

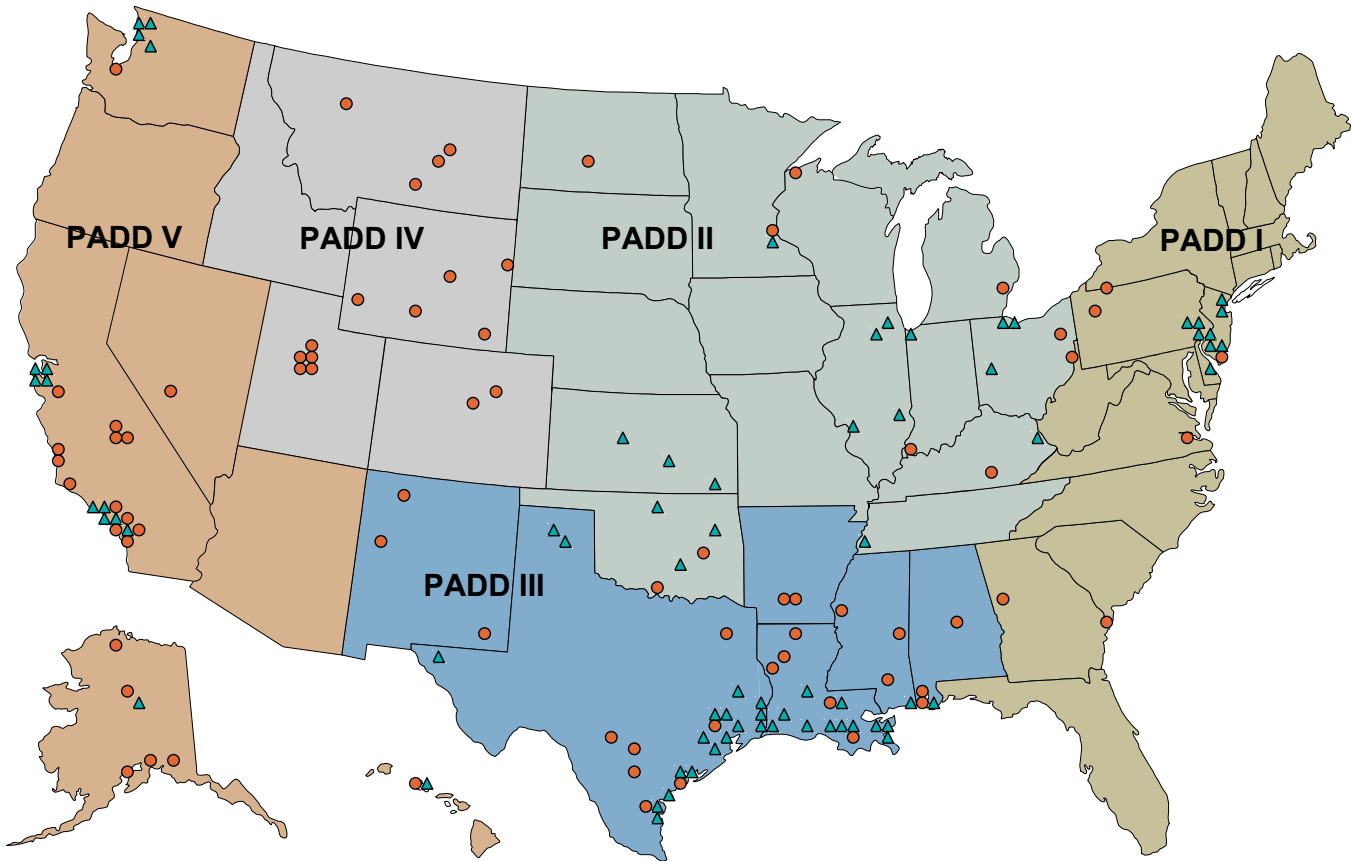
Refining Capacity Report  
January 1, 2003

# NPRA United States Refining and Storage Capacity Report

Published June 2003



# Location of U.S. Refineries 2003



▲ Large: Over 75,000 B/D  
● Small: Under 75,000 B/D

# NPRA United States Refining and Storage Capacity Report

The enclosed statistics provide US refining and storage capacity data as reported by the DOE Energy Information Administration in their 2002 Petroleum Supply Annual. These data, along with other DOE statistics, are also available electronically. (See the note at the bottom of this page for details.) This report is also available on the NPRA web site ([www.npra.org](http://www.npra.org)) under Publications/Statistical Reports.

On January 1, 2003, there were 149 operable refineries in the United States (excluding Puerto Rico and the Virgin islands) with total crude distillation capacity of 16.8 million barrels per calendar day and 17.7 million barrels per stream day. Of these, 145 refineries were operating on January 1, 2003 with operating capacity listed at 16.5 million barrels per calendar day and 17.4 million barrels per stream day.

The DOE Energy Information Administration reports that during 2002, four (4) U.S. refineries were shut down for a decrease of 94,000 barrels per calendar day of crude distillation capacity distillation capacity which was partially offset by a gain of 66,000 barrels per calendar day from the operable refineries.

The following table lists the operable U.S. refining capacity for the past five years:

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**January 1 Operable Capacity in  
Thousands of Barrels Per Calendar Day**

	1999	2000	2001	2002	2003
U.S.	16,261	16,512	16,595	16,785	16,757
Puerto Rico	35	87	87	87	112
Virgin Islands	495	495	495	495	470

*This summary of petroleum refineries in the United States and U.S. territories is taken from the Department of Energy's Petroleum Supply Annual 2002, published June, 2003. Capacity data is reproduced by NPRA as a courtesy to members. The data enclosed, as well as other DOE refining statistics, are available electronically from DOE (<http://www.eia.doe.gov>). For information call EIA's National Energy Information Center at 202.586.8800, e-mail at: [infoctr@eia.doe.gov](mailto:infoctr@eia.doe.gov)*



**NPRA**

# NPRA United States Refining and Storage Capacity Report

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**Table 1. Number and Capacity of Operable Petroleum Refineries by PAD District and State as of January 1, 2003**

PAD District and State	Number of Operable Refineries			Atmospheric Crude Oil Distillation Capacity					
				Barrels per Calendar Day			Barrels per Stream Day		
	Total	Operating	Idle <sup>a</sup>	Total	Operating	Idle	Total	Operating	Idle
<b>PAD District I.....</b>	<b>16</b>	<b>13</b>	<b>3</b>	<b>1,708,687</b>	<b>1,570,687</b>	<b>138,000</b>	<b>1,800,800</b>	<b>1,655,300</b>	<b>145,500</b>
Delaware .....	1	1	0	175,000	175,000	0	180,000	180,000	0
Georgia .....	2	1	1	33,400	5,400	28,000	40,000	8,000	32,000
New Jersey.....	6	4	2	662,287	552,287	110,000	690,500	577,000	113,500
Pennsylvania .....	5	5	0	760,000	760,000	0	808,500	808,500	0
Virginia .....	1	1	0	58,600	58,600	0	61,800	61,800	0
West Virginia .....	1	1	0	19,400	19,400	0	20,000	20,000	0
<b>PAD District II.....</b>	<b>26</b>	<b>26</b>	<b>0</b>	<b>3,518,400</b>	<b>3,518,400</b>	<b>0</b>	<b>3,715,049</b>	<b>3,715,049</b>	<b>0</b>
Illinois .....	4	4	0	878,300	878,300	0	929,700	929,700	0
Indiana .....	2	2	0	433,000	433,000	0	444,000	444,000	0
Kansas .....	3	3	0	296,200	296,200	0	310,000	310,000	0
Kentucky.....	2	2	0	227,500	227,500	0	253,300	253,300	0
Michigan.....	1	1	0	74,000	74,000	0	76,000	76,000	0
Minnesota.....	2	2	0	335,000	335,000	0	369,000	369,000	0
North Dakota.....	1	1	0	58,000	58,000	0	60,000	60,000	0
Ohio.....	4	4	0	531,500	531,500	0	549,000	549,000	0
Oklahoma.....	5	5	0	471,900	471,900	0	504,049	504,049	0
Tennessee.....	1	1	0	180,000	180,000	0	182,000	182,000	0
Wisconsin.....	1	1	0	33,000	33,000	0	38,000	38,000	0
<b>PAD District III.....</b>	<b>55</b>	<b>54</b>	<b>1</b>	<b>7,807,948</b>	<b>7,707,948</b>	<b>100,000</b>	<b>8,241,078</b>	<b>8,138,078</b>	<b>103,000</b>
Alabama .....	3	3	0	130,000	130,000	0	142,000	142,000	0
Arkansas .....	2	2	0	69,800	69,800	0	74,800	74,800	0
Louisiana.....	17	17	0	2,718,920	2,718,920	0	2,867,355	2,867,355	0
Mississippi.....	4	4	0	364,800	364,800	0	393,300	393,300	0
New Mexico.....	3	3	0	95,600	95,600	0	101,107	101,107	0
Texas .....	26	25	1	4,428,828	4,328,828	100,000	4,662,516	4,559,516	103,000
<b>PAD District IV .....</b>	<b>16</b>	<b>16</b>	<b>0</b>	<b>577,700</b>	<b>577,700</b>	<b>0</b>	<b>610,600</b>	<b>610,600</b>	<b>0</b>
Colorado.....	2	2	0	87,000	87,000	0	94,000	94,000	0
Montana .....	4	4	0	180,000	180,000	0	188,800	188,800	0
Utah.....	5	5	0	162,700	162,700	0	172,500	172,500	0
Wyoming.....	5	5	0	148,000	148,000	0	155,300	155,300	0
<b>PAD District V.....</b>	<b>36</b>	<b>36</b>	<b>0</b>	<b>3,144,635</b>	<b>3,109,235</b>	<b>35,400</b>	<b>3,307,563</b>	<b>3,266,063</b>	<b>41,500</b>
Alaska.....	6	6	0	358,978	358,978	0	405,713	405,713	0
California.....	21	21	0	2,011,807	1,989,807	22,000	2,104,100	2,077,100	27,000
Hawaii.....	2	2	0	147,500	147,500	0	152,000	152,000	0
Nevada.....	1	1	0	5,000	5,000	0	5,000	5,000	0
Oregon.....	1	1	0	0	0	0	0	0	0
Washington.....	5	5	0	621,350	607,950	13,400	640,750	626,250	14,500
<b>U.S. Total.....</b>	<b>149</b>	<b>145</b>	<b>4</b>	<b>16,757,370</b>	<b>16,483,970</b>	<b>273,400</b>	<b>17,675,090</b>	<b>17,385,090</b>	<b>290,000</b>
Puerto Rico .....	2	1	1	111,500	69,500	42,000	124,400	76,400	48,000
Virgin Islands.....	1	1	0	470,000	345,000	125,000	495,000	360,000	135,000

See footnotes at end of table.

**Table 1. Number and Capacity of Operable Petroleum Refineries by PAD District and State as of January 1, 2003 (Continued)**

PAD District and State	Downstream Charge Capacity (Barrels per Stream Day)							Fuels Solvent Deasphalting
	Vacuum Distillation	Thermal Cracking	Catalytic Cracking		Catalytic Hydro-cracking	Catalytic Reforming	Catalytic Hydro-treating	
			Fresh	Recycled				
<b>PAD District I .....</b>	<b>738,900</b>	<b>90,000</b>	<b>728,200</b>	<b>7,000</b>	<b>42,000</b>	<b>312,300</b>	<b>1,004,960</b>	<b>21,000</b>
Delaware .....	102,000	46,500	77,000	4,000	20,000	41,000	186,000	0
Georgia .....	0	0	0	0	0	0	0	0
New Jersey .....	291,000	24,500	317,500	0	0	84,000	317,500	21,000
Pennsylvania .....	300,000	0	305,500	1,000	22,000	171,800	460,300	0
Virginia .....	37,300	19,000	28,200	2,000	0	12,100	30,860	0
West Virginia .....	8,600	0	0	0	0	3,400	10,300	0
<b>PAD District II .....</b>	<b>1,477,700</b>	<b>384,800</b>	<b>1,248,811</b>	<b>13,550</b>	<b>151,700</b>	<b>893,964</b>	<b>2,596,630</b>	<b>17,850</b>
Illinois .....	376,900	126,400	309,000	3,000	60,500	241,200	624,266	0
Indiana .....	255,000	36,000	173,200	4,200	0	96,500	311,800	0
Kansas .....	123,000	58,000	89,200	500	0	69,000	272,400	0
Kentucky .....	97,000	0	105,000	0	0	51,000	208,800	13,000
Michigan .....	38,000	0	29,000	0	0	20,000	51,300	0
Minnesota .....	232,000	70,000	111,000	0	0	72,800	385,000	0
North Dakota .....	0	0	26,000	3,600	0	12,100	24,600	0
Ohio .....	153,500	58,500	190,000	0	85,200	164,500	273,100	0
Oklahoma .....	181,800	35,900	135,411	2,250	6,000	122,864	315,564	4,850
Tennessee .....	0	0	70,000	0	0	36,000	113,000	0
Wisconsin .....	20,500	0	11,000	0	0	8,000	16,800	0
<b>PAD District III .....</b>	<b>3,729,975</b>	<b>1,243,600</b>	<b>3,045,710</b>	<b>49,000</b>	<b>843,700</b>	<b>1,839,800</b>	<b>5,987,100</b>	<b>222,400</b>
Alabama .....	60,400	14,000	0	0	0	27,200	78,500	0
Arkansas .....	29,400	0	19,900	0	0	13,600	54,600	7,400
Louisiana .....	1,234,000	490,500	1,122,600	11,000	207,100	556,500	1,801,250	41,000
Mississippi .....	310,875	75,000	68,000	0	167,000	96,000	168,300	0
New Mexico .....	23,000	0	34,300	3,500	0	25,800	67,300	0
Texas .....	2,072,300	664,100	1,800,910	34,500	469,600	1,120,700	3,817,150	174,000
<b>PAD District IV .....</b>	<b>229,300</b>	<b>46,850</b>	<b>191,000</b>	<b>5,690</b>	<b>16,600</b>	<b>127,780</b>	<b>382,950</b>	<b>9,040</b>
Colorado .....	32,500	0	28,600	2,000	0	20,700	48,200	0
Montana .....	90,200	28,350	57,000	990	5,600	40,530	162,000	4,000
Utah .....	44,000	8,500	55,900	2,200	0	35,000	75,100	5,040
Wyoming .....	62,600	10,000	49,500	500	11,000	31,550	97,650	0
<b>PAD District V .....</b>	<b>1,612,500</b>	<b>611,700</b>	<b>838,400</b>	<b>4,000</b>	<b>589,800</b>	<b>603,590</b>	<b>2,015,440</b>	<b>80,000</b>
Alaska .....	25,800	0	0	0	12,500	12,000	12,000	0
California .....	1,204,200	509,000	682,300	1,000	501,300	434,300	1,676,000	50,000
Hawaii .....	74,300	13,000	22,000	0	18,000	13,000	14,500	0
Nevada .....	5,000	0	0	0	0	0	0	0
Oregon .....	12,000	0	0	0	0	0	0	0
Washington .....	291,200	89,700	134,100	3,000	58,000	144,290	312,940	30,000
<b>U.S. Total .....</b>	<b>7,788,375</b>	<b>2,376,950</b>	<b>6,052,121</b>	<b>79,240</b>	<b>1,643,800</b>	<b>3,777,434</b>	<b>11,987,080</b>	<b>350,290</b>
Puerto Rico .....	57,000	0	14,200	0	18,000	26,500	47,400	0
Virgin Islands .....	225,000	103,000	145,000	0	0	115,000	405,000	0

<sup>a</sup> Refineries where distillation units were completely idle but not permanently shutdown on January 1, 2003.  
Source: Energy Information Administration (EIA), Form EIA-820, "Annual Refinery Report."

**Table 2. Production Capacity of Operable Petroleum Refineries by PAD District and State as of January 1, 2003**  
(Barrels per Stream Day, Except Where Noted)

PAD District and State	Production Capacity							
	Alkylates	Aromatics	Asphalt and Road Oil	Isomers	Lubricants	Marketable Petroleum Coke	Hydrogen (MMcfd)	Sulfur (short tons/day)
<b>PAD District I</b> .....	<b>108,200</b>	<b>20,900</b>	<b>141,380</b>	<b>30,900</b>	<b>20,145</b>	<b>21,980</b>	<b>84</b>	<b>1,290</b>
Delaware.....	11,700	1,400	0	6,000	0	9,080	55	596
Georgia.....	0	0	29,400	0	0	0	0	0
New Jersey.....	38,200	7,500	91,500	13,100	12,000	7,500	21	283
Pennsylvania.....	54,100	12,000	20,000	11,800	2,945	0	7	371
Virginia.....	4,200	0	0	0	0	5,400	0	39
West Virginia.....	0	0	480	0	5,200	0	1	1
<b>PAD District II</b> .....	<b>262,168</b>	<b>63,400</b>	<b>303,331</b>	<b>174,397</b>	<b>18,200</b>	<b>112,000</b>	<b>391</b>	<b>5,191</b>
Illinois.....	84,000	13,500	65,500	14,000	0	38,270	57	1,717
Indiana.....	37,700	17,000	65,700	28,200	0	13,400	31	550
Kansas.....	28,000	3,000	0	27,300	0	18,000	6	457
Kentucky.....	14,000	11,700	23,000	13,000	9,400	0	0	448
Michigan.....	4,100	0	22,000	0	0	0	0	147
Minnesota.....	17,500	0	62,000	36,000	0	22,000	123	1,103
North Dakota.....	4,400	0	0	0	0	0	0	17
Ohio.....	28,000	18,200	23,500	26,000	0	12,700	128	524
Oklahoma.....	30,968	0	34,131	21,897	8,800	7,630	46	172
Tennessee.....	12,000	0	0	6,000	0	0	0	43
Wisconsin.....	1,500	0	7,500	2,000	0	0	0	13
<b>PAD District III</b> .....	<b>583,050</b>	<b>227,100</b>	<b>239,975</b>	<b>337,496</b>	<b>151,695</b>	<b>359,237</b>	<b>1,399</b>	<b>17,908</b>
Alabama.....	0	0	25,200	3,200	0	2,500	6	115
Arkansas.....	4,900	0	11,200	6,500	5,000	0	3	157
Louisiana.....	208,900	26,500	62,575	120,990	62,800	129,231	192	5,635
Mississippi.....	18,600	21,000	39,700	0	11,400	22,080	238	1,300
New Mexico.....	8,600	0	6,400	14,073	0	0	0	142
Texas.....	342,050	179,600	94,900	192,733	72,495	205,426	960	10,559
<b>PAD District IV</b> .....	<b>42,154</b>	<b>0</b>	<b>69,400</b>	<b>15,420</b>	<b>0</b>	<b>11,548</b>	<b>91</b>	<b>674</b>
Colorado.....	0	0	11,200	1,046	0	0	0	118
Montana.....	16,500	0	32,500	5,950	0	6,600	58	372
Utah.....	15,600	0	3,300	7,400	0	1,748	1	53
Wyoming.....	10,054	0	22,400	1,024	0	3,200	32	131
<b>PAD District V</b> .....	<b>195,000</b>	<b>4,300</b>	<b>118,833</b>	<b>120,700</b>	<b>26,400</b>	<b>141,410</b>	<b>1,300</b>	<b>4,703</b>
Alaska.....	0	2,800	5,000	4,000	0	0	13	20
California.....	161,700	1,500	74,183	98,500	26,400	125,410	1,138	4,196
Hawaii.....	5,000	0	15,750	3,200	0	0	21	34
Nevada.....	0	0	2,000	0	0	0	0	0
Oregon.....	0	0	8,400	0	0	0	0	0
Washington.....	28,300	0	13,500	15,000	0	16,000	128	453
<b>U.S. Total</b> .....	<b>1,190,572</b>	<b>315,700</b>	<b>872,919</b>	<b>678,913</b>	<b>216,440</b>	<b>646,175</b>	<b>3,265</b>	<b>29,766</b>
Puerto Rico.....	0	0	1,000	0	0	0	22	101
Virgin Islands.....	20,000	20,000	0	18,000	0	19,000	0	550

MMcfd = Million cubic feet per day.

Source: Energy Information Administration (EIA), Form EIA-820, "Annual Refinery Report."

