ATTACHMENT A
M/V KLIHYAM
EMISSION REDUCTION SUMMARY

ATTACHMENT A

M/V Klihyam
Emission Reduction Summary

A. Trip Logs Summary

Line Haul Distances

SCAQMD Jursidiction	82	16.87%
VCAPCD Jurisdiction	44	9.05%
SBAPCD Jurisdiction	130	26.75%
SLOAPCD	60	12.35%
MBUAPCD Jurisdiction	100	20.58%
BAAQMD Jurisdiction	70	14.40%
	486	

SCAQMD and BAAQMD miles include the turn into the Port

B. Emission Factors

Baseline

NOx	15.2 gms/bhp-hr	Reference: GM EMD Manufacturers Specification
PM	0.53 gms/bhp-hr	
NOx Correction for California fuel	0.94	
PM Correction for California fuel	0.8	
Corrected NOx	14.288 gms/bhp-hr	
Corrected PM	0.424 gms/bhp-hr	

Repower

NOx	4.87 gms/bhp-hr	Reference: USEPA Tier 2 Emission Limit
PM	0.107 gms/bhp-hr	
NOx Correction for California fuel	0.87	
PM Correction for California fuel	0.9	
Corrected NOx	4.2369 gms/bhp-hr	
Corrected PM	0.0963 gms/bhp-hr	

ATTACHMENT A

M/V Klihyam
Emission Reduction Summary

C. Emission Reductions

Methodology for calculating emission reductions: SCAQMD Rule 1631 - Pilot Credit Generation Program for Marine Vessels (SIP-approved MSERC calculation method peer reviewed by USEPA)

Emission reductions (tons/yr) = (EFbase-EFrepower) x ECF x Fuel Burn / 454/2000
where ECF = Energy Consumption Factor

EFBase = 15.2 gms/bhp-hr	Reference: GM EMD Manufacturers Specification
EFrepower = 4.87 gms/bhp-hr	Reference: USEPA Tier 2 Emission Limit
ECF = 22.61 bhp-hr/gal	Reference: ElectroMotive 8-710 Tier 2 Certificate of Conformity
	22.61 bhp-hr/gal = 1/(0.314 lb/bhp-hr /7.1 lb/gal) @ 900 RPM

C.1 Emission Reductions by Segment

Line Haul segment	
NOx	112.60 tons/yr
PM	3.67 tons/yr
Local Los Angeles/Long Beach/El Segundo segment	
NOx	18.43 tons/yr
PM	0.60 tons/yr
Local San Francisco, Richmond, Martinez segment	
NOx	7.66 tons/yr
PM	0.25 tons/yr
Total Emission Reductions NOx	**138.69 tons/yr**
Total Emission Reductions PM	**4.52 tons/yr**

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M/V Klihyam
Emission Reduction Summary

C.2 Emissions Reductions by Air District

NOx

	Line Haul Segment tons/yr	Local Segment tons/yr	Total tons/yr	% of All
SCAQMD	19.00	18.43	37.43	26.99%
VCACPD	10.19	0.00	10.19	7.35%
SBAPCD	30.12	0.00	30.12	21.72%
SLOAPCD	13.90	0.00	13.90	10.02%
MBUAPCD	23.17	0.00	23.17	16.71%
BAAQMD	16.22	7.66	23.88	17.22%
	112.60	26.09	138.69	

PM

	Line Haul Segment tons/yr	Local Segment tons/yr	Total tons/yr	% of All
SCAQMD	0.62	0.60	1.22	26.99%
VCACPD	0.33	0.00	0.33	7.35%
SBAPCD	0.98	0.00	0.98	21.72%
SLOAPCD	0.45	0.00	0.45	10.02%
MBUAPCD	0.76	0.00	0.76	16.71%
BAAQMD	0.53	0.25	0.78	17.22%
	3.67	0.85	4.52	

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M/V Klihyam
Emission Reduction Summary

D. Fuel Logs

Q1	Fuel, gal		Fuel,gal		Fuel, gal
1/14/2005	39,100	1/10/2006	35,000	12/18/2004	71,000
2/5/2005	33,000	2/6/2006	48,000		
3/7/2005	30,000	2/20/2006	23,500		
		3/10/2006	35,500		
	102,100		142,000		

Q2	Fuel, gal
4/8/2005	35,010
5/8/2005	48,000
6/14/2005	35,100
6/24/2005	29,000
	147,110

Q3	Fuel, gal
8/5/2005	34,000
9/3/2005	38,500
9/22/2005	32,000
	104,500

Q4	Fuel, gal
10/17/2005	43,000
11/17/2005	54,000
12/14/2005	38,000
12/28/2005	25,032
	160,032

Total fuel from 3/07/05 to 3/10/06 =	583,642
Subtract fuel purchase of 3/07/06 =	-30,000
Adjusted Total fuel consumed 3/07/05 - 3/10/06	**553,642 gallons**

ATTACHMENT A

M/V Klihyam
Emission Reduction Summary

E. Trip Logs

E.1. Line Haul Trips 3/10-05-3/10-06

From	To	# trips	Hrs	Avg hrs/trip
Richmond	Los Angeles	20	1039	52.0
Long Beach	Richmond	5	353	70.6
Richmond	Long Beach	1	50	50.0
Los Angeles	Richmond	9	445	49.4
El Segundo	Richmond	7	343	49.0
Martinez	Long Beach	2	92	46.0
Los Angeles	San Francisco	1	40	40.0
Rodeo	Long Beach	1	50	50.0
Long Beach	Martinez	1	56	56.0
El Segundo	Benecia	2	100	50.0
		49	2568	52.4

One trip on 12/16/05 115 hrs (weather delayed), average load factor = 0.45
2453 hours at 0.97 load factor, 115 hours at 0.1 load factor
Composite load factor = 0.93

E.2. Local Los Angeles/Long Beach/El Segundo 3/10-05-3/10-06

# trips	Hrs	Avg hrs/trip
157	521.2	3.3

E.3. Local Richmond, Martinez, Benecia 3/10-05-3/10-06

# trips	Hrs	Avg hrs/trip
85	216.6	2.5

E.4. Data Reduction

Total run hours	3305.8	for 3/10/05 - 3/10/06
Total trips	291	for 3/10/05 - 3/10/06
Avg/trip hrs/trip	11.4	for 3/10/05 - 3/10/06

Service	Engine H.P	Load Factor	Fuel Consumption gal/hr	Total Hrs Actual	Total Fuel Consumed Calculated gal	Total Fuel Consumed Adjusted for Actual, gal	% of total Fuel
Line haul	3,627	0.93	192.2	2,568	493,597	449,486	81.19%
Local Los Angeles/El Segundo/Long Beach	2,925	0.75	155.0	521	80,799	73,578	13.29%
Local Richmond/Benecia/Martinez	2,925	0.75	155.0	217	33,578	30,578	5.52%
				3,306	607,975	553,642	

ATTACHMENT B
M/V KLIHYAM
TRIP LOGS

Tug: KLIHYAM towing Barge SUNSET BAY
start 12/28/04

To RJ from Piper page 1 of 1

Port Departed	Berth	Time	Date	Arrival Port	Berth	Secured Time	Sec. Date
Coos Bay	Somar	1215	12/28/04	Richmond	4/W B-2	0115	12/31 04
Richmond	4/W B-2	0020	01/01/05	Martinez	Shore	1530	01/06 05
Martinez	Shore	2020	01/07	Richmond	Cal-Oil	0040	01/08
Richmond	Cal-Oil	1105	01/08	Richmond	IMTT	1155	01/08
"	IMTT	2055	01/08	Richmond	Shore	2140	01/08
"	Shore	0804	01/09	"	4/W-B2	0945	01/09
"	4/W B-2	0315	01/10	Martinez	Shore	1630	01/10
Martinez	Shore	1003	01/11	Richmond	4/W B-2	1440	01/11
Richmond	4/W-B-2	0935	1/12	Los Angeles	163	1445	1/14
Los Angeles	163	0047	1/15	Los Angeles	189	0130	1/15
"	189	1618	1/15	LA	Anch B2	1745	1/15
"	Anch B2	0125	1/18	LA	238	0255	1/18
LA	238	0030	1/19	El Segundo	#3	0815	1/19
El Segundo	#3	0205	1/20	LA	Ach. B-3	0640	1/20
LA	Anch B-3	1020	1/21	Long Beach	Equilon 84	1200	1/21
Long Beach	84	0645	1/23	Richmond	Anch 5	0700	1/25
Richmond	Anch 5	0045	1/26	"	LW B-3	0210	1/26
"	LW B-3	2025	1/26	Martinez	Shore	0040	1/27
Martinez	Shore	1430	1/27	Richmond	Anch. 9	1845	1/27
Richmond	Anch 9	1925	1/28	Lightering	SPORADES	2040	1/28
" droplines	SPORADES	2345	1/29	Richmond	4/W	0540	1/29
Richmond	4/W	2115	1/30	Long Beach	Anch B-5	2120	2/01
Long Beach	Anch B-5	0640	2/02	Long Beach	43	0650	2/02
"	43	0750	2/02	Los Angeles	189	1040	2/02
LA	189	1610	2/04	LB	35	2345	2/04
Long Beach	35	0240	2/06	LB	Anch B2	0300	2/06 05

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Tug KLIHYAN towing barge SUNSET BAY

05'

