liquid Temperature, °F (as measured in ISOCI tanks)	85	85	85	85	85	85	85
Maximim Storage Capacity (in 1000 gallons)	71.025	71.025	71.025	71.025	71.025	71.025	71.025
Vented to Vapor Recovery System, (N, V or T)	V	V	V	V	V	V	V
Tank Diameter, ft. (D)	24	24	24	24	24	24	24
Tank Shell Height, ft. (H_s)	20	20	20	20	20	20	20
Annual Throughput, bbl, (Q)	79456	79456	79456	79456	79456	79456	79456
Usage Factor (U) ($0 < U \leq 1$)	1	1	1	1	1	1	1
Turnovers (N)	46.99	46.99	46.99	46.99	46.99	46.99	46.99
Vapor Space Volume, ft^3 (V_V) (=$0.7854*D^2*H_{VO}$; $H_{VO} = 0.5*H_S$ or 1 ft.)	4523.90	4523.90	4523.90	4523.90	4523.90	4523.90	4523.90
Vapor density, lb/ft^3, (Wv = Mv*P / R*T_{la}; R= 10.31 ft^3*psia/lb-mole*°R)	2.77E-06	2.82E-08	2.82E-08	2.82E-08	2.82E-08	3.46E-03	2.82E-08
Vapor Molecular Weight, lb/lb-mole, (M_v)	0.0	0.0	0.0	0.0	0.0	38.6	0.0
Daily avg. liq. surf. temp., °R, (T_{la}) Tla = °F + 460	545	545	545	545	545	545	545
True Vapor Pressure, psia, (P)	5.20E-03	5.20E-03	5.20E-03	5.20E-03	5.20E-03	5.03E-01	5.20E-03
Vapor space expansion factor, Ke = (DTv/T_{la}) + (DPv-Pb) / (Pa-P)	7.57E-02	7.57E-02	7.57E-02	7.57E-02	7.57E-02	7.83E-02	7.57E-02
Daily vapor temp. range, °R, DTv = 0.72DTa + 0.028al	41	41	41	41	41	41	41
Daily vapor pressure range, psia, (DPv)	3.93E-04	3.93E-04	3.93E-04	3.93E-04	3.93E-04	3.80E-02	3.93E-04
Daily max. liq. temperature, °R	566	566	566	566	566	566	566
Daily min. liquid temperature, °R	524	524	524	524	524	524	524
Vapor pressure at max. liq. temp., psia, (Pvx)	5.39E-03	5.39E-03	5.39E-03	5.39E-03	5.39E-03	5.22E-01	5.39E-03
Vapor pressure at min. liq. temp., psia, (Pvn)	5.00E-03	5.00E-03	5.00E-03	5.00E-03	5.00E-03	4.84E-01	5.00E-03
Vented Vapor Saturation Factor (K_v)	1.00	1.00	1.00	1.00	1.00	0.79	1.00
Turnover factor, (Kn), N<=36: Kn=1; N>36: Kn=(180+N)/6N	0.8052	0.8052	0.8052	0.8052	0.8052	0.8052	0.8052
Product factor, (Kp), Kp=0.75 (crude oils); Kp=1 (all other org. liq.)	1	1	1	1	1	1	1
Standing Storage Loss ($L_s = V_v*W_v*K_e*K_s*U$), lbs/yr	0.35	0.00	0.00	0.00	0.00	353.00	0.00
Working Loss (Lw), lbs/yr	1.00	0.01	0.01	0.01	0.01	1242.68	0.01
Total Loss without Control System ($L_s + L_w$), lbs/yr	1.34	0.01	0.01	0.01	0.01	1595.68	0.01
Control System % Efficiency	0	0	0	0	0	0	0
Total Loss with Control System ($L_s + L_w$)[(100 - %eff) / 100], lbs/yr	**1.34**	**0.01**	**0.01**	**0.01**	**0.01**	**1595.68**	**0.01**
Total Standing Storage Uncontrolled Loss (lbs/yr)	445.11						
Total Working Uncontrolled Loss (lbs/yr)	1713.09						
Total Controlled Loss (lbs/yr)	2158.21						
Total Controlled Loss (lb/day)	5.91						

Baseline Storage Tank Emissions

Tank Number	40	41	42	43	47	50
Tank Contents	Used Oil	Used Oil	Used Oil	Used Oil	Waste Antifreeze	Used Oil & Water
Speciation Profile[1]	2	2	2	2	1	1
Liquid Temperature, °F (as measured in ISOCI tanks)	180	180	180	180	75	75
Maximim Storage Capacity (in 1000 gallons)	20.293	20.293	19.458	19.458	6.143	6.143
Vented to Vapor Recovery System, (N, V or T)	V	V	V	V	V	V
Tank Diameter, ft. (D)	12	12	12	12	8	8
Tank Shell Height, ft. (H_s)	22	20	24	24	20	20
Annual Throughput, bbl, (Q)	37814	37814	36258	36258	11447	11447
Usage Factor (U) (0 <U ≤1)	1	1	1	1	1	1
Turnovers (N)	78.26	78.26	78.26	78.26	78.26	78.26
Vapor Space Volume, ft^3 (V_V) (=0.7854*D^2*H_{VO}; H_{VO} = 0.5*H_S or 1 ft.)	1244.07	1130.98	1357.17	1357.17	502.66	502.66
Vapor density, lb/ft^3, (Wv = Mv*P / R*T_{la}; R= 10.31 ft^3*psia/lb-mole*^{o}R)	2.46E-04	2.46E-04	2.46E-04	2.46E-04	7.29E-08	7.29E-08
Vapor Molecular Weight, lb/lb-mole, (M_v)	3.0	3.0	3.0	3.0	0.0	0.0
Daily avg. liq. surf. temp., °R, (T_{la}) Tla = °F + 460	640	640	640	640	535	535
True Vapor Pressure, psia, (P)	5.43E-01	5.43E-01	5.43E-01	5.43E-01	8.72E-03	8.72E-03
Vapor space expansion factor, Ke = (DTv/T_{la}) + (DPv-Pb) / (Pa-P)	6.69E-02	6.69E-02	6.69E-02	6.69E-02	7.71E-02	7.71E-02
Daily vapor temp. range, °R, DTv = 0.72DTa + 0.028al	41	41	41	41	41	41
Daily vapor pressure range, psia, (DPv)	3.49E-02	3.49E-02	3.49E-02	3.49E-02	6.72E-04	6.72E-04
Daily max. liq. temperature, °R	661	661	661	661	556	556
Daily min. liquid temperature, °R	619	619	619	619	514	514
Vapor pressure at max. liq. temp., psia, (Pvx)	5.60E-01	5.60E-01	5.60E-01	5.60E-01	9.05E-03	9.05E-03
Vapor pressure at min. liq. temp., psia, (Pvn)	5.25E-01	5.25E-01	5.25E-01	5.25E-01	8.38E-03	8.38E-03
Vented Vapor Saturation Factor (K_v)	0.76	0.78	0.74	0.74	1.00	1.00
Turnover factor, (Kn), N<=36: Kn=1; N>36: Kn=(180+N)/6N	0.5500	0.5500	0.5500	0.5500	0.5500	0.5500
Product factor, (Kp), Kp=0.75 (crude oils); Kp=1 (all other org. liq.)	1	1	1	1	1	1
Standing Storage Loss (L_s= V_v*W_v*K_e*K_s*U), lbs/yr	5.68	5.28	6.06	6.06	0.00	0.00
Working Loss (Lw), lbs/yr	33.78	33.78	32.39	32.39	0.00	0.00
Total Loss without Control System (L_s + L_w), lbs/yr	39.46	39.06	38.45	38.45	0.00	0.00
Control System % Efficiency	0	0	0	0	0	0
Total Loss with Control System (L_s + L_w)[(100 - %eff) / 100], lbs/yr	**39.46**	**39.06**	**38.45**	**38.45**	**0.00**	**0.00**
Total Standing Storage Uncontrolled Loss (lbs/yr)						
Total Working Uncontrolled Loss (lbs/yr)						
Total Controlled Loss (lbs/yr)						
Total Controlled Loss (lb/day)						