## Directory of Operable Petroleum Refineries on Tables 3 and 4

Refiner	State(s) <sup>a</sup>	Refiner	State(s) <sup>a</sup>
Age Refining, Inc.	TX	Lunday Thagard	CA
Alon USA LP	TX	Lyondell Citgo Refining Co. Ltd.	TX
Amerada Hess Corp.	NJ	Marathon Ashland Petro LLC	IL, KY, LA, MI, MN, OH, TX
American Refining Group Inc.	PA	Montana Refining Co.	MT
Atofina Petrochemicals Inc.	TX	Motiva Enterprises LLC	DE, LA, TX
BP Expl (Alaska) Inc.	AK	Murphy Oil U.S.A. Inc.	LA, WI
BP Products North America, Inc.	IN, OH, TX	NCRA	KS
BP West Coast Products LLC	CA, WA	Navajo Refining Co.	NM
Big West Oil Co.	UT	Orion Refining Corp.	LA
Calcasieu Refining Co.	LA	PDV Midwest Refining LLC	IL
Calumet Lubricants Co. LP	LA	Paramount Petroleum Corp.	CA
Caribbean Petroleum Corp.	PR	Petro Star Inc.	AK
Cenex Harvest States Coop	MT	Phillips 66 Co.	CA, IL, LA, NJ, PA, TX, UT, WA
Chalmette Refining LLC	LA	Phillips Alaska, Inc.	AK
Chevron U.S.A. Inc.	CA, HI, MS, NJ, OR, TX, UT	Placid Refining Co.	LA
Citgo Asphalt Refining Co.	GA, NJ	Premcor Refg Group Inc	OH, TX
Citgo Petroleum Corp.	LA	San Joaquin Refining Co Inc.	CA
Citgo Refining & Chemical Inc.	TX	Shell Chem LP	AL, LA
Coastal Eagle Point Oil Co.	NJ	Shell Chem Yabucoa Inc.	PR
Coastal Mobile Refg Co.	AL	Shell Oil Products US	CA, WA
Colorado Refg Co.	CO	Silver Eagle Refining	UT, WY
Conoco Inc	CO, LA, MT, OK	Sinclair Oil Corp.	OK, WY
Countrymark Cooperative Inc.	IN	Somerset Refinery Inc.	KY
Cross Oil Refining and Mktg, Inc.	AR	South Hampton Refining Co.	TX
Crown Central Petro Corp	TX	Southland Oil Co.	MS
Deer Park Refg Ltd Ptnrshp	TX	Sunoco Inc.	OH, OK, PA
Diamond Shamrock Refg & Mktg	TX	Sunoco Inc. (R&M)	PA
Edgington Oil Co.	CA	TPI Petro Inc.	OK
Ergon Refining Inc.	MS	Tenby Inc.	CA
Ergon West Virginia Inc.	WV	Tesoro Hawaii Corp.	HI
ExxonMobil Refg & Supply Co.	CA, IL, LA, MT, TX	Tesoro Petroleum Corp.	AK
Farmland Industries Inc.	KS	Tesoro Refg & Mktg Co	CA
Flint Hills Resources LP	MN, TX	Tesoro West Coast	ND, UT, WA
Foreland Refining Corp.	NV	Trigeant LTD	TX
Frontier Refg Inc.	WY	U.S. Oil & Refining Co.	WA
Frontier Refining & Marketing Inc.	KS	Ultramar Inc.	CA
Giant Industries Inc.	NM	United Refining Co.	PA
Giant Refining Co.	NM	Valero Refining Co. California	CA
Giant Yorktown Refg	VA	Valero Refining Co. Louisiana	LA
Greka Energy	CA	Valero Refining Co. New Jersey	NJ
Haltermann Products	TX	Valero Refining Co. Texas	TX
Hovensa LLC	VI	Williams Alaska Petro Inc.	AK
Hunt Refining Co.	AL	Williams Refining LLC	TN
Kern Oil & Refining Co.	CA	Wynnewood Refining Co.	OK
La Gloria Oil & Gas Co.	TX	Wyoming Refining Co.	WY
Lion Oil Co.	AR	Young Refining Corp.	GA
Little America Refining Co.	WY		

<sup>a</sup>Includes Puerto Rico (PR) and Virgin Islands (VI).



**Table 3. Capacity of Operable Petroleum Refineries by State as of January 1, 2003**  
(Barrels per Stream Day, Except Where Noted)

State/Refiner/Location	Atmospheric Crude Oil Distillation Capacity				Vacuum Distillation	Downstream Charge Capacity			
	Barrels per Calendar Day		Barrels per Stream Day			Thermal Cracking			
	Operating	Idle	Operating	Idle		Delayed Coking	Fluid Coking	Visbreaking	Other/ Gas Oil
<b>Alabama</b> .....	<b>130,000</b>	<b>0</b>	<b>142,000</b>	<b>0</b>	<b>60,400</b>	<b>14,000</b>	<b>0</b>	<b>0</b>	<b>0</b>
Coastal Mobile Refg Co.									
Chickasaw .....	16,500	0	22,000	0	15,400	0	0	0	0
Hunt Refining Co.									
Tuscaloosa .....	33,500	0	35,000	0	15,000	14,000	0	0	0
Shell Chem LP									
Saraland .....	80,000	0	85,000	0	30,000	0	0	0	0
<b>Alaska</b> .....	<b>358,978</b>	<b>0</b>	<b>405,713</b>	<b>0</b>	<b>25,800</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
BP Expl (Alaska) Inc									
Prudhoe Bay .....	12,500	0	14,200	0	0	0	0	0	0
Petro Star Inc.									
North Pole .....	15,850	0	18,000	0	0	0	0	0	0
Valdez .....	46,700	0	50,000	0	0	0	0	0	0
Phillips Alaska, Inc.									
Kuparuk .....	14,000	0	16,000	0	0	0	0	0	0
Tesoro Petroleum Corp.									
Kenai .....	72,000	0	80,000	0	19,800	0	0	0	0
Williams Alaska Petro Inc.									
North Pole .....	197,928	0	227,513	0	6,000	0	0	0	0
<b>Arkansas</b> .....	<b>69,800</b>	<b>0</b>	<b>74,800</b>	<b>0</b>	<b>29,400</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
Cross Oil Refining and Mktg, Inc.									
Smackover .....	6,800	0	7,000	0	3,500	0	0	0	0
Lion Oil Co.									
El Dorado .....	63,000	0	67,800	0	25,900	0	0	0	0
<b>California</b> .....	<b>1,989,807</b>	<b>22,000</b>	<b>2,077,100</b>	<b>27,000</b>	<b>1,204,200</b>	<b>404,000</b>	<b>100,000</b>	<b>5,000</b>	<b>0</b>
BP West Coast Products LLC									
Los Angeles .....	260,000	0	260,500	0	130,000	65,000	0	0	0
Chevron U.S.A. Inc.									
El Segundo .....	260,000	0	273,000	0	137,000	66,000	0	0	0
Richmond .....	225,000	0	240,000	0	115,000	0	0	0	0
Edgington Oil Co.									
Long Beach .....	14,000	12,000	25,000	15,000	0	0	0	0	0
ExxonMobil Refg & Supply Co.									
Torrance .....	149,000	0	155,100	0	102,300	54,100	0	0	0
Greka Energy									
Santa Maria .....	9,500	0	10,000	0	10,000	0	0	0	0
Kern Oil & Refining Co.									
Bakersfield .....	24,700	0	25,000	0	0	0	0	0	0
Lunday Thagard									
South Gate .....	8,500	0	10,000	0	7,000	0	0	0	0
Paramount Petroleum Corp.									
Paramount .....	50,000	0	53,000	0	30,000	0	0	0	0
Phillips 66 Co.									
Arroyo Grande .....	41,800	0	44,000	0	33,600	23,400	0	0	0
Rodeo .....	73,200	0	77,000	0	40,000	22,000	0	0	0
Wilmington .....	136,600	0	137,500	0	82,000	53,000	0	0	0
San Joaquin Refining Co Inc.									
Bakersfield .....	14,300	10,000	15,000	12,000	14,300	0	0	5,000	0
Shell Oil Products US (Formerly Equilon Enterprises LLC)									
Bakersfield .....	66,000	0	68,000	0	40,000	22,000	0	0	0
Martinez .....	159,250	0	162,500	0	108,500	26,000	22,500	0	0
Wilmington .....	98,500	0	107,500	0	62,000	43,500	0	0	0
Tenby Inc.									
Oxnard .....	2,800	0	4,000	0	0	0	0	0	0

**Table 3. Capacity of Operable Petroleum Refineries by State as of January 1, 2003 (Continued)**  
(Barrels per Stream Day, Except Where Noted)

Location	Downstream Charge Capacity (Continued)									
	Catalytic Cracking		Catalytic Hydrocracking	Catalytic Reforming		Catalytic Hydrotreating				Fuel Solvents Deasphalting
	Fresh	Recycled		Low Pressure	High Pressure	Heavy Gas Oil	Naphtha Reformer Feed	Distillate	Other/Residual	
<b>Alabama</b> .....	<b>0</b>	<b>0</b>	<b>0</b>	<b>7,200</b>	<b>20,000</b>	<b>9,000</b>	<b>27,500</b>	<b>42,000</b>	<b>0</b>	<b>0</b>
Chickasaw.....	0	0	0	0	0	0	0	0	0	0
Tuscaloosa.....	0	0	0	7,200	0	9,000	9,000	12,000	0	0
Saraland.....	0	0	0	0	20,000	0	18,500	30,000	0	0
<b>Alaska</b> .....	<b>0</b>	<b>0</b>	<b>12,500</b>	<b>12,000</b>	<b>0</b>	<b>0</b>	<b>12,000</b>	<b>0</b>	<b>0</b>	<b>0</b>
Prudhoe Bay.....	0	0	0	0	0	0	0	0	0	0
North Pole.....	0	0	0	0	0	0	0	0	0	0
Valdez.....	0	0	0	0	0	0	0	0	0	0
Kuparuk.....	0	0	0	0	0	0	0	0	0	0
Kenai.....	0	0	12,500	12,000	0	0	12,000	0	0	0
North Pole.....	0	0	0	0	0	0	0	0	0	0
<b>Arkansas</b> .....	<b>19,900</b>	<b>0</b>	<b>0</b>	<b>13,600</b>	<b>0</b>	<b>21,000</b>	<b>20,000</b>	<b>8,600</b>	<b>5,000</b>	<b>7,400</b>
Smackover.....	0	0	0	0	0	0	0	0	5,000	0
El Dorado.....	19,900	0	0	13,600	0	21,000	20,000	8,600	0	7,400
<b>California</b> .....	<b>682,300</b>	<b>1,000</b>	<b>501,300</b>	<b>189,300</b>	<b>245,000</b>	<b>629,900</b>	<b>489,900</b>	<b>413,900</b>	<b>142,300</b>	<b>50,000</b>
Los Angeles.....	96,000	0	45,700	0	52,000	90,000	40,000	30,000	16,000	0
El Segundo.....	65,000	0	49,000	42,000	0	72,000	73,500	60,000	15,000	0
Richmond.....	70,000	0	154,000	62,000	0	0	55,000	95,000	26,000	50,000
Long Beach.....	0	0	0	0	0	0	0	0	0	0
Torrance.....	95,000	0	24,900	0	20,000	104,100	24,100	18,000	0	0
Santa Maria.....	0	0	0	0	0	0	0	0	0	0
Bakersfield.....	0	0	0	0	3,300	0	5,000	9,000	0	0
South Gate.....	0	0	0	0	0	0	0	0	0	0
Paramount.....	0	0	0	0	8,500	10,800	9,500	8,000	0	0
Arroyo Grande.....	0	0	0	0	0	0	0	0	0	0
Rodeo.....	0	0	35,000	0	32,000	0	21,000	23,000	0	0
Wilmington.....	50,000	0	27,000	0	38,000	52,000	53,000	36,000	0	0
Bakersfield.....	0	0	0	0	0	0	0	3,000	0	0
Bakersfield.....	0	0	24,000	16,300	0	21,000	13,800	0	12,000	0
Martinez.....	73,000	0	38,000	31,000	0	77,000	28,000	24,000	41,100	0
Wilmington.....	36,000	0	32,000	0	34,000	37,000	35,000	15,000	10,500	0
Oxnard.....	0	0	0	0	0	0	0	0	0	0

**Table 3. Capacity of Operable Petroleum Refineries by State as of January 1, 2003 (Continued)**  
(Barrels per Stream Day, Except Where Noted)

State/Refiner/Location	Atmospheric Crude Oil Distillation Capacity				Vacuum Distillation	Downstream Charge Capacity			
	Barrels per Calendar Day		Barrels per Stream Day			Thermal Cracking			Other/ Gas Oil
	Operating	Idle	Operating	Idle		Delayed Coking	Fluid Coking	Visbreaking	
Tesoro Refg & Mktg Co (Formerly Ultramar Inc.)									
Martinez .....	166,000	0	170,000	0	153,000	0	48,000	0	0
Ultramar Inc.									
Wilmington .....	80,887	0	81,000	0	45,000	29,000	0	0	0
Valero Refining Co. California									
Benicia .....	144,000	0	153,000	0	89,500	0	29,500	0	0
Wilmington .....	5,770	0	6,000	0	5,000	0	0	0	0
<b>Colorado .....</b>	<b>87,000</b>	<b>0</b>	<b>94,000</b>	<b>0</b>	<b>32,500</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
Colorado Refg Co.									
Commerce City .....	27,000	0	32,000	0	7,500	0	0	0	0
Conoco Inc									
Commerce City .....	60,000	0	62,000	0	25,000	0	0	0	0
<b>Delaware .....</b>	<b>175,000</b>	<b>0</b>	<b>180,000</b>	<b>0</b>	<b>102,000</b>	<b>0</b>	<b>46,500</b>	<b>0</b>	<b>0</b>
Motiva Enterprises LLC									
Delaware City .....	175,000	0	180,000	0	102,000	0	46,500	0	0
<b>Georgia .....</b>	<b>5,400</b>	<b>28,000</b>	<b>8,000</b>	<b>32,000</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
Citgo Asphalt Refining Co.									
Savannah .....	0	28,000	0	32,000	0	0	0	0	0
Young Refining Corp.									
Douglasville .....	5,400	0	8,000	0	0	0	0	0	0
<b>Hawaii .....</b>	<b>147,500</b>	<b>0</b>	<b>152,000</b>	<b>0</b>	<b>74,300</b>	<b>0</b>	<b>0</b>	<b>13,000</b>	<b>0</b>
Chevron U.S.A. Inc.									
Honolulu .....	54,000	0	57,000	0	31,300	0	0	0	0
Tesoro Hawaii Corp.									
Ewa Beach .....	93,500	0	95,000	0	43,000	0	0	13,000	0
<b>Illinois .....</b>	<b>878,300</b>	<b>0</b>	<b>929,700</b>	<b>0</b>	<b>376,900</b>	<b>126,400</b>	<b>0</b>	<b>0</b>	<b>0</b>
ExxonMobil Refg & Supply Co.									
Joliet .....	238,000	0	247,700	0	117,700	58,500	0	0	0
Marathon Ashland Petro LLC									
Robinson .....	192,000	0	205,000	0	65,200	28,900	0	0	0
PDV Midwest Refining LLC									
Lemont (Chicago) .....	160,000	0	167,000	0	75,000	39,000	0	0	0
Phillips 66 Co.									
Wood River .....	288,300	0	310,000	0	119,000	0	0	0	0
<b>Indiana .....</b>	<b>433,000</b>	<b>0</b>	<b>444,000</b>	<b>0</b>	<b>255,000</b>	<b>36,000</b>	<b>0</b>	<b>0</b>	<b>0</b>
BP Products North America, Inc.									
Whiting .....	410,000	0	420,000	0	247,000	36,000	0	0	0
Countrymark Cooperative Inc.									
Mount Vernon .....	23,000	0	24,000	0	8,000	0	0	0	0
<b>Kansas .....</b>	<b>296,200</b>	<b>0</b>	<b>310,000</b>	<b>0</b>	<b>123,000</b>	<b>58,000</b>	<b>0</b>	<b>0</b>	<b>0</b>
Farmland Industries Inc.									
Coffeyville .....	112,000	0	115,000	0	50,000	18,000	0	0	0
Frontier Refining & Marketing Inc.									
El Dorado .....	103,000	0	110,000	0	39,000	18,000	0	0	0
NCRA									
McPherson .....	81,200	0	85,000	0	34,000	22,000	0	0	0
<b>Kentucky .....</b>	<b>227,500</b>	<b>0</b>	<b>253,300</b>	<b>0</b>	<b>97,000</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
Marathon Ashland Petro LLC									
Catlettsburg .....	222,000	0	247,000	0	97,000	0	0	0	0

**Table 3. Capacity of Operable Petroleum Refineries by State as of January 1, 2003 (Continued)**  
(Barrels per Stream Day, Except Where Noted)

Location	Downstream Charge Capacity (Continued)									
	Catalytic Cracking		Catalytic Hydrocracking	Catalytic Reforming		Catalytic Hydrotreating				Fuel Solvents Deasphalting
	Fresh	Recycled		Low Pressure	High Pressure	Heavy Gas Oil	Naphtha Reformer Feed	Distillate	Other/Residual	
Martinez .....	70,000	1,000	35,000	22,000	20,000	65,000	25,000	33,000	0	0
Wilmington .....	52,000	0	0	16,000	0	62,000	32,000	32,000	0	0
Benicia .....	75,300	0	36,700	0	37,200	39,000	75,000	27,900	21,700	0
Wilmington .....	0	0	0	0	0	0	0	0	0	0
<b>Colorado .....</b>	<b>28,600</b>	<b>2,000</b>	<b>0</b>	<b>20,700</b>	<b>0</b>	<b>14,500</b>	<b>20,700</b>	<b>13,000</b>	<b>0</b>	<b>0</b>
Commerce City .....	9,500	2,000	0	10,500	0	0	10,500	0	0	0
Commerce City .....	19,100	0	0	10,200	0	14,500	10,200	13,000	0	0
<b>Delaware .....</b>	<b>77,000</b>	<b>4,000</b>	<b>20,000</b>	<b>41,000</b>	<b>0</b>	<b>0</b>	<b>78,000</b>	<b>75,000</b>	<b>33,000</b>	<b>0</b>
Delaware City .....	77,000	4,000	20,000	41,000	0	0	78,000	75,000	33,000	0
<b>Georgia.....</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
Savannah .....	0	0	0	0	0	0	0	0	0	0
Douglasville.....	0	0	0	0	0	0	0	0	0	0
<b>Hawaii.....</b>	<b>22,000</b>	<b>0</b>	<b>18,000</b>	<b>13,000</b>	<b>0</b>	<b>0</b>	<b>11,000</b>	<b>0</b>	<b>3,500</b>	<b>0</b>
Honolulu .....	22,000	0	0	0	0	0	0	0	3,500	0
Ewa Beach .....	0	0	18,000	13,000	0	0	11,000	0	0	0
<b>Illinois.....</b>	<b>309,000</b>	<b>3,000</b>	<b>60,500</b>	<b>194,000</b>	<b>47,200</b>	<b>29,000</b>	<b>278,266</b>	<b>286,500</b>	<b>30,500</b>	<b>0</b>
Joliet.....	98,000	0	0	44,000	0	0	93,500	86,000	0	0
Robinson .....	53,000	0	27,000	75,000	0	0	60,000	70,000	0	0
Lemont (Chicago).....	64,000	3,000	0	0	31,200	0	60,766	50,500	0	0
Wood River.....	94,000	0	33,500	75,000	16,000	29,000	64,000	80,000	30,500	0
<b>Indiana.....</b>	<b>173,200</b>	<b>4,200</b>	<b>0</b>	<b>6,500</b>	<b>90,000</b>	<b>101,300</b>	<b>127,500</b>	<b>83,000</b>	<b>0</b>	<b>0</b>
Whiting .....	165,000	4,000	0	0	90,000	101,300	117,500	83,000	0	0
Mount Vernon .....	8,200	200	0	6,500	0	0	10,000	0	0	0
<b>Kansas .....</b>	<b>89,200</b>	<b>500</b>	<b>0</b>	<b>30,000</b>	<b>39,000</b>	<b>45,000</b>	<b>106,500</b>	<b>108,900</b>	<b>12,000</b>	<b>0</b>
Coffeyville.....	30,000	0	0	0	17,000	0	30,000	35,000	0	0
El Dorado .....	37,200	0	0	7,500	22,000	45,000	42,000	35,900	0	0
McPherson .....	22,000	500	0	22,500	0	0	34,500	38,000	12,000	0
<b>Kentucky .....</b>	<b>105,000</b>	<b>0</b>	<b>0</b>	<b>50,000</b>	<b>1,000</b>	<b>45,000</b>	<b>52,300</b>	<b>88,000</b>	<b>23,500</b>	<b>13,000</b>
Catlettsburg.....	105,000	0	0	50,000	0	45,000	51,000	88,000	23,500	13,000