Port Departed	Berth	Time	Date	Arrival Port	Berth	Secured Time	Sec. Date
Long Beach	B-2	1045	2/07	Long Beach	84	1200	2/07
"	84	1135	2/08	Richmond	4W	1245	2/10
Richmond	4/W	0035	2/11	Benicia	City Dock	0325	2/11
Benicia	City Dock	1745	2/11	"	Valero	1945	2/11
"	Valero	0835	2/12	Martinez	Shell	0945	2/12
Martinez	Shell	0135	2/13	Richmond	IMTT	0615	2/13
Richmond	IMTT	1530	2/13	Richmond	4W B-3	1730	2/13
"	4/W B-3	0605	2/15	Los Angeles	189	1520	2/17
Los Angeles	189	2210	2/18	Long Beach	84A	2340	2/18
"	84A	2000	2/18	" "	Anch B-2	2115	2/19
Long Beach	Anch B2	0140	2/23	El Segundo	moorings	0800	2/23
El Segundo	moorings	1320	2/24	Long Beach	Bravo Anch	1900	2/24
Long Beach	Anch. B	1000	2/26	LA	189	1230	2/26
LA	189	0800	2/27	LB-Lightering	SPORADES B9	1025	2/27
Long Beach	B9 Sporades	1050	2/28	Long Beach	B-2	1200	2/28
"	B-2	0210	3/03	El Segundo	moorings	1800	3/3
El Segundo	Moorings	2215	3/03	Los Angeles	238	0840	3/4
LA	238	0200	3/05	Long Beach	B-2	0430	3/05
LB	B-2 Anch.	0815	3/06	El Segundo	moorings	1250	3/06
El Segundo	moorings	0930	3/07	Los Angeles	189	1735	3/07
LA	189	1910	3/08	Richmond	4W B-2	1200	3/11
Richmond	4W	1822	3/11	Martinez	Shore	2250	3/11
Martinez	Shore	1035	3/12	Richmond	IMTT	1445	3/12
Richmond	IMTT	0420	3/12	Richmond	4W B-3	0630	3/12
"	4/W B-3	1827	3/14	Martinez	Shore	2240	3/14
Martinez	Shore	1705	3/15	Avon		1745	3/15

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Tug KLIHYAM towing barge SUNSET BAY

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Port Departed	Berth	Time	Date	Arrival Port	Berth	Secured Time	Sec. Date
Avon		0455	3/16	Richmond	4/W B-3	0930	3/16
Richmond	4/W B-3	1125	3/17	"	IMTT	1325	3/17
"	IMTT	0220	3/18	Rodeo	Conoco/Avil	0600	3/18
Rodeo	Conoco	2235	3/18	Richmond	4/W B-2	0130	3/19
Richmond	4/W B-2	1430	3/19	Los Angeles	Valero - 163	2100	3/21
Los Angeles	163	0905	3/22	"	189 Vopak	1015	3/22
"	189	0405	3/23	Los Angeles	Anch B-2	1155	3/23
"	Anch B-2	0305	3/24	El Segundo	B-3	1145	3/24
El Segundo	B-3	0640	3/25	LA	189	1250	3/25
LA	189	0850	3/26	El Segundo	B-3	1624	3/26
El Segundo	B-3	0935	3/27	Long Beach	Anch B3	1000	3/27
LB	Anch B3	0235	3/28	LB-Lightering	SPORADES	0355	3/28
LB	SPORADES	2025	3/28	Los Angeles	163	2215	3/28
Los Angeles	163	0853	3/29	Long Beach	Bravo 3	0955	3/29
LB	Bravo 3	1040	3/29	El Segundo	B3	0724	3/31
El Segundo	B3 chev	0020	4/01	Richmond	Archer 5	0540	4/03
Richmond	Anch-5	0830	4/03	Richmond	4/W B-2	0950	4/03
"	4/W	0950	4/06	Los Angeles	189	1315	4/08
LA	189	0845	4/09	"	163	1000	4/09
"	163	0240	4/10	El Segundo	B3	0750	4/10
El Segundo	B3	0435	4/11	Long Beach	Anch B-3	1030	4/11
Long Beach	Anch B3	1307	4/11	Los Angeles	189	1510	4/11
Los Angeles	189	0102	4/11	"	163	0220	4/12
"	163	0910	4/12	El Segundo	B-3	1553	4/12
El Segundo	B3	0515	4/13	Los Angeles	189	1130	4/13
Los Angeles	189	0315	4/14	"	163	0445	4/14

Tug KLIHYAM towing barge SUNSET BAY

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Port Departed	Berth	Time	Date	Arrival Port	Berth	Secured Time	Sec. Date
Los Angeles	163	1005	4/14	Los Angeles	189	1140	4/14
"	189	0730	4/15	Richmond	L/W B-3	0725	4/17
Richmond	L/W B3	0912	4/18	"	IMTT	1045	4/18
"	IMTT	1935	4/18	Martinez	Shore	0230	4/19
Martinez	Shore	1943	4/19	"	Shell	2030	4/19
"	Shell	1600	4/21	Richmond	L/W 2	2220	4/21
Richmond	L/W B-2	0112	4/24	Martinez	Shore	0535	4/24
Martinez	Shore	2335	4/24	"	Shell	0600	4/25
"	Shell	1635	4/26	Richmond	Anchorage 5	1635	4/26
Richmond	Anch 5	1235	4/27	Richmond	L/W #2	1350	4/27
"	L/W #2	0100	4/29	Los Angeles	Anch B5	0150	5/01
Los Angeles	Anch B-5	0730	5/01	"	189	0955	5/01
"	189	1645	5/02	Long Beach	84	1835	5/02
Long Beach	84	1150	5/03	Los Angeles	189	1300	5/03
LA	189	1100	5/04	Long Beach	B-11 Sirius Voyager	1330	5/04
Long Beach	Ship Sirius Voyager	1830	5/04	Long Beach	B-2	1900	5/04
"	B-2	0520	5/06	" "	Cygnus Voyager	0655	5/06
LB	Cygnus Voyager	1130	5/06	Long Beach	Buoy 4	225	5/06
"	Buoy 4	0815	5/09	El Segundo	Moorings	1250	5/9
El Segundo	Moorings	1130	5/10	Los Angeles	189	1835	5/10
Los Angeles	189	1310	5/12	Long Beach	B-2	1410	5/12
Long Beach	B-2	0640	5/14	"	86	0820	5/14
"	86	1305	5/15	Los Angeles	189	1600	5/15
Los Angeles	189	0300	5/16	Richmond	Shore	0730	5/18
Richmond	Shore	1750	5/18	"	IMTT	1830	5/18
"	IMTT	2145	5/18	Richmond	L/W B-3	2340	5/18

Tug KLIHYAM towing barge SUNSET BAY

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Port Departed	Berth	Time	Date	Arrival Port	Berth	Secured Time	Sec. Date
Richmond	4W B3	2100	5/19	Los Angeles	189	2100	5/21
Los Angeles	189	1305	5/22	Long Beach	86	1455	5/22
LONG BEACH	86	1350	5/23	LONG BEACH	ANCHORAGE B-5	1500	5/23
LONG BEACH	ANCHORAGE B-5	1900	5/23	LOS ANGELES	189	2110	5/23
LOS ANGELES	189	1900	5/24	LONG BEACH	ANCHORAGE B-2	2030	5/24
LONG BEACH	ANCHORAGE B-2	0800	5/26	EL SEGUNDO	BERTH 3	1350	5/26
EL SEGUNDO	#3	0200	5/27	RICHMOND	KANEB	0200	5/29
RICHMOND	KANEB	2055	5/29	RICHMOND	IMTT	2135	5/29
RICHMOND	IMTT	1020	5/30	RICHMOND	CAL OILS	1110	5/30
RICHMOND	CAL OILS	0600	5/31	RICHMOND	L/W #3	0730	5/31
RICHMOND	L/W #3	1100	6/1	MARTINEZ	SHORE	1800	6/1
MARTINEZ	SHORE	1215	6/2	SAN FRANCISCO	ANCHORAGE #5	1500	6/2
SAN FRANCISCO	ANCHORAGE #5	0520	6/3	RICHMOND	L/W #2	0630	6/3
RICHMOND	L/W #2	0945	6/4	SAN FRANCISCO	ANCH 9 LIGHTER SITES	1150	6/4
SAN FRANCISCO	ANCHORAGE #9	2305	6/4	SAN FRANCISCO	ANCHORAGE #5	0135	6/5
SAN FRANCISCO	ANCHORAGE #5	0300	6/5	RICHMOND	L/W #2	0350	6/5
RICHMOND	L/W #2	0215	6/6	MARTINEZ	SHORE	0720	6/6
MARTINEZ	SHORE	0020	6/7	LONG BEACH	ANCHORAGE B-8	2225	6/8
LONG BEACH	ANCHORAGE B-8	2350	6/8	EL SEGUNDO	#3	0800	6/9
EL SEGUNDO	#3	0227	6/10	LONG BEACH	ANCHORAGE B-10	0720	6/10
LONG BEACH	ANCHORAGE B-10	2221	6/10	LOS ANGELES	189	0020	6/11
LOS ANGELES	189	0525	6/12	LONG BEACH	77	0655	6/12
LONG BEACH	77	0233	6/14	LOS ANGELES	189	0340	6/14
LOS ANGELES	189	0255	6/15	EL SEGUNDO	#3	0805	6/15
EL SEGUNDO	#3	2355	6/15	LONG BEACH	ANCHORAGE B-2	0810	6/16
LONG BEACH	ANCHORAGE B-2	0300	6/17	LOS ANGELES	163	0430	6/17

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Tug KLIHYAM towing barge SUNSET BAY

Port Departed	Berth	Time	Date	Arrival Port	Berth	Secured Time	Sec. Date
LOS ANGELES	163	1825	6/17	RICHMOND	L/W #2	1820	6/19
RICHMOND	L/W #2	0840	6/20	BENICIA	VALERO	1140	6/20
BENICIA	VALERO	0910	6/21	MARTINEZ	SHORE	1040	6/21
MARTINEZ	SHORE	0210	6/22	LOS ANGELES	189	2359	6/23
LOS ANGELES	189	2040	6/24	EL SEGUNDO	#3	0750	6/25
EL SEGUNDO	#3	2320	6/25	LONG BEACH	ANCHORAGE B-2	0330	6/26
LONG BEACH	ANCHORAGE B-2	1850	6/27	LONG BEACH	76	2035	6/27
LONG BEACH	76	2245	6/28	EL SEGUNDO	#3	0735	6/29
EL SEGUNDO	#3	0345	7/1	LONG BEACH	ANCHORAGE D-1	0800	7/1
LONG BEACH	ANCH D-1	1040	7/1	LONG BEACH	ANCH D-2 LIGHTER SHIP	1205	7/1
LONG BEACH	ANCH D-2	2100	7/2	EL SEGUNDO	#3	0750	7/3
EL SEGUNDO	#3	0125	7/4	LOS ANGELES	187 1/2	0745	7/4
LOS ANGELES	187 1/2	2220	7/4	LONG BEACH	ANCH B-2	2330	7/4
LONG BEACH	ANCH B-2	1625	7/6	LOS ANGELES	163	1815	7/6
LOS ANGELES	163	0820	7/8	LONG BEACH	ANCH B-10	0940	7/8
LONG BEACH	ANCH B-10	1600	7/8	LOS ANGELES	403 BUNKER SHIP	1820	7/8
LOS ANGELES	403	0655	7/9	LONG BEACH	ANCH B-5	0830	7/9
LONG BEACH	ANCH B-5	0200	7/15	LOS ANGELES	163	0330	7/15
LOS ANGELES	163	1635	7/15	LOS ANGELES	403 BUNKER SHIP	1815	7/15
LOS ANGELES	403	0135	7/16	SAN FRANCISCO	ANCH #5	1745	7/17
SAN FRANCISCO	ANCH #5	1730	7/18	RICHMOND	L/W #2	1815	7/18
RICHMOND	L/W #2	0800	7/20	SAN FRANCISCO	ANCH #9	1000	7/20
SAN FRANCISCO	ANCH #9	0235	7/21	SAN FRANCISCO	ANCH #9 LIGHTER SHIP	0415	7/21
SAN FRANCISCO	ANCH #9	1840	7/21	RICHMOND	L/W #3	2100	7/21
RICHMOND	L/W #3	0655	7/23	RODEO	CONOCO PHILLIPS	1025	7/23
RODEO	CONOCO PHILLIPS	2045	7/23	LONG BEACH	ANCH B-3	2300	7/25

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Tug KLIHYAM towing barge SUNSET BAY

Port Departed	Berth	Time	Date	Arrival Port	Berth	Secured Time	Sec. Date
LONG BEACH	ANCH B-3	2210	7/26	EL SEGUNDO	#3	0830	7/27
EL SEGUNDO	#3	0830	7/28	LOS ANGELES	189	1835	7/28
LOS ANGELES	189	2210	7/29	LONG BEACH	ANCH B-2	2345	7/29
LONG BEACH	ANCH B-2	2225	7/31	LONG BEACH	ANCH B-9 LIGHTER SHIP	2345	7/31
LONG BEACH	ANCH B-9	1405	8/1	LOS ANGELES	163	1600	8/1
LOS ANGELES	163	0400	8/2	EL SEGUNOD	#3	0900	8/2
EL SEGUNDO	#3	0110	8/3	LONG BEACH	ANCH B-2	0900	8/3
LONG BEACH	ANCH B-2	1135	8/4	LOS ANGELES	163	1305	8/4
LOS ANGELES	163	2225	8/4	LOS ANGELES	189	0030	8/5
LOS ANGELES	189	1410	8/6	RICHMOND	IMTT	1800	8/8
RICHMOND	IMTT	0745	8/9	RICHMOND	SHORE	0835	8/9
RICHMOND	SHORE	1800	8/9	MARTINEZ	SHORE	2145	8/9
MARTINEZ	SHORE	2245	8/10	RICHMOND	6A	0205	8/11
RICHMOND	6A	2220	8/11	RICHMOND	IMTT	2300	8/11
RICHMOND	IMTT	0740	8/12	SAN FRANCISCO	ANCH #5	0835	8/12
SAN FRANCISCO	ANCH #5	1730	8/12	RICHMOND	L/W #3	1840	8/12
RICHMOND	L/W #3	0025	8/14	RICHMOND	IMTT	0155	8/14
RICHMOND	IMTT	0910	8/14	LOS ANGELES	240 B	0245	8/16
LOS ANGELES	240B	1640	8/16	LONG BEACH	ANCH B-2	1800	8/16
LONG BEACH	ANCH B-2	1115	8/17	EL SEGUNDO	#3	0730	8/18
EL SEGUNDO	#3	1625	8/19	LONG BEACH	ANCH B-3	2005	8/19
LONG BEACH	ANCH B-3	0200	8/22	LOS ANGELES	189	0400	8/22
LOS ANGELES	189	1300	8/23	LONG BEACH	ANCH B-9 LIGHTER SHIP	1815	8/23
LONG BEACH	ANCH B-9	0035	8/24	LONG BEACH	ANCH B-3	0100	8/24
LONG BEACH	ANCH B-3	1335	8/26	LONG BEACH	ANCH D-6 LIGHTER SHIP	1635	8/26
LONG BEACH	ANCH D-6	0630	8/27	RICHMOND	KANEB	1210	8/29

Tug KLIHYAM towing barge SUNSET BAY

Sheet1

Port Departed	Berth	Time	Date	Arrival Port	Berth	Secured Time	Sec. Date
RICHMOND	KANEB	2210	8/29	MARTINEZ	KANEB/SHORE	0220	8/30
MARTINEZ	KANEB	1200	8/30	SAN FRANCISCO	ANCH #5	1500	8/30
SAN FRANCISCO	ANCH #5	1645	8/30	RICHMOND	IMTT	1820	8/30
RICHMOND	IMTT	2355	8/30	RICHMOND	L/W #2	0155	8/31
RICHMOND	L/W #2	2315	8/31	LONG BEACH	ANCH B-3	0040	9/3
LONG BEACH	ANCH B-3	1245	9/3	LOS ANGELES	189	1420	9/3
LOS ANGELES	189	0145	9/5	LONG BEACH	76	0335	9/5
LONG BEACH	76	0150	9/6	RICHMOND	KANEB	0955	9/8
RICHMOND	KANEB	2050	9/8	RICHMOND	L/W #2	2210	9/8
RICHMOND	L/W #2	1340	9/10	LOS ANGELES	189	1225	9/12
LOS ANGELES	189	1815	9/13	LOS ANGELES	163	1915	9/13
LOS ANGELES	163	0805	9/14	RICHMOND	L/W #2	0750	9/16
RICHMOND	L/W #2	2000	9/16	RICHMOND	IMTT	2135	9/16
RICHMOND	IMTT	1140	9/17	RICHMOND	L/W #2	1305	9/17
RICHMOND	L/W #2	0100	9/18	LOS ANGELES	163	0425	9/20
LOS ANGELES	163	1738	9/20	LONG BEACH	ANCH B-2	1905	9/20
LONG BEACH	ANCH B-2	1815	9/21	LOS ANGELES	189	2030	9/21
LOS ANGELES	189	2108	9/22	LOS ANGELES	238	2235	9/22
LOS ANGELES	238	1200	9/23	EL SEGUNDO	#3	1630	9/23
EL SEGUNDO	#3	0520	9/24	LONG BEACH	ANCH B-3	1005	9/24
LONG BEACH	ANCH B-3	1520	9/25	LOS ANGELES	163	1645	9/25
LOS ANGELES	163	0505	9/26	LONG BEACH	77	0640	9/26
LONG BEACH	77	1725	9/26	MARTINEZ	KANEB	0125	9/29
MARTINEZ	KANEB	1945	9/29	RICHMOND	IMTT	2330	9/29
RICHMOND	IMTT	0225	9/30	RICHMOND	L/W #2	0355	9/30
RICHMOND	L/W #2	0420	10/1	SAN FRANCISCO	ANCH #5	0450	10/1

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Tug KLIHYAM towing barge SUNSET BAY

Sheet1

Port Departed	Berth	Time	Date	Arrival Port	Berth	Secured Time	Sec. Date
SAN FRANCISCO	ANCH #5	0945	10/2	RICHMOND	L/W #2	1040	10/2
RICHMOND	L/W #2	0255	10/3	LOS ANGELES	163	0730	10/5
LOS ANGELES	163	0150	10/6	EL SEGUNDO	#3	0800	10/6
EL SEGUNDO	#3	2015	10/6	LOS ANGELES	189	0535	10/7
LOS ANGELES	189	1110	10/8	EL SEGUNDO	#3	1705	10/8
EL SEGUNDO	#3	1725	10/9	RICHMOND	IMTT	1625	10/11
RICHMOND	IMTT	2100	10/11	RICHMOND	KANEB/PAC-ATL	2215	10/11
RICHMOND	KANEB/PAC-ATL	0955	10/12	SAN FRANCISCO	ANCH #5	1050	10/12
SAN FRANCISCO	ANCH #5	0800	10/13	RICHMOND	L/W #3	0900	10/13
RICHMOND	L/W #3	1550	10/14	LOS ANGELES	189	2225	10/16
LOS ANGELES	189	0605	10/18	LONG BEACH	ANCH B-4	0730	10/18
LONG BEACH	ANCH B-4	1900	10/19	LONG BEACH	77	2007	10/19
LONG BEACH	77	0225	10/21	LONG BEACH	ANCH B-3	0300	10/21
LONG BEACH	ANCH B-3	2200	10/21	EL SEGUNDO	#3	0730	10/22
EL SEGUNDO	#3	1940	10/24	LOS ANGELES	189	0225	10/25
LOS ANGELES	189	0030	10/26	EL SEGUNDO	#3	0930	10/26
EL SEGUNDO	#3	0330	10/27	BENICIA	CITY DOCK	0655	10/29
BENICIA	CITY DOCK	0710	10/30	BENICIA	VALERO	0835	10/30
BENICIA	VALERO	0900	10/31	RICHMOND	L/W #3	1210	10/31

SAUSE BROS.

155 E. Market Ave.* Coos Bay, OR 97717 * Phone: (541) 269-5841* Fax: (541) 267-8245

Towage Summary

From 12/28/04 To 03/31/06

	Barge 1	Barge 2	Master	From	To	Dep Berth	Dep Date	Departure	Date Arr	Arrival	Arr Berth	Transit	Notes
56	SUNSET B		MILES	RICHMOND	LOS ANGELES	LONGWHARF	10/03/05	2:55	10/05/05	7:30	163	52.6 hrs	
56	SUNSET B		MILES	EL SEGUNDO	LOS ANGELES		10/06/05	20:15	10/07/05	[illegible]	189	9.3 hrs	
56	SUNSET B		MILES	LOS ANGELES	EL SEGUNDO	163	10/08/05	[illegible]	10/08/05	8:00		8.2 hrs	
56	SUNSET B		MILES	LOS ANGELES	EL SEGUNDO	189	10/08/05	11:10	10/08/05	17:05		5.9 hrs	
56	SUNSET B		MILES	EL SEGUNDO	RICHMOND		10/09/05	17:25	10/11/05	16:25	IMTT	47.0 hrs	
57	SUNSET B		MILES	RICHMOND	RICHMOND	SHORE	10/12/05	9:55	10/12/05	10:50	ANCHORAGE 5	0.9 hrs	
57	SUNSET B		MILES	RICHMOND	RICHMOND	ANCHORAGE 5	10/13/05	8:00	10/13/05	9:00	LONGWHARF	1.0 hrs	
57	SUNSET B		MILES	RICHMOND	LOS ANGELES	LONGWHARF	10/14/05	15:50	10/17/05	22:25	189	78.5 hrs	
57	SUNSET B		MILES	LOS ANGELES	LONG BEACH	189	10/18/05	6:20	10/18/05	8:00	BRAVO 2 ANCHOR	1.7 hrs	
57	SUNSET B		MILES	LONG BEACH	LONG BEACH	B2 ANCHOR	10/18/05	19:00	10/19/05	20:07	77	1.1 hrs	
57	SUNSET B		MILES	LONG BEACH	LONG BEACH	77	10/21/05	2:10	10/21/05	3:00	BRAVO 3 ANCHOR	[illegible] hrs	
57	SUNSET B		MILES	LONG BEACH	EL SEGUNDO	BRAVO 3 ANCHOR	10/21/05	22:00	10/22/05	7:30		9.5 hrs	
57	SUNSET B		MILES	EL SEGUNDO	LOS ANGELES		10/24/05	19:40	10/25/05	2:25	189	6.8 hrs	
57	SUNSET B		MILES	LA 189	EL SEGUNDO		10/26/05	0:30	10/26/05	7:30		7.0 hrs	
57	SUNSET B		MILES	EL SEGUNDO	BENICIA		10/27/05	3:50	10/29/05	6:50	CITY DOCK	51.0 hrs	
57	SUNSET B		MILES	BENICIA	BENICIA	CITY DOCK	10/30/05	7:10	10/30/05	8:35	VALERO	1.4 hrs	
[redacted]													
57	SUNSET B		MILES	RICHMOND	LOS ANGELES	LONGWHARF	11/02/05	0:05	11/04/05	1:20	189	49.3 hrs	Pick Up Here
57	SUNSET B		MILES	EL SEGUNDO	LONG BEACH		11/05/05	22:50	11/06/05	3:25	BRAVO 2 ANCHOR	4.6 hrs	
57	SUNSET B		MILES	LOS ANGELES	EL SEGUNDO	189	11/05/05	9:30	11/06/05	16:40		7.2 hrs	
57	SUNSET B		MILES	LONG BEACH	EL SEGUNDO	BRAVO 2 ANCHOR	11/07/05	22:00	11/08/05	7:30		9.5 hrs	
57	SUNSET B		MILES	EL SEGUNDO	BENICIA		11/08/05	23:45	11/11/05	0:35	CITY DOCK	48.8 hrs	
57	SUNSET B		MILES	BENICIA	MARTINEZ	CITY DOCK	11/12/05	11:00	11/12/05	12:10	SHELL	1.2 hrs	
57	SUNSET B		MILES	MARTINEZ	RICHMOND	SHELL	11/13/05	8:00	11/13/05	13:45	LONGWHARF	5.7 hrs	
57	SUNSET B		MILES	RICHMOND	LOS ANGELES	LONGWHARF	11/14/05	18:45	11/16/05	19:45	189	51.0 hrs	
57	SUNSET B		MILES	LOS ANGELES	EL SEGUNDO	189	11/17/05	10:10	11/17/05	15:00		4.8 hrs	
57	SUNSET B		MILES	EL SEGUNDO	LOS ANGELES		11/18/05	2:55	11/18/05	10:00	163	7.1 hrs	
57	SUNSET B		MILES	LOS ANGELES	RICHMOND	163	11/19/05	7:00	11/21/05	0:20	LONGWHARF	41.3 hrs	
57	SUNSET B		MILES	RICHMOND	LA 189	LONGWHARF	11/21/05	19:35	11/23/05	19:30		47.9 hrs	
58	SUNSET B		MILES	LOS ANGELES	EL SEGUNDO	189	11/25/05	19:45	11/26/05	7:00		11.3 hrs	

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Towage Summary

From 12/28/04 To 03/31/06

	Barge 1	Barge 2	Master	From	To	Dep Berth	Dep Date	Departure	Date Arr	Arrival	Arr Berth	Transit	Notes
58	SUNSET B		MILES	EL SEGUNDO	RICHMOND		11/27/05	5:15	11/29/05	3:20	IMTT	48.1 hrs	
58	SUNSET B		MILES	RICHMOND	RICHMOND	IMTT	11/29/05	14:55	11/29/05	18:20	LONGWHARF	1.4 hrs	
58	SUNSET B		MILES	RICHMOND	LOS ANGELES	LONGWHARF	12/03/05	14:20	12/05/05	20:20	189	54.0 hrs	
58	SUNSET B		MILES	LOS ANGELES	LOS ANGELES	189	12/06/05	10:15	12/06/05	11:00	ANCHOR	0.8 hrs	
58	SUNSET B		MILES	EL SEGUNDO	LONG BEACH		12/07/05	22:00	12/08/05	4:20	SAUSE	6.3 hrs	
58	SUNSET B		MILES	LONG BEACH	EL SEGUNDO	ANCHOR	12/07/05	2:00	12/07/05	6:30		4.5 hrs	
58	SUNSET B		MILES	LONG BEACH	LONG BEACH	SAUSE	12/15/05	11:10	12/15/05	12:40	189	1.5 hrs	
58	SUNSET B		MILES	LONG BEACH	RICHMOND	189	12/16/05	3:20	12/20/05	22:35	longwharf	115.2 hrs	
58	SUNSET B		MILES	RICHMOND	LOS ANGELES	longhwarf	12/22/05	10:05	12/25/05	23:30	163	65.4 hrs	
58	SUNSET B		MILES	LOS ANGELES	RICHMOND	163	12/26/05	11:30	12/28/05	12:10	longwharf	48.7 hrs	
58	SUNSET B		MILES	RICHMOND	LOS ANGELES	LONGWHARF	12/29/05	15:30	01/01/06	1:00	189	57.5 hrs	
58	SUNSET B		MILES	LOS ANGELES	LONG BEACH	189	01/02/06	3:00	01/02/06	4:25	86	1.4 hrs	
58	SUNSET B		MILES	LONG BEACH	RICHMOND	86	01/02/06	19:45	01/05/06	16:15	LONGWHARF	68.5 hrs	
60	SUNSET B		MILES	LOS ANGELES	LOS ANGELES	189	01/11/06	9:45	01/11/06	11:15	163	1.5 hrs	
60	SUNSET B		MILES	LOS ANGELES	EL SEGUNDO	163	01/11/06	16:15	01/12/06	7:00		14.7 hrs	
60	SUNSET B		MILES	EL SEGUNDO	LOS ANGELES		01/13/06	6:05	01/13/06	14:25	187	8.3 hrs	
60	SUNSET B		MILES	LOS ANGELES	LONG BEACH	187	01/14/06	3:40	01/14/06	5:05	ANCHORAGE	1.4 hrs	
60	SUNSET B		MILES	LONG BEACH	RICHMOND	anchorage 5	01/15/06	4:05	01/17/06	15:30	LONGWHARF	59.4 hrs	
60	SUNSET B		MILES	RICHMOND	MARTINEZ	longwharf	01/19/06	5:00	01/19/06	7:15	shore	2.3 hrs	
60	SUNSET B		MILES	MARTINEZ	RICHMOND	shore	01/20/06	5:00	01/20/06	6:50	longwharf	1.8 hrs	
60	SUNSET B		MILES	RICHMOND	LOS ANGELES	longwharf	01/21/06	23:20	01/24/06	2:15	163	50.9 hrs	
60	SUNSET B		MILES	LOS ANGELES	LOS ANGELES	163	01/24/06	11:40	01/24/06	13:10	189	1.5 hrs	
60	SUNSET B		MILES	LOS ANGELES	el segundo	189	01/25/06	10:00	01/25/06	15:45		5.8 hrs	
60	SUNSET B		MILES	EL SEGUNDO	RICHMOND		01/28/06	13:45	01/28/06	14:30	IMTT	48.8 hrs	
60	SUNSET B		MILES	RICHMOND	RICHMOND	imtt	01/28/06	22:50	01/29/06	0:15	anchorage 5	1.4 hrs	
60	SUNSET B		MILES	RICHMOND	RICHMOND	anchorage 5	01/29/06	6:45	01/29/06	7:35	longwharf	0.8 hrs	
60	SUNSET B		MILES	RICHMOND	RICHMOND	LONGWHARF	01/30/06	18:50	01/30/06	20:15	ANCHORAGE	1.4 hrs	
60	SUNSET B		MILES	RICHMOND	RICHMOND	ANCHORAGE 5	01/31/06	14:30	01/31/06	17:30	IMTT	3.0 hrs	
60	SUNSET B		MILES	RICHMOND	RICHMOND	imtt	02/01/06	7:00	02/01/06	8:00	LONGWHARG	1.0 hrs	
60	SUNSET B		MILES	RICHMOND	LOS ANGELES	longwharf	02/02/06	22:35	02/05/06	1:25	189	50.8 hrs	

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Towage Summary

From 12/28/04 To 03/31/06

	Barge 1	Barge 2	Master	From	To	Dep Berth	Dep Date	Departure	Date Arr	Arrival	Arr Berth	Transit	Notes
61	SUNSET BA		LIVINGSTONE	LONG BEACH	EL SEGUNDO	BRAVO 3 ANCHOR	03/28/06	10:00	03/28/06	13:00	CHEVRON	3.0 hrs	George dept. 0600 NB to PDX to LA - depts 0950 PDX to LA
61	SUNSET BA		MINER	LONG BEACH	EL SEGUNDO	BRAVO 3 ANCHOR	03/28/06	10:00	03/28/06	13:00	CHEVRON	3.0 hrs	George dept. 0600 NB to PDX to LA - depts 0950 PDX to LA
61	SUNSET BA		LIVINGSTONE	EL SEGUNDO	LOS ANGELES	CHEVRON	03/29/06	6:00	03/29/06	14:00	163	8.0 hrs	George dept. 0600 NB to PDX to LA - depts 0950 PDX to LA
61	SUNSET BA		MINER	EL SEGUNDO	LOS ANGELES	CHEVRON	03/29/06	6:00	03/29/06	14:00	163	8.0 hrs	George dept. 0600 NB to PDX to LA - depts 0950 PDX to LA
61	SUNSET BA		LIVINGSTONE	LOS ANGELES	LOS ANGELES	163	03/30/06	7:00	03/30/06	8:00	189	1.0 hrs	George dept. 0600 NB to PDX to LA - depts 0950 PDX to LA
61	SUNSET BA		MINER	LOS ANGELES	LOS ANGELES	163	03/30/06	7:00	03/30/06	8:00	189	1.0 hrs	George dept. 0600 NB to PDX to LA - depts 0950 PDX to LA
61	SUNSET BA		LIVINGSTONE	LOS ANGELES	LONG BEACH	189	03/31/06	6:00	03/31/06	9:30	ANCH B3	3.5 hrs	George dept. 0600 NB to PDX to LA - depts 0950 PDX to LA
61	SUNSET BA		MINER	LOS ANGELES	LONG BEACH	189	03/31/06	6:00	03/31/06	9:30	ANCH B3	3.5 hrs	George dept. 0600 NB to PDX to LA - depts 0950 PDX to LA
Towing Tug MIKI HANA													
50	HANA		RICKEY	LONGVIEW	HONOLULU	WEYCO	01/18/05	12:45	02/05/05	10:00	BARGE HARBOR	429.2 hrs	
60	COLUMBIA		LOTT	BENICIA	MARTINEZ	CITY DOCK	02/16/05	13:50	02/18/05	14:40	SHELL	8760.8 hrs	
50	HANA		CA[illegible]SSEE	HONOLULU	HILO	BARGE HARBOR	05/[illegible]	[illegible]1:55	05/06/05	21:00	PORT DOCK	33.1 hrs	
50	HANA		[illegible]ASSEE	HILO	COOS BAY	PORT DOC[illegible]	05/08/05	9:2[illegible]	05/16/05	23:59	COOS BAY DOCK	254.6 hrs	
50	NEHALEM		BRESSINCK	COOS BAY	SAN DIEGO	CAPE [illegible]RAGO	05/19/05	16:50	05/24/05	20:00	24TH ST.B-11	123.2 hrs	
50	NEHALEM		BRESSINCK	SAN DIEGO	LONG BEACH	2[illegible]TH ST. B-11	05/25/05	21:00	05/26/05	9:00	B-122	12.[illegible] hrs	
50	NEHALEM		BRESSINCK	LONG BEACH	COOS BAY	B-122	05/28/05	20:00	06/04/05	17:30	CAPE ARAGO	[illegible]165.5 hrs	
51	NEHALEM		LOTT	LONG BEACH	SAN DIEGO		10/02/05	14:20	10/03/05	4:35		14.3 hrs	
51	NEHALEM	HANALEI	51 LOTT	LONG BEACH	COOS BA[illegible]		10/06/05	14:48	10/12/05	18:00		148.2 hrs	
51	NEHALEM	HANALEI	51 LOTT	COOS BAY	LONG BE[illegible]CH		10/19/05	11:00	10/24/05	21:00		130.0 hrs	
51	HANALE[illegible]		LOTT	LONG BEACH	SAN D[illegible]EGO		10/25/05	0:01	10/25/05	14:50		14.8 hrs	
51	HANALE[illegible]		LOTT	SAN DIEGO	LONG BEACH		10/26/05	14:00	10/27/05	8:00		18.0 hrs	
	MTY		LOTT	[illegible]NGVIEW	[illegible]STORIA		11/03/05	9:00	11/03/05	13:[illegible]		4.0 hrs	
51	HANA[illegible]EI		LOTT	A[illegible]ORIA	[illegible]BERDEEN		11/06/05	11:00	11/06/05	[illegible]:36		6.6 hrs	
51	NEHAL[illegible]M		LOTT	LONG B[illegible]	SAN DIEGO		11/16/05	7:00	[illegible]	22:25		15.4 hrs	
51	NEHALEM		LOTT	SAN DIEGO	LONG BEACH		11/17/05	23:00	11/18/05	12:30		13.5 hrs	
51	HALEIWA	NEHALEM	51 LOTT	COOS BAY	ASTORIA		11/23/05	18:55	11/24/05	20:35		27.7 hrs	

SAUSE BROS.

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Towage Summary

From 12/28/04 To 03/31/06

	Barge 1	Barge 2	Master	From	To	Dep Berth	Dep Date	Departure	Date Arr	Arrival	Arr Berth	Transit	Notes
60	SUNSET B		MILES	LOS ANGELES	LOS ANGELES	189	02/06/06	6:00	02/06/06	7:30	163	1.5 hrs	
60	SUNSET B		MILES	LOS ANGELES	EL SEGUNDO	163	02/06/06	22:00	02/07/06	8:15		10.3 hrs	
60	SUNSET B		MILES	EL SEGUNDO	RICHMOND		02/08/06	1:15	02/10/06	0:15	LONGWHARF	47.0 hrs	
60	SUNSET B		MILES	RICHMOND	LOS ANGELES	LONGWHARF	02/12/06	22:05	02/14/06	23:40	159	49.6 hrs	
61	SUNSET B		MILES	LOS ANGELES	LOS ANGELES	159	02/15/06	11:00	02/15/06	11:45	163	0.8 hrs	
61	SUNSET B		MILES	LOS ANGELES	LOS ANGELES	163	02/15/06	20:45	02/15/06	21:45	189	1.0 hrs	
61	SUNSET B		MILES	LOS ANGELES	LONG BEACH	189	02/16/06	21:00	02/16/06	22:15	41	1.3 hrs	
61	SUNSET B		MILES	LONG BEACH	el segundo	41	02/17/06	22:00	02/18/06	8:45		8.8 hrs	
61	SUNSET B		MILES	el segundo	LONG BEACH		02/19/06	7:40	02/19/06	11:55	anchorage 3	4.3 hrs	
61	SUNSET B		MILES	LONG BEACH	LOS ANGELES	anch b3	02/20/06	2:35	02/20/06	4:20	186	1.7 hrs	
61	SUNSET B		MILES	LOS ANGELES	el segundo	189	02/21/06	7:00	02/21/06	14:40		7.7 hrs	
61	SUNSET B		MILES	el segundo	RICHMOND		02/23/06	11:15	02/24/06	10:15	longwharf	23.0 hrs	
61	SUNSET B		MILES	RICHMOND	LOS ANGELES	ANCHORAGE 5	02/28/06	9:00	03/02/06	9:15	189	48.2 hrs	
61	SUNSET B		MILES	LONG BEACH	EL SEGUNDO	BRAVO 3 ANCHOR	03/03/06	9:30	03/03/06	13:00		3.5 hrs	
61	SUNSET B		MILES	LOS ANGELES	LONG BEACH	189	03/03/06	5:00	03/03/06	6:50	BRAVO 3 ANCHOR	1.8 hrs	
61	SUNSET B		MILES	EL SEGUNDO	LOS ANGELES		03/04/06	6:15	03/04/06	9:45	163	3.5 hrs	
61	SUNSET B		MILES	LOS ANGELES	RICHMOND	163	03/06/06	1:15	03/08/06	21:40	LONGWHARF	44.4 hrs	
61	SUNSET B		MILES	RICHMOND	LOS ANGELES	LONGWHARF	03/08/06	1:15	03/10/06	4:45	163	51.5 hrs	
61	SUNSET B		MILES	LOS ANGELES	LOS ANGELES	163	03/10/06	17:00	03/10/06	18:00	189	1.0 hrs	
61	SUNSET B		MILES	LOS ANGELES	LONG BEACH	189	03/11/06	20:00	03/11/06	22:25	B 11 ANCHOR	2.4 hrs	
61	SUNSET B		MILES	LONG BEACH	RICHMOND	B 11 ANCHORAGE	03/12/06	13:30	03/15/06	1:45	IMTT	60.2 hrs	
61	SUNSET B		MILES	RICHMOND	RICHMOND	DITT	03/15/06	18:45	03/15/06	19:45	CASTROL	1.0 hrs	
61	SUNSET B		MILES	RICHMOND	MARTINEZ	CASTROL	03/16/06	22:30	03/17/06	4:50	SHORE	6.3 hrs	
61	SUNSET B		MILES	MARTINEZ	RICHMOND	SHORE	03/18/06	3:35	03/18/06	5:00	ANCHORAGE 22	1.4 hrs	
61	SUNSET B		MILES	RICHMOND	RICHMOND	ANCHORAGE 22	03/19/06	14:00	03/19/06	17:15	LONGWHARF B2	3.2 hrs	
61	SUNSET B		MINER	RICHMOND	LOS ANGELES	longwharf	03/20/06	12:30	03/22/06	20:30	189	56.0 hrs	
61	SUNSET B		MINER	LOS ANGELES	el segundo	189	03/23/06	10:00	03/23/06	16:18	CHEVRON	6.3 hrs	
61	SUNSET B		MINER	el segundo	LOS ANGELES	CHEVRON	03/24/06	12:00	03/24/06	17:25	189	5.4 hrs	
61	SUNSET B		MINER	LOS ANGELES	LOS ANGELES	189	03/25/06	10:15	03/25/06	11:00	163	0.8 hrs	
61	SUNSET B		MINER	LOS ANGELES	LONG BEACH	163	03/25/06	19:45	03/25/06	21:30	4VO 3 ANCHORA	1.8 hrs	

ATTACHMENT C
ELECTRO-MOTIVE DIESEL
EMISSIONS DATA SHEET

(b)

[redacted]

EMD ENGINE

ELECTRO-MOTIVE
LaGrange, Illinois 60525
New Fax Number: 708/387-5845
Location: Sales Dept. - 2nd Floor (West End)

TELEFAX COMMUNICATIONS

DATE: 2/14/92 TIME: 10:30 AM

TO: Valley Detroit Diesel
El Cajon, CA
ATTN: John Wilkie
FAX: 619/447-8556

FROM: J. W. Sebuck
EMD-Power Products
FAX: 708/387-5845

==========
Following this cover page, there will be 1 page(s) transmitted (SEE MESSAGE BELOW). If problems occur in transmission or all pages are not received, please contact us at 708/387-6641.
==========

SUBJECT: VDDA/Crowley Maritime
Request for Exhaust Emissions

REF: 2/12/92 Fax from Ed Schlueter

In accordance with the referenced telefax, the following emissions data shall pertain: (Grams/BHP-HR.)

Engine	BHP	NOX	CO	CH2	*SO2
20-645E6	3600	12.32	.77	.42	.82
16-645E5	2875	12.4	.90	.29	.72
12-645E5	2150	13.2	.81	.37	.84
8-645E5	1450	12.36	.72	.31	.87
16-645E2	1950	15.2	2.69	.59	.91
12-645E2	1500	16.0	1.20	.40	.90
8-645E2	1050	17.15	2.10	.40	.90

* Based upon fuel averaging .25% sulfur

A description of the emissions instrumentation is attached.

Jeff Sebuck
Power Products Sales

ATTACHMENT D
ELECTRO-MOTIVE DIESEL
TIER 2 CERTIFICATE OF CONFORMITY

ELECTRO-MOTIVE.

9301 West 55th Street
LaGrange, IL 60525 USA

Tel: 708.387.5884
Mobile: 708.710.1490
Fax: 708.387.5845
robert.e.spicer@emdiesels.com

US EPA ISSUES MARINE TIER 2 CERTIFICATE OF CONFORMITY

applicable to

EMD SERIES 710G7C–T2 ENGINE FAMILY

Electro-Motive Diesel, Inc. (EMD) is pleased to announce the United States Environmental Protection Agency (US EPA) has issued a 2006 Model Year Tier 2 emissions Certificate of Conformity to EMD for our Series 710G7C-T2 family of diesel marine engines in accordance with the standards of 40 CFR 94.

The US EPA Marine Tier 2 Certificate of Conformity applies to

- EMD Series 710G7C-T2 Engine Family, including:

8-cylinder	2000 BHP	@ 900 RPM
12-cylinder	3000 BHP	@ 900 RPM
16-cylinder	4000 BHP	@ 900 RPM
20-cylinder	5000 BHP	@ 900 RPM

(All rating shown above are Continuous with 10% overload available)

- Duty Cycles for the complete 710G7C-T2 Engine Family, including:
  - Table B-1 (IMO E3) Variable Speed Fixed-Pitch Prop @900 RPM
  - Table B-2 (IMO E2) Constant Speed Propulsion @900 RPM
  - Table B-3 (IMO C1) Variable Speed Variable-Pitch Prop @900 RPM
  - Table B-1 (IMO E3) Variable Speed Fixed-Pitch Prop @800 RPM

The EMD Series 710G7C-T2 Family of engines meet the not-to-exceed (NTE) zone requirements of 40 CFR 94.8(e) when operated under all conditions which may reasonably be expected to be encountered in normal operation and use.

A copy of the US EPA Certificate of Conformity is enclosed for reference.

Please contact the writer with any questions regarding this subject.

Robert E. Spicer
Business Manager
Power Products

Issued: April 21, 2006

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

2006 Model Year Certificate of Conformity

Manufacturer:	**ELECTRO-MOTIVE DIESEL, INC.**
Marine Diesel Engine Family:	**6EMDM0710GT2**
Certificate Number:	**EMD-MCI-06-04**
THC+NOx FEL:	**N/A**
PM FEL:	**N/A**
Date Issued:	APR 1 9 2006

Karl J. Simon, Acting Director
Compliance and Innovative Strategies Division
Office of Transportation and Air Quality

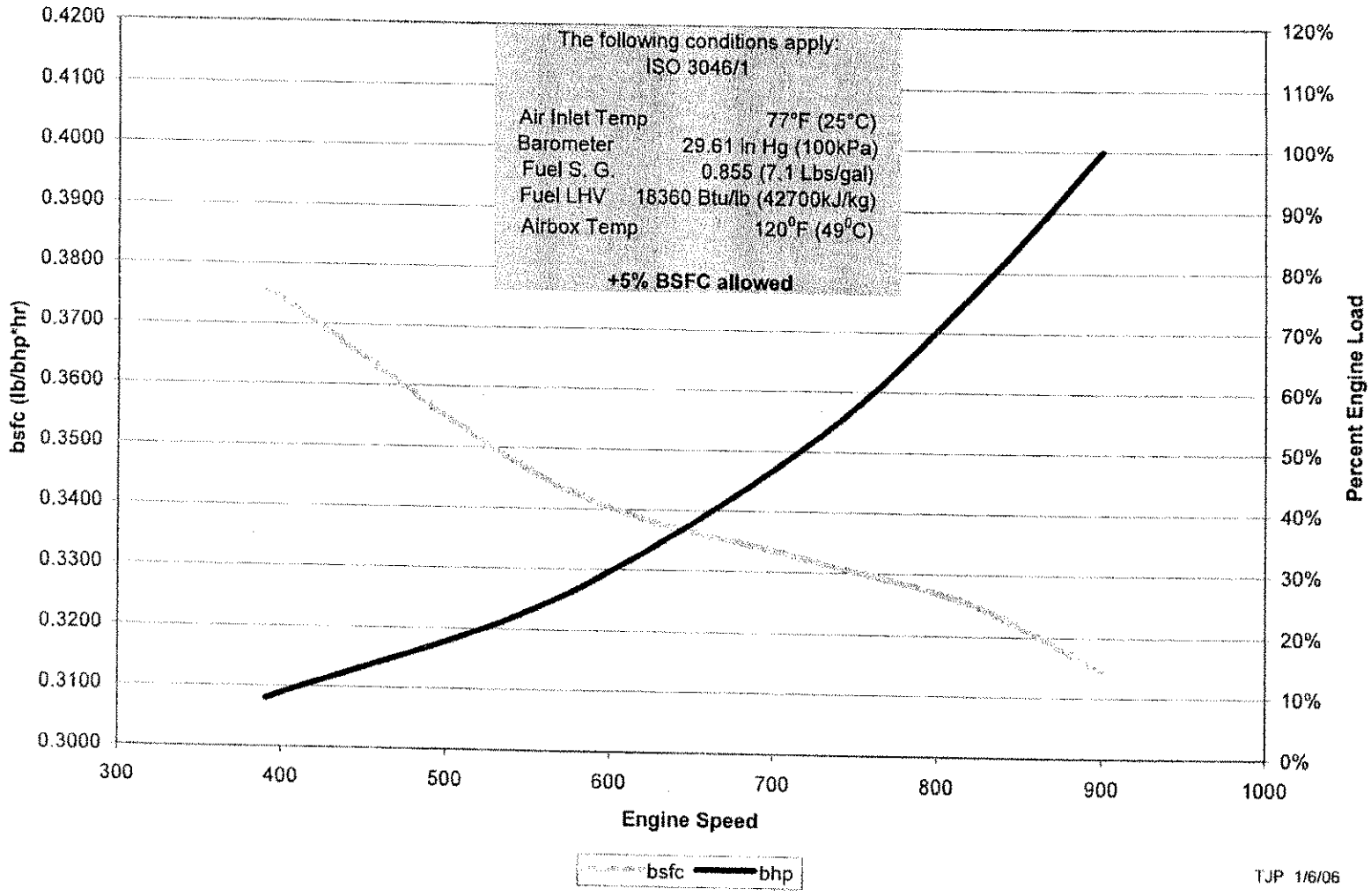
Pursuant to Section 213 of the Clean Air Act (42 U.S.C. section 7547) and 40 CFR 94, and subject to the terms and conditions prescribed in those provisions, this certificate of conformity is hereby issued with respect to the test engines which have been found to conform to applicable requirements and which represent the following marine engines, by engine family, more fully described in the documentation required by 40 CFR Part 94 and produced in the stated model year. This certificate of conformity covers only those new marine compression-ignition engines which conform in all material respects to the design specifications that applied to those engines described in the documentation required by 40 CFR Part 94 and which are produced during the model year stated on this certificate of the said manufacturer, as defined in 40 CFR Part 94. This certificate of conformity does not cover marine engines imported prior to the effective date of the certificate.

It is a term of this certificate that the manufacturer shall consent to all inspections described in 40 CFR 94.215 and 94.504 and authorized in a warrant or court order. Failure to comply with the requirements of such a warrant or court order may lead to revocation or suspension of this certificate for reasons specified in 40 CFR Part 94. It is also a term of this certificate that this certificate may be revoked or suspended or rendered void ab initio for other reasons specified in 40 CFR Part 94.

This certificate does not cover marine engines sold, offered for sale, or introduced, or delivered for introduction, into commerce in the U.S. prior to the effective date of the certificate.

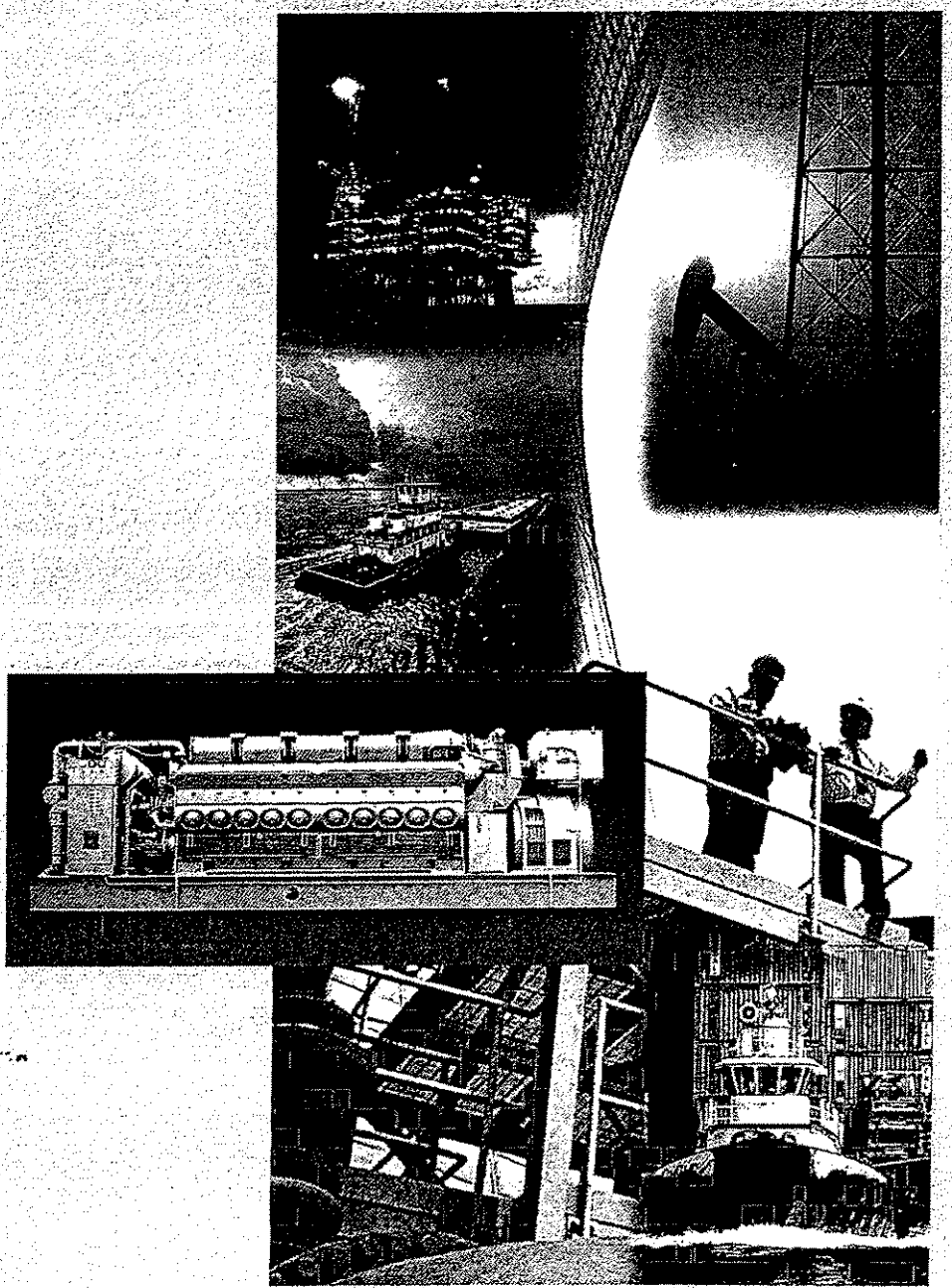
ELECTRO MOTIVE

8-710G7C-T2 Engine
2000 BHP @ 900 RPM Rating
US EPA Marine Tier 2 Emissions Compliant
Propeller Cube Curve
ISO 3046/1



TJP 1/6/06

ATTACHMENT E
ELECTRO-MOTIVE DIESEL
645 AND 710 SERIES DIESEL ENGINE SPECIFICATIONS



- Marine Propulsion
- Electric Generating Plants
- Industrial Power Units
- Offshore Well Drilling
- Power Shovel and Dragline Applications
- Land Drilling Rigs
- Dredging

EMD Power Products

ELECTRO-MOTIVE
General Motors Corporation

GM/EMD Diesel Engines

800-5000 HP Wide Power Applications

Electro-Motive Division (EMD) of General Motors Corp. produces diesel power for marine propulsion, offshore and land based oil well drilling rigs, stationary power generation and railroad locomotives.

The GM/EMD line of engines is available in 8-, 12- and 16-cylinder roots blown and 8-, 12-, 16- and 20-cylinder turbocharged models. The horsepower ranges from 800 to 5000.

More than half a century of engine design experience has made Electro-Motive a leader in the development of diesel motive power. Electro-Motive is the only diesel engine manufacturer of its size to have produced more than 65,000 engines. This success stems from product reliability, service ability, load acceptance capability, low operating costs and ease of maintenance with standardized components.

General Data — Common to both 645 and 710 Series Diesel Engines

Type	2 cycle—45° Vee
Crankcase and oil pan construction	Welded steel
Cylinder air inlet	Ports in cylinder liner
Exhaust	Four valves in cylinder head
Piston cooling	Oil-direct pressure stream
Main bearing lubrication	Full pressure
Lube oil pumps	Main oil, piston cooling, scavenging engine driven, positive displacement, helical gear type
Engine overspeed trip	Centrifugal—Independent of Governor
Governor	Woodward*
Fuel supply pump	Positive displacement, engine driven
Fuel injectors	GM unit injectors—needle valve
Engine starting	Air motor*
Engine cooling water pumps	Engine driven—centrifugal
Crankpin diameter	6 ½ inches (165.10 mm)
Piston pin diameter	3.68 inches (93.47 mm)
Rotation facing the flywheel	Counterclockwise*

*Options Available

Data Applicable to Specific Engine Series

	645 Series Engines	710 Series Engines
Bore x stroke	9 1/16 x 10 inches (230.19 x 254.00 mm)	9 1/16 x 11 inches (230.19 x 279.40 mm)
Displacement per cylinder	645 cubic inches (10.57 liters)	710 cubic inches (11.64 liters)
Piston speed	1250 ft/min (381 m/min) at 750 rpm 1500 ft/min (457.2 m/min) at 900 rpm	1375 ft/min (419 m/min) at 750 rpm 1650 ft/min (503 m/min) at 900 rpm
Crankshaft main bearing diameter	7 ½ inches (190.5 mm)	8 ½ inches (215.9 mm)

Data Applicable to Specific Engine Model Numbers

	Roots Blower		
Engine Model	8-645E	12-645E	16-645E
Number of Cylinders	8	12	16
Compression Ratio	18:1	18:1	18:1
BMEP @ 900 RPM (PSI)	90	85	90
Number of Main Bearings	5	7	10
Number of Engine Blowers	1	2	2
Type	Roots Type-Helical Lobes	Roots Type-Helical Lobes	Roots Type-Helical Lobes
Driven by	Engine Gears	Engine Gears	Engine Gears-1

	Turbocharged							
Engine Model	8-645FB	12-645FB	16-645FB	20-645FB	8-710GB	12-710GB	16-710GB	20-710GB
Number of Cylinders	8	12	16	20	8	12	16	20
Compression Ratio	16:1	16:1	16:1	16:1	16:1	16:1	16:1	16:1
BMEP @ 900 RPM (PSI)	130	145	145	136	155	155	155	155
Number of Main Bearings	5	7	10	12	5	7	10	12
Number of Turbochargers	1	1	1	1	1	1	1	1
Type	*	*	*	*	*	*	*	*
Driven by	+	+	+	+	+	+	+	+

*Centrifugal Flow

+Exhaust Gas and/or Engine Gears Through an Over-Running Clutch

Marine Propulsion and Generating Units

A complete line of GM/EMD engines is available to meet requirements for marine propulsion and marine generator set applications. A complete power package with engine, reverse-reduction gear or generator and accessories is available through EMD Power Products Distributors. The propulsion units are also available without skid mounting for direct application to the vessel structure.

Electro-Motive marine propulsion drives are also available with two, three or four engines driving a common reverse-reduction gear. A straight-reduction gear is available when controllable pitch propellers are required.

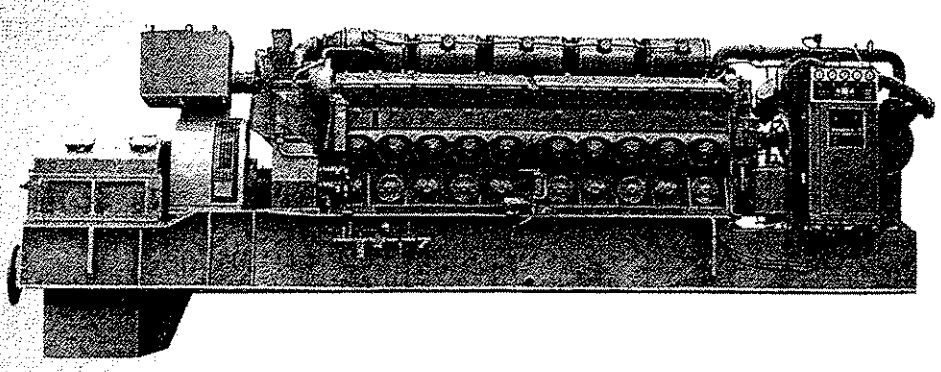
Marine Equipment Sets (ME) for Marine Propulsion Units (ABS Ratings)*

		800 RPM Ratings		900 RPM Ratings	
Marine Drive Model No.	Engine Model	Engine BHP	Engine kW	Engine BHP	Engine kW
Roots Blown					
ME8E6	8-645E6	-	-	1050	785
ME12E6	12-645E6	-	-	1500	1120
ME16E6	16-645E6	-	-	2100	1565
Turbocharged					
ME8F7B	8-645F7B	1525	1137	1700	1265
ME12F7B	12-645F7B	2305	1720	2550	1900
ME16F7B	16-645F7B	3150	2349	3505	2610
ME20F7B	20-645F7B	3600	2685	4000	2985
ME8G7B	8-710G7B	1760	1310	2000	1500
ME12G7B	12-710G7B	2625	1960	3000	2240
ME16G7B	16-710G7B	3525	2628	4000	2985
ME20G7B	20-710G7B	4400	3310	5000	3730

Marine Equipment Sets (ME) for Generator Set Units (ABS Ratings)*

Generator Set Model No.	Engine Model	Continuous Output 60 Hz-900 RPM	Continuous Output 50 Hz-750 RPM
Roots Blown			
ME8E6	8-645E6	745 kW	570 kW
ME12E6	12-645E6	1075 kW	865 kW
ME16E6	16-645E6	1500 kW	1210 kW
Turbocharged			
ME8F7B	8-645F7B	1210 kW	1010 kW
ME12F7B	12-645F7B	1825 kW	1530 kW
ME16F7B	16-645F7B	2500 kW	2100 kW
ME20F7B	20-645F7B	2865 kW	2580 kW
ME8G7B	8-710G7B	1440 kW	1200 kW
ME12G7B	12-710G7B	2150 kW	1790 kW
ME16G7B	16-710G7B	2865 kW	2385 kW
ME20G7B	20-710G7B	3580 kW	2980 kW

* Subbase, controls and customized final assembly furnished by EMD authorized Power Products Distributors worldwide.



DATA SHEET
M/V KLIHYAM O.N. 1084928
3900 HP TWIN SCREW TUG
WITH FIXED NOZZLES AND QUAD RUDDERS

The vessel is a double chine, welded steel, twin screw tugboat. The vessel has seven transverse air tight and water tight bulkheads below main deck. Designed and built in accordance with ABS rules for ocean towing service. The vessel carries a USCG load line with a summer free board assignment of 3' – 5/16".

The vessel was completed in 2004 by Southern Oregon Marine of Coos Bay, OR.

PRINCIPLE CHARACTERISTICS

Length (reg)	-	114' – 9 1/2"	Net Tons	-	134	ITC 145
Length (oa)	-	121' - 0"	Gross Tons	-	197.0	ITC 485
Breadth (mld)	-	34' - 0"	F.O. Capacity	-	120,000 gal	
Depth (mld)	-	19' - 10"	F.W. Capacity	-	10.000 gal	
Draft (max)	-	18' - 0"	L.O. Capacity	-	2500 gal	
Displ (SLL)	-	998 L. T.	Bollard Pull	-	120.000 lbs.	

MACHINERY

Main Engine	-	(2) EMD 16-645-E6; 1950 HP @ 900 rpm
Rev/Red Gear	-	(2) Reintjes hydraulic Model WAF 1961 5:1:1 ratio
Prop Shafts	-	12" dia with oil lub bearings
Propellers	-	3 blade R/L outbd turning 114" x 112" in nozzles
Aux Gen sets	-	John Deere 99 kw each @ 1800 rpm 480v

DECK MACHINERY

Tow Winch	-	Intercon Model 226 double drum and gypsy with capstan
Wire Capacity	-	(2) 2600' 2 1/4" dia W.R.
Line Pull	-	120,000 lbs. at 25 to 200 fpm
Power	-	John Deere 6068TA w/ Funk series 2000 tq converter and 3 speed trans.
Bow Winch	-	McElroy Model 528 (1 1/8" wire) w/ 2 capstans

MISCELLANEOUS

Propulsion Controls	- (4) station Mathers air controls
Air Compressors	- (2) Quincy model 340 10 HP
Steering	- (2) full redundant systems each with (2) 20 HP Motors
Alarm System	- Harris all functions
Air Conditioning	- Climate control all spaces
Fenders	- Bow pud; D-rubber side fenders
Tow Pins	- 5 pin SOMAR hydraulic

SAFETY & NAVIGATION OUTFIT CALL SIGN

Radar	-	(3) Furuno long and short
Radio	-	(2) VHF's (2) SSB
GPS	-	Furuno RD 30
Fathometer	-	Data marine sounder
Life Raft	-	10 man inflatable Elliot
Auto Pilot	-	Comnav 5000
Satellite Compass	-	Furuno SC 120

ATTACHMENT F
SAUSE BROTHERS FUEL LOGS FOR M/V KLIHYAM

1ST QRT.

SAUSE BROTHERS OCEAN TOWING
FUEL OIL PURCHASED FOR TUGS OR BARGES
FOR PERIOD JANUARY 01, 2005 - MARCH 31,2005

DATE	INV.#	SUPPLIER	LOCATION	VESSEL	# GALL.	COST	GALL.COST
14-Jan	A71322	G.P.	California	Kilhyam	39100	57,825.06	$1.4789
5-Feb	A71360	G.P.	California	Kilhyam	33000	52,822.55	$1.6007
7-Mar	A71403	G.P.	California	Kilhyam	30000	54,840.23	$1.8280

SAUSE BROTHERS OCEAN TOWING
FUEL OIL PURCHASED FOR TUGS OR BARGES
FOR PERIOD APRIL 1, 2005 - JUNE 30,2005

DATE	INV.	SUPPLIER	LOCATION	VESSEL	GALL.	COST	$/GAL.
8-Apr	A71463	G.P.	California	Kilhyam	35010	70538.02	$2.0147
6-May	A73755	G.P.	California	Kilhyam	48000	93070.28	$1.9390
14-Jun	A73821	G.P.	California	Kilhyam	35100	67487.69	$1.9227
24-Jun	A73830	G.P.	California	Kilhyam	29000	57564.14	$1.9850

SAUSE BROTHERS OCEAN TOWING
FUEL OIL PURCHASED FOR TUGS OR BARGES
FOR PERIOD JULY 1, 2005 - SEPTEMBER 30,2005

DATE	INV.#	SUPPLIER	LOCATION	VESSEL	# GALL.	COST	GALL.COST
5-Aug	A73906	G.P.	California	Kilhyam	34000	83959.19	$2.4694
3-Sep	A73965	G.P.	California	Kilhyam	38500	107365.95	$2.7887
22-Sep	A73987	G.P.	California	Kilhyam	32000	79107.02	$2.4721

SAUSE BROTHERS OCEAN TOWING
FUEL OIL PURCHASED FOR TUGS OR BARGES
FOR PERIOD OCTOBER 1, 2005 - DECEMBER 31,2005

DATE	INV.#	SUPPLIER	LOCATION	VESSEL	# GALL.	COST	GALL.COST
17-Oct	A80796	G.P.	California	Kithyam	43000	105997.50	$2.4651
17-Nov	A80847	G.P.	California	Kithyam	54000	103301.09	$1.9130
14-Dec	A808882	G.P.	California	Kithyam	38000	76396.51	$2.0104
28-Dec	A014456	G.P.	California	Kithyam	25032	49200.62	$1.9655

1ST QRT.

SAUSE BROTHERS OCEAN TOWING
FUEL OIL PURCHASED FOR TUGS OR BARGES
FOR PERIOD JANUARY 01, 2006 - MARCH 31,2006

DATE	INV#	SUPPLIER	LOCATION	VESSEL	#GALL.	COST	GALL COST
1/10/2006	80923	GP	California	Kilhyam	35000	74,816.08	$2.1376
2/5/2006	A80976	GP	California	Kilhyam	48000	104,943.09	$2.1863
2/20/2006	A80507	GP	California	Kilhyam	23500	50,424.44	$2.1457
3/10/2006	166024	Jankovich	California	Kilhyam	35500	78,394.84	$2.2083