UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF TEXAS

UNITED STATES of AMERICA, Plaintiff, and the STATES OF DELAWARE, LOUISIANA, and the NORTHWEST AIR POLLUTION AUTHORITY OF THE STATE OF WASHINGTON, Plaintiff-Interveners, v. MOTIVA ENTERPRISES LLC, EQUILON ENTERPRISES LLC, and DEER PARK REFINING LIMITED PARTNERSHIP, Defendants.	)	Civil Action No. H-01-0978

FIRST ADDENDUM TO CONSENT DECREE

Plaintiff, the United States of America (hereinafter "Plaintiff" or "the United States"), on behalf of the United States Environmental Protection Agency (hereinafter, "EPA"), Plaintiff Intervenors, the Northwest Air Pollution Authority of the State of Washington, the State of Delaware, and the State of Louisiana, and Defendants, Motiva Enterprises LLC ("Motiva"), Equilon Enterprises LLC, and Deer Park Refining Limited Partnership (collectively hereinafter "the

Companies"), hereby execute this First Addendum to the Consent Decree in the above-styled action. By the agreement of the United States and the Companies, and pursuant to the provisions of Paragraph 80, this First Addendum hereby modifies the Decree by (1) changing paragraphs 14 and 15 so that all refineries have identical NOx control requirements; (2) changing the language so that the Delaware City Refinery can determine which heaters will stop liquid fuel burning, while retaining the schedule to eliminate liquid fuel burned at the refinery, and to require reporting of the amount of liquid fuel burned at the Delaware City Refinery annually in the Companies' annual Updates to the Control Plan; (3) requiring submittal of the first Update to the Companies' Control Plan on March 31, 2003; (4) revising Attachment 1 to this Consent Decree; and (5) revising Attachment 2 to this Consent Decree to reflect a corrected equipment number and revised compliance deadlines for Heaters and Boilers that currently have a December 31, 2001 compliance date, as well as one unit that currently has a September 30, 2002 compliance date.

The changed provisions to the Decree are as follows, and shall be binding on all parties and signatories to the Decree

in this action.

With regard to NOx emission reductions from Heaters and Boilers: 14. On or before December 31, 2008, all refineries identified in Paragraph 5 shall have installed NOx controls on at least 30% of the heater and boiler capacity located at each refinery. The heater and boiler capacity at each refinery shall be based on the allowable Heat Input Capacity during the 1998/1999 baseline period. The Companies may include in the 30% capacity demonstration those heaters and boilers at the refineries which have been either shut down, or for which the refinery has installed one of the following NOx Control technologies: SCR, SNCR, or current or next generation ultra-low NOx burners. In addition to the identified technologies, heaters for which a NOx emission limit of 0.040 lbs per mmBTU or lower is accepted in a permit may also be included to satisfy the 30% capacity demonstration.

15. [Reserved.]

16. The Companies shall submit a detailed NOx Control Plan ("Control Plan") to EPA for approval by no later than December 31, 2001, with annual updates ("Updates") on March 31 of each year for the life of the Consent Decree. The first Update shall be due on March 31, 2003. EPA shall approve the Control Plan provided that it meets the requirements of the

Consent Decree.

With regard to SO2 and NSPS requirements for Heaters and Boilers:

23(a). Delaware City Schedule. Except as allowed under Paragraph 22(b), Motiva shall eliminate burning of any liquid fuel in all heaters and boilers at the Delaware City, Delaware, refinery in accordance with the schedule below, and result in the following per day, refinery-wide, maximum liquid fuel burning by the following deadlines:

Deadline	**Refinery-Wide Maximum Fuel Oil Burning (bbl/day)**
July 31, 2001	3760
October 30, 2002	2000
May 31, 2003	1000
October 31, 2003	0

Motiva shall report the amount of liquid fuel burned annually across the refinery in the Updates required pursuant to Paragraph 16.

With regard to Attachment 1 ("Heater and Boiler Baseline Information"):

See revised Attachment to be substituted for the original

Attachment 1.

With regard to Attachment 2 ("NSPS Subpart J Applicability"):

See revised Attachment to be substituted for the original Attachment 2.

Respectfully submitted,

FOR PLAINTIFF, UNITED STATES OF AMERICA:

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by Diane Krawley Date 4/23/02

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by Diane Krawley Date 4/23/02

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by Diane Krawley Date 4/23/02

R. BRUCE HAMMATT
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by Diane Krawley Date 4/23/02

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For Equilon Enterprises LLC, and Motiva Enterprises LLC:

J Moorad

Date: 4/29/02

Judy Moorad
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For Deer Park Refining Limited Partnership:

_____ Date: 5/1/02

S. P. Methvin
President
Shell Deer Park Refining Company
A Division of Shell Oil Products Company
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ATTACHMENT 1

HEATER AND BOILER BASELINE INFORMATION

Alliance 1998/99 Baseline Summary

Refinery	1998-99 Average NOx Emission (tpy)
Bakersfield	374
Convent	1450
Deer Park	3722
Delaware City	3811
Los Angeles	602
Martinez	1152
Norco	1873
Port Arthur	2674
Puget Sound	898
Total Alliance	**16555**
Reductions Required by 12/31/2008	**6920**
Reductions Required by 12/31/2004	**4613**

Refinery	Unit ID	Unit Descrip	Annual Maximum Sustainable or Allowable Heat Input Capacity mmbtu/hr	1998 Average Firing Rate mmbtu/hr	1998 Perform. Rating (lbs NOx/ mmbtu)	1998 NOx Emission (tpy)	1999 Average Firing Rate mmbtu/hr	1999 Perform. Rating (lbs NOx/ mmbtu)	1999 NOx Emission (tpy)	1998-99 Average NOx Emission (tpy)	Type of NOx Emission Data
Bakersfield	Heater 14-H2	Mild HCU		27.1	0.023	2.7	28.1	0.021	2.6	2.7	Stack Test
Bakersfield	Boiler 81-H9	Boilers		57.4	0.028	7.0	69.3	0.027	8.1	7.6	CEMS
Bakersfield	Heater 10-H1	CVU		113.0	0.034	17.0	118.7	0.031	16.4	16.7	Stack Test
Bakersfield	Heater 21-H18	HCU		10.4	0.034	1.6	13.3	0.033	1.9	1.7	Stack Test
Bakersfield	Boiler 81-H12	Boilers		13.1	0.038	2.2	32.8	0.034	4.9	3.5	Stack Test
Bakersfield	Heater 27-H1	CD Hydro		14.1	0.040	2.5	16.9	0.038	2.8	2.6	Stack Test
Bakersfield	Heater 20-H11	HGU		147.4	0.047	30.5	149.2	0.049	32.3	31.4	Stack Test
Bakersfield	Heater H100	DCU		28.9	0.037	4.7	30.5	0.108	14.4	9.6	CEMS
Bakersfield	Heater 11-H2	CVU		34.1	0.077	11.5	28.3	0.071	8.8	10.1	Stack Test
Bakersfield	Heater 11-H1	CVU		32.7	0.077	11.0	27.8	0.096	11.7	11.3	Stack Test
Bakersfield	Heater 22-H15	CRU 4		5.5	0.204	4.9	7.3	0.036	1.2	3.0	Stack Test
Bakersfield	Heater 21-H12	HCU		13.4	0.179	10.5	12.5	0.040	2.2	6.3	Stack Test
Bakersfield	Heater 22-H14	CRU 4		7.6	0.213	7.1	10.6	0.041	1.9	4.5	Stack Test
Bakersfield	Heater 21-H11	HCU		12.3	0.194	10.5	10.6	0.040	1.9	6.2	Stack Test
Bakersfield	Heater 22-H12	CRU 4		13.6	0.215	12.8	14.8	0.041	2.7	7.7	Stack Test
Bakersfield	Heater 22-H11	CRU 4		13.4	0.216	12.7	13.5	0.041	2.4	7.5	Stack Test
Bakersfield	Heater 22-H13	CRU 4		11.4	0.219	10.9	11.2	0.041	2.0	6.5	Stack Test
Bakersfield	Heater 10-H2	CVU		42.3	0.137	25.3	43.3	0.126	23.8	24.6	Stack Test
Bakersfield	Boiler 81-H1	Boilers		3.2	0.294	4.1	30.7	0.141	19.0	11.6	Stack Test
Bakersfield	Heater 21-H20	HCU		19.0	0.266	22.2	17.5	0.040	3.1	12.6	Stack Test
Bakersfield	Heater 14-H1	Mild HCU		18.3	0.168	13.5	23.3	0.154	15.7	14.6	Stack Test
Bakersfield	Boiler 81-H2	Boilers		22.8	0.251	25.1	16.8	0.231	17.0	21.0	Stack Test
Bakersfield	Heater 21-H17	HCU		15.5	0.229	15.6	17.4	0.211	16.1	15.9	Stack Test
Bakersfield	Heater H200	DCU		30.9	0.097	13.2	31.6	0.118	16.3	14.8	CEMS
Bakersfield	Heater 9-H2	CRU 1		17.1	0.135	10.1	24.8	0.124	13.5	11.8	Stack Test
Bakersfield	Heater 8-H2	HTU 1		9.0	0.137	5.4	17.0	0.126	9.4	7.4	Stack Test
Bakersfield	Heater 9-H3	CRU 1		13.1	0.135	7.7	18.7	0.124	10.1	8.9	Stack Test

Refinery	Unit ID	Unit	Descrip	Annual Maximum Sustainable or Allowable Heat Input Capacity mmbtu/hr	1998 Average Firing Rate mmbtu/hr	1998 Perform. Rating (lbs NOx/ mmbtu)	1998 NOx Emission (tpy)	1999 Average Firing Rate mmbtu/hr	1999 Perform. Rating (lbs NOx/ mmbtu)	1999 NOx Emission (tpy)	1998-99 Average NOx Emission (tpy)	Type of NOx Emission Data
Bakersfield	Heater 21-H13	HCU			10.0	0.160	7.0	11.6	0.148	7.5	7.3	Stack Test
Bakersfield	Heater 9-H1	CRU 1			16.7	0.135	9.9	21.6	0.124	11.7	10.8	Stack Test
Bakersfield	Heater 21-H14	HCU			11.0	0.160	7.7	8.7	0.163	6.2	7.0	Stack Test
Bakersfield	Heater 21-H16	HCU			7.2	0.186	5.9	6.3	0.172	4.8	5.3	Stack Test
Bakersfield	Heater 8-H1	HTU 1			6.9	0.136	4.1	8.8	0.138	5.3	4.7	Stack Test
Bakersfield	Heater H300B	DCU			21.6	0.093	8.8	21.9	0.084	8.0	8.4	CEMS
Bakersfield	Heater 9-H5	CRU 1			5.5	0.145	3.5	6.7	0.133	3.9	3.7	Stack Test
Bakersfield	Heater 9-H4	CRU 1			5.0	0.135	2.9	5.1	0.124	2.8	2.8	Stack Test
Bakersfield	Heater H300A	DCU			19.9	0.063	5.5	20.5	0.070	6.3	5.9	CEMS
Bakersfield	Heaters Unit 26	CRU 3			23.6	0.082	8.4	15.8	0.325	22.5	15.5	Stack Test
Bakersfield	Boiler 81-H6	Boilers			4.1	0.174	3.1	2.0	0.159	1.43	2.28	Stack Test
Bakersfield	Boiler 81-H8	Boilers			16.0	0.200	14.0	8.5	0.182	6.74	10.385	Stack Test
Bakersfield	Boiler 81H-10	Boilers			8.6	0.141	5.3	2.8	0.141	1.7	3.5	Stack Test
Bakersfield	Boiler 81H-11	Boilers			8.7	0.145	5.6	2.7	0.145	1.7	3.6	Stack Test
Bakersfield	Heater 21-H15	HCU			0.9	0.131	0.5	1.2	0.142	0.8	0.7	Stack Test
Total				**2385**	**912**	0.099	**394**	**981**	0.082	**353**	**374**	

Emissions Data: The methodology used to prepare the baseline data followed the principle of giving preference to CEMs data first, then stack test data, followed by emissions factors, using the best data known to be available at the time.

Refinery	Unit ID	Unit Descrip	Annual Maximum Sustainable or Allowable Heat Input Capacity mmbtu/hr	1998 Average Firing Rate mmbtu/hr	1998 Perform. Rating (lbs NOx/ mmbtu)	1998 NOx Emission (tpy)	1999 Average Firing Rate mmbtu/hr	1999 Perform. Rating (lbs NOx/ mmbtu)	1999 NOx Emission (tpy)	1998-99 Average NOx Emission (tpy)	Type of NOx Emission Data
Convent	4F-501	CRU Charge Heater		95.4	0.275	115.0	87.6	0.203	78.0	96.5	AP-42 LLNH/Representative Stack Test
Convent	4F-502	CRU Interheater #1		93.6	0.275	113.0	77.0	0.202	68.0	90.5	AP-42 LLNH/Representative Stack Test
Convent	1F-201	VPS-1 Atmoshperic Heater		159.9	0.137	96.0	157.3	0.112	77.0	86.5	AP-42 LLNH/Stack Test
Convent	1F-202	VPS-1 Atmoshperic Heater		130.6	0.137	79.0	124.6	0.112	61.1	70.1	AP-42 LLNH/Stack Test
Convent	7F-1	Gas Oil Heater		100.3	0.275	121.0	87.8	0.275	106.0	113.5	AP-42 LLNH
Convent	70H-301	H-Oil Atm. Tower Heater		16.0	0.184	13.0	15.2	0.184	12.0	12.5	Representative Stack Test
Convent	3F-404	HTU-1 Kerosene Reboiler		69.2	0.137	42.0	61.4	0.137	37.0	39.5	AP-42 LLNH
Convent	3F-401	HTU-1 HSR Charge Heater		41.4	0.098	18.0	45.7	0.098	20.0	19.0	AP-42 SUH
Convent	2F-301	FCCU Feed Heater		66.2	0.137	40.0	77.7	0.137	46.7	43.4	AP-42 LLNH
Convent	2F-302	Feed/Recycle Htr		65.6	0.137	39.4	70.9	0.137	43.0	41.2	AP-42 LLNH
Convent	70H-302	H-Oil Vacuum Tower Heater		24.4	0.184	20.0	32.5	0.184	26.0	23.0	Stack Test
Convent	70H-101	H-Oil Feed Heater, Train #100		30.4	0.182	24.0	35.2	0.182	28.0	26.0	Representative Stack Test
Convent	4F-504	CRU Interheater #2		30.2	0.137	18.0	15.2	0.137	9.0	13.5	AP-42 LLNH
Convent	3F-402	HTU-1 Kerosene Charge Heater		39.4	0.098	17.0	36.4	0.098	16.0	16.5	AP-42 SUH
Convent	70H-201	H-Oil Feed Heater, Train #200		31.7	0.182	25.0	28.1	0.182	22.0	23.5	Representative Stack Test
Convent	31F-801	Boiler		236.9	0.137	142.0	196.4	0.137	118.0	130.0	AP-42 LLNH
Convent	83H-101	VPS-2 Atmospheric		267.4	0.084	99.1	264.8	0.084	98.0	98.6	Stack Test
Convent	31F-802	Boiler		200.2	0.137	120.0	208.4	0.137	125.0	122.5	AP-42 LLNH
Convent	95H-102	HTU-3 Stripper Reboiler		42.4	0.100	19.0	38.7	0.100	17.0	18.0	Vendor guarantee
Convent	83H-102	VPS-2 Vacuum Heater		77.1	0.084	28.6	65.8	0.084	24.0	26.3	Representative Stack Test
Convent	31F-803	Boiler		167.0	0.137	100.0	170.2	0.137	102.0	101.0	AP-42 LLNH
Convent	95H-101	HTU-3 Feed Heater		27.4	0.100	12.0	28.3	0.100	12.0	12.0	Vendor guarantee
Convent	70H-102	H-Oil Hydrogen Heater, Train #100		15.5	0.182	12.0	13.9	0.182	11.0	11.5	Representative Stack Test
Convent	70H-202	H-Oil Hydrogen Heater, Train #200		15.4	0.182	12.0	10.9	0.182	9.0	10.5	Representative Stack Test
Convent	31F-805	Boiler		148.9	0.137	90.0	126.3	0.137	76.0	83.0	AP-42 LLNH
Convent	6F-701	VBU Heater		24.2	0.098	10.4	26.5	0.098	11.4	10.9	AP-42 SUH
Convent	14H-101	HTU-2 Charge Heater, Train #100		19.8	0.049	4.0	16.8	0.049	4.0	4.0	AP-42 SLNH
Convent	1F-251	VPS-1 Vacuum Heater		59.6	0.049	13.0	49.4	0.049	10.6	11.8	AP-42 SLNH
Convent	4F-503	CRU Interheater #3		14.6	0.049	3.0	5.7	0.049	1.0	2.0	AP-42 SLNH
Convent	79H-402	HGU Boiler		20.3	0.049	4.0	20.9	0.049	4.0	4.0	AP-42 SLNH
Convent	3F-403	HTU-1 HSR Reboiler		61.0	0.049	13.0	58.0	0.049	12.0	12.5	AP-42 SLNH

Refinery	Unit ID	Unit Descrip	Annual Maximum Sustainable or Allowable Heat Input Capacity mmbtu/hr	1998 Average Firing Rate mmbtu/hr	1998 Perform. Rating (lbs NOx/ mmbtu)	1998 NOx Emission (tpy)	1999 Average Firing Rate mmbtu/hr	1999 Perform. Rating (lbs NOx/ mmbtu)	1999 NOx Emission (tpy)	1998-99 Average NOx Emission (tpy)	Type of NOx Emission Data
Convent	14H-201	HTU-2 Charge Heater, Train #200		19.7	0.049	4.0	17.7	0.049	4.0	4.0	AP-42 SLNH
Convent	14H-313	HTU-2 Stripper Reboiler		34.3	0.049	7.0	39.1	0.049	8.0	7.5	AP-42 SLNH
Convent	94H-101	Isomerization Feed Furnace		19.9	0.049	4.0	20.2	0.049	4.0	4.0	AP-42 SLNH
Convent	31F-810	Boiler		314.2	0.054	62.0	296.9	0.045	59.0	60.5	CEMS
Total			**4235**	**2780**	0.126	**1540**	**2628**	0.118	**1360**	**1450**	

Emissions Data: The methodology used to prepare the baseline data followed the principle of giving preference to CEMs data first, then stack test data, followed by emissions factors, using the best data known to be available at the time.

Type of NOx Emission Data:
AP-42 SLNH = AP-42(3/98) for small low NOx heater
AP-42 LLNH = AP-42(3/98) for large low NOx heater
AP-42 SUH = AP-42(3/98) for small uncontrolled heater
"Representative stack test" is where a heater was tested and that emission factor is assumed for all identical/similar units or identical common units (e.g., H-Oil).

Refinery	Unit ID	Unit Descrip	Annual Maximum Sustainable or Allowable Heat Input Capacity mmbtu/hr	1998 Average Firing Rate, mm BTU/hr	1998 Perform. Rating (lbs NOx/ mmbtu)	1998 NOx Emission (tpy)	1999 Average Firing Rate, mm BTU/hr	1999 Perform. Rating (lbs NOx/ mmbtu)	1999 NOx Emission (tpy)	1998-99 Average NOx Emission (tpy)	Averaging Period for Emissions Data
Deer Park	H1010	HDU-1 Charge		26.5	0.105	12.2	34.6	0.105	15.9	14.1	Annual
Deer Park	H5200	HDU-2 Charge		43.3	0.105	19.9	25.2	0.105	11.6	15.8	Annual
Deer Park	H1170	CFH Charge heater		35.2	0.148	22.8	26.4	0.148	17.1	20.0	Annual
Deer Park	H775	DAU Asphalt Heater		5.5	0.150	3.6	4.1	0.150	2.7	3.2	Annual
Deer Park	H1100	DHT heater		35.1	0.089	13.7	7.4	0.089	2.9	8.3	Annual
Deer Park	H1001	PLAT-2 Guard bed start-up		3.3	0.140	2.0	3.3	0.140	2.0	2.0	Annual
Deer Park	H5301	CR-3 H5301/4 Reactor charge		182.2	0.105	83.8	171.6	0.105	78.9	81.4	Annual
Deer Park	H5304	CR-3 H5301/4 Reactor reheat		36.5	0.105	16.8	43.7	0.105	20.1	18.5	Annual
Deer Park	H5350	CR-3 H5301/4 Regen heater		7.4	0.105	3.4	11.5	0.105	5.3	4.4	Annual
Deer Park	H5302	CR-3 H5302/3 Reactor reheat		145.7	0.105	67.0	120.9	0.105	55.6	61.3	Annual
Deer Park	H5303	CR-3 H5302/3 Reactor reheat		72.8	0.105	33.5	75.0	0.105	34.5	34.0	Annual

Refinery	Unit ID	Unit Descrip	Annual Maximum Sustainable or Allowable Heat Input Capacity mmbtu/hr	1998 Average Firing Rate, mm BTU/hr	1998 Perform. Rating (lbs NOx/ mmbtu)	1998 NOx Emission (tpy)	1999 Average Firing Rate, mm BTU/hr	1999 Perform. Rating (lbs NOx/ mmbtu)	1999 NOx Emission (tpy)	1998-99 Average NOx Emission (tpy)	Averaging Period for Emissions Data
Deer Park	H31001	COKER HCOKE Furnace #1		124.2	0.050	27.2	124.7	0.050	27.3	27.3	Annual
Deer Park	H31002	COKER HCOKE Furnace #2		124.2	0.050	27.2	124.7	0.050	27.3	27.3	Annual
Deer Park	H5600	SGP Heat medium		34.6	0.029	4.4	90.5	0.029	11.5	8.0	Annual
Deer Park	H70002	COKER HGOHT Frac Reboiler Heater		62.0	0.060	16.3	57.5	0.060	15.1	15.7	Annual
Deer Park	H70001	COKER HGOHT Recycle Gas Heater		12.9	0.060	3.4	18.6	0.060	4.9	4.2	Annual
Deer Park	H63000	HVI Column Charge Heater		40.0	0.060	10.5	44.5	0.060	11.7	11.1	Annual
Deer Park	H780	LEU Extract Furnace		39.1	0.083	14.2	41.6	0.083	15.1	14.7	Annual
Deer Park	H781	LEU Raffinate Furnace		15.6	0.085	5.8	17.3	0.085	6.4	6.1	Annual
Deer Park	H1130	LHT-1 Charge Furnace		7.8	0.100	3.4	10.5	0.100	4.6	4.0	Annual
Deer Park	H9150	LHT-2 Charge Furnace		7.9	0.095	3.3	6.3	0.095	2.6	3.0	Annual
Deer Park	H753	MEK Pressed Oil Heater		39.0	0.100	17.1	28.9	0.100	12.7	14.9	Annual

Refinery	Unit ID	Unit Descrip	Annual Maximum Sustainable or Allowable Heat Input Capacity mmbtu/hr	1998 Average Firing Rate, mm BTU/hr	1998 Perform. Rating (lbs NOx/ mmbtu)	1998 NOx Emission (tpy)	1999 Average Firing Rate, mm BTU/hr	1999 Perform. Rating (lbs NOx/ mmbtu)	1999 NOx Emission (tpy)	1998-99 Average NOx Emission (tpy)	Averaging Period for Emissions Data
Deer Park	H754	MEK Slack Wax Heater		11.7	0.080	4.1	11.5	0.080	4.0	4.1	Annual
Deer Park	H755	MEK Unit Soft Wax Heater		39.0	0.100	17.1	16.2	0.100	7.1	12.1	Annual
Deer Park	H8	MVI Column Charge Heater (old Permit)		37.7	0.080	13.2	38.1	0.080	13.3	13.3	Annual
Deer Park	H5403	SHCU North charge		37.6	0.065	10.7	30.9	0.065	8.8	9.7	Annual
Deer Park	H5101	DU-2 North Crude Heater		248.7	0.120	130.7	197.5	0.040	34.6	82.7	Annual
Deer Park	H5103	DU-2 North Flasher		60.5	0.148	39.2	65.7	0.148	42.6	40.9	Annual
Deer Park	H1000	PLAT-2 heater		185.0	0.106	85.9	148.0	0.106	68.7	77.3	Annual
Deer Park	H1011	HDU-1 Reboiler		46.2	0.083	16.8	48.4	0.083	17.6	17.2	Annual
Deer Park	H5402	SHCU Reboiler		138.6	0.099	60.3	123.2	0.099	53.6	57.0	Annual
Deer Park	H613	DU-1 Secondary Preheater		124.3	0.088	47.9	125.2	0.088	48.3	48.1	Annual
Deer Park	H5500	HP-1 SMR		417.4	0.107	195.6	468.8	0.107	219.7	207.7	Annual
Deer Park	H5400	SHCU South charge		68.5	0.071	21.3	29.6	0.071	9.2	15.3	Annual
Deer Park	H5100	DU-2 South Crude Heater		207.1	0.110	99.8	219.2	0.040	38.4	69.1	Annual
Deer Park	H5102	DU-2 South Flasher		55.1	0.124	29.9	68.3	0.124	37.1	33.5	Annual

Refinery	Unit ID	Unit Descrip	Annual Maximum Sustainable or Allowable Heat Input Capacity mmbtu/hr	1998 Average Firing Rate, mm BTU/hr	1998 Perform. Rating (lbs NOx/ mmbtu)	1998 NOx Emission (tpy)	1999 Average Firing Rate, mm BTU/hr	1999 Perform. Rating (lbs NOx/ mmbtu)	1999 NOx Emission (tpy)	1998-99 Average NOx Emission (tpy)	Averaging Period for Emissions Data
Deer Park	H5305	CR-3 Stabilizer reboiler		26.1	0.120	13.7	33.7	0.120	17.7	15.7	Annual
Deer Park	FUT100	UTILITIES Boiler		306.5	0.310	416.1	387.6	0.310	526.3	471.2	Annual
Deer Park	FUT110	UTILITIES Boiler		321.4	0.275	387.1	442.7	0.275	533.2	460.2	Annual
Deer Park	FUT120	UTILITIES Boiler		322.9	0.270	381.9	327.5	0.270	387.3	384.6	Annual
Deer Park	FUT130	UTILITIES Boiler		349.1	0.165	252.3	455.0	0.165	328.8	290.6	Annual
Deer Park	H8610	UTILITIES Boiler		1100.0	0.140	674.5	934.0	0.140	572.7	623.6	Annual
Deer Park	H8620	UTILITIES Boiler		910.6	0.085	339.0	1181.7	0.085	439.9	389.5	Annual
Totals			**10828**	**6115**	0.136	**3649**	**6442**	0.135	**3795**	**3722**	

Emissions Data: The methodology used to prepare the baseline data followed the principle of giving preference to CEMs data first, then stack test data, followed by emissions factors, using the best data known to be available at the time.

Stack test/CEMS = Emissions data initially from stack test but later from CEMS

Refinery	Unit ID	Unit Descrip	Annual Maximum Sustainable or Allowable Heat Input Capacity mmbtu/hr	1998 Average Firing Rate mmbtu/hr	1998 Perform. Rating (lbs NOx/ mmbtu)	1998 NOx Emission (tpy)	1999 Average Firing Rate mmbtu/hr	1999 Perform. Rating (lbs NOx/ mmbtu)	1999 NOx Emission (tpy)	1998-99 Average NOx Emission (tpy)	Type of NOx Emission Data	Averaging Period for Emissions Data
Delaware City	134-H-101	Olefins Reboiler Htr		26.2	0.130	14.9	15.0	0.126	8.3	11.6	Em. Factor	Annual
Delaware City	21-H-703	Ammonia Precomb		15.4	0.040	2.7	15.4	0.044	3.0	2.9	CEMS	Annual
Delaware City	11-H-1	SGS Reheater Tr. 1		14.1	0.129	8.0	5.4	0.124	2.9	5.5	Em. Factor	Annual
Delaware City	11-H-2	SGS Reheater Tr. 2		9.5	0.130	5.4	7.6	0.125	4.2	4.8	Em. Factor	Annual
Delaware City	11-H-3	SGS Reheater Tr. 3		9.5	0.130	5.4	0.4	0.126	0.2	2.8	Em. Factor	Annual
Delaware City	Boiler 2	DCPP Boiler 2		467.4	0.417	854.2	499.4	0.470	1027.1	940.7	CEMS	Annual
Delaware City	Boiler 1	DCPP Boiler 1		447.1	0.393	769.3	472.8	0.445	922.2	845.8	CEMS	Annual
Delaware City	Boiler 3	DCPP Boiler 3		507.5	0.422	937.3	472.1	0.301	622.6	780.0	CEMS	Annual
Delaware City	Boiler 4	DCPP Boiler 4		470.1	0.267	550.2	337.2	0.195	287.8	419.0	CEMS	Annual
Delaware City	42-H-7	CCR Reboiler Htr		56.6	0.091	22.6	56.5	0.091	22.5	22.6	Stack Test	Annual
Delaware City	21-H-2	Crude Vac. Htr		226.3	0.183	181.4	192.2	0.177	149.3	165.4	CEMS	Annual
Delaware City	42-H-1,2,3	CCR Heaters		398.7	0.107	186.3	397.5	0.093	161.1	173.7	CEMS	Annual
Delaware City	36-H-3	Hydrocracker Fract Reboiler		24.0	0.129	13.6	26.0	0.126	14.3	14.0	Em. Factor	Annual
Delaware City	29-H-5	Desulf Tr. 5 Feed Htr		13.5	0.151	8.9	67.3	0.151	44.5	26.7	Stack Test	Annual
Delaware City	29-H-2	Desulf Tr. 2 Feed Htr		31.4	0.129	17.8	36.1	0.126	19.9	18.9	Em. Factor	Annual
Delaware City	36-H-2	Hydrocracker Vac Col Htr		10.8	0.129	6.1	11.6	0.126	6.4	6.3	Em. Factor	Annual
Delaware City	22-H-2	FCU Stm SH		13.0	0.130	7.4	16.1	0.125	8.8	8.1	Em. Factor	Annual
Delaware City	29-H-101	Desulf Tr. 1 Feed Htr		53.8	0.138	32.5	17.2	0.138	10.4	21.5	Stack Test	Annual
Delaware City	36-H-1	Hydrocracker Feed Htr		31.5	0.129	17.8	34.2	0.126	18.8	18.3	Em. Factor	Annual
Delaware City	29-H-9	Desulf. Tr. 3 Fract Htr		6.4	0.132	3.7	20.0	0.126	11.0	7.4	Em. Factor	Annual
Delaware City	29-H-7	Desulf Tr. 4 Htr		6.1	0.127	3.4	26.1	0.125	14.3	8.9	Em. Factor	Annual
Delaware City	29-H-8	Desulf Tr. 1 Fract Htr		40.7	0.099	17.6	13.0	0.098	5.6	11.6	Stack Test	Annual
Delaware City	37-H-1	Hydrogen Unit Htr		281.3	0.062	76.4	293.1	0.087	112.3	94.4	CEMS	Annual

Refinery	Unit ID	Unit Descrip	Annual Maximum Sustainable or Allowable Heat Input Capacity mmbtu/hr	1998 Average Firing Rate mmbtu/hr	1998 Perform. Rating (lbs NOx/ mmbtu)	1998 NOx Emission (tpy)	1999 Average Firing Rate mmbtu/hr	1999 Perform. Rating (lbs NOx/ mmbtu)	1999 NOx Emission (tpy)	1998-99 Average NOx Emission (tpy)	Type of NOx Emission Data	Averaging Period for Emissions Data
Delaware City	41-H-1/10	Methanol Unit Htr		12.1	0.117	6.2	345.0	0.120	181.6	93.9	CEMS	Annual
Delaware City	29-H-4	Desulf Tr. 4 Htr		5.8	0.154	3.9	17.3	0.153	11.6	7.8	Stack Test	Annual
Delaware City	21-H-701	Crude Unit Atmos Htr		282.1	0.044	54.0	287.5	0.047	59.5	56.8	CEMS	Annual
Delaware City	32-H-101	Tetra unit Feed Htr		32.9	0.075	10.8	33.7	0.072	10.7	10.8	Stack Test	Annual
Delaware City	29-H-3	Desulf Tr. 3 Feed Htr		4.6	0.129	2.6	6.1	0.124	3.3	3.0	Em. Factor	Annual
Delaware City	29-H-6	Desulf Tr. 5 Fract Htr		15.2	0.071	4.7	35.9	0.071	11.2	8.0	Stack Test	Annual
Delaware City	33-H-1&2	SHU S/U & Reboiler Htr		23.7	0.130	13.5	10.9	0.126	6.0	9.8	Em. Factor	Annual
Delaware City	13-H-2A	Acid Plt Tr. A S/U Htr		10.0	0.129	5.7	10.0	0.126	5.5	5.6	Em. Factor	Annual
Delaware City	13-H-2B	Acid Plt Tr. B S/U Htr		10.0	0.129	5.7	10.0	0.126	5.5	5.6	Em. Factor	Annual
Total			**5235**	**3557**	0.247	**3850**	**3789**	0.227	**3772**	**3811**		

Emissions Data: The methodology used to prepare the baseline data followed the principle of giving preference to CEMs data first, then stack test data, followed by emissions factors, using the best data known to be available at the time.

Refinery	Unit ID	Unit	Descrip	Annual Maximum Sustainable or Allowable Heat Input Capacity mmbtu/hr	1998 Average Firing Rate mmbtu/hr	1998 Perform. Rating (lbs NOx/ mmbtu)	1998 NOx Emission (tpy)	1999 Average Firing Rate mmbtu/hr	1999 Perform. Rating (lbs · NOx/ mmbtu)	1999 NOx Emission (tpy)	1998-99 Average NOx Emission (tpy)	Type of NOx Emission Data
Los Angeles	H-42/43	HGU2			38.2	0.066	11.0	36.1	0.071	11.2	11.1	CEMS
Los Angeles	H-1	CRUDE			172.1	0.036	26.9	160.9	0.054	38.3	32.6	CEMS
Los Angeles	H-200/1/2	CRU3			86.8	0.057	21.5	80.1	0.049	17.1	19.3	CEMS
Los Angeles	H-100	DCU			201.9	0.045	39.6	170.3	0.052	38.8	39.2	CEMS
Los Angeles	H-41	HTU4			47.8	0.011	2.3	53.6	0.011	2.7	2.5	CEMS
Los Angeles	H-	CRU2			122.0	0.032	16.9	106.9	0.053	24.9	20.9	CEMS
Los Angeles	H-302/303	HCU			78.7	0.033	11.2	54.2	0.036	8.6	9.9	CEMS
Los Angeles	H-300/301	HCU			55.3	0.050	12.1	41.8	0.055	10.0	11.1	CEMS
Los Angeles	H-304	HCU			100.7	0.055	24.4	97.4	0.066	28.2	26.3	CEMS
Los Angeles	H-4401	HGU1			0.6	0.000	0.0	0.8	0.023	0.1	0.0	Emission Factor
Los Angeles	H-4201	HGU1			6.5	0.099	2.8	4.0	0.086	1.5	2.2	Emission Factor
Los Angeles	BO-6	BOHO			3.0	0.092	1.2	3.9	0.093	1.6	1.4	Emission Factor
Los Angeles	H-204	CRU			4.2	0.098	1.8	0.1	0.000	0.0	0.9	Emission Factor
Los Angeles	H-3/4	FCCU			140.7	0.229	141.4	142.5	0.229	143.1	142.3	CEMS
Los Angeles	H-21/2	HTU3			33.2	0.076	11.0	30.4	0.071	9.4	10.2	CEMS
Los Angeles	BO-9/10	BOHO			134.6	0.149	87.9	117.1	0.130	66.5	77.2	CEMS
Los Angeles	H-500	HTU2			25.7	0.096	10.8	25.3	0.120	13.3	12.1	CEMS
Los Angeles	H-2	FCCU			9.6	0.119	5.0	4.6	0.247	5.0	5.0	Emission Factor
Los Angeles	H-30	HTU3			27.6	0.077	9.3	23.9	0.071	7.4	8.4	CEMS
Los Angeles	H-31	HTU1			32.0	0.069	9.6	30.1	0.080	10.5	10.1	CEMS
Los Angeles	H-101	DCU			152.7	0.089	59.5	141.2	0.085	52.7	56.1	CEMS
Los Angeles	H-510	CRU2			50.1	0.031	6.7	42.5	0.033	6.2	6.5	CEMS
Los Angeles	H-1601/2	SRP			143.6	0.035	22.1	133.7	0.052	30.3	26.2	CEMS
Los Angeles	H-203	CRU3			32.6	0.041	5.9	28.5	0.048	6.0	6.0	CEMS
Los Angeles	BO-7/8	BOHO			75.6	0.179	59.3	88.6	0.181	70.3	64.8	CEMS
Total				**3526**	**1776**	0.08	**600**	**1618**	0.09	**604**	**602**	

Emissions Data: The methodology used to prepare the baseline data followed the principle of giving preference to CEMs data first, then stack test data, followed by emissions factors, using the best data known to be available at the time.

Refinery	Unit ID	Unit Descrip	Annual Maximum Sustainable or Allowable Heat Input Capacity mmbtu/hr	1998 Average Firing Rate mmbtu/hr	1998 Perform. Rating (lbs NOx/ mmbtu)	1998 NOx Emission (tpy)	1999 Average Firing Rate mmbtu/hr	1999 Perform. Rating (lbs NOx/ mmbtu)	1999 NOx Emission (tpy)	1998-99 Average NOx Emission (tpy)	Type of NOx Emission Data
Martinez	F-14012	CGBC Reboiler Heater		29.8	0.002	0.3	30.4	0.002	0.2	0.2	CEMs
Martinez	F-14011	HGHT Feed Heater		0.2	0.002	0.0	0.0	0.002	0.0	0.0	CEMs
Martinez	F-13425A	DCU Furnace #1		62.4	0.002	0.6	63.2	0.003	0.9	0.7	CEMs
Martinez	F-13425B	DCU Furnace #2		62.4	0.002	0.6	63.2	0.003	0.9	0.7	CEMs
Martinez	H-101*	HP3 Heater		588.3	0.008	21.5	715.9	0.009	26.7	24.1	CEMs
Martinez	F-13909	DHT Recycle Heater		20.8	0.029	2.6	22.6	0.029	2.9	2.8	Clean Fuels Permit Factor
Martinez	F-13000	LHT Feed Heater (LHT2)		11.8	0.029	1.5	13.1	0.029	1.7	1.6	Clean Fuels Permit Factor
Martinez	F-71	HCU 1ST Stage Reboiler		61.4	0.029	7.8	85.4	0.030	11.4	9.6	Common Chimney CEMs
Martinez	F-47	SR Hydrotreater Sec. Col Reboiler		23.4	0.028	2.9	25.0	0.028	3.1	3.0	CEMs avg. 10/01/00 to 09/30/01
Martinez	F-70	Boiler 4		134.6	0.197	115.9	179.3	0.130	101.8	108.8	CEMs
Martinez	F-24	Atm.Col Feed Heater		63.2	0.166	46.0	61.8	0.166	44.9	45.4	Source test
Martinez	F-66	CCU Feed Preheater		114.8	0.180	90.5	73.1	0.180	57.6	74.0	Refems Permit factor
Martinez	F-46	SR Hydrotreater Stabilizer Rblr.		41.4	0.145	26.3	41.7	0.145	26.5	26.4	Source test
Martinez	F-44	NSRH Feed Heater		25.9	0.178	20.2	17.9	0.178	14.0	17.1	Source test
Martinez	F-45	SR Hydrotreater Prim.Col. Rblr.		43.0	0.227	42.8	36.2	0.227	36.0	39.4	Source test
Martinez	F-49	CRU Feed Preheater		123.4	0.112	60.6	147.2	0.112	72.1	66.3	Refems Permit factor
Martinez	F-43	GOSRH Feed Heater		13.0	0.223	12.7	12.5	0.223	12.2	12.5	Source test
Martinez	F-102	FXU Steam Superheater		49.2	0.162	34.9	56.3	0.162	39.9	37.4	Source test
Martinez	F-40	Crude Feed Heater		270.3	0.082	97.1	278.0	0.082	99.9	98.5	Source test
Martinez	F-50	CRU Inter-Rx Heater 1		108.9	0.133	63.2	113.4	0.128	63.5	63.4	Refems Permit factor
Martinez	F-67	CCU LGO Reboiler		33.0	0.180	26.0	31.0	0.180	24.4	25.2	Refems Permit factor
Martinez	F-51	CRU Inter-Rx Heater 3		61.2	0.142	38.1	64.9	0.144	40.9	39.5	Refems Permit factor
Martinez	F-69	Asphalt Circulation Heater		9.4	0.183	7.5	9.8	0.183	7.8	7.7	Source test
Martinez	F-53	Cat. Reformer Regen. Heater		10.9	0.180	8.6	12.7	0.180	10.0	9.3	Refems Permit factor
Martinez	F-31	DSU Reactor Reboiler Heater		12.8	0.140	7.8	16.8	0.140	10.3	9.1	Source test
Martinez	F-58	HCU 2ND Stage Feed		26.4	0.112	12.9	39.3	0.118	20.2	16.6	Common Chimney CEMs
Martinez	F-27	Furfural Extr. Heater		19.9	0.078	6.8	21.4	0.078	7.3	7.1	Source test

Refinery	Unit ID	Unit Descrip	Annual Maximum Sustainable or Allowable Heat Input Capacity mmbtu/hr	1998 Average Firing Rate mmbtu/hr	1998 Perform. Rating (lbs NOx/ mmbtu)	1998 NOx Emission (tpy)	1999 Average Firing Rate mmbtu/hr	1999 Perform. Rating (lbs NOx/ mmbtu)	1999 NOx Emission (tpy)	1998-99 Average NOx Emission (tpy)	Type of NOx Emission Data
Martinez	F-34	LHT Charge Oil Heater		11.4	0.105	5.3	14.0	0.105	6.4	5.8	Source test
Martinez	F-60	Steam Methane Reformer,HP#1		301.8	0.083	109.7	321.1	0.087	122.9	116.3	Common Chimney CEMs
Martinez	F-59	HCU 2ND Stage Reboiler		73.2	0.079	25.3	92.0	0.083	33.3	29.3	Common Chimney CEMs
Martinez	F-57	HCU 1ST Stage Feed Heater		22.2	0.118	11.5	21.9	0.124	11.9	11.7	Common Chimney CEMs
Martinez	F-128	CRU Inter-Rx Heater 2		64.0	0.120	33.7	52.3	0.132	30.3	32.0	Refems Permit factor
Martinez	F-25	Vacuum Col Feed Heater		21.4	0.085	8.0	20.9	0.085	7.8	7.9	Source test
Martinez	F-126	Crude Feed Heater		115.6	0.065	32.9	120.7	0.065	34.4	33.6	Source test
Martinez	F-104	Steam Methane Reformer,HP#2		277.1	0.058	70.4	344.6	0.058	87.5	79.0	CEMs avg. 10/01/00 to
Martinez	F-26	Furfural Raff. Heater		6.9	0.078	2.4	7.5	0.078	2.6	2.5	Source test
Martinez	F-41A	VFU Feed Heater		109.8	0.045	21.6	115.3	0.045	22.7	22.2	Source test
Martinez	F-41B	VFU Feed Heater		108.0	0.044	20.8	108.8	0.044	21.0	20.9	Source test
Martinez	F-32	Asphalt Circulation Heater		5.6	0.109	2.6	5.8	0.109	2.8	2.7	Source test
Martinez	F-52	Cat. Reformer Stab. Reboiler		21.4	0.044	4.1	24.0	0.044	4.6	4.4	Source test
Martinez	F-63	CFH Feed Heater		56.9	0.073	18.2	63.7	0.073	20.4	19.3	Source test
Martinez	F-30	DSU Reactor Charge Heater		0.3	0.140	0.2	0.3	0.140	0.2	0.2	Source test
Martinez	F-61	HG Feed Charge Heater		0.5	0.180	0.4	0.2	0.180	0.1	0.2	Refems Permit factor
Martinez	F-55	SGP Heat Medium Heater		22.7	0.257	25.5	7.9	0.270	9.3	17.4	Common Chimney CEMs
Total			**6182**	**3240**	0.08	**1148**	**3553**	0.07	**1155**	**1152**	

Emissions Data: The methodology used to prepare the baseline data followed the principle of giving preference to CEMs data first, then stack test data, followed by emissions factors, using the best data known to be available at the time.

Refems is the name of an emissions cap developed for a refinery project in the early 1980's
Clean Fuels is the name of an emissions cap developed for a refinery project in the early 1990's

Refinery	Unit ID	Unit Descrip	Annual Maximum Sustainable or Allowable Heat Input Capacity mmbtu/hr	1998 Average Firing Rate mmbtu/hr	1998 Perform. Rating (lbs NOx/ mmbtu)	1998 NOx Emission (tpy)	1999 Average Firing Rate mmbtu/hr	1999 Perform. Rating (lbs NOx/ mmbtu)	1999 NOx Emission (tpy)	1998-99 Average NOx Emission (tpy)	Type of NOx Emission Data
Norco	3-76	F-35/36 - Crude Furnace		485.0	0.186	395.7	528.8	0.186	431.5	413.6	Em. Factor
Norco	11-73A/B	F-58 - Reactor #2 Furnace Stack A/B		100.8	0.275	121.2	123.2	0.275	148.1	134.7	Em. Factor
Norco	31-71	F-53/54/55/57 - CR		128.8	0.245	138.2	131.3	0.246	141.2	139.7	Em. Factor
Norco	30-71	F-53/54/55/57 - CR		128.8	0.245	138.2	131.3	0.246	141.2	139.7	Em. Factor
Norco	19-71	F-37/38 - Vacuum Flasher Furnace		167.5	0.275	201.4	180.7	0.275	217.2	209.3	Em. Factor
Norco	1-81	F-125 - Coker Charge Heater		53.4	0.174	40.7	53.6	0.174	40.8	40.8	Em. Factor
Norco	27/28-71	F-45A/B - SMR Furnace		258.4	0.275	310.6	264.6	0.275	318.1	314.4	Em. Factor
Norco	32-71	F-56 - Stabilizer Reboiler Heater		28.3	0.098	12.1	27.0	0.098	11.6	11.9	Em. Factor
Norco	29-71	F-51 - Coker Charge Heater		72.8	0.275	87.6	75.5	0.275	90.7	89.2	Em. Factor
Norco	14-71	F-22 - Platforming Charge Heater		78.9	0.275	94.9	100.9	0.275	121.3	108.1	Em. Factor
Norco	13-71	F-21 - Desulfurizer Charge Heater		53.8	0.098	23.1	60.2	0.098	25.8	24.5	Em. Factor
Norco	15-71	F-23 - Platforming Charge Heater		51.4	0.275	61.9	68.4	0.275	82.3	72.1	Em. Factor
Norco	24-71	F-43 - 2nd Stage Reaction Feed		37.4	0.098	16.0	45.0	0.098	19.3	17.7	Em. Factor
Norco	22-71	F-41 - 1st Stage Reactor Feed		47.1	0.098	20.2	54.5	0.098	23.4	21.8	Em. Factor
Norco	25-71	F-44 - Main Fract. Reboil Heater		49.2	0.098	21.1	49.3	0.098	21.1	21.1	Em. Factor
Norco	23-71	F-42 - 1st Stage Fract. Reboiler		32.6	0.098	14.0	38.9	0.098	16.7	15.3	Em. Factor
Norco	3-91	F-164 - 650# Steam		48.5	0.110	23.4	46.6	0.110	22.4	18.2	Em. Factor

Refinery	Unit ID	Unit Descrip	Annual Maximum Sustainable or Allowable Heat Input Capacity mmbtu/hr	1998 Average Firing Rate mmbtu/hr	1998 Perform. Rating (lbs NOx/ mmbtu)	1998 NOx Emission (tpy)	1999 Average Firing Rate mmbtu/hr	1999 Perform. Rating (lbs NOx/ mmbtu)	1999 NOx Emission (tpy)	1998-99 Average NOx Emission (tpy)	Type of NOx Emission Data
Norco	21-76	F-156 - DHT Charge Furnace		11.7	0.098	5.0	15.1	0.098	6.5	5.8	Em. Factor
Norco	1-91	F-7000 - Feed Preheater		137.9	0.114	68.9	163.0	0.114	81.4	75.1	Em. Factor
Total			**3595**	**1972**	0.21	**1794**	**2158**	0.21	**1961**	**1873**	

Emissions Data: The methodology used to prepare the baseline data followed the principle of giving preference to CEMs data first, then stack test data, followed by emissions factors, using the best data known to be available at the time.

Refinery	Unit ID	Unit Descrip	Annual Maximum Sustainable or Allowable Heat Input Capacity mmbtu/hr	1998 Average Firing Rate mmbtu/hr	1998 Perform. Rating (lbs NOx/ mmbtu)	1998 NOx Emission (tpy)	1999 Average Firing Rate mmbtu/hr	1999 Perform. Rating (lbs NOx/ mmbtu)	1999 NOx Emission (tpy)	1998-99 Average NOx Emission (tpy)	Type of NOx Emission Data
Port Arthur	CRU4	DEPRO REBL		32.56	0.0389	5.55	38.68	0.0426	7.22	6.4	CEMS
Port Arthur	CRU4	NHTU CHRG		24.16	0.0979	10.36	25.98	0.1185	13.48	11.9	CEMS
Port Arthur	CRU4	PLATFORMER SECTION		411.28	0.0180	32.38	463.54	0.0208	42.14	37.3	CEMS
Port Arthur	CRU4	STRIPPER REBLR		41.69	0.0488	8.92	47.81	0.0555	11.62	10.3	CEMS
Port Arthur	DCU	100		128.41	0.0500	28.12	125.66	0.0500	27.52	27.8	Stack Test
Port Arthur	DCU	200		129.47	0.0700	39.70	128.20	0.0700	39.31	39.5	Stack Test
Port Arthur	FCCU3	FCCU CHRG		62.62	0.0500	13.71	28.41	0.0500	6.22	10.0	Stack Test
Port Arthur	HCU1	FRAC REBOILER		24.92	0.0653	7.13	30.31	0.0653	8.67	7.9	Stack Test
Port Arthur	HCU1	PREFLASH REBOILER		65.89	0.0453	13.07	57.76	0.0453	11.46	12.3	Stack Test
Port Arthur	HCU1	R1 REACTOR CHRG		14.68	0.0230	1.48	12.04	0.0230	1.21	1.3	Stack Test
Port Arthur	HCU1	R2 REACTOR CHRG		24.50	0.0583	6.26	17.85	0.0583	4.56	5.4	Stack Test
Port Arthur	HFU2	CHG HTR (Shutdown - 99)		6.25	0.0830	2.27	0.00	Shutdown	0.00	1.1	Stack Test
Port Arthur	HFU3	CHG HTR (Shutdown - 99)		17.97	0.1830	14.40	0.00	Shutdown	0.00	7.2	Stack Test
Port Arthur	HTU1	CHARGE HTR		14.36	0.0300	1.89	16.68	0.0300	2.19	2.0	Stack Test
Port Arthur	HTU2	RERUN REBOILER		2.96	0.1530	1.98	2.85	0.1530	1.91	1.9	Stack Test
Port Arthur	HTU2	CHARGE HTR		48.89	0.1300	27.84	57.76	0.1300	32.89	30.4	Stack Test
Port Arthur	HTU3	REBOILER		19.53	0.0220	1.88	25.25	0.0220	2.43	2.2	Stack Test
Port Arthur	HTU3	CHARGE HTR		50.82	0.0330	7.35	47.04	0.0330	6.80	7.1	Stack Test
Port Arthur	HTU4	CHARGE HTR-TRAIN 1		10.77	0.0640	3.02	9.08	0.0640	2.55	2.8	Stack Test
Port Arthur	HTU4	CHARGE HTR-TRAIN 2		7.81	0.0670	2.29	8.87	0.0670	2.60	2.4	Stack Test
Port Arthur	HTU4	FRACT REBOILER		10.03	0.0030	0.13	10.98	0.0030	0.14	0.1	Stack Test
Port Arthur	HTU4LT	RECYCLE GAS		63.47	0.0390	10.84	67.69	0.0390	11.56	11.2	Stack Test

Refinery	Unit ID	Unit Descrip	Annual Maximum Sustainable or Allowable Heat Input Capacity mmbtu/hr	1998 Average Firing Rate mmbtu/hr	1998 Perform. Rating (lbs NOx/ mmbtu)	1998 NOx Emission (tpy)	1999 Average Firing Rate mmbtu/hr	1999 Perform. Rating (lbs NOx/ mmbtu)	1999 NOx Emission (tpy)	1998-99 Average NOx Emission (tpy)	Type of NOx Emission Data
Port Arthur	LCDU	RECYCLE GAS (OLD CHRG)		10.99	0.0200	0.96	8.71	0.0200	0.76	0.9	Stack Test
Port Arthur	LCDU	HDT CHARGE		18.15	0.0570	4.53	21.05	0.0570	5.26	4.9	Stack Test
Port Arthur	MPU3	EXTRACT HTR		61.30	0.0370	9.93	56.90	0.0370	9.22	9.6	Stack Test
Port Arthur	MPU3	RO HEATER		19.98	0.0360	3.15	22.02	0.0360	3.47	3.3	Stack Test
Port Arthur	MPU4	RO MIX HTR		18.85	0.1670	13.79	19.08	0.1670	13.96	13.9	Stack Test
Port Arthur	MPU4	SATELLITE RAFINATE HTR		1.81	0.0415	0.33	3.61	0.0841	1.33	0.8	AP-42
Port Arthur	MPU4	EXTRACT MIX HTR		79.82	0.0770	26.92	69.66	0.0770	23.49	25.2	Stack Test
Port Arthur	PS2	BOILER 26		136.01	0.5990	356.84	180.50	0.1527	120.70	238.8	Stack Test/CEMS
Port Arthur	PS2	BOILER 27		123.42	0.6110	330.29	60.93	0.1583	42.25	186.3	Stack Test/CEMS
Port Arthur	PS2	BOILER 29		246.25	0.1023	110.34	256.00	0.1229	137.80	124.1	Stack Test/CEMS
Port Arthur	PS3	BOILER 31		402.61	0.3060	539.61	295.10	0.2439	315.30	427.5	Stack Test/CEMS
Port Arthur	PS3	BOILER 32		402.61	0.1540	271.57	301.05	0.2888	380.80	326.2	Stack Test/CEMS
Port Arthur	PS3	BOILER 33		379.53	0.1750	290.91	296.27	0.4029	522.80	406.9	Stack Test/CEMS
Port Arthur	PS3	BOILER 34		427.22	0.1138	212.95	374.70	0.1486	243.80	228.4	Stack Test/CEMS
Port Arthur	PS3	BOILER 35		415.65	0.1510	274.90	416.33	0.1355	247.00	261.0	Stack Test/CEMS
Port Arthur	SDU2	PO HTR (Shutdown - 98)		29.70	0.0600	7.81	0.00	Shutdown	0.00	3.9	Stack Test
Port Arthur	SDU2	SW HTR (Shutdown - 98)		10.85	0.1730	8.22	0.00	Shutdown	0.00	4.1	Stack Test
Port Arthur	SDU3	PO HTR (Shutdown - 98)		81.90	0.0733	26.29	0.00	Shutdown	0.00	13.1	Stack Test
Port Arthur	SDU3	SW HTR (Shutdown - 98)		7.36	0.0330	1.06	0.00	Shutdown	0.00	0.5	Stack Test
Port Arthur	TGTU1	HOT OIL HTR		1.76	0.0800	0.62	1.66	0.0800	0.58	0.6	Stack Test

Refinery	Unit ID	Unit Descrip	Annual Maximum Sustainable or Allowable Heat Input Capacity mmbtu/hr	1998 Average Firing Rate mmbtu/hr	1998 Perform. Rating (lbs NOx/ mmbtu)	1998 NOx Emission (tpy)	1999 Average Firing Rate mmbtu/hr	1999 Perform. Rating (lbs NOx/ mmbtu)	1999 NOx Emission (tpy)	1998-99 Average NOx Emission (tpy)	Type of NOx Emission Data
Port Arthur	TGTU2	HOT OIL HTR		1.76	0.0200	0.15	1.66	0.0200	0.15	0.1	Stack Test
Port Arthur	VPS2	ATMOSPHERIC 1		38.27	0.1400	23.47	37.93	0.1400	23.26	23.4	Stack Test
Port Arthur	VPS2	ATMOSPHERIC 2		38.61	0.1270	21.48	37.93	0.1270	21.10	21.3	Stack Test
Port Arthur	VPS2	ATMOSPHERIC 3		40.42	0.1230	21.78	39.06	0.1230	21.04	21.4	Stack Test
Port Arthur	VPS2	ATMOSPHERIC 4		29.13	0.1030	13.14	30.48	0.1030	13.75	13.4	Stack Test
Port Arthur	VPS2	VACUUM 1		29.13	0.0870	11.10	24.73	0.0870	9.42	10.3	Stack Test
Port Arthur	VPS2	VACUUM 2		30.48	0.0770	10.28	26.64	0.0770	8.98	9.6	Stack Test
Port Arthur	VPS4	ATMOSPHERIC A		133.45	0.0148	8.65	152.19	0.0148	9.87	9.3	Stack Test
Port Arthur	VPS4	ATMOSPHERIC B		128.93	0.0148	8.36	151.64	0.0148	9.83	9.1	Stack Test
Port Arthur	VPS4	ATMOSPHERIC C		105.13	0.0360	16.58	120.78	0.0360	19.04	17.8	Stack Test
Port Arthur	VPS4	NAPTHA SPLITTER		42.43	0.0370	6.88	55.10	0.0370	8.93	7.9	Stack Test
Port Arthur	VPS4	VACUUM A		102.16	0.0136	6.09	107.56	0.0136	6.41	6.2	Stack Test
Port Arthur	VPS4	VACUUM B		98.63	0.0136	5.88	104.80	0.0136	6.24	6.1	Stack Test
Total			**7692**	**4907**	0.13	**2885**	**4497**	0.13	**2463**	**2674**	

Emissions Data: The methodology used to prepare the baseline data followed the principle of giving preference to CEMs data first, then stack test data, followed by emissions factors, using the best data known to be available at the time.

Stack test/CEMS indicates that stack tests were used in 1998 and CEMS were used in 1999

Refinery	Unit ID	Unit Descrip	Annual Maximum Sustainable or Allowable Heat Input Capacity mmbtu/hr	1998 Average Firing Rate mmbtu/hr	1998 Perform. Rating (lbs NOx/ mmbtu)	1998 NOx Emission (tpy)	1999 Average Firing Rate mmbtu/hr	1999 Perform. Rating (lbs NOx/ mmbtu)	1999 NOx Emission (tpy)	1998-99 Average NOx Emission (tpy)	Type of NOx Emission Data
Puget Sound	1A-F4	Gas Oil Tower Heater		143.4	0.320	200.9	100.8	0.320	141.3	171.1	AP42
Puget Sound	1A-F5/6	VPS Charge Heater #1 & #2		281.6	0.320	394.7	323.9	0.320	454.0	424.4	AP42
Puget Sound	1A-F7	Vacuum Tower Heater		106.2	0.110	51.2	73.7	0.110	35.5	43.4	AP42
Puget Sound	15F-100	DCU Charge Heater		93.1	0.039	16.0	74.0	0.039	13.0	14.5	Stack Test
Puget Sound	7C-F4/5	HTU1 Charge Heater & Frac. Reboiler		130.5	0.063	34.0	113.4	0.063	29.0	31.5	Stack Test
Puget Sound	6D-F2/3/4	CRU1 Charge Heater/Interheaters #1 & 2		80.1	0.060	21.0	60.6	0.060	16.0	18.5	Stack Test
Puget Sound	11H-101	HTU2 Charge Heater		27.8	0.110	13.4	26.0	0.110	12.5	13.0	AP42
Puget Sound	11H-102/103	HTU2 Stripper & Fractionator Reboilers		147.2	0.031	20.0	137.5	0.031	18.7	19.4	Stack Test
Puget Sound	10H-101/102/103	CRU2 Charge Heater/Interheaters #1 & 2		142.3	0.110	68.5	140.7	0.110	67.8	68.2	AP42
Puget Sound	10H-104	CRU2 Stabilizer Reboiler		47.4	0.110	22.8	45.3	0.110	21.8	22.3	AP42
Puget Sound	ECB1	Erie City Boiler #1		40.6	0.320	56.8	62.2	0.320	87.2	72.0	AP42
Total			**2153**	**1240**	0.17	**899**	**1158**	0.18	**897**	**898**	

Emissions Data: The methodology used to prepare the baseline data followed the principle of giving preference to CEMs data first, then stack test data, followed by emissions factors, using the best data known to be available at the time.

ATTACHMENT 2
NSPS SUBPART J APPLICABILITY

Pursuant to Paragraph 24 of this Consent Decree, the Companies shall come into compliance with the requirements of NSPS Subpart J for the identified units in accordance with the following schedule:

By December 31, 2001:

PUGET SOUND

1) Truck Loading Rack Vapor Combustor

By September 30, 2002:

CONVENT

1) Boiler 31F802

DEER PARK

1) DHT Heater
2) DU-1 H-613 Heater

LOS ANGELES

1) CO analyzer at CO boiler

MARTINEZ

1) Marine Vapor Recovery (MVR)

PORT ARTHUR

1) Power Station 2
2) Power Station 3

By December 31, 2002:

BAKERSFIELD

1) 14H1
2) 14H2
3) 81H9
4) 81H12