Baseline Annual Throughput Calculation for Storage Tanks

Tank No.	Function	Speciation Profile	Product	Tank Capacity (gallons)	New Tank Throughput (barrels/yr)	Throughput Data from Part B
			Receiving[1] and Treatment[2] Tanks			
4	R/S/T	1	Used Oil	2114	3939	
5	R/S/T	1	Used Oil	2114	3939	
21	*R/S/T*	*2*	*Used Oil*	*28064*	52295	
22	*R/S/T*	*2*	*Used Oil*	*31071*	57898	
23	*R/S/T*	*2*	*Used Oil*	*31071*	57898	
24	*R/S/T*	*2*	*Used Oil*	*28064*	52295	
25	*R/S/T*	*2*	*Used Oil*	*28064*	52295	
26	*R/S/T*	*2*	*Used Oil*	*28064*	52295	
27	*R/S/T*	*2*	*Used Oil*	*28064*	52295	
40	R/S	1	Used Oil	20293	37814	
41	R/S	1	Used Oil	20293	37814	
42	R/S	1	Used Oil	19458	36258	
43	R/S	1	Used Oil	19458	36258	
47	R/S	1	Waste Antifreeze	6143	11447	
50	*S/T*	*1*	*Used Oil & Water*	*6143*	11447	
			Total	294250	556190	**<-- 64,000 gal/day**
			Recycled Oil Storage[3]			
100	S	3	Used / Recycled Oil	71025	79456	
200	S	3	Used / Recycled Oil	71025	79456	
300	S	3	Used / Recycled Oil	71025	79456	
400	S	3	Used / Recycled Oil	71025	79456	
500	S	3	Used / Recycled Oil	71025	79456	
600	S	3	Used / Recycled Oil	71025	79456	
700	S	3	Used / Recycled Oil	71025	79456	
			Total	497175	556190	**<-- 64,000 gal/day**

* 1 BBL = 42 GAL, 365 days/yr.
Red text denotes heated tank.
Italic text denotes Treatment Tanks.
(1) Waste oil/water tank's annual throughput is scaled using the capacity: Qx = Q1*Vx/V1, where Q1 and V1 is the total annual throughput and total capacity, respectively.
Maximum tank emissions based on all railcar offloading going through receiving tanks (none directly to treatment as shown in Figure IV-28 of Part B 9/2000 Rev. 0).
(2) Assumes all material received is treated.
(3) Worst case assumption that 100% of waste received is recovered during recycle.

Baseline Loading/Unloading Emissions

Loading and unloading emission factor:							
L_L = (12.46 x S x M x [P/(Pa-P)])/T			Loading Loss, lb/10^3 gal, (L_L)				
			Saturation factor, dimensionless, (S)				
			Molecular weight of vapor, lb/lb-mole, (M)				
			True vapor pressure at bulk liquid conditions, psia, (P)				
			Average atmospheric pressure at tank location, psia, (P_a)				
			Temperature, ^{0}R, (T)				
Calculation for waste oil/water loading/unloading emission factor:							
	(12.46 x 1.0 x 0.0461 x [0.0087/(14.7-0.0087)])/537						
	6.33E-07	lb/1000gal					
Speciation	**Process Name**	**Max. Capacity (gal/day) x E.F.**			**Total Emissions**		
Spec. Profile #1	Waste oil/water	64000	x 6.33E-07 lb/1000 gal =		0.0000	lbs/day	
		Emissions for each rack -->			**0.0037**	**lbs/yr**	

Oil Treatment

	Count (1)	Emission Factor (lb/yr-pump)	Emissions (lb/yr)
LS Pumps	2	432	864
HS Pumps	8	86	688
LS Valves	14	47	658
HS Valves	56	12	672
LS Flanges	56	4.9	274.4
HS Flanges	224	4.9	1097.6
		LS Subtotal	1796.4
		HS Subtotal	2457.6
		Total	4254

Rail Loading/Unloading

	Count	Emission Factor (lb/yr-pump)	Emissions (lb/yr)
LS Pumps	0	432	0
HS Pumps	4	86	344
LS Valves	0	47	0
HS Valves	28	12	336
LS Flanges	0	4.9	0
HS Flanges	112	4.9	548.8
		LS Subtotal	0
		HS Subtotal	1228.8
		Total	1228.8

Truck Loading/Unloading

	Count	Emission Factor (lb/yr-pump)	Emissions (lb/yr)
LS Pumps	2	432	864
HS Pumps	7	86	602
LS Valves	14	47	658
HS Valves	49	12	588
LS Flanges	56	4.9	274.4
HS Flanges	196	4.9	960.4
		LS Subtotal	1796.4
		HS Subtotal	2150.4
		Total	3946.8

Totals

	Count	Emission Factor (lb/yr-pump)	Emissions (lb/yr)
LS Pumps	4	432	1728
HS Pumps	19	86	1634
LS Valves	28	47	1316
HS Valves	133	12	1596
LS Flanges	112	4.9	548.8
HS Flanges	532	4.9	2606.8
		LS Subtotal	3592.8
		HS Subtotal	5836.8
		Total	9429.6
		Total (lbs/day)	25.83

(1) Pumps were accounted with a list of pumps. The number of valves was scaled up from a previous drawing count. Flanges = Valves x 4

Baseline Vehicle Emissions

On Road Mobile Emission Factors from California ARB EMFAC2002 Scenario Year 2006 (Model Years 1965 to 2005)

Vehicle Type	CO Emissions Factor (lb/mile)	VOC Emission Factor (lb/mile)	NOx Emissions Factor (lb/mile)	SOx Emissions Factor (lb/mile)	PM10 Emissions Factor (lb/mile)
Light Duty/Autos	0.015165	0.001626	0.001634	0.00001	0.000079
Heavy Diesel Trucks	0.020984	0.002955	0.028142	0.000246	0.0005

Source	Parameters			Peak Day Emissions, lbs/day				
	Number of Vehicles	Total Number of Trips	Distance Traveled per Trip	CO Emissions	VOC Emissions	NOx Emissions	SOx Emissions	PM10 Emissions
Workers Commuting	18	36	16.2	8.84	0.95	0.95	0.01	0.05
Daily Delivery Diesel Trucks	45	90	25	47.21	6.65	63.32	0.55	1.13

Source	Parameters		CO	VOC	NOx	SOx	PM10
Total Emissions from Workers' Vehicles	18	36	8.84	0.95	0.95	0.01	0.05
Total Emissions for Heavy Diesel Trucks	45	90	47.21	6.65	63.32	0.55	1.13
			56.06	7.60	64.27	0.56	1.17

Baseline Fugitive Dust Emission Estimates From Trucks and Employee Vehicles

Source Type	Number	Fuel	Peak Daily Trips	One-way Distance	Emission Factor (lb/vmt)	Peak PM-10 (lbs/day)
Passenger Vehicle/ On Paved Roadways	18	Gasoline	2	16.2	0.000856	0.50
Trucks on Paved Roadways	45	Diesel	2	25	0.0206	46.35
Total	63					46.85

* Emission Calculations for travel on paved roads from EPA AP-42 Section 13.2.1

$E = k(sL/2)^{0.65} \times (W/3)^{1.5}$

Where: k = 0.016 lb/VMT for PM10, sL = road silt loading (gms/m2) from CARB Methodology 7.9 for paved roads (0.240 for local roads and 0.037 for major/collector roads), W = weight of vehicles (2.4 tons for cars; 5 for pickup trucks, and 20 for heavy trucks)

**Emission Calculations for travel on unpaved roads from EPA AP-42 Section 13.2.2

$E = 2.6(s/12)^{0.8} \times (W/3)^{0.4}/(M/0.2)^{0.3}$

Where: s = surface silt content (assumed to be 11%, AP-42 Table 13.2.2-1), W = vehicle weight (tons) same assumptions as above, and M = material moisture content (assumed to be 10 percent since these emissions would only come from a water truck watering the site).

Railcar Emissions Associated with Delivery of Waste Oil and Recycled Oil

Cargo Weight (Rail Car and Freight)		
Volume Transported	100,000	gal/day
Gallons per railcar	20,000	gal
Number of Railcars	5	car/day
Rail car tare weight(1)	23.2	tons/one car
Weight of Product	550	tons/day
Gross Weight	666.00	tons
Fuel Consumption		
Distance within CA outside of Air Basin	160	miles
Fuel Factor(2)	1.329	gal/1000 GTM(3)
Total tons-mile	106560	ton-mile
Total Fuel consumption	141.62	gal/day
Distance within CA inside of Air Basin	60	miles
Fuel Factor(2)	1.329	gal/1000 GTM(3)
Total tons-mile	39960	ton-miles
Total Fuel consumption	53.11	gal/day

(1) Oteko, 2004. www.oteko.com

(2) Port of Los Angeles, 2004

(3) GTM = gross ton miles

EMISSION FACTORS(4)	CO	VOC	NOx	SOx	PM10
gram/gallon	27.4	10.4	199.8	17	6.6
lbs/gallon	0.0604	0.0229	0.4405	0.0375	0.0146

(4) Emission factors are based on Emission Factors for Locomotives, U.S. EPA 420-F-97-05, December 1997, Table 9.

Link	EMISSIONS				
	CO	VOC	NOx	SOx	PM10
Within Basin (lbs/day)	3.208	1.218	23.392	1.990	0.773
Outside Basin (lbs/day)	8.555	3.247	62.379	5.308	2.061

Idling Emissions at Site(5)	EMISSIONS				
	CO	VOC	NOx	SOx	PM10
Locomotive Idling (lbs/day)	0.076	0.029	0.551	0.047	0.018

(5) Idling Emissions = Emission factor (lbs/gal) x Fuel Use (gal/hr) x Idling Time (hr/day)

Where: Fuel use = 5 gallons/hour (SCAQMD, 2003b) and idling time is a maximum of 15 minutes per day.

TOTAL RAILCAR EMISSIONS	EMISSIONS				
	CO	VOC	NOx	SOx	PM10
Within Basin (lbs/day)	3.283	1.246	23.943	2.037	0.791
Outside Basin (lbs/day)	8.555	3.247	62.379	5.308	2.061

DBSWORD:2313:Polychemie Const Emiss Calcs.xls

BASELINE SUMMARY

Existing Emissions	Estimated Emissions				
	CO	VOC	NOx	SOx	PM10
On-site Emissions (lbs/year)					
Boiler and Heater Emissions (lbs/day)	18.26	2.59	24.15	0.23	2.94
Backup Generator (lbs/day)	0.49	0.18	2.25	0.03	0.16
Storage Tank Emissions (lbs/day)		5.91			
Loading/Unloading Emissions (lbs/day)		0.00			
Fugitive Emissions (lbs/day)		25.83			
Total On-site Emissions (lbs/day)	18.75	34.52	26.40	0.27	3.10
Off-site Emissions (lbs/day)					
Baseline Trip Emissions	56.06	7.60	64.27	0.56	1.17
Fugitive Dust					46.85
Railcar Emissions	3.28	1.25	23.94	2.04	0.79
Total Off-site Emissions (lbs/day)	59.34	8.84	88.22	2.60	48.81
Total Emissions (lbs/day)	78.09	43.36	114.62	2.86	51.91

Baseline Storage Tank Emissions

Tank Number	21	22	23	24	25	26	27
Tank Contents	Used Oil	Used Oil	Used Oil	Used Oil	Used Oil	Used Oil	Used Oil
Speciation Profile[1]	2	2	2	2	2	2	2
Liquid Temperature, °F (as measured in ISOCI tanks)	180	180	180	180	180	180	180
Maximim Storage Capacity (in 1000 gallons)	28.064	31.071	31.071	28.064	28.064	28.064	28.064
Vented to Vapor Recovery System, (N, V or T)	V	V	V	V	V	V	V
Tank Diameter, ft. (D)	16	16	16	16	16	16	16
Tank Shell Height, ft. (H_s)	20.67	22.5	22.5	20.67	20.67	20.67	20.67
Annual Throughput, bbl, (Q)	52295	57898	57898	52295	52295	52295	52295
Usage Factor (U) ($0 < U \leq 1$)	1	1	1	1	1	1	1
Turnovers (N)	78.26	78.26	78.26	78.26	78.26	78.26	78.26
Vapor Space Volume, ft^3 (V_V) ($=0.7854*D^2*H_{VO}$; $H_{VO} = 0.5*H_S$ or 1 ft.)	2077.98	2261.95	2261.95	2077.98	2077.98	2077.98	2077.98
Vapor density, lb/ft^3, ($Wv = Mv*P / R*T_{la}$; R= 10.31 ft^3*psia/lb-mole*°R)	2.46E-04	2.46E-04	2.46E-04	2.46E-04	2.46E-04	2.46E-04	2.46E-04
Vapor Molecular Weight, lb/lb-mole, (M_v)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Daily avg. liq. surf. temp., °R, (T_{la}) Tla = °F + 460	640	640	640	640	640	640	640
True Vapor Pressure, psia, (P)	5.43E-01	5.43E-01	5.43E-01	5.43E-01	5.43E-01	5.43E-01	5.43E-01
Vapor space expansion factor, Ke = (DTv/T_{la}) + (DPv-Pb) / (Pa-P)	6.69E-02	6.69E-02	6.69E-02	6.69E-02	6.69E-02	6.69E-02	6.69E-02
Daily vapor temp. range, °R, DTv = 0.72DTa + 0.028al	41	41	41	41	41	41	41
Daily vapor pressure range, psia, (DPv)	3.49E-02	3.49E-02	3.49E-02	3.49E-02	3.49E-02	3.49E-02	3.49E-02
Daily max. liq. temperature, °R	661	661	661	661	661	661	661
Daily min. liquid temperature, °R	619	619	619	619	619	619	619
Vapor pressure at max. liq. temp., psia, (Pvx)	5.60E-01	5.60E-01	5.60E-01	5.60E-01	5.60E-01	5.60E-01	5.60E-01
Vapor pressure at min. liq. temp., psia, (Pvn)	5.25E-01	5.25E-01	5.25E-01	5.25E-01	5.25E-01	5.25E-01	5.25E-01
Vented Vapor Saturation Factor (K_v)	0.77	0.76	0.76	0.77	0.77	0.77	0.77
Turnover factor, (Kn), N<=36: Kn=1; N>36: Kn=(180+N)/6N	0.5500	0.5500	0.5500	0.5500	0.5500	0.5500	0.5500
Product factor, (Kp), Kp=0.75 (crude oils); Kp=1 (all other org. liq.)	1	1	1	1	1	1	1
Standing Storage Loss ($L_s = V_v*W_v*K_e*K_s*U$), lbs/yr	9.63	10.27	10.27	9.63	9.63	9.63	9.63
Working Loss (Lw), lbs/yr	46.72	51.72	51.72	46.72	46.72	46.72	46.72
Total Loss without Control System ($L_s + L_w$), lbs/yr	56.34	61.99	61.99	56.34	56.34	56.34	56.34
Control System % Efficiency	0	0	0	0	0	0	0
Total Loss with Control System ($L_s + L_w$)[(100 - %eff) / 100], lbs/yr	**56.34**	**61.99**	**61.99**	**56.34**	**56.34**	**56.34**	**56.34**
Total Standing Storage Uncontrolled Loss (lbs/yr)							
Total Working Uncontrolled Loss (lbs/yr)							
Total Controlled Loss (lbs/yr)							
Total Controlled Loss (lb/day)							