**Table 3. Capacity of Operable Petroleum Refineries by State as of January 1, 2003 (Continued)**  
(Barrels per Stream Day, Except Where Noted)

State/Refiner/Location	Atmospheric Crude Oil Distillation Capacity				Vacuum Distillation	Downstream Charge Capacity			
	Barrels per Calendar Day		Barrels per Stream Day			Thermal Cracking			
	Operating	Idle	Operating	Idle		Delayed Coking	Fluid Coking	Visbreaking	Other/ Gas Oil
Somerset Refinery Inc. Somerset.....	5,500	0	6,300	0	0	0	0	0	0
<b>Louisiana .....</b>	<b>2,718,920</b>	<b>0</b>	<b>2,867,355</b>	<b>0</b>	<b>1,234,000</b>	<b>479,900</b>	<b>0</b>	<b>0</b>	<b>10,600</b>
Calcasieu Refining Co. Lake Charles.....	29,400	0	30,000	0	0	0	0	0	0
Calumet Lubricants Co. LP Cotton Valley.....	13,020	0	14,000	0	0	0	0	0	0
Princeton.....	8,300	0	8,655	0	7,000	0	0	0	0
Shreveport.....	46,200	0	50,000	0	24,300	0	0	0	0
Chalmette Refining LLC Chalmette.....	182,500	0	190,200	0	106,000	34,500	0	0	0
Citgo Petroleum Corp. Lake Charles.....	324,300	0	338,000	0	88,000	107,000	0	0	0
Conoco Inc. Westlake.....	252,000	0	260,000	0	132,000	52,000	0	0	10,600
ExxonMobil Refg & Supply Co. Baton Rouge.....	491,500	0	512,000	0	229,500	113,500	0	0	0
Marathon Ashland Petro LLC Garyville.....	232,000	0	254,000	0	125,000	34,500	0	0	0
Motiva Enterprises LLC Convent.....	235,000	0	255,000	0	119,400	0	0	0	0
Norco.....	219,700	0	242,000	0	86,000	25,000	0	0	0
Murphy Oil U.S.A. Inc. Meraux.....	95,000	0	110,000	0	50,000	0	0	0	0
Orion Refining Corp. Norco (Good Hope).....	155,000	0	161,000	0	95,000	88,000	0	0	0
Phillips 66 Co. Belle Chasse.....	253,500	0	257,000	0	92,000	25,400	0	0	0
Placid Refining Co. Port Allen.....	48,500	0	49,500	0	20,000	0	0	0	0
Shell Chem LP Saint Rose.....	55,000	0	56,000	0	28,000	0	0	0	0
Valero Refining Co. Louisiana Krotz Springs.....	78,000	0	80,000	0	31,800	0	0	0	0
<b>Michigan .....</b>	<b>74,000</b>	<b>0</b>	<b>76,000</b>	<b>0</b>	<b>38,000</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
Marathon Ashland Petro LLC Detroit.....	74,000	0	76,000	0	38,000	0	0	0	0
<b>Minnesota .....</b>	<b>335,000</b>	<b>0</b>	<b>369,000</b>	<b>0</b>	<b>232,000</b>	<b>70,000</b>	<b>0</b>	<b>0</b>	<b>0</b>
Flint Hills Resources LP Saint Paul.....	265,000	0	290,000	0	200,000	70,000	0	0	0
Marathon Ashland Petro LLC Saint Paul Park.....	70,000	0	79,000	0	32,000	0	0	0	0
<b>Mississippi .....</b>	<b>364,800</b>	<b>0</b>	<b>393,300</b>	<b>0</b>	<b>310,875</b>	<b>75,000</b>	<b>0</b>	<b>0</b>	<b>0</b>
Chevron U.S.A. Inc. Pascagoula.....	325,000	0	350,000	0	286,000	75,000	0	0	0
Ergon Refining Inc. Vicksburg.....	23,000	0	24,300	0	18,000	0	0	0	0
Southland Oil Co. Lumberton.....	5,800	0	6,500	0	0	0	0	0	0
Sandersville.....	11,000	0	12,500	0	6,875	0	0	0	0
<b>Montana .....</b>	<b>180,000</b>	<b>0</b>	<b>188,800</b>	<b>0</b>	<b>90,200</b>	<b>19,450</b>	<b>8,900</b>	<b>0</b>	<b>0</b>
Cenex Harvest States Coop Laurel.....	55,000	0	58,000	0	27,850	0	0	0	0

**Table 3. Capacity of Operable Petroleum Refineries by State as of January 1, 2003 (Continued)**  
(Barrels per Stream Day, Except Where Noted)

Location	Downstream Charge Capacity (Continued)									
	Catalytic Cracking		Catalytic Hydrocracking	Catalytic Reforming		Catalytic Hydrotreating				Fuel Solvents Deasphalting
	Fresh	Recycled		Low Pressure	High Pressure	Heavy Gas Oil	Naphtha Reformer Feed	Distillate	Other/Residual	
Somerset.....	0	0	0	0	1,000	0	1,300	0	0	0
<b>Louisiana .....</b>	<b>1,122,600</b>	<b>11,000</b>	<b>207,100</b>	<b>354,900</b>	<b>201,600</b>	<b>395,500</b>	<b>644,050</b>	<b>608,200</b>	<b>153,500</b>	<b>41,000</b>
Lake Charles .....	0	0	0	0	0	0	0	0	0	0
Cotton Valley .....	0	0	0	0	0	0	4,750	0	0	0
Princeton .....	0	0	0	0	0	0	0	0	8,500	0
Shreveport.....	3,500	7,000	0	8,000	0	8,000	8,000	8,000	1,200	0
Chalmette.....	71,600	0	20,000	18,900	29,400	58,000	40,000	29,800	0	0
Lake Charles .....	147,000	0	44,000	64,000	52,800	75,000	123,000	37,500	45,500	0
Westlake.....	49,000	0	28,000	48,000	0	50,000	51,500	85,500	12,500	0
Baton Rouge .....	239,000	0	25,000	74,000	0	0	158,000	90,000	69,800	0
Garyville .....	121,000	0	0	49,000	0	106,000	50,000	71,000	0	36,000
Convent.....	92,000	0	52,000	0	40,000	36,000	41,000	100,800	0	0
Norco.....	120,000	0	38,100	40,000	22,000	0	38,500	47,000	0	0
Meraux .....	38,000	0	0	18,000	0	27,500	22,000	15,000	0	0
Norco (Good Hope).....	91,000	0	0	25,000	0	35,000	35,000	40,000	16,000	0
Belle Chasse .....	97,500	2,000	0	0	44,400	0	48,300	70,100	0	0
Port Allen.....	19,000	2,000	0	10,000	0	0	10,000	13,500	0	5,000
Saint Rose.....	0	0	0	0	0	0	0	0	0	0
Krotz Springs.....	34,000	0	0	0	13,000	0	14,000	0	0	0
<b>Michigan.....</b>	<b>29,000</b>	<b>0</b>	<b>0</b>	<b>20,000</b>	<b>0</b>	<b>17,400</b>	<b>15,000</b>	<b>18,900</b>	<b>0</b>	<b>0</b>
Detroit.....	29,000	0	0	20,000	0	17,400	15,000	18,900	0	0
<b>Minnesota .....</b>	<b>111,000</b>	<b>0</b>	<b>0</b>	<b>59,000</b>	<b>13,800</b>	<b>128,000</b>	<b>126,000</b>	<b>131,000</b>	<b>0</b>	<b>0</b>
Saint Paul .....	85,000	0	0	38,000	13,800	102,000	105,000	102,000	0	0
Saint Paul Park.....	26,000	0	0	21,000	0	26,000	21,000	29,000	0	0
<b>Mississippi.....</b>	<b>68,000</b>	<b>0</b>	<b>167,000</b>	<b>62,000</b>	<b>34,000</b>	<b>0</b>	<b>54,800</b>	<b>65,500</b>	<b>48,000</b>	<b>0</b>
Pascagoula.....	68,000	0	167,000	62,000	34,000	0	54,800	65,500	36,000	0
Vicksburg.....	0	0	0	0	0	0	0	0	12,000	0
Lumberton.....	0	0	0	0	0	0	0	0	0	0
Sandersville.....	0	0	0	0	0	0	0	0	0	0
<b>Montana .....</b>	<b>57,000</b>	<b>990</b>	<b>5,600</b>	<b>12,000</b>	<b>28,530</b>	<b>41,500</b>	<b>46,800</b>	<b>66,200</b>	<b>7,500</b>	<b>4,000</b>
Laurel .....	13,500	0	0	12,000	0	16,000	16,000	16,000	0	4,000

**Table 3. Capacity of Operable Petroleum Refineries by State as of January 1, 2003 (Continued)**  
(Barrels per Stream Day, Except Where Noted)

State/Refiner/Location	Atmospheric Crude Oil Distillation Capacity				Vacuum Distillation	Downstream Charge Capacity			
	Barrels per Calendar Day		Barrels per Stream Day			Thermal Cracking			Other/ Gas Oil
	Operating	Idle	Operating	Idle		Delayed Coking	Fluid Coking	Visbreaking	
Conoco Inc Billings.....	60,000	0	63,000	0	30,000	19,450	0	0	0
ExxonMobil Refg & Supply Co. Billings.....	58,000	0	60,500	0	28,900	0	8,900	0	0
Montana Refining Co. Great Falls.....	7,000	0	7,300	0	3,450	0	0	0	0
<b>Nevada .....</b>	<b>5,000</b>	<b>0</b>	<b>5,000</b>	<b>0</b>	<b>5,000</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
Foreland Refining Corp. Eagle Springs.....	5,000	0	5,000	0	5,000	0	0	0	0
<b>New Jersey .....</b>	<b>552,287</b>	<b>110,000</b>	<b>577,000</b>	<b>113,500</b>	<b>291,000</b>	<b>24,500</b>	<b>0</b>	<b>0</b>	<b>0</b>
Amerada Hess Corp. Port Reading.....	0	0	0	0	0	0	0	0	0
Chevron U.S.A. Inc. Perth Amboy.....	0	80,000	0	83,000	47,000	0	0	0	0
Citgo Asphalt Refining Co. Paulsboro.....	0	30,000	0	30,500	40,000	0	0	0	0
Coastal Eagle Point Oil Co. Westville.....	142,287	0	146,000	0	49,000	0	0	0	0
Phillips 66 Co. Linden.....	250,000	0	265,000	0	65,000	0	0	0	0
Valero Refining Co. New Jersey Paulsboro.....	160,000	0	166,000	0	90,000	24,500	0	0	0
<b>New Mexico .....</b>	<b>95,600</b>	<b>0</b>	<b>101,107</b>	<b>0</b>	<b>23,000</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
Giant Industries Inc. Bloomfield.....	16,800	0	18,107	0	0	0	0	0	0
Giant Refining Co. Gallup.....	20,800	0	21,000	0	0	0	0	0	0
Navajo Refining Co. Artesia.....	58,000	0	62,000	0	23,000	0	0	0	0
<b>North Dakota .....</b>	<b>58,000</b>	<b>0</b>	<b>60,000</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
Tesoro West Coast Mandan.....	58,000	0	60,000	0	0	0	0	0	0
<b>Ohio.....</b>	<b>531,500</b>	<b>0</b>	<b>549,000</b>	<b>0</b>	<b>153,500</b>	<b>58,500</b>	<b>0</b>	<b>0</b>	<b>0</b>
BP Products North America, Inc. Toledo.....	157,000	0	160,000	0	71,500	36,000	0	0	0
Marathon Ashland Petro LLC Canton.....	73,000	0	74,000	0	30,000	0	0	0	0
Premcor Refg Group Inc Lima.....	161,500	0	165,000	0	52,000	22,500	0	0	0
Sunoco Inc. Toledo.....	140,000	0	150,000	0	0	0	0	0	0
<b>Oklahoma .....</b>	<b>471,900</b>	<b>0</b>	<b>504,049</b>	<b>0</b>	<b>181,800</b>	<b>35,900</b>	<b>0</b>	<b>0</b>	<b>0</b>
Conoco Inc Ponca City.....	194,000	0	198,950	0	76,800	26,900	0	0	0
Sinclair Oil Corp. Tulsa.....	65,695	0	74,599	0	27,000	0	0	0	0
Sunoco Inc. Tulsa.....	85,000	0	90,000	0	29,000	9,000	0	0	0
TPI Petro Inc. Ardmore.....	74,705	0	85,000	0	32,000	0	0	0	0
Wynnewood Refining Co. Wynnewood.....	52,500	0	55,500	0	17,000	0	0	0	0

**Table 3. Capacity of Operable Petroleum Refineries by State as of January 1, 2003 (Continued)**  
(Barrels per Stream Day, Except Where Noted)

Location	Downstream Charge Capacity (Continued)									
	Catalytic Cracking		Catalytic Hydrocracking	Catalytic Reforming		Catalytic Hydrotreating				Fuel Solvents Deasphalting
	Fresh	Recycled		Low Pressure	High Pressure	Heavy Gas Oil	Naphtha Reformer Feed	Distillate	Other/Residual	
Billings.....	20,500	990	0	0	15,000	22,500	17,200	22,800	0	0
Billings.....	20,600	0	5,600	0	12,500	0	12,500	24,400	7,500	0
Great Falls.....	2,400	0	0	0	1,030	3,000	1,100	3,000	0	0
<b>Nevada.....</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
Eagle Springs.....	0	0	0	0	0	0	0	0	0	0
<b>New Jersey.....</b>	<b>317,500</b>	<b>0</b>	<b>0</b>	<b>59,000</b>	<b>25,000</b>	<b>46,000</b>	<b>85,000</b>	<b>147,000</b>	<b>39,500</b>	<b>21,000</b>
Port Reading.....	62,500	0	0	0	0	0	0	0	0	0
Perth Amboy.....	0	0	0	0	0	0	0	0	0	0
Paulsboro.....	0	0	0	0	0	0	0	0	0	0
Westville.....	55,000	0	0	30,000	0	0	30,000	18,000	11,000	0
Linden.....	145,000	0	0	29,000	0	46,000	30,000	83,000	0	21,000
Paulsboro.....	55,000	0	0	0	25,000	0	25,000	46,000	28,500	0
<b>New Mexico.....</b>	<b>34,300</b>	<b>3,500</b>	<b>0</b>	<b>15,000</b>	<b>10,800</b>	<b>0</b>	<b>34,800</b>	<b>32,500</b>	<b>0</b>	<b>0</b>
Bloomfield.....	6,000	500	0	0	4,000	0	4,000	3,000	0	0
Gallup.....	8,500	3,000	0	0	6,800	0	6,800	3,000	0	0
Artesia.....	19,800	0	0	15,000	0	0	24,000	26,500	0	0
<b>North Dakota.....</b>	<b>26,000</b>	<b>3,600</b>	<b>0</b>	<b>0</b>	<b>12,100</b>	<b>0</b>	<b>12,600</b>	<b>12,000</b>	<b>0</b>	<b>0</b>
Mandan.....	26,000	3,600	0	0	12,100	0	12,600	12,000	0	0
<b>Ohio.....</b>	<b>190,000</b>	<b>0</b>	<b>85,200</b>	<b>18,000</b>	<b>146,500</b>	<b>68,000</b>	<b>180,600</b>	<b>24,500</b>	<b>0</b>	<b>0</b>
Toledo.....	60,000	0	31,000	0	43,000	42,000	40,000	15,500	0	0
Canton.....	24,000	0	0	18,000	0	26,000	25,000	9,000	0	0
Lima.....	40,000	0	26,000	0	55,500	0	63,000	0	0	0
Toledo.....	66,000	0	28,200	0	48,000	0	52,600	0	0	0
<b>Oklahoma.....</b>	<b>135,411</b>	<b>2,250</b>	<b>6,000</b>	<b>33,964</b>	<b>88,900</b>	<b>54,200</b>	<b>135,860</b>	<b>102,704</b>	<b>22,800</b>	<b>4,850</b>
Ponca City.....	65,365	0	0	0	52,100	23,000	52,100	51,900	12,300	0
Tulsa.....	23,746	2,250	0	0	16,800	0	20,000	17,628	0	0
Tulsa.....	0	0	0	0	20,000	0	25,000	0	10,500	0
Ardmore.....	26,300	0	0	19,964	0	31,200	25,760	33,176	0	0
Wynnewood.....	20,000	0	6,000	14,000	0	0	13,000	0	0	4,850



**Table 3. Capacity of Operable Petroleum Refineries by State as of January 1, 2003 (Continued)**  
(Barrels per Stream Day, Except Where Noted)

State/Refiner/Location	Atmospheric Crude Oil Distillation Capacity				Downstream Charge Capacity				
	Barrels per Calendar Day		Barrels per Stream Day		Vacuum Distillation	Thermal Cracking			Other/ Gas Oil
	Operating	Idle	Operating	Idle		Delayed Coking	Fluid Coking	Visbreaking	
<b>Oregon</b> .....	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>12,000</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
Chevron U.S.A. Inc. Portland (Willbridge) .....	0	0	0	0	12,000	0	0	0	0
<b>Pennsylvania</b> .....	<b>760,000</b>	<b>0</b>	<b>808,500</b>	<b>0</b>	<b>300,000</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
American Refining Group Inc. Bradford .....	10,000	0	10,500	0	0	0	0	0	0
Phillips 66 Co. Trainer .....	180,000	0	190,000	0	73,000	0	0	0	0
Sunoco Inc. Marcus Hook.....	175,000	0	185,000	0	36,000	0	0	0	0
Sunoco Inc. (R&M) Philadelphia .....	330,000	0	355,000	0	160,000	0	0	0	0
United Refining Co. Warren .....	65,000	0	68,000	0	31,000	0	0	0	0
<b>Tennessee</b> .....	<b>180,000</b>	<b>0</b>	<b>182,000</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
Williams Refining LLC Memphis .....	180,000	0	182,000	0	0	0	0	0	0
<b>Texas</b> .....	<b>4,328,828</b>	<b>100,000</b>	<b>4,559,516</b>	<b>103,000</b>	<b>2,072,300</b>	<b>622,100</b>	<b>42,000</b>	<b>0</b>	<b>0</b>
Age Refining, Inc. San Antonio .....	10,200	0	13,500	0	0	0	0	0	0
Alon USA LP Big Spring .....	58,500	0	61,000	0	24,000	0	0	0	0
Atofina Petrochemicals Inc. Port Arthur .....	175,068	0	180,000	0	52,000	0	0	0	0
BP Products North America, Inc. Texas City.....	437,000	0	460,000	0	240,000	44,400	0	0	0
Chevron U.S.A. Inc. El Paso.....	90,000	0	102,000	0	43,000	0	0	0	0
Citgo Refining & Chemical Inc. Corpus Christi .....	156,000	0	165,000	0	75,000	42,000	0	0	0
Crown Central Petro Corp Pasadena .....	0	100,000	0	103,000	38,000	12,500	0	0	0
Deer Park Refg Ltd Ptnrshp Deer Park.....	333,700	0	340,000	0	185,500	85,000	0	0	0
Diamond Shamrock Refg & Mktg Sunray (McKee) .....	155,000	0	160,000	0	50,000	0	0	0	0
Three Rivers .....	90,000	0	97,000	0	35,000	0	0	0	0
ExxonMobil Refg & Supply Co. Baytown .....	523,000	0	545,000	0	263,000	42,000	42,000	0	0
Beaumont .....	348,500	0	363,100	0	146,800	50,700	0	0	0
Flint Hills Resources LP Corpus Christi .....	259,980	0	305,000	0	87,500	13,000	0	0	0
Haltermann Products Channelview .....	880	0	1,100	0	0	0	0	0	0
La Gloria Oil & Gas Co Tyler .....	55,000	0	60,000	0	15,000	6,000	0	0	0
Lyondell Citgo Refining Co. Ltd. Houston .....	270,200	0	283,000	0	192,500	101,500	0	0	0
Marathon Ashland Petro LLC Texas City.....	72,000	0	76,000	0	0	0	0	0	0
Motiva Enterprises LLC Port Arthur .....	250,000	0	265,000	0	123,000	56,000	0	0	0
Phillips 66 Co. Borger .....	143,800	0	150,500	0	0	0	0	0	0
Sweeny .....	213,000	0	223,000	0	117,000	66,000	0	0	0
Premcor Refg Group Inc Port Arthur .....	255,000	0	260,000	0	110,000	85,000	0	0	0

**Table 3. Capacity of Operable Petroleum Refineries by State as of January 1, 2003 (Continued)**  
(Barrels per Stream Day, Except Where Noted)

Location	Downstream Charge Capacity (Continued)										
	Catalytic Cracking		Catalytic Hydrocracking	Catalytic Reforming		Catalytic Hydrotreating				Fuel Solvents Deasphalting	
	Fresh	Recycled		Low Pressure	High Pressure	Heavy Gas Oil	Naphtha Reformer Feed	Distillate	Other/Residual		
<b>Oregon</b> .....	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
Portland (Willbridge) .....	0	0	0	0	0	0	0	0	0	0	0
<b>Pennsylvania</b> .....	<b>305,500</b>	<b>1,000</b>	<b>22,000</b>	<b>50,000</b>	<b>121,800</b>	<b>64,000</b>	<b>212,300</b>	<b>184,000</b>	<b>0</b>	<b>0</b>	<b>0</b>
Bradford .....	0	0	0	0	1,800	0	3,300	0	0	0	0
Trainer .....	52,000	0	22,000	50,000	0	40,000	54,000	42,000	0	0	0
Marcus Hook .....	105,000	0	0	0	20,000	0	45,000	40,000	0	0	0
Philadelphia .....	123,500	0	0	0	86,000	24,000	88,000	79,000	0	0	0
Warren .....	25,000	1,000	0	0	14,000	0	22,000	23,000	0	0	0
<b>Tennessee</b> .....	<b>70,000</b>	<b>0</b>	<b>0</b>	<b>36,000</b>	<b>0</b>	<b>0</b>	<b>60,000</b>	<b>53,000</b>	<b>0</b>	<b>0</b>	<b>0</b>
Memphis .....	70,000	0	0	36,000	0	0	60,000	53,000	0	0	0
<b>Texas</b> .....	<b>1,800,910</b>	<b>34,500</b>	<b>469,600</b>	<b>869,200</b>	<b>251,500</b>	<b>757,100</b>	<b>1,283,100</b>	<b>1,389,650</b>	<b>387,300</b>	<b>174,000</b>	<b>0</b>
San Antonio .....	0	0	0	0	0	0	0	0	0	0	0
Big Spring .....	25,000	0	0	21,000	0	6,500	25,500	22,750	2,500	10,000	0
Port Arthur .....	67,000	0	11,000	37,600	0	30,700	45,500	42,000	0	19,500	0
Texas City .....	220,600	4,300	121,400	63,000	75,000	96,600	141,000	139,000	0	17,000	0
El Paso .....	30,000	0	0	22,700	0	0	23,100	21,500	0	0	0
Corpus Christi .....	80,000	0	0	50,000	0	70,000	50,000	49,000	0	0	0
Pasadena .....	56,000	0	0	23,000	0	0	28,000	7,000	16,000	0	0
Deer Park .....	70,000	5,000	67,000	47,000	24,000	80,000	80,000	74,000	41,000	0	0
Sunray (McKee) .....	55,000	0	30,200	28,500	18,500	0	36,000	34,000	0	16,500	0
Three Rivers .....	24,000	0	30,000	22,000	11,000	15,000	22,000	31,000	0	10,000	0
Baytown .....	213,000	8,000	27,500	126,000	0	110,000	152,000	226,500	26,500	48,000	0
Beaumont .....	113,500	0	65,000	154,900	0	0	150,800	116,800	32,200	0	0
Corpus Christi .....	104,160	0	11,500	52,000	18,000	47,000	80,800	73,000	0	0	0
Channelview .....	0	0	0	0	0	0	0	0	0	0	0
Tyler .....	20,250	0	0	13,000	4,500	0	20,000	12,000	0	0	0
Houston .....	100,000	0	0	0	42,000	103,000	90,900	105,000	4,100	0	0
Texas City .....	51,000	0	0	0	11,000	0	0	0	0	0	0
Port Arthur .....	90,000	0	22,000	48,000	0	24,000	94,000	91,000	0	0	0
Borger .....	60,000	5,200	0	0	26,000	0	26,500	45,000	66,000	0	0
Sweeny .....	99,400	12,000	0	36,000	0	81,300	65,500	64,600	0	0	0
Port Arthur .....	65,000	0	35,000	50,000	0	65,000	50,000	90,000	23,000	0	0

**Table 3. Capacity of Operable Petroleum Refineries by State as of January 1, 2003 (Continued)**  
(Barrels per Stream Day, Except Where Noted)

State/Refiner/Location	Atmospheric Crude Oil Distillation Capacity				Downstream Charge Capacity				
	Barrels per Calendar Day		Barrels per Stream Day		Vacuum Distillation	Thermal Cracking			Other/ Gas Oil
	Operating	Idle	Operating	Idle		Delayed Coking	Fluid Coking	Visbreaking	
South Hampton Refining Co. Silsbee .....	0	0	0	0	0	0	0	0	0
Trigeant LTD Corpus Christi .....	0	0	0	0	29,000	0	0	0	0
Valero Refining Co. Texas Corpus Christi .....	134,000	0	138,000	0	97,000	18,000	0	0	0
Houston .....	83,000	0	85,000	0	39,000	0	0	0	0
Texas City.....	215,000	0	226,316	0	110,000	0	0	0	0
<b>Utah.....</b>	<b>162,700</b>	<b>0</b>	<b>172,500</b>	<b>0</b>	<b>44,000</b>	<b>8,500</b>	<b>0</b>	<b>0</b>	<b>0</b>
Big West Oil Co. North Salt Lake .....	24,000	0	25,000	0	5,000	0	0	0	0
Chevron U.S.A. Inc. Salt Lake City.....	45,000	0	49,000	0	27,500	8,500	0	0	0
Phillips 66 Co. Woods Cross .....	24,700	0	26,000	0	5,500	0	0	0	0
Silver Eagle Refining (Formerly Inland Refining Inc) Woods Cross .....	11,000	0	12,500	0	6,000	0	0	0	0
Tesoro West Coast Salt Lake City.....	58,000	0	60,000	0	0	0	0	0	0
<b>Virginia.....</b>	<b>58,600</b>	<b>0</b>	<b>61,800</b>	<b>0</b>	<b>37,300</b>	<b>19,000</b>	<b>0</b>	<b>0</b>	<b>0</b>
Giant Yorktown Refg (Formerly BP Products North America, Inc.) Yorktown .....	58,600	0	61,800	0	37,300	19,000	0	0	0
<b>Washington .....</b>	<b>607,950</b>	<b>13,400</b>	<b>626,250</b>	<b>14,500</b>	<b>291,200</b>	<b>89,700</b>	<b>0</b>	<b>0</b>	<b>0</b>
BP West Coast Products LLC Ferndale (Cherry Point).....	225,000	0	232,000	0	106,000	64,000	0	0	0
Phillips 66 Co. Ferndale.....	92,000	0	95,000	0	48,800	0	0	0	0
Shell Oil Products US (Formerly Equilon Enterprises LLC) Anacortes.....	140,800	4,200	143,000	4,500	62,300	25,700	0	0	0
Tesoro West Coast Anacortes.....	115,000	0	120,000	0	47,000	0	0	0	0
U.S. Oil & Refining Co. Tacoma .....	35,150	9,200	36,250	10,000	27,100	0	0	0	0
<b>West Virginia.....</b>	<b>19,400</b>	<b>0</b>	<b>20,000</b>	<b>0</b>	<b>8,600</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
Ergon West Virginia Inc. Newell (Congo) .....	19,400	0	20,000	0	8,600	0	0	0	0
<b>Wisconsin.....</b>	<b>33,000</b>	<b>0</b>	<b>38,000</b>	<b>0</b>	<b>20,500</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
Murphy Oil U.S.A. Inc. Superior .....	33,000	0	38,000	0	20,500	0	0	0	0
<b>Wyoming.....</b>	<b>148,000</b>	<b>0</b>	<b>155,300</b>	<b>0</b>	<b>62,600</b>	<b>10,000</b>	<b>0</b>	<b>0</b>	<b>0</b>
Frontier Refg Inc. Cheyenne.....	46,000	0	50,000	0	25,000	10,000	0	0	0
Little America Refining Co. Evansville (Casper) .....	24,500	0	25,500	0	5,600	0	0	0	0
Silver Eagle Refining Evanston .....	3,000	0	3,300	0	0	0	0	0	0
Sinclair Oil Corp. Sinclair .....	62,000	0	64,000	0	32,000	0	0	0	0

**Table 3. Capacity of Operable Petroleum Refineries by State as of January 1, 2003 (Continued)**  
(Barrels per Stream Day, Except Where Noted)

Location	Downstream Charge Capacity (Continued)									
	Catalytic Cracking		Catalytic Hydrocracking	Catalytic Reforming		Catalytic Hydrotreating				Fuel Solvents Deasphalting
	Fresh	Recycled		Low Pressure	High Pressure	Heavy Gas Oil	Naphtha Reformer Feed	Distillate	Other/Residual	
Silsbee .....	0	0	0	1,500	0	0	4,000	0	2,000	0
Corpus Christi .....	0	0	0	0	0	0	0	0	0	0
Corpus Christi .....	112,000	0	49,000	59,000	10,000	28,000	66,000	24,000	74,000	0
Houston .....	65,000	0	0	0	11,500	0	12,000	33,500	0	18,000
Texas City .....	80,000	0	0	14,000	0	0	19,500	88,000	100,000	35,000
<b>Utah .....</b>	<b>55,900</b>	<b>2,200</b>	<b>0</b>	<b>0</b>	<b>35,000</b>	<b>0</b>	<b>41,700</b>	<b>26,200</b>	<b>7,200</b>	<b>5,040</b>
North Salt Lake .....	10,000	0	0	0	5,500	0	7,000	7,000	0	0
Salt Lake City .....	14,000	0	0	0	8,000	0	8,300	13,300	7,200	0
Woods Cross .....	8,900	0	0	0	7,700	0	12,600	1,900	0	5,040
Woods Cross .....	0	0	0	0	2,200	0	2,200	4,000	0	0
Salt Lake City .....	23,000	2,200	0	0	11,600	0	11,600	0	0	0
<b>Virginia .....</b>	<b>28,200</b>	<b>2,000</b>	<b>0</b>	<b>0</b>	<b>12,100</b>	<b>0</b>	<b>11,900</b>	<b>18,960</b>	<b>0</b>	<b>0</b>
Yorktown .....	28,200	2,000	0	0	12,100	0	11,900	18,960	0	0
<b>Washington .....</b>	<b>134,100</b>	<b>3,000</b>	<b>58,000</b>	<b>43,330</b>	<b>100,960</b>	<b>7,600</b>	<b>144,300</b>	<b>118,300</b>	<b>42,740</b>	<b>30,000</b>
Ferndale (Cherry Point) .....	0	0	58,000	0	63,000	0	53,000	26,000	0	0
Ferndale .....	31,200	0	0	17,330	0	0	18,000	41,200	0	0
Anacortes .....	57,900	0	0	0	31,760	0	31,800	16,000	42,740	0
Anacortes .....	45,000	3,000	0	26,000	0	7,600	34,000	29,300	0	30,000
Tacoma .....	0	0	0	0	6,200	0	7,500	5,800	0	0
<b>West Virginia .....</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3,400</b>	<b>0</b>	<b>6,100</b>	<b>4,200</b>	<b>0</b>	<b>0</b>	<b>0</b>
Newell (Congo) .....	0	0	0	3,400	0	6,100	4,200	0	0	0
<b>Wisconsin .....</b>	<b>11,000</b>	<b>0</b>	<b>0</b>	<b>8,000</b>	<b>0</b>	<b>0</b>	<b>9,000</b>	<b>7,800</b>	<b>0</b>	<b>0</b>
Superior .....	11,000	0	0	8,000	0	0	9,000	7,800	0	0
<b>Wyoming .....</b>	<b>49,500</b>	<b>500</b>	<b>11,000</b>	<b>7,600</b>	<b>23,950</b>	<b>15,000</b>	<b>35,150</b>	<b>44,500</b>	<b>3,000</b>	<b>0</b>
Cheyenne .....	12,000	0	0	7,600	0	0	8,900	16,500	0	0
Evansville (Casper) .....	10,500	500	0	0	6,000	0	7,200	8,000	0	0
Evanston .....	0	0	0	0	2,150	0	3,250	0	0	0
Sinclair .....	21,500	0	11,000	0	12,500	15,000	12,500	16,000	3,000	0

**Table 3. Capacity of Operable Petroleum Refineries by State as of January 1, 2003 (Continued)**  
(Barrels per Stream Day, Except Where Noted)

State/Refiner/Location	Atmospheric Crude Oil Distillation Capacity				Vacuum Distillation	Downstream Charge Capacity			
	Barrels per Calendar Day		Barrels per Stream Day			Thermal Cracking			
	Operating	Idle	Operating	Idle		Delayed Coking	Fluid Coking	Visbreaking	Other/ Gas Oil
Wyoming Refining Co. Newcastle .....	12,500	0	12,500	0	0	0	0	0	0
<b>U.S. Total .....</b>	<b>16,483,970</b>	<b>273,400</b>	<b>17,385,090</b>	<b>290,000</b>	<b>7,788,375</b>	<b>2,150,950</b>	<b>197,400</b>	<b>18,000</b>	<b>10,600</b>
<b>Puerto Rico.....</b>	<b>69,500</b>	<b>42,000</b>	<b>76,400</b>	<b>48,000</b>	<b>57,000</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
Caribbean Petroleum Corp. Bayamon.....	0	42,000	0	48,000	22,000	0	0	0	0
Shell Chem Yabucoa Inc Yabucoa .....	69,500	0	76,400	0	35,000	0	0	0	0
<b>Virgin Islands .....</b>	<b>345,000</b>	<b>125,000</b>	<b>360,000</b>	<b>135,000</b>	<b>225,000</b>	<b>58,000</b>	<b>0</b>	<b>45,000</b>	<b>0</b>
Hovensa LLC Kingshill (St Croix) .....	345,000	125,000	360,000	135,000	225,000	58,000	0	45,000	0

**Table 3. Capacity of Operable Petroleum Refineries by State as of January 1, 2003 (Continued)**  
(Barrels per Stream Day, Except Where Noted)

Location	Downstream Charge Capacity (Continued)									
	Catalytic Cracking		Catalytic Hydrocracking	Catalytic Reforming		Catalytic Hydrotreating				Fuel Solvents Deasphalting
	Fresh	Recycled		Low Pressure	High Pressure	Heavy Gas Oil	Naphtha Reformer Feed	Distillate	Other/Residual	
Newcastle.....	5,500	0	0	0	3,300	0	3,300	4,000	0	0
<b>U.S. Total.....</b>	<b>6,052,121</b>	<b>79,240</b>	<b>1,643,800</b>	<b>2,228,694</b>	<b>1,548,740</b>	<b>2,495,100</b>	<b>4,360,826</b>	<b>4,169,814</b>	<b>961,340</b>	<b>350,290</b>
<b>Puerto Rico.....</b>	<b>14,200</b>	<b>0</b>	<b>18,000</b>	<b>20,000</b>	<b>6,500</b>	<b>0</b>	<b>26,800</b>	<b>20,600</b>	<b>0</b>	<b>0</b>
Bayamon .....	14,200	0	0	0	6,500	0	6,800	11,000	0	0
Yabucoa.....	0	0	18,000	20,000	0	0	20,000	9,600	0	0
<b>Virgin Islands.....</b>	<b>145,000</b>	<b>0</b>	<b>0</b>	<b>90,000</b>	<b>25,000</b>	<b>135,000</b>	<b>115,000</b>	<b>155,000</b>	<b>0</b>	<b>0</b>
Kingshill (St Croix).....	145,000	0	0	90,000	25,000	135,000	115,000	155,000	0	0

**Table 4. Production Capacity of Operable Petroleum Refineries by State as of January 1, 2003**  
(Barrels per Stream Day, Except Where Noted)

State/Refiner/Location	Alkylates	Aromatics	Asphalt and Road Oil	Isomers		Lubricants	Marketable Petroleum Coke	Hydrogen (MMcfd)	Sulfur (short tons per day)
				Isobutane	Isopentane and Isohexane				
<b>Alabama</b> .....	<b>0</b>	<b>0</b>	<b>25,200</b>	<b>1,200</b>	<b>2,000</b>	<b>0</b>	<b>2,500</b>	<b>6</b>	<b>115</b>
Coastal Mobile Refg Co.									
Chickasaw.....	0	0	13,200	0	0	0	0	0	0
Hunt Refining Co.									
Tuscaloosa.....	0	0	12,000	0	0	0	2,500	6	80
Shell Chem LP									
Saraland.....	0	0	0	1,200	2,000	0	0	0	35
<b>Alaska</b> .....	<b>0</b>	<b>2,800</b>	<b>5,000</b>	<b>0</b>	<b>4,000</b>	<b>0</b>	<b>0</b>	<b>13</b>	<b>20</b>
Tesoro Petroleum Corp.									
Kenai.....	0	0	2,000	0	4,000	0	0	13	20
Williams Alaska Petro Inc.									
North Pole.....	0	2,800	3,000	0	0	0	0	0	0
<b>Arkansas</b> .....	<b>4,900</b>	<b>0</b>	<b>11,200</b>	<b>0</b>	<b>6,500</b>	<b>5,000</b>	<b>0</b>	<b>3</b>	<b>157</b>
Cross Oil Refining and Mktg, Inc.									
Smackover.....	0	0	1,500	0	0	5,000	0	3	0
Lion Oil Co.									
El Dorado.....	4,900	0	9,700	0	6,500	0	0	0	157
<b>California</b> .....	<b>161,700</b>	<b>1,500</b>	<b>74,183</b>	<b>28,300</b>	<b>70,200</b>	<b>26,400</b>	<b>125,410</b>	<b>1,138</b>	<b>4,196</b>
BP West Coast Products LLC									
Los Angeles.....	15,000	0	0	0	0	0	12,900	105	350
Chevron U.S.A. Inc.									
El Segundo.....	24,500	0	0	4,000	20,000	0	18,400	147	600
Richmond.....	21,000	0	0	6,000	28,000	18,500	0	185	448
Edgington Oil Co.									
Long Beach.....	0	0	10,750	0	0	0	0	0	0
ExxonMobil Refg & Supply Co.									
Torrance.....	24,000	0	0	0	0	0	17,725	138	440
Greka Energy									
Santa Maria.....	0	0	6,000	0	0	0	0	0	0
Kern Oil & Refining Co.									
Bakersfield.....	0	0	0	0	0	0	0	0	5
Lunday Thagard									
South Gate.....	0	0	5,833	0	0	0	0	0	0
Paramount Petroleum Corp.									
Paramount.....	0	0	16,500	0	0	0	0	0	0
Phillips 66 Co.									
Arroyo Grande.....	0	0	0	0	0	0	5,500	0	110
Rodeo.....	0	0	0	0	9,400	0	5,200	84	310
Wilmington.....	9,900	0	0	3,100	12,800	0	16,800	105	370
San Joaquin Refining Co Inc.									
Bakersfield.....	0	1,500	6,500	0	0	4,000	0	4	3
Shell Oil Products US (Formerly Equilon Enterprises LLC)									
Bakersfield.....	0	0	0	700	0	0	6,000	25	105
Martinez.....	11,000	0	15,000	0	0	3,900	8,385	107	437
Wilmington.....	12,500	0	0	7,500	0	0	10,000	15	285
Tenby Inc.									
Oxnard.....	0	0	1,600	0	0	0	0	0	0
Tesoro Refg & Mktg Co (Formerly Ultramar Inc.)									
Martinez.....	14,000	0	0	0	0	0	8,600	82	200
Ultramar Inc.									
Wilmington.....	14,000	0	0	7,000	0	0	9,500	0	230

See footnotes at end of table.

**Table 4. Production Capacity of Operable Petroleum Refineries by State as of January 1, 2003 (Continued)**  
(Barrels per Stream Day, Except Where Noted)

State/Refiner/Location	Alkylates	Aromatics	Asphalt and Road Oil	Isomers		Lubricants	Marketable Petroleum Coke	Hydrogen (MMcfd)	Sulfur (short tons per day)
				Isobutane	Isopentane and Isohexane				
Valero Refining Co. California									
Benicia.....	15,800	0	9,000	0	0	0	6,400	141	303
Wilmington.....	0	0	3,000	0	0	0	0	0	0
<b>Colorado.....</b>	<b>0</b>	<b>0</b>	<b>11,200</b>	<b>1,046</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>118</b>
Colorado Refg Co.									
Commerce City.....	0	0	0	1,046	0	0	0	0	4
Conoco Inc									
Commerce City.....	0	0	11,200	0	0	0	0	0	114
<b>Delaware.....</b>	<b>11,700</b>	<b>1,400</b>	<b>0</b>	<b>6,000</b>	<b>0</b>	<b>0</b>	<b>9,080</b>	<b>55</b>	<b>596</b>
Motiva Enterprises LLC									
Delaware City.....	11,700	1,400	0	6,000	0	0	9,080	55	596
<b>Georgia.....</b>	<b>0</b>	<b>0</b>	<b>29,400</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
Citgo Asphalt Refining Co.									
Savannah.....	0	0	24,000	0	0	0	0	0	0
Young Refining Corp.									
Douglasville.....	0	0	5,400	0	0	0	0	0	0
<b>Hawaii.....</b>	<b>5,000</b>	<b>0</b>	<b>15,750</b>	<b>3,200</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>21</b>	<b>34</b>
Chevron U.S.A. Inc.									
Honolulu.....	5,000	0	15,000	3,200	0	0	0	3	0
Tesoro Hawaii Corp.									
Ewa Beach.....	0	0	750	0	0	0	0	18	34
<b>Illinois.....</b>	<b>84,000</b>	<b>13,500</b>	<b>65,500</b>	<b>0</b>	<b>14,000</b>	<b>0</b>	<b>38,270</b>	<b>57</b>	<b>1,717</b>
ExxonMobil Refg & Supply Co.									
Joliet.....	28,000	0	10,500	0	0	0	18,500	0	661
Marathon Ashland Petro LLC									
Robinson.....	13,000	0	0	0	14,000	0	7,000	0	202
PDV Midwest Refining LLC									
Lemont (Chicago).....	21,000	9,000	0	0	0	0	12,770	0	350
Phillips 66 Co.									
Wood River.....	22,000	4,500	55,000	0	0	0	0	57	504
<b>Indiana.....</b>	<b>37,700</b>	<b>17,000</b>	<b>65,700</b>	<b>0</b>	<b>28,200</b>	<b>0</b>	<b>13,400</b>	<b>31</b>	<b>550</b>
BP Products North America, Inc.									
Whiting.....	36,000	17,000	63,000	0	26,000	0	13,400	31	550
Countrymark Cooperative Inc.									
Mount Vernon.....	1,700	0	2,700	0	2,200	0	0	0	0
<b>Kansas.....</b>	<b>28,000</b>	<b>3,000</b>	<b>0</b>	<b>4,300</b>	<b>23,000</b>	<b>0</b>	<b>18,000</b>	<b>6</b>	<b>457</b>
Farmland Industries Inc.									
Coffeyville.....	8,500	0	0	0	0	0	7,000	0	146
Frontier Refining & Marketing Inc.									
El Dorado.....	12,500	3,000	0	1,500	12,500	0	5,000	6	230
NCRA									
McPherson.....	7,000	0	0	2,800	10,500	0	6,000	0	81
<b>Kentucky.....</b>	<b>14,000</b>	<b>11,700</b>	<b>23,000</b>	<b>0</b>	<b>13,000</b>	<b>9,400</b>	<b>0</b>	<b>0</b>	<b>448</b>
Marathon Ashland Petro LLC									
Catlettsburg.....	14,000	11,700	23,000	0	13,000	9,400	0	0	448

See footnotes at end of table.



**Table 4. Production Capacity of Operable Petroleum Refineries by State as of January 1, 2003 (Continued)**  
(Barrels per Stream Day, Except Where Noted)

State/Refiner/Location	Alkylates	Aromatics	Asphalt and Road Oil	Isomers		Lubricants	Marketable Petroleum Coke	Hydrogen (MMcfd)	Sulfur (short tons per day)
				Isobutane	Isopentane and Isohexane				
<b>Louisiana</b> .....	<b>208,900</b>	<b>26,500</b>	<b>62,575</b>	<b>43,770</b>	<b>77,220</b>	<b>62,800</b>	<b>129,231</b>	<b>192</b>	<b>5,635</b>
Calcasieu Refining Co.									
Lake Charles .....	0	0	0	2,800	0	0	0	0	0
Calumet Lubricants Co. LP									
Cotton Valley .....	0	0	0	0	500	0	0	0	0
Princeton .....	0	0	2,000	0	0	7,000	0	5	3
Shreveport .....	4,500	0	575	4,000	0	9,000	0	6	10
Chalmette Refining LLC									
Chalmette .....	13,100	10,200	0	10,000	10,000	0	11,000	0	1,075
Citgo Petroleum Corp.									
Lake Charles .....	22,000	4,000	0	0	28,000	11,000	26,500	0	640
Conoco Inc.									
Westlake .....	6,000	0	0	0	0	20,000	22,500	0	440
ExxonMobil Refg & Supply Co.									
Baton Rouge .....	35,900	0	0	0	0	15,800	27,042	24	744
Marathon Ashland Petro LLC									
Garyville .....	31,000	0	42,000	24,000	20,000	0	12,800	0	1,176
Motiva Enterprises LLC									
Convent .....	16,500	0	0	0	12,500	0	0	63	728
Norco .....	16,400	0	0	0	0	0	5,600	60	165
Murphy Oil U.S.A. Inc.									
Meraux .....	8,500	0	18,000	0	0	0	0	0	69
Orion Refining Corp.									
Norco (Good Hope) .....	13,000	0	0	0	0	0	18,500	33	410
Phillips 66 Co.									
Belle Chasse .....	38,000	12,300	0	0	0	0	5,289	1	125
Placid Refining Co.									
Port Allen .....	4,000	0	0	0	0	0	0	0	28
Valero Refining Co. Louisiana									
Krotz Springs .....	0	0	0	2,970	6,220	0	0	0	22
<b>Michigan</b> .....	<b>4,100</b>	<b>0</b>	<b>22,000</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>147</b>
Marathon Ashland Petro LLC									
Detroit .....	4,100	0	22,000	0	0	0	0	0	147
<b>Minnesota</b> .....	<b>17,500</b>	<b>0</b>	<b>62,000</b>	<b>9,000</b>	<b>27,000</b>	<b>0</b>	<b>22,000</b>	<b>123</b>	<b>1,103</b>
Flint Hills Resources LP									
Saint Paul .....	12,000	0	50,000	7,000	20,000	0	22,000	113	1,000
Marathon Ashland Petro LLC									
Saint Paul Park .....	5,500	0	12,000	2,000	7,000	0	0	10	103
<b>Mississippi</b> .....	<b>18,600</b>	<b>21,000</b>	<b>39,700</b>	<b>0</b>	<b>0</b>	<b>11,400</b>	<b>22,080</b>	<b>238</b>	<b>1,300</b>
Chevron U.S.A. Inc.									
Pascagoula .....	18,600	21,000	20,000	0	0	0	22,080	230	1,300
Ergon Refining Inc.									
Vicksburg .....	0	0	10,000	0	0	11,400	0	8	0
Southland Oil Co.									
Lumberton .....	0	0	3,575	0	0	0	0	0	0
Sandersville .....	0	0	6,125	0	0	0	0	0	0
<b>Montana</b> .....	<b>16,500</b>	<b>0</b>	<b>32,500</b>	<b>5,250</b>	<b>700</b>	<b>0</b>	<b>6,600</b>	<b>58</b>	<b>372</b>
Cenex Harvest States Coop									
Laurel .....	4,000	0	16,800	1,250	0	0	0	12	130
Conoco Inc									
Billings .....	7,500	0	0	4,000	0	0	4,500	20	242
ExxonMobil Refg & Supply Co.									
Billings .....	4,300	0	12,700	0	0	0	2,100	24	0

See footnotes at end of table.

**Table 4. Production Capacity of Operable Petroleum Refineries by State as of January 1, 2003 (Continued)**  
(Barrels per Stream Day, Except Where Noted)

State/Refiner/Location	Alkylates	Aromatics	Asphalt and Road Oil	Isomers		Lubricants	Marketable Petroleum Coke	Hydrogen (MMcfd)	Sulfur (short tons per day)
				Isobutane	Isopentane and Isohexane				
Montana Refining Co. Great Falls .....	700	0	3,000	0	700	0	0	2	0
<b>Nevada .....</b>	<b>0</b>	<b>0</b>	<b>2,000</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
Foreland Refining Corp. Eagle Springs .....	0	0	2,000	0	0	0	0	0	0
<b>New Jersey .....</b>	<b>38,200</b>	<b>7,500</b>	<b>91,500</b>	<b>3,100</b>	<b>10,000</b>	<b>12,000</b>	<b>7,500</b>	<b>21</b>	<b>283</b>
Amerada Hess Corp. Port Reading.....	7,000	0	0	0	0	0	0	0	10
Chevron U.S.A. Inc. Perth Amboy .....	0	0	35,000	0	0	0	0	0	0
Citgo Asphalt Refining Co. Paulsboro.....	0	0	42,000	0	0	0	0	0	0
Coastal Eagle Point Oil Co. Westville.....	4,000	7,500	0	0	10,000	0	0	0	15
Phillips 66 Co. Linden.....	16,000	0	0	3,100	0	0	0	12	100
Valero Refining Co. New Jersey Paulsboro.....	11,200	0	14,500	0	0	12,000	7,500	9	158
<b>New Mexico .....</b>	<b>8,600</b>	<b>0</b>	<b>6,400</b>	<b>533</b>	<b>13,540</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>142</b>
Giant Industries Inc. Bloomfield .....	0	0	0	533	0	0	0	0	2
Giant Refining Co. Gallup .....	1,800	0	0	0	4,000	0	0	0	2
Navajo Refining Co. Artesia .....	6,800	0	6,400	0	9,540	0	0	0	138
<b>North Dakota .....</b>	<b>4,400</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>17</b>
Tesoro West Coast Mandan.....	4,400	0	0	0	0	0	0	0	17
<b>Ohio .....</b>	<b>28,000</b>	<b>18,200</b>	<b>23,500</b>	<b>4,500</b>	<b>21,500</b>	<b>0</b>	<b>12,700</b>	<b>128</b>	<b>524</b>
BP Products North America, Inc. Toledo .....	11,500	0	12,000	0	0	0	8,700	33	300
Marathon Ashland Petro LLC Canton .....	7,000	0	11,500	0	4,000	0	0	0	110
Premcor Refg Group Inc Lima.....	0	9,200	0	4,500	17,500	0	4,000	58	52
Sunoco Inc. Toledo .....	9,500	9,000	0	0	0	0	0	37	62
<b>Oklahoma .....</b>	<b>30,968</b>	<b>0</b>	<b>34,131</b>	<b>9,100</b>	<b>12,797</b>	<b>8,800</b>	<b>7,630</b>	<b>46</b>	<b>172</b>
Conoco Inc Ponca City.....	14,700	0	0	8,200	0	0	5,680	11	34
Sinclair Oil Corp. Tulsa .....	4,868	0	15,216	0	8,797	0	0	0	28
Sunoco Inc. Tulsa .....	0	0	0	900	0	8,800	1,950	0	0
TPI Petro Inc. Ardmore .....	6,400	0	12,915	0	0	0	0	26	110
Wynnewood Refining Co. Wynnewood .....	5,000	0	6,000	0	4,000	0	0	9	0

See footnotes at end of table.

**Table 4. Production Capacity of Operable Petroleum Refineries by State as of January 1, 2003 (Continued)**  
(Barrels per Stream Day, Except Where Noted)

State/Refiner/Location	Alkylates	Aromatics	Asphalt and Road Oil	Isomers		Lubricants	Marketable Petroleum Coke	Hydrogen (MMcfd)	Sulfur (short tons per day)
				Isobutane	Isopentane and Isohexane				
<b>Oregon</b> .....	<b>0</b>	<b>0</b>	<b>8,400</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
Chevron U.S.A. Inc. Portland (Willbridge) .....	0	0	8,400	0	0	0	0	0	0
<b>Pennsylvania</b> .....	<b>54,100</b>	<b>12,000</b>	<b>20,000</b>	<b>5,000</b>	<b>6,800</b>	<b>2,945</b>	<b>0</b>	<b>7</b>	<b>371</b>
American Refining Group Inc. Bradford .....	0	0	0	0	0	2,945	0	0	0
Phillips 66 Co. Trainer .....	12,000	0	0	0	0	0	0	0	41
Sunoco Inc. Marcus Hook .....	12,000	8,000	0	0	0	0	0	7	0
Sunoco Inc. (R&M) Philadelphia .....	26,000	4,000	0	5,000	0	0	0	0	260
United Refining Co. Warren .....	4,100	0	20,000	0	6,800	0	0	0	70
<b>Tennessee</b> .....	<b>12,000</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>6,000</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>43</b>
Williams Refining LLC Memphis .....	12,000	0	0	0	6,000	0	0	0	43
<b>Texas</b> .....	<b>342,050</b>	<b>179,600</b>	<b>94,900</b>	<b>79,300</b>	<b>113,433</b>	<b>72,495</b>	<b>205,426</b>	<b>960</b>	<b>10,559</b>
Age Refining, Inc. San Antonio .....	0	1,200	0	100	0	0	0	0	0
Alon USA LP Big Spring .....	5,000	1,000	7,600	0	0	0	0	0	130
Atofina Petrochemicals Inc. Port Arthur .....	5,500	13,600	8,200	0	9,333	0	0	0	300
BP Products North America, Inc. Texas City .....	62,000	45,000	0	18,000	28,000	0	20,400	210	1,400
Chevron U.S.A. Inc. El Paso .....	9,000	0	5,600	3,200	0	0	0	0	33
Citgo Refining & Chemical Inc. Corpus Christi .....	19,000	22,000	0	0	0	0	15,500	0	351
Crown Central Petro Corp Pasadena .....	10,000	0	0	0	0	0	2,200	0	28
Deer Park Refg Ltd Ptnrshp Deer Park .....	16,900	0	4,700	0	0	12,000	30,000	108	1,150
Diamond Shamrock Refg & Mktg Sunray (McKee) .....	9,500	0	12,000	6,800	0	0	0	0	82
Three Rivers .....	6,500	10,500	0	3,000	0	1,800	0	12	62
ExxonMobil Refg & Supply Co. Baytown .....	31,000	0	0	0	0	20,300	17,500	143	1,828
Beaumont .....	16,300	0	0	11,200	25,800	12,500	15,885	52	636
Flint Hills Resources LP Corpus Christi .....	13,800	37,100	0	4,900	2,200	0	3,625	10	233
La Gloria Oil & Gas Co Tyler .....	4,700	0	0	500	0	0	1,500	0	15
Lyondell Citgo Refining Co. Ltd. Houston .....	11,250	11,200	0	0	0	3,895	26,200	0	803
Marathon Ashland Petro LLC Texas City .....	13,500	2,500	0	0	0	0	0	0	0
Motiva Enterprises LLC Port Arthur .....	20,000	0	0	0	0	22,000	15,616	0	600
Phillips 66 Co. Borger .....	14,000	0	0	11,000	18,000	0	0	68	340
Sweeny .....	16,600	13,000	0	0	10,100	0	21,000	155	532

See footnotes at end of table.

**Table 4. Production Capacity of Operable Petroleum Refineries by State as of January 1, 2003 (Continued)**  
(Barrels per Stream Day, Except Where Noted)

State/Refiner/Location	Alkylates	Aromatics	Asphalt and Road Oil	Isomers		Lubricants	Marketable Petroleum Coke	Hydrogen (MMcfd)	Sulfur (short tons per day)
				Isobutane	Isopentane and Isohexane				
Premcor Refg Group Inc									
Port Arthur .....	17,500	0	0	3,600	0	0	27,000	0	467
South Hampton Refining Co.									
Silsbee .....	0	1,100	0	0	1,000	0	0	2	0
Trigeant LTD									
Corpus Christi .....	0	0	16,000	0	0	0	0	0	0
Valero Refining Co. Texas									
Corpus Christi .....	17,000	21,000	38,000	17,000	12,000	0	9,000	195	869
Houston .....	11,000	400	2,800	0	0	0	0	5	110
Texas City .....	12,000	0	0	0	7,000	0	0	0	590
<b>Utah .....</b>	<b>15,600</b>	<b>0</b>	<b>3,300</b>	<b>2,700</b>	<b>4,700</b>	<b>0</b>	<b>1,748</b>	<b>1</b>	<b>53</b>
Big West Oil Co.									
North Salt Lake .....	1,800	0	0	1,400	1,700	0	0	0	4
Chevron U.S.A. Inc.									
Salt Lake City .....	5,600	0	0	1,300	0	0	1,748	0	21
Phillips 66 Co.									
Woods Cross .....	2,200	0	1,800	0	3,000	0	0	0	10
Silver Eagle Refining (Formerly Inland Refining Inc)									
Woods Cross .....	0	0	1,500	0	0	0	0	1	0
Tesoro West Coast									
Salt Lake City .....	6,000	0	0	0	0	0	0	0	18
<b>Virginia .....</b>	<b>4,200</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>5,400</b>	<b>0</b>	<b>39</b>
Giant Yorktown Refg (Formerly BP Products North America, Inc.)									
Yorktown .....	4,200	0	0	0	0	0	5,400	0	39
<b>Washington .....</b>	<b>28,300</b>	<b>0</b>	<b>13,500</b>	<b>12,300</b>	<b>2,700</b>	<b>0</b>	<b>16,000</b>	<b>128</b>	<b>453</b>
BP West Coast Products LLC									
Ferndale (Cherry Point) .....	0	0	0	6,000	0	0	7,600	128	242
Phillips 66 Co.									
Ferndale .....	5,500	0	0	2,700	0	0	0	0	46
Shell Oil Products US (Formerly Equilon Enterprises LLC)									
Anacortes .....	10,400	0	0	0	0	0	8,400	0	155
Tesoro West Coast									
Anacortes .....	12,400	0	5,500	3,600	0	0	0	0	0
U.S. Oil & Refining Co.									
Tacoma .....	0	0	8,000	0	2,700	0	0	0	10
<b>West Virginia .....</b>	<b>0</b>	<b>0</b>	<b>480</b>	<b>0</b>	<b>0</b>	<b>5,200</b>	<b>0</b>	<b>1</b>	<b>1</b>
Ergon West Virginia Inc.									
Newell (Congo) .....	0	0	480	0	0	5,200	0	1	1
<b>Wisconsin .....</b>	<b>1,500</b>	<b>0</b>	<b>7,500</b>	<b>0</b>	<b>2,000</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>13</b>
Murphy Oil U.S.A. Inc.									
Superior .....	1,500	0	7,500	0	2,000	0	0	0	13
<b>Wyoming .....</b>	<b>10,054</b>	<b>0</b>	<b>22,400</b>	<b>24</b>	<b>1,000</b>	<b>0</b>	<b>3,200</b>	<b>32</b>	<b>131</b>
Frontier Refg Inc.									
Cheyenne .....	4,200	0	10,000	0	0	0	3,200	6	80
Little America Refining Co.									
Evansville (Casper) .....	0	0	4,400	0	0	0	0	0	0

See footnotes at end of table.

**Table 4. Production Capacity of Operable Petroleum Refineries by State as of January 1, 2003 (Continued)**  
(Barrels per Stream Day, Except Where Noted)

State/Refiner/Location	Alkylates	Aromatics	Asphalt and Road Oil	Isomers		Lubricants	Marketable Petroleum Coke	Hydrogen (MMcfd)	Sulfur (short tons per day)
				Isobutane	Isopentane and Isohexane				
Silver Eagle Refining									
Evanston.....	0	0	0	0	1,000	0	0	0	0
Sinclair Oil Corp.									
Sinclair.....	4,500	0	8,000	0	0	0	0	26	47
Wyoming Refining Co.									
Newcastle.....	1,354	0	0	24	0	0	0	0	4
<b>U.S. Total .....</b>	<b>1,190,572</b>	<b>315,700</b>	<b>872,919</b>	<b>218,623</b>	<b>460,290</b>	<b>216,440</b>	<b>646,175</b>	<b>3,265</b>	<b>29,766</b>
<b>Puerto Rico.....</b>	<b>0</b>	<b>0</b>	<b>1,000</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>22</b>	<b>101</b>
Caribbean Petroleum Corp.									
Bayamon.....	0	0	1,000	0	0	0	0	0	33
Shell Chem Yabucoa Inc									
Yabucoa.....	0	0	0	0	0	0	0	22	68
<b>Virgin Islands .....</b>	<b>20,000</b>	<b>20,000</b>	<b>0</b>	<b>0</b>	<b>18,000</b>	<b>0</b>	<b>19,000</b>	<b>0</b>	<b>550</b>
Hovensa LLC									
Kingshill (St Croix).....	20,000	20,000	0	0	18,000	0	19,000	0	550

<sup>a</sup> Includes former Huntway Refining Co. refinery at Benecia.

<sup>b</sup> Includes former Coastal Corp. refinery at Corpus Christi.

MMcfd = Million cubic feet per day.

Source: Energy Information Administration (EIA), Form EIA-820, "Annual Refinery Report."

**Table 5. Refiners' Operable Atmospheric Crude Oil Distillation Capacity as of January 1, 2003**

CORPORATION / Refiner / Location	Barrels per Calendar Day	CORPORATION / Refiner / Location	Barrels per Calendar Day
<b>Companies with Capacity Over 100,000 bb/cd</b>			
CONOCOPHILLIPS CO <sup>a</sup> .....	2,276,900	Ultramar Inc. Wilmington, California .....	80,887
Phillips 66 Co. Wood River, Illinois .....	288,300	Valero Refining Co. Louisiana Krotz Springs, Louisiana .....	78,000
Belle Chasse, Louisiana .....	253,500	TPI Petro Inc. Ardmore, Oklahoma .....	74,705
Linden, New Jersey .....	250,000	Colorado Refg Co. Commerce City, Colorado .....	27,000
Sweeny, Texas .....	213,000	CHEVRON TEXACO.....	1,079,000
Trainer, Pennsylvania .....	180,000	Chevron U.S.A. Inc. Pascagoula, Mississippi .....	325,000
Borger, Texas .....	143,800	El Segundo, California .....	260,000
Wilmington, California .....	136,600	Richmond, California .....	225,000
Ferndale, Washington .....	92,000	El Paso, Texas .....	90,000
Rodeo, California .....	73,200	Perth Amboy, New Jersey .....	80,000
Arroyo Grande, California .....	41,800	Honolulu, Hawaii .....	54,000
Woods Cross, Utah .....	24,700	Salt Lake City, Utah.....	45,000
Conoco Inc Westlake, Louisiana <sup>b</sup> .....	252,000	MARATHON OIL CORP.....	935,000
Ponca City, Oklahoma <sup>b</sup> .....	194,000	Marathon Ashland Petro LLC Garyville, Louisiana.....	232,000
Commerce City, Colorado <sup>b</sup> .....	60,000	Catlettsburg, Kentucky .....	222,000
Billings, Montana <sup>b</sup> .....	60,000	Robinson, Illinois .....	192,000
Phillips Alaska, Inc. Kuparuk, Alaska.....	14,000	Detroit, Michigan .....	74,000
EXXON MOBIL CORP.....	1,808,000	Canton, Ohio.....	73,000
ExxonMobil Refg & Supply Co. Baytown, Texas .....	523,000	Texas City, Texas .....	72,000
Baton Rouge, Louisiana .....	491,500	Saint Paul Park, Minnesota.....	70,000
Beaumont, Texas .....	348,500	MOTIVA ENTERPRISES LLC.....	879,700
Joliet, Illinois .....	238,000	Port Arthur, Texas.....	250,000
Torrance, California.....	149,000	Convent, Louisiana .....	235,000
Billings, Montana .....	58,000	Norco, Louisiana .....	219,700
BP PLC.....	1,501,500	Delaware City, Delaware .....	175,000
BP Products North America, Inc. Texas City, Texas.....	437,000	SUNOCO INC.....	730,000
Whiting, Indiana .....	410,000	Sunoco Inc. Marcus Hook, Pennsylvania.....	175,000
Toledo, Ohio.....	157,000	Toledo, Ohio .....	140,000
BP West Coast Products LLC Los Angeles, California.....	260,000	Tulsa, Oklahoma .....	85,000
Ferndale (Cherry Point), Washington.....	225,000	Sunoco Inc. (R&M) Philadelphia, Pennsylvania .....	330,000
BP Expl (Alaska) Inc Prudhoe Bay, Alaska.....	12,500	PDV AMERICA INC.....	698,300
VALERO ENERGY CORP.....	1,247,362	Citgo Petroleum Corp. Lake Charles, Louisiana.....	324,300
Valero Refining Co. Texas Texas City, Texas.....	215,000	PDV Midwest Refining LLC Lemont (Chicago), Illinois .....	160,000
Corpus Christi, Texas .....	134,000	Citgo Refining & Chemical Inc. Corpus Christi, Texas .....	156,000
Houston, Texas .....	83,000	Citgo Asphalt Refining Co. Paulsboro, New Jersey.....	30,000
Diamond Shamrock Refg & Mktg Sunray (McKee), Texas .....	155,000	Savannah, Georgia .....	28,000
Three Rivers, Texas .....	90,000		
Valero Refining Co. New Jersey Paulsboro, New Jersey .....	160,000		
Valero Refining Co. California Benicia, California .....	144,000		
Wilmington, California.....	5,770		

See footnotes at end of table.

**Table 5. Refiners' Operable Atmospheric Crude Oil Distillation Capacity as of January 1, 2003**  
(Continued)

CORPORATION / Refiner / Location	Barrels per Calendar Day	CORPORATION / Refiner / Location	Barrels per Calendar Day
ROYAL DUTCH SHELL GP	603,750	Coastal Mobile Refg Co.	
Shell Oil Products US <sup>c</sup>		Chickasaw, Alabama	16,500
Martinez, California	159,250		
Anacortes, Washington	145,000		
Wilmington, California	98,500	CROWN CENTRAL PETRO CORP	155,000
Bakersfield, California	66,000	Crown Central Petroleum Corp.	
Shell Chemical LP		Pasadena, Texas	100,000
Saraland, Alabama	80,000	La Gloria Oil & Gas Co.	
Saint Rose, Louisiana	55,000	Tyler, Texas	55,000
TESORO PETRO CORP	562,500	ORION REFINING CORP	
Tesoro West Coast		Orion Refining Corp.	
Anacortes, Washington	115,000	Norco (Good Hope), Louisiana	155,000
Salt Lake City, Utah	58,000		
Mandan, North Dakota	58,000	SINCLAIR OIL CORP	152,195
Tesoro Refg & Mktg Co		Sinclair Oil Corp.	
Martinez, California <sup>d</sup>	166,000	Tulsa, Oklahoma	65,695
Tesoro Hawaii Corp.		Sinclair, Wyoming	62,000
Ewa Beach, Hawaii	93,500	Little America Refining Co.	
Tesoro Petroleum Corp.		Evansville (Casper), Wyoming	24,500
Kenai, Alaska	72,000		
KOCH INDUS INC	524,980	FRONTIER OIL CORP	149,000
Flint Hills Resources LP		Frontier Refining & Marketing Inc.	
Saint Paul, Minnesota	265,000	El Dorado, Kansas	103,000
Corpus Christi, Texas	259,980	Frontier Refg Inc.	
		Cheyenne, Wyoming	46,000
BLACKSTONE GROUP LP	416,500	CENEX HARVEST STATES COOP	136,200
Premcor Refg Group Inc		NCRA	
Port Arthur, Texas	255,000	McPherson, Kansas	81,200
Lima, Ohio	161,500	Cenex Harvest States Coop	
		Laurel, Montana	55,000
WILLIAMS CO, THE	377,928	MURPHY OIL CORP	128,000
Williams Alaska Petro Inc.		Murphy Oil U.S.A. Inc.	
North Pole, Alaska	197,928	Meraux, Louisiana	95,000
Williams Refining LLC		Superior, Wisconsin	33,000
Memphis, Tennessee	180,000		
DEER PARK REFG LTD PTNRSHIP		FARMLAND INDUSTRIES INC	
Deer Park, Texas	333,700	Farmland Industries Inc.	
		Coffeyville, Kansas	112,000
LYONDELL PETROCHEM CO		ERGON INC	105,400
Lyondell Citgo Refining Co. Ltd.		Lion Oil Co.	
Houston, Texas	270,200	El Dorado, Arkansas	63,000
		Ergon Refining Inc.	
CHALMETTE REFINING LLC		Vicksburg, Mississippi	23,000
Chalmette, Louisiana	182,500	Ergon West Virginia Inc.	
		Newell (Congo), West Virginia	19,400
TOTALFINAELF SA		<b>Total</b>	<b>15,854,470</b>
Atofina Petrochemicals Inc.			
Port Arthur, Texas	175,068		
EL PASO CORP	158,787		
Coastal Eagle Point Oil Co.			
Westville, New Jersey	142,287		

See footnotes at end of table.

**Table 5. Refiners' Operable Atmospheric Crude Oil Distillation Capacity as of January 1, 2003  
(Continued)**

CORPORATION / Refiner / Location	Barrels per Calendar Day	CORPORATION / Refiner / Location	Barrels per Calendar Day
<b>Companies with Capacity 30,001 to 100,000 bbl/cd</b>		TIME OIL CO U.S. Oil & Refining Co. Tacoma, Washington.....	44,350
GIANT INDUS INC .....	96,200	HUNT CONSLD INC Hunt Refining Co. Tuscaloosa, Alabama.....	33,500
Giant Yorktown Refg <sup>e</sup> Yorktown, Virginia.....	58,600		
Giant Refining Co. Gallup, New Mexico .....	20,800		
Giant Industries Inc. Bloomfield, New Mexico.....	16,800	<b>Total .....</b>	<b>643,620</b>
		<b>Companies with Capacity 10,001 to 30,000 bbl/cd</b>	
CALUMET LUBRICANTS CO LP .....	67,520	TRANSWORLD OIL USA INC Calcasieu Refining Co. Lake Charles, Louisiana .....	29,400
Calumet Lubricants Co. LP Shreveport, Louisiana .....	46,200		
Cotton Valley, Louisiana .....	13,020	APEX OIL CO INC Edgington Oil Co. Long Beach, California .....	26,000
Princeton, Louisiana .....	8,300		
HOLLY CORP .....	65,000	KERN OIL & REFINING CO Kern Oil & Refining Co. Bakersfield, California .....	24,700
Navajo Refining Co. Artesia, New Mexico .....	58,000		
Montana Refining Co. Great Falls, Montana .....	7,000	SAN JOAQUIN REFINING CO INC San Joaquin Refining Co Inc. Bakersfield, California .....	24,300
UNITED REFINING INC United Refining Co. Warren, Pennsylvania .....	65,000		
PETRO STAR INC .....	62,550	FLYING J INC Big West Oil Co. North Salt Lake, Utah .....	24,000
Petro Star Inc. Valdez, Alaska .....	46,700		
North Pole, Alaska .....	15,850	COUNTRYMARK COOPERATIVE INC Countrymark Cooperative Inc. Mount Vernon, Indiana .....	23,000
ALON USA ENERGY INC Alon USA LP Big Spring, Texas .....	58,500		
GARY WILLIAMS CO Wynnewood Refining Co. Wynnewood, Oklahoma.....	52,500	SOUTHLAND OIL CORP .....	16,800
PARAMOUNT ACQUISITION CORP Paramount Petroleum Corp. Paramount, California .....	50,000	Southland Oil Co. Sandersville, Mississippi .....	11,000
		Lumberton, Mississippi .....	5,800
PLACID REFINING CO Placid Refining Co. Port Allen, Louisiana.....	48,500	SILVER EAGLE REFINING .....	14,000
		Silver Eagle Refining Woods Cross, Utah <sup>f</sup> .....	11,000
		Evanston, Wyoming .....	3,000

See footnotes at end of table.



**Table 5. Refiners' Operable Atmospheric Crude Oil Distillation Capacity as of January 1, 2003  
(Continued)**

CORPORATION / Refiner / Location	Barrels per Calendar Day	CORPORATION / Refiner / Location	Barrels per Calendar Day
WYOMING REFINING CO Wyoming Refining Co. Newcastle, Wyoming .....	12,500	CROSS OIL & REFINING CO INC Cross Oil Refining and Mktg, Inc. Smackover, Arkansas .....	6,800
AGE REFINING & MARKETING Age Refining, Inc. San Antonio, Texas .....	10,200	SOMERSET REFINERY INC Somerset Refinery Inc. Somerset, Kentucky .....	5,500
<b>Total.....</b>	<b>204,900</b>	YOUNG REFINING CORP Young Refining Corp. Douglasville, Georgia .....	5,400
<b>Companies with Capacity 10,000 bbl/cd or Less</b>		FORELAND REFINING CORP Foreland Refining Corp. Eagle Springs, Nevada .....	5,000
AMERICAN REFINING GROUP INC American Refining Group Inc. Bradford, Pennsylvania .....	10,000	OIL HOLDING INC Tenby Inc. Oxnard, California .....	2,800
GREKA ENERGY Santa Maria, California.....	9,500	DOW CHEM USA Haltermann Products Channelview, Texas .....	880
WORLD OIL CO Lunday Thagard South Gate, California .....	8,500	<b>Total .....</b>	<b>54,380</b>
		<b>U.S. Total.....</b>	<b>16,757,370</b>

<sup>a</sup> Formerly Phillips Petro Co.

<sup>b</sup> Formerly owned by Conoco Inc.

<sup>c</sup> Formerly Equilon Enterprises LLC.

<sup>d</sup> Formerly owned by Valero Energy Corp.

<sup>e</sup> Formerly owned by BP PLC.

<sup>f</sup> Formerly Inland Refining Inc.

Source: Energy Information Administration (EIA), Form EIA-820, "Annual Refinery Report."

**Table 6. Operable Crude Oil and Downstream Charge Capacity of Petroleum Refineries, January 1, 1981 to January 1, 2003**

(Thousand Barrels per Stream Day, Except Where Noted)

Year/PAD District	Atmospheric Crude Oil Distillation	Downstream Charge Capacity							
		Vacuum Distillation	Thermal Cracking	Catalytic Cracking		Catalytic Hydro-cracking	Catalytic Reforming	Catalytic Hydro-treating	Fuels Solvent Deasphalting
				Fresh	Recycled				
JAN 1, 1981	19,763	7,033	1,587	5,543	594	909	4,098	8,487	NA
JAN 1, 1982	19,018	7,197	1,782	5,474	562	892	3,966	8,539	NA
JAN 1, 1983	17,871	7,180	1,715	5,402	488	883	3,918	8,354	NA
JAN 1, 1984	17,059	7,165	1,852	5,310	492	952	3,907	9,009	NA
JAN 1, 1985	16,504	6,998	1,858	5,232	507	1,053	3,750	8,897	NA
JAN 1, 1986	16,346	6,892	1,880	5,214	463	1,125	3,744	8,791	NA
JAN 1, 1987	16,460	6,935	1,928	5,251	466	1,189	3,805	9,083	230
JAN 1, 1988	16,825	7,198	2,080	5,424	381	1,202	3,891	9,170	240
JAN 1, 1989	16,568	7,225	2,073	5,324	326	1,238	3,911	9,440	245
JAN 1, 1990	16,507	7,245	2,108	5,441	314	1,282	3,896	9,537	279
JAN 1, 1991	16,557	7,276	2,158	5,559	304	1,308	3,926	9,676	271
JAN 1, 1992	16,633	7,172	2,100	5,608	280	1,363	3,907	9,644	276
JAN 1, 1993	15,935	6,892	2,082	5,540	244	1,397	3,728	9,677	269
JAN 1, 1994	15,904	6,892	2,107	5,586	191	1,376	3,875	10,616	261
JAN 1, 1995	16,326	7,248	2,123	5,583	169	1,386	3,867	10,916	251
JAN 1, 1997	16,287	7,349	2,050	5,595	155	1,388	3,727	11,041	275
JAN 1, 1999	17,155	7,538	2,046	5,920	153	1,552	3,779	11,461	318
JAN 1, 2000	17,393	7,617	2,163	5,949	99	1,576	3,770	11,440	351
JAN 1, 2001	17,511	7,798	2,277	5,983	86	1,615	3,797	11,673	350
JAN 1, 2002	17,676	7,779	2,329	5,989	80	1,633	3,753	11,845	362
JAN 1, 2003	17,675	7,788	2,377	6,052	79	1,644	3,777	11,987	350
PADD I	1,801	739	90	728	7	42	312	1,005	21
PADD II	3,715	1,478	385	1,249	14	152	894	2,597	18
PADD III	8,241	3,730	1,244	3,046	49	844	1,840	5,987	222
PADD IV	611	229	47	191	6	17	128	383	9
PADD V	3,308	1,613	612	838	4	590	604	2,015	80
JAN 1, 2004	17,675	7,864	2,444	6,038	79	1,575	3,784	12,394	344
PADD I	1,801	749	90	728	7	42	314	1,050	22
PADD II	3,715	1,496	385	1,242	14	152	894	2,634	18
PADD III	8,241	3,778	1,311	3,039	49	775	1,844	6,282	215
PADD IV	611	229	47	191	6	17	129	384	9
PADD V	3,308	1,613	612	838	4	590	604	2,044	80
2003-2004 (Net Change)	0	76	67	-14	0	-69	7	407	-6
PADD I	0	10	0	0	0	0	2	45	1
PADD II	0	18	0	-7	0	0	0	37	0
PADD III	0	48	67	-7	0	-69	4	295	-7
PADD IV	0	0	0	0	0	0	1	1	0
PADD V	0	0	0	0	0	0	0	29	0

<sup>a</sup>Projected data from refiners.

NA = Not available.

Note: Totals may not equal sum of components due to independent rounding.

Source: Energy Information Administration (EIA), Form EIA-820, "Annual Refinery Report." See Explanatory Note 3 for details.

**Table 7. Operable Production Capacity of Petroleum Refineries, January 1, 1981 to January 1, 2003**  
(Thousand Barrels per Stream Day, Except Where Noted)

Year/PAD District	Production Capacity							
	Alkylates	Aromatics	Asphalt and Road Oil	Isomers	Lubricants	Marketable Petroleum Coke	Hydrogen (MMcfd)	Sulfur (short tons/day)
JAN 1, 1981	974	299	765	131	234	276	2,054	NA
JAN 1, 1982	984	290	740	162	242	267	1,944	NA
JAN 1, 1983	960	237	722	212	241	296	2,298	NA
JAN 1, 1984	945	218	800	208	241	407	2,444	NA
JAN 1, 1985	917	215	767	219	243	424	2,572	NA
JAN 1, 1986	941	276	804	258	246	356	2,357	NA
JAN 1, 1987	974	287	788	326	250	364	2,569	23,806
JAN 1, 1988	993	289	788	465	232	368	2,418	27,639
JAN 1, 1989	1,015	290	823	469	230	333	2,501	28,369
JAN 1, 1990	1,030	290	844	456	232	341	2,607	24,202
JAN 1, 1991	1,077	292	866	490	229	367	2,527	23,875
JAN 1, 1992	1,095	290	812	494	217	356	2,644	23,811
JAN 1, 1993	1,083	286	814	499	217	393	2,674	25,940
JAN 1, 1994	1,086	278	793	499	213	410	2,940	24,554
JAN 1, 1995	1,105	285	846	502	217	427	3,139	24,885
JAN 1, 1997	1,120	288	872	577	244	458	3,052	26,466
JAN 1, 1999	1,172	302	846	667	233	441	3,104	26,423
JAN 1, 2000	1,185	315	886	643	218	464	3,143	26,645
JAN 1, 2001	1,191	318	900	654	214	538	3,230	27,446
JAN 1, 2002	1,181	313	917	658	218	548	3,244	29,107
JAN 1, 2003	1,191	316	873	679	216	646	3,265	29,766
PADD I	108	21	141	31	20	22	84	1,290
PADD II	262	63	303	174	18	112	391	5,191
PADD III	583	227	240	337	152	359	1,399	17,908
PADD IV	42	0	69	15	0	12	91	674
PADD V	195	4	119	121	26	141	1,300	4,703
JAN 1, 2004	1,193	329	886	679	216	657	3,265	30,185
PADD I	108	21	141	31	20	22	84	1,290
PADD II	265	63	310	175	18	112	391	5,191
PADD III	583	240	240	337	152	370	1,399	18,327
PADD IV	42	0	69	15	0	12	91	674
PADD V	195	4	125	121	26	141	1,300	4,703
2003-2004 (Net Change)	3	13	13	(s)	0	11	0	419
PADD I	0	0	0	0	0	0	0	0
PADD II	3	0	7	(s)	0	0	0	0
PADD III	0	13	0	0	0	11	0	419
PADD IV	0	0	0	0	0	0	0	0
PADD V	0	0	6	0	0	0	0	0

<sup>a</sup>Projected data from refiners.

NA = Not available. MMcfd = Million cubic feet per day; (s) = Less than 500 barrels per stream day.

Note: Totals may not equal sum of components due to independent rounding.

Source: Energy Information Administration (EIA), Form EIA-820, "Annual Refinery Report." See Explanatory Note 3 for details.

**Table 8. Working Storage Capacity<sup>a</sup> at Operable Refineries by PAD District as of January 1, 2003**  
(Thousand Barrels)

Commodity	PAD Districts					United States
	I	II	III	IV	V	
<b>Crude Oil</b> .....	<b>23,989</b>	<b>20,408</b>	<b>77,657</b>	<b>3,527</b>	<b>36,311</b>	<b>161,892</b>
<b>Liquefied Petroleum Products</b> .....	<b>3,439</b>	<b>7,947</b>	<b>20,596</b>	<b>483</b>	<b>1,834</b>	<b>34,299</b>
Propane/Propylene.....	916	3,585	7,470	168	197	12,336
Normal Butane/Butylene.....	2,523	4,362	13,126	315	1,637	21,963
<b>Other Liquids</b> .....	<b>10,507</b>	<b>13,230</b>	<b>30,312</b>	<b>3,723</b>	<b>18,597</b>	<b>76,369</b>
Oxygenates.....	1,904	83	2,862	104	2,250	7,203
Fuel Ethanol.....	0	80	27	104	22	233
Methanol.....	241	3	553	0	143	940
MTBE.....	1,663	0	2,130	0	2,061	5,854
Other Oxygenates.....	0	0	152	0	24	176
Gasoline Blending Components .....	8,603	13,147	27,450	3,619	16,347	69,166
<b>Petroleum Products</b> .....	<b>47,946</b>	<b>80,315</b>	<b>192,408</b>	<b>16,452</b>	<b>77,732</b>	<b>414,853</b>
Finished Motor Gasoline.....	9,360	16,235	27,272	3,599	12,687	69,153
Reformulated .....	5,537	1,274	4,887	0	6,760	18,458
Oxygenated .....	21	0	0	152	0	173
Other Finished .....	3,802	14,961	22,385	3,447	5,927	50,522
Jet Fuel .....	2,571	3,771	10,154	763	6,059	23,318
Naphtha-Type .....	0	22	5	95	45	167
Kerosene-Type.....	2,571	3,749	10,149	668	6,014	23,151
Kerosene .....	452	1,084	1,422	125	77	3,160
Distillate Fuel Oil.....	10,965	15,109	27,862	3,141	9,724	66,801
0.05 percent sulfur and under.....	4,145	9,960	16,149	2,265	6,718	39,237
Greater than 0.05 percent sulfur.....	6,820	5,149	11,713	876	3,006	27,564
Residual Fuel Oil .....	2,811	4,005	9,944	825	6,051	23,636
Lubricants .....	2,403	729	10,839	0	2,225	16,196
Asphalt and Road Oil.....	3,506	10,840	6,676	3,572	3,206	27,800
Other Products.....	15,878	28,542	98,239	4,427	37,703	184,789
<b>Total</b> .....	<b>85,881</b>	<b>121,900</b>	<b>320,973</b>	<b>24,185</b>	<b>134,474</b>	<b>687,413</b>

<sup>a</sup> The difference in volume between the maximum safe fill capacity and tank bottoms.

<sup>b</sup> Includes ethyl tertiary butyl ether (ETBE), tertiary amyl methyl ether (TAME), tertiary butyl alcohol (TBA), and other aliphatic alcohols and ethers intended for motor gasoline blending (e.g., isopropyl ether (IPE) or n-propanol).

<sup>c</sup> Includes ethane/ethylene, isobutane/isobutylene, pentanes plus, other hydrocarbons, hydrogen, unfinished oils, finished aviation gasoline, special naphthas, wax, petroleum coke, still gas, petrochemical feedstocks and miscellaneous products.

Source: Energy Information Administration (EIA), Form EIA-820, "Annual Refinery Report."

**Table 9. Shell Storage Capacity<sup>a</sup> at Operable Refineries by PAD District as of January 1, 2003**  
(Thousand Barrels)

Commodity	PAD Districts					United States
	I	II	III	IV	V	
<b>Crude Oil</b> .....	<b>27,917</b>	<b>24,045</b>	<b>90,293</b>	<b>3,976</b>	<b>40,404</b>	<b>186,635</b>
<b>Liquefied Petroleum Products</b> .....	<b>3,794</b>	<b>8,359</b>	<b>22,654</b>	<b>506</b>	<b>2,004</b>	<b>37,317</b>
Propane/Propylene .....	1,003	3,804	7,885	178	213	13,083
Normal Butane/Butylene .....	2,791	4,555	14,769	328	1,791	24,234
<b>Other Liquids</b> .....	<b>12,144</b>	<b>15,155</b>	<b>34,592</b>	<b>4,109</b>	<b>27,140</b>	<b>93,140</b>
Oxygenates .....	2,149	98	3,340	124	2,564	8,275
Fuel Ethanol .....	0	94	30	124	26	274
Methanol .....	265	4	650	0	171	1,090
MTBE .....	1,884	0	2,478	0	2,340	6,702
Other Oxygenates .....	0	0	182	0	27	209
Gasoline Blending Components.....	9,995	15,057	31,252	3,985	24,576	84,865
<b>Petroleum Products</b> .....	<b>54,374</b>	<b>88,878</b>	<b>215,976</b>	<b>17,969</b>	<b>87,640</b>	<b>464,837</b>
Finished Motor Gasoline .....	10,835	18,154	31,186	4,066	14,473	78,714
Reformulated.....	6,464	1,469	5,510	0	7,879	21,322
Oxygenated.....	23	0	0	170	0	193
Other Finished.....	4,348	16,685	25,676	3,896	6,594	57,199
Jet Fuel .....	2,864	4,172	11,378	833	6,853	26,100
Naphtha-Type.....	0	24	5	114	49	192
Kerosene-Type .....	2,864	4,148	11,373	719	6,804	25,908
Kerosene .....	473	1,175	1,572	136	103	3,459
Distillate Fuel Oil .....	11,980	16,315	30,557	3,402	10,716	72,970
0.05 percent sulfur and under .....	4,474	10,763	17,791	2,448	7,480	42,956
Greater than 0.05 percent sulfur .....	7,506	5,552	12,766	954	3,236	30,014
Residual Fuel Oil.....	3,122	4,397	11,199	918	6,959	26,595
Lubricants .....	2,526	819	11,807	0	2,326	17,478
Asphalt and Road Oil .....	3,848	12,010	7,240	3,808	3,507	30,413
Other Products.....	18,726	31,836	111,037	4,806	42,703	209,108
<b>Total</b> .....	<b>98,229</b>	<b>136,437</b>	<b>363,515</b>	<b>26,560</b>	<b>157,188</b>	<b>781,929</b>

<sup>a</sup> The design capacity of the tank.

<sup>b</sup> Includes ethyl tertiary butyl ether (ETBE), tertiary amyl methyl ether (TAME), tertiary butyl alcohol (TBA), and other aliphatic alcohols and ethers intended for motor gasoline blending (e.g., isopropyl ether (IPE) or n-propanol).

<sup>c</sup> Includes ethane/ethylene, isobutane/isobutylene, pentanes plus, other hydrocarbons, hydrogen, unfinished oils, finished aviation gasoline, special naphthas, wax, petroleum coke, still gas, petrochemical feedstocks and miscellaneous products.

Source: Energy Information Administration (EIA), Form EIA-820, "Annual Refinery Report."

**Table 10. Capacity and Fresh Feed Input to Selected Downstream Units at U.S. Refineries, 2001-2003**  
(Barrels per Calendar Day, Except Where Noted)

PAD District/Item	2001	2002	2003	2001	2002	2003
	PAD DISTRICT I			PAD DISTRICT II		
<b>Cokers</b>						
Capacity .....	85,600	87,100	87,100	374,516	375,926	363,931
Inputs .....	84,597	80,208	—	351,268	318,556	—
<b>Catalytic Crackers</b>						
Capacity .....	684,400	682,700	691,207	1,215,569	1,183,031	1,166,361
Inputs .....	621,460	608,858	—	1,110,129	1,108,002	—
<b>Hydrocrackers</b>						
Capacity .....	38,000	38,000	38,000	145,300	139,200	139,200
Inputs .....	35,827	38,973	—	139,989	131,463	—
	PAD DISTRICT III			PAD DISTRICT IV		
<b>Cokers</b>						
Capacity .....	1,009,325	1,085,750	1,133,340	40,900	40,900	42,700
Inputs .....	998,784	1,094,625	—	40,170	40,490	—
<b>Catalytic Crackers</b>						
Capacity .....	2,771,910	2,815,638	2,848,858	171,630	171,666	180,555
Inputs .....	2,561,518	2,621,910	—	132,052	137,729	—
<b>Hydrocrackers</b>						
Capacity .....	735,700	747,600	765,069	15,500	15,500	15,500
Inputs .....	527,438	558,934	—	3,992	12,282	—
	PAD DISTRICT V			U.S. TOTAL		
<b>Cokers</b>						
Capacity .....	559,395	558,595	545,950	2,069,736	2,148,271	2,173,021
Inputs .....	488,126	501,003	—	1,962,945	2,034,882	—
<b>Catalytic Crackers</b>						
Capacity .....	795,310	793,126	784,900	5,638,819	5,646,161	5,671,881
Inputs .....	709,759	712,562	—	5,134,918	5,198,101	—
<b>Hydrocrackers</b>						
Capacity .....	507,194	510,200	507,850	1,441,694	1,450,500	1,439,619
Inputs .....	469,485	467,964	—	1,176,732	1,209,616	—

Note: Capacities are as of January 1 of the indicated year.

Sources: Capacities are from the Energy Information Administration Form EIA-820, "Annual Refinery Report." See Explanatory Note 3 for details. Inputs are from the Energy Information Administration Form EIA-810, "Monthly Refinery Report."

**Table 11. Refinery Receipts of Crude Oil by Method of Transportation by PAD District, 2002**  
(Thousand Barrels)

Method	PAD Districts					United States
	I	II	III	IV	V	
Pipeline						
Domestic .....	2,479	621,660	703,758	93,939	341,378	1,763,214
Foreign .....	21,446	544,281	374,361	84,129	21,004	1,045,221
Tanker						
Domestic .....	0	0	145	0	338,818	338,963
Foreign .....	450,253	0	1,411,036	0	237,352	2,098,641
Barge						
Domestic .....	2,842	529	51,454	0	1,159	55,984
Foreign .....	77,502	0	33,040	0	13,887	124,429
Tank Cars						
Domestic .....	2,667	0	1,079	0	3,796	7,542
Foreign .....	0	0	0	0	0	0
Trucks						
Domestic .....	2,924	4,822	22,387	12,466	8,453	51,052
Foreign .....	0	0	0	0	0	0
Total						
Domestic .....	10,912	627,011	778,823	106,405	693,604	2,216,755
Foreign .....	549,201	544,281	1,818,437	84,129	272,243	3,268,291

Source: Energy Information Administration (EIA), Form EIA-820, "Annual Refinery Report."

**Table 12. Fuel Consumed at Refineries by PAD District, 2002**  
(Thousand Barrels, Except Where Noted)

Commodity	PAD Districts					United States
	I	II	III	IV	V	
<b>2002</b>						
Crude Oil .....	0	0	0	0	0	0
Liquefied Petroleum Gases .....	282	1,034	846	44	1,232	3,438
Distillate Fuel Oil.....	480	68	84	0	208	840
Residual Fuel Oil .....	1,836	1,871	0	205	902	4,814
Still Gas .....	21,377	46,100	113,967	7,321	44,465	233,230
Marketable Petroleum Coke .....	243	0	86	133	702	1,164
Catalyst Petroleum Coke .....	11,585	17,416	41,987	2,548	13,538	87,074
Natural Gas (million cubic feet).....	39,150	96,180	458,652	21,274	136,783	752,039
Coal (thousand short tons).....	W	W	W	W	W	31
Purchased Electricity (million kWh) .....	3,282	8,933	16,145	1,581	4,780	34,721
Purchased Steam (million pounds).....	4,112	5,220	32,342	744	16,731	59,149
Hydrogen (million cubic feet) .....	0	0	0	0	0	0
Other Products .....	368	1,230	1,351	834	1,426	5,209

Note: Includes volumes used as fuel at refineries and all nonprocessing losses of crude oil and petroleum products (e.g., spills, fire losses, contamination, etc.)

<sup>a</sup>Includes pentanes plus, other hydrocarbons, oxygenates, unfinished oils, gasoline, special naphthas, jet fuel, lubricants, asphalt, road oil, and miscellaneous products.

W = Withheld to avoid disclosure of individual company data.

Source: Form EIA-820, "Annual Refinery Report" and Form EIA-810, "Monthly Refinery Report".



**Table 13. Shutdown and Reactivated Refineries During 2002**

PAD District / Refinery	Location	Total Atmospheric Crude Oil Distillation Capacity (bbl/cd)	Total Downstream Charge Capacity (bbl/sd)	Date Operable	Date of Last Operation	Date Shutdown
<b>SHUTDOWNS</b>						
<b>PAD District II</b>		<b>64,000</b>	<b>116,700</b>			
Premcor Refining Group	Hartford, IL	64,000	116,700	01/48	09/02	10/02
<b>PAD District III</b>		<b>30,000</b>	<b>15,000</b>			
American International	Lake Charles, LA	30,000	15,000	07/01	09/01	01/02
<b>PAD District V</b>		<b>0</b>	<b>17,400</b>			
Foreland Refining Corp	Tonapah, NV	0	3,000	09/98	02/01	01/02
Tricor Refining LLC	Bakersfield, CA	0	14,400	01/48	07/01	01/02
<b>Total U.S. Shutdowns</b>		<b>94,000</b>	<b>149,100</b>			
<b>PAD District VI</b>		<b>0</b>	<b>93,200</b>			
Chevron Phillips Chem PR Core	Guayama, PR	0	93,200	01/70	03/01	01/02

bbl/cd=Barrels per calendar day.

bbl/sd=Barrels per stream day.

Sources: Energy Information Administration (EIA) Form EIA-810, "Monthly Refinery Report" and Form EIA-820, "Annual Refinery Report."

**Table 14. Refinery Sales During 2002**

Former Corporation / Refiner	Total Atmospheric Crude Oil Distillation Capacity (bbl/cd) <sup>a</sup>	New Corporation / Refiner	Date of Sale
<b>BP PLC/BP Products North America, Inc.</b>		<b>Giant Industries Inc./Giant Yorktown Refg</b>	<b>5/02</b>
Yorktown, VA.....	58,600		
<b>Conoco, Inc.</b>		<b>ConocoPhillips Co./Conoco, Inc.</b>	<b>8/02</b>
Billings, MT.....	60,000		
Commerce City, CO.....	60,000		
Ponca City, OK.....	194,000		
Westlake, LA.....	252,000		
<b>Valero Energy Corp./Ultramar, Inc.</b>		<b>Tesoro Petro Corp/Tesoro Refg &amp; Mktg Co.</b>	<b>5/02</b>
Martinez, CA.....	166,000		

<sup>a</sup>bbl/cd = Barrels per calendar day. As of January 1, 2003.  
 Source: Energy Information Administration (EIA) Form EIA-810, "Monthly Refinery Report" and Form EIA-820, "Annual Refinery Report."

# NPRA United States Refining and Storage Capacity Report



# District Descriptions and Maps

The following are the Refining Districts which make up the Petroleum Administration for Defense (PAD) Districts.

## PAD District I

**East Coast:** District of Columbia and the States of Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New Jersey, Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia, Florida, and the following counties of the State of New York: Cayuga, Tompkins, Chemung, and all counties east and north thereof. Also the following counties in the State of Pennsylvania: Bradford, Sullivan, Columbia, Montour, Northumberland, Dauphin, York, and all counties east thereof.

**Appalachian No. 1:** The State of West Virginia and those parts of the States of Pennsylvania and New York not included in the East Coast District.

## Sub-PAD District I

**New England:** The States of Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island and Vermont.

**Central Atlantic:** The District of Columbia and the States of Delaware, Maryland, New Jersey, New York, and Pennsylvania.

**Lower Atlantic:** The States of Florida, Georgia, North Carolina, South Carolina, Virginia and West Virginia.

## PAD District II

**Indiana-Illinois-Kentucky:** The States of Indiana, Illinois, Kentucky, Tennessee, Michigan, and Ohio.

**Minnesota-Wisconsin-North and South Dakota:** The States of Minnesota, Wisconsin, North Dakota, and South Dakota.

**Oklahoma-Kansas-Missouri:** The States of Oklahoma, Kansas, Missouri, Nebraska, and Iowa.

## PAD District III

**Texas Inland:** The State of Texas except the Texas Gulf Coast District.

**Texas Gulf Coast:** The following counties of the State of Texas: Newton, Orange, Jefferson, Jasper, Tyler, Hardin, Liberty, Chambers, Polk, San Jacinto, Montgomery, Harris, Galveston, Waller, Fort Bend, Brazoria, Wharton, Matagorda, Jackson, Victoria, Calhoun, Refugio, Aransas, San Patricio, Nueces, Kleberg, Kenedy, Willacy, and Cameron.

**Louisiana Gulf Coast:** The following Parishes of the State of Louisiana: Vernon, Rapides, Avoyelles, Pointe Coupee, West Feliciana, East Feliciana, Saint Helena, Tangipahoa, Washington, and all Parishes south thereof. Also the following counties of the State of Mississippi: Pearl River, Stone, George, Hancock, Harrison, and Jackson. Also the following counties of the State of Alabama: Mobile and Baldwin.

**North Louisiana-Arkansas:** The State of Arkansas and those parts of the States of Louisiana, Mississippi, and Alabama not included in the Louisiana Gulf Coast District.

**New Mexico:** The State of New Mexico.

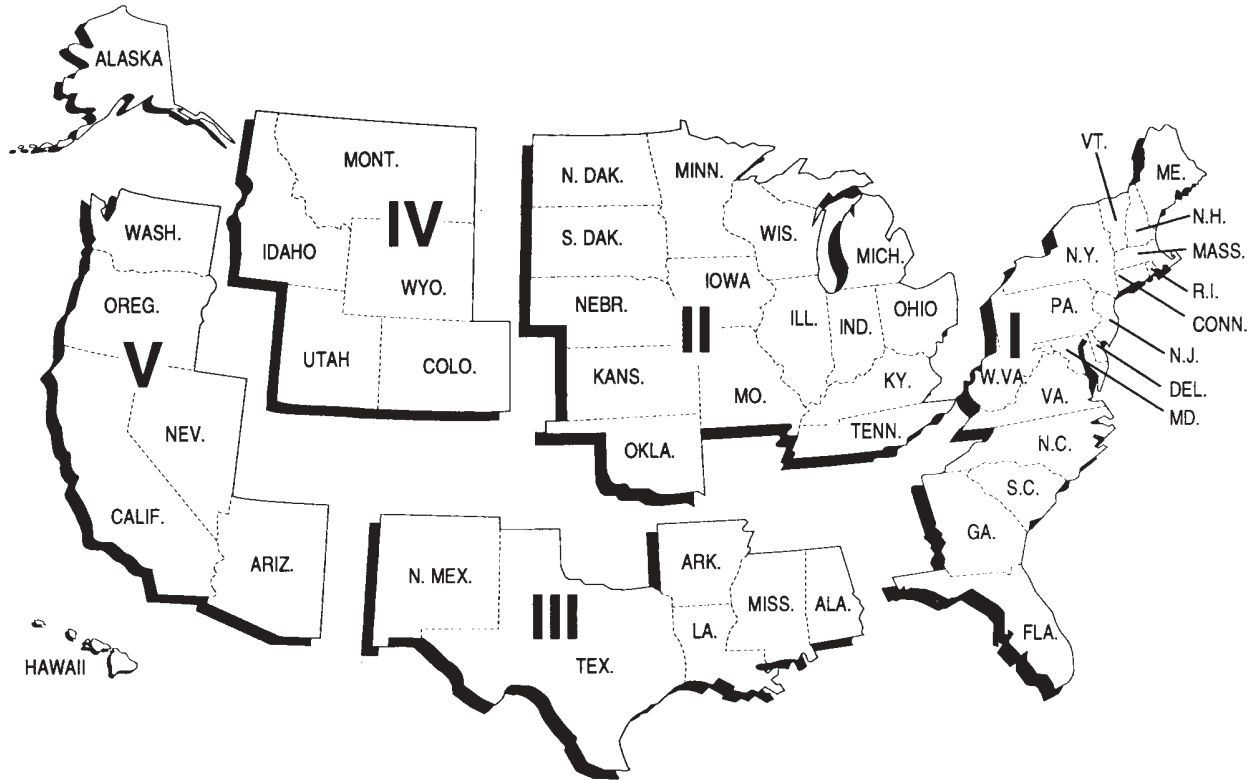
## PAD District IV

**Rocky Mountain:** The States of Montana, Idaho, Wyoming, Utah, and Colorado.

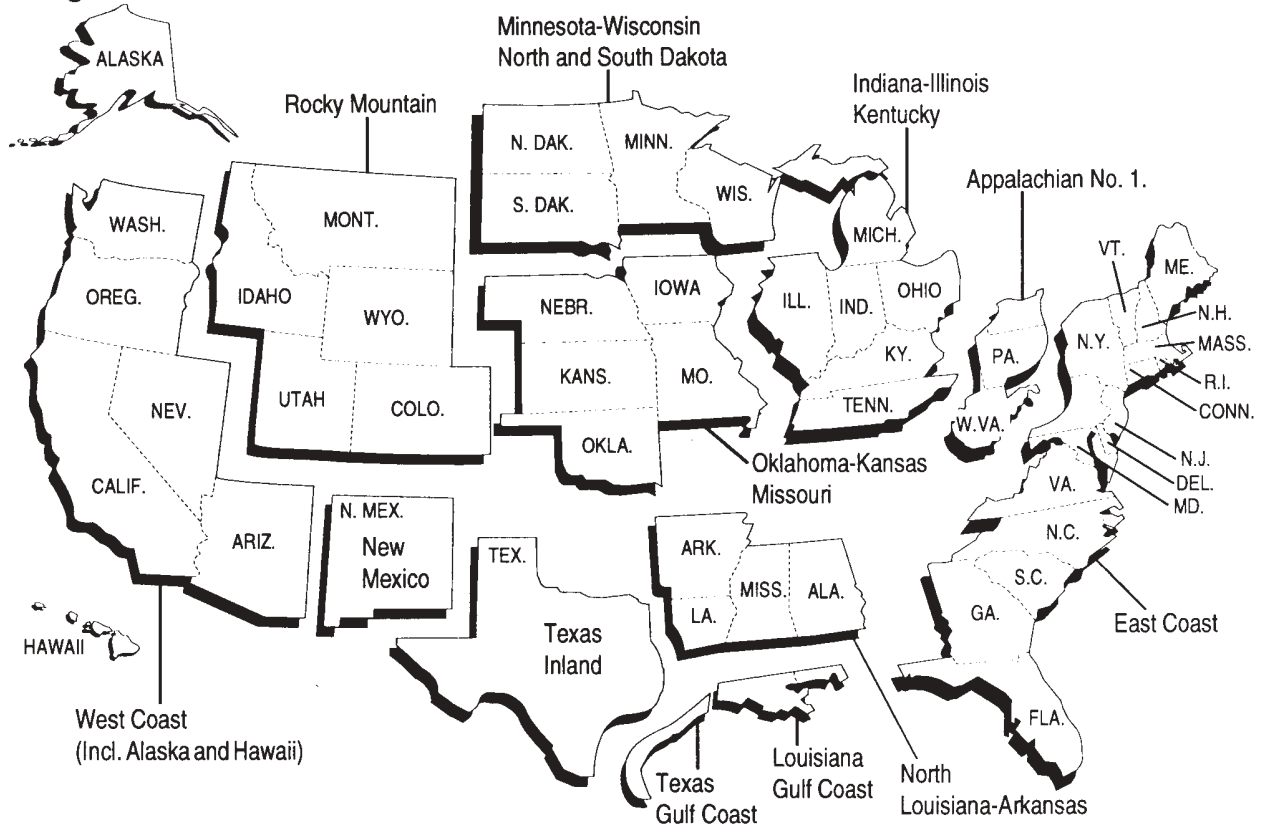
## PAD District V

**West Coast:** The States of Washington, Oregon, California, Nevada, Arizona, Alaska, and Hawaii.

## Petroleum Administration for Defense (PAD) Districts



## Refining Districts



# NPRA United States Refining and Storage Capacity Report



## Appendix B

### Explanatory Notes

#### Form EIA-820: Annual Refinery Report

Refinery capacity data collection was begun in 1918 by the Bureau of Mines, then in the Department of Commerce, and was operated on a voluntary basis until 1980. In 1980, the mandatory Energy Information Administration (EIA) Form EIA-177, *Capacity of Petroleum Refineries*, was implemented. Information on refining capacity was expanded to include not only current year operations, but two-year projections, and refinery input/production data. Working storage capacity data was also added to the form and product categories were added for total coverage. Information on refinery downstream facilities was expanded to include a breakdown of thermal operations and to add vacuum distillation, catalytic hydrorefining and hydrotreating. Production capacity was also added to include information on isomerization, alkylation, aromatics, asphalt/road oil, coking, lubricants and hydrogen.

In 1983, the form was revised to improve the consistency and quality of the data collected by the EIA and redesignated as Form EIA-820, "Annual Refinery Report." Two sections for data previously reported monthly were added: (1) refinery receipts of crude oil by method of transportation, and (2) fuels consumed for all purposes at refineries. Also, the second year projections on refining capacity were eliminated. As a result of a study conducted by the EIA evaluating motor gasoline data collected by the Federal Highway Administration (FHWA) and by the EIA, motor gasoline blending plants were included for the first time in the respondent frame in order to produce more accurate statistics on the production of motor gasoline.

In 1987, the form was revised to reduce respondent burden and to better reflect current refinery operations through updated terminology. Information on projected input/production of refinery processing facilities was deleted. Several categories under catalytic hydrotreating were combined: naphtha and reformer feeds were combined into a single category as well as residual fuel oil and other. Thermal cracking types, gas oil and "other" were also combined into a single category. Catalytic reforming types, conventional and bi-metallic were replaced with low and high pressure processing units. Two new categories were added: fuels solvent deasphalting was added to downstream charge capacity and sulfur recovery was added to production capacity.

In 1994, the form was revised to enable EIA to calculate utilization rates for certain downstream processing units and to reflect storage capacity of fuels mandated by the

Clean Air Act Amendments of 1990. Additions to the form included calendar day downstream charge capacity for fluid and delayed coking, catalytic cracking, and catalytic hydrocracking. Also storage capacity categories for reformulated, oxygenated, and other finished motor gasoline were added, as well as oxygenate storage capacity and separate categories for high and low sulfur distillate fuel oil.

In 1995, motor gasoline blending plants were dropped from the survey frame, since by this time, the only section of the form that applied to them was working and shell storage capacity. Also in 1995, a decision was made to no longer collect storage capacity from shutdown refineries; therefore, these refineries were also eliminated from the survey frame.

In 1996, the survey was moved to a biennial schedule (every other year) and was renamed "Biennial Refinery Report." The survey was not conducted for January 1, 1996 or January 1, 1998.

Respondents were not required to submit data for crude oil and petroleum products consumed at refineries during 1995 and 1997. These data are available from the Form EIA-810, "Monthly Refinery Report." The requirement to submit data for refinery consumption of natural gas, coal, and purchased steam and electricity on the Form EIA-820 remained.

In 2000, the survey was moved to an annual schedule.

#### Respondent Frame

The respondent frame consists of all operating and idle petroleum refineries (including new refineries under construction), located in the 50 States, the District of Columbia, Puerto Rico, the Virgin Islands, Guam and other U.S. possessions. As of January 1, 2003, there were 152 refineries.

The respondent frame is maintained by monitoring the monthly Form EIA-810, "Monthly Refinery Report," and industry publications for changes and developments in the petroleum industry such as refinery sales, mergers and new operations.

### **Description of Survey Form**

The Form EIA-820 is used to collect data on fuels consumed for all purposes at the refinery during the preceding year; refinery receipts of crude oil by method of transportation during the preceding year; current and next year projections for operable atmospheric crude oil distillation capacity, downstream charge capacity and production capacity; and current year working and shell storage capacity for crude oil and petroleum products at the refinery.

### **Collection Methods**

The Form EIA-820 is sent to respondents in December. Survey forms can be submitted by electronic mail or facsimile. Completed forms are required to be postmarked by the 15th day of February of the current report year. Receipt of the reports is monitored using an automated respondent mailing list. Telephone follow-up calls are made to secure responses from those companies failing to report by February 15th.

### **Response Rate**

The response rate for the Form EIA-820 is normally very high. Data are estimated and non-compliance procedures are implemented for those companies still not reporting data by close-out for the report year.

### **Data Imputation**

Imputation is performed for companies that fail to file prior to the publication deadline. For the January 1, 2003 survey, there were no nonrespondents. When nonresponse occurs, values for these companies are imputed from data reported on the most recent year's Form EIA-820 and/or from data reported on Form EIA-810, "Monthly Refinery Report," for that company. For most surveyed items, the value imputed for nonrespondents is the value that company reported on the Form EIA-820 for the most recent year. For three categories of information however, the imputed value is also based on their data from the Form EIA-810 as follows:

#### **Section 2: Refinery Receipts of Crude Oil by Method of Transportation**

The imputation methodology for this section is based on data reported on both the monthly Form EIA-810 and the annual Form EIA-820. Annual refinery receipts of domestic and foreign crude oil for a nonrespondent are imputed by aggregating the values for the refinery on the monthly survey.

These values are allocated to the method of transportation by using the percentages reported for the refinery in the previous year. The difference between the values reported on the two surveys by all respondents in 2000 was about 2.4 percent.

#### **Section 3: Operable and Storage Capacity as of January 1**

Operable atmospheric crude oil distillation capacity in barrels per calendar day is collected on the monthly Form EIA-810 as of the first day of each month and on the annual Form EIA-820 as of January 1. As part of the editing process for the Form EIA-820, these two values are compared. Companies are contacted and any discrepancies are resolved by the time of publication. Imputed values for operable atmospheric crude oil distillation capacity in barrels per calendar day are taken directly from the January Form EIA-810. A barrels per stream day capacity is then derived by dividing the reported barrels per calendar day capacity by .95.

Current year and projected year data for downstream charge capacity, production capacity, and data for working and shell storage capacity are taken directly from the previous year's annual report.

### **Confidentiality**

The Office of Legal Counsel of the Department of Justice concluded on March 20, 1991, that the Federal Energy Administration Act requires the Energy Information Administration to provide company-specific data to the Department of Justice, or to any other Federal agency when requested for official use, which may include enforcement of Federal law. The information contained on this form may also be made available, upon request, to another component of the Department of Energy (DOE), to any Committee of Congress, the General Accounting Office, or other Congressional agencies authorized by law to receive such information. A court of competent jurisdiction may obtain this information in response to an order.

Information on operable atmospheric crude oil distillation capacity, downstream charge capacity, and production capacity (Sections 3, 4 and 5) on Form EIA-820 are not considered as confidential, and historically have not been treated as such. Company identifiable data are published in the *Petroleum Supply Annual (PSA) 2002*, Volume 1, Tables 38, 39, and 40.

Other data (Sections 1, 2, 6 and respondent information) on the Form EIA-820 are kept confidential and not disclosed to the public to the extent that it satisfies the criteria for exemption under the Freedom of Information Act (FOIA), 5 U.S.C.552, Department of Energy (DOE) regulations, 10 C.F.R.1004.11, implementing the FOIA, and the Trade Secrets Act, 18 U.S.C.1905.



Upon receipt of a request for this information under the FOIA, the DOE shall make a final determination whether the information is exempt from disclosure in accordance with the procedures and criteria provided in the regulations. To assist us in this determination, respondents should demonstrate to the DOE that, for example, their information contains trade secrets or commercial or financial information whose release would be likely to cause substantial harm to their company's competitive position. A letter accompanying the submission that explains (on an element-by-element basis) the reasons why the information would be likely to cause the respondent substantial competitive harm if released to the public would aid in this determination. A new justification does not need to be provided each time information is submitted on the form, if the company has previously submitted a justification for that information and the justification has not changed.

The data collected on Form EIA-820, "Annual Refinery Report," is used to report aggregate statistics on and conduct analyses of the operation of U.S. petroleum refineries. The data appear in EIA publications such as *PSA*, and the *Annual Energy Review*. Company specific data are also provided to other DOE offices for the purpose of examining specific refinery operations in the context of emergency response planning and actual emergencies.

The tables pertaining to refinery receipts of crude oil by method of transportation and fuels consumed at the refinery published in the *PSA* are not subject to statistical nondisclosure procedures. Thus, there may be some table cells which are based on data from only one or two respondents, or which are dominated by data from one or two large respondents. In these cases, it may be possible for a knowledgeable user of the data to make inferences about the data reported by a specific respondent.

#### **Quality Control**

There are two types of errors usually associated with data produced from a survey -sampling errors and nonsampling errors. Because estimates from the Form EIA-820 survey are based on a complete census of the frame of petroleum refineries, there is no sampling error in the data presented in this report. The data, however, are subject to nonsampling errors. Nonsampling errors are those which can arise from: (1) the inability to obtain data from all companies in the frame or sample (nonresponse) and the method used to account for nonresponses; (2) definitional difficulties and/or improperly worded questions which lead to different interpretations; (3) mistakes in recording or coding the data obtained from respondents; and (4) other errors of collection, response, coverage, and estimation. Quality control procedures are employed in the collection and editing operations to minimize misrepresentation and misreporting. Nonresponse follow-up procedures are employed to reduce the number of nonrespondents, and procedures employed to impute missing data, introduce a minimal amount of error, given the relatively small volume of imputed data.

#### **Resubmissions**

Resubmissions are required whenever an error greater than 5 percent of the true value is discovered. In the event of a reporting error, company reports are updated after contact with the company and are followed up by corrected report resubmissions. Late submissions or resubmissions received after the publication date are entered into a "working" file. This file contains the most up-to-date data for the Form EIA-820 and is used to edit next year's data.

# NPRA United States Refining and Storage Capacity Report



# Definitions of Petroleum Products and Other Terms

**Alcohol.** The family name of a group of organic chemical compounds composed of carbon, hydrogen, and oxygen. The series of molecules vary in chain length and are composed of a hydrocarbon plus a hydroxyl group;  $\text{CH}_3\text{-(CH}_2\text{)}_n\text{-OH}$  (e.g., methanol, ethanol, and tertiary butyl alcohol).

**Alkylate.** The product of an alkylation reaction. It usually refers to the high octane product from alkylation units. This alkylate is used in blending high octane gasoline.

**Alkylation.** A refining process for chemically combining isobutane with olefin hydrocarbons (e.g., propylene, butylene) through the control of temperature and pressure in the presence of an acid catalyst, usually sulfuric acid or hydrofluoric acid. The product, alkylate, an isoparaffin, has high octane value and is blended with motor and aviation gasoline to improve the antiknock value of the fuel.

**API Gravity.** An arbitrary scale expressing the gravity ordensity of liquid petroleum products. The measuring scale is calibrated in terms of degrees API; it may be calculated in terms of the following formula:

$$\text{Degrees API} = \frac{141.5}{\text{sp.gr.}_{60^\circ\text{F}/60^\circ\text{F}}} - 131.5$$

The higher the API gravity, the lighter the compound. Light crudes generally exceed 38 degrees API and heavy crudes are commonly labeled as all crudes with an API gravity of 22 degrees or below. Intermediate crudes fall in the range of 22 degrees to 38 degrees API gravity.

**Aromatics.** Hydrocarbons characterized by unsaturated ring structures of carbon atoms. Commercial petroleum aromatics are benzene, toluene, and xylene (BTX).

**Asphalt.** A dark-brown-to-black cement-like material containing bitumens as the predominant constituent obtained by petroleum processing; used primarily for road construction. It includes crude asphalt as well as the following finished products: cements, fluxes, the asphalt content of emulsions (exclusive of water), and petroleum distillates blended with asphalt to make cutback asphalts. *Note:* The conversion factor for asphalt is 5.5 barrels per short ton.

**ASTM.** The acronym for the American Society for Testing and Materials.

**Atmospheric Crude Oil Distillation.** The refining process of separating crude oil components at atmospheric pressure by heating to temperatures of about  $600^\circ$  to  $750^\circ$  F (depending on the nature of the crude oil and desired products) and subsequent condensing of the fractions by cooling.

**Aviation Gasoline (Finished).** A complex mixture of relatively volatile hydrocarbons with or without small quantities of additives, blended to form a fuel suitable for use in aviation reciprocating engines. Fuel specifications are provided in ASTM Specification D 910 and Military Specification MIL-G-5572. *Note:* Data on blending components are not counted in data on finished aviation gasoline.

**Aviation Gasoline. Blending Components.** Naphthas which will be used for blending or compounding into finished aviation gasoline (e.g., straight-run gasoline, alkylate, reformat, benzene, toluene, and xylene). Excludes oxygenates (alcohols, ethers), butane, and pentanes plus. Oxygenates are reported as other hydrocarbons, hydrogen, and oxygenates.

**Barrel.** A unit of volume equal to 42 U.S. gallons.

**Barrels Per Calendar Day.** The amount of input that a distillation facility can process under usual operating conditions. The amount is expressed in terms of capacity during a 24-hour period and reduces the maximum processing capability of all units at the facility under continuous operation (see **Barrels per Stream Day**) to account for the following limitations that may delay, interrupt, or slow down production:

the capability of downstream facilities to absorb the output of crude oil processing facilities of a given refinery. No reduction is made when a planned distribution of intermediate streams through other than downstream facilities is part of a refinery's normal operation;

the types and grades of inputs to be processed;

the types and grades of products expected to be manufactured;

the environmental constraints associated with refinery operations;

the reduction of capacity for scheduled downtime due to such conditions as routine inspection, maintenance, repairs, and turnaround; and

the reduction of capacity for unscheduled downtime due to such conditions as mechanical problems, repairs, and slowdowns.

**Barrels Per Stream Day.** The maximum number of barrels of input that a distillation facility can process within a 24-hour period when running at full capacity under optimal crude and product slate conditions with no allowance for downtime.

**Benzene (C<sub>6</sub>H<sub>6</sub>).** An aromatic hydrocarbon present in small proportion in some crude oils and made commercially from petroleum by the catalytic reforming of naphthenes in petroleum naphtha. Also made from coal in the manufacture of coke. Used as a solvent, in manufacturing detergents, synthetic fibers, and petrochemicals and as a component of high-octane gasoline.

**Blending Components.** See Motor or Aviation Gasoline Blending Components.

**Blending Plant.** A facility which has no refining capability but is either capable of producing finished motor gasoline through mechanical blending or blends oxygenates with motor gasoline.

**Bonded Petroleum Imports.** Petroleum imported and entered into Customs bonded storage. These imports are not included in the import statistics until they are: (1) withdrawn from storage free of duty for use as fuel for vessels and aircraft engaged in international trade; or (2) withdrawn from storage with duty paid for domestic use.

**BTX.** The acronym for the commercial petroleum aromatics benzene, toluene, and xylene. See individual categories for definitions.

**Bulk Station.** A facility used primarily for the storage and/or marketing of petroleum products which has a total bulk storage capacity of less than 50,000 barrels and receives its petroleum products by tank car or truck.

**Bulk Terminal.** A facility used primarily for the storage and/or marketing of petroleum products which has a total bulk storage capacity of 50,000 barrels or more and/or receives petroleum products by tanker, barge, or pipeline.

**Butane (C<sub>4</sub>H<sub>10</sub>).** A normally gaseous straight-chain or branch-chain hydrocarbon extracted from natural gas or refinery gas streams. It includes isobutane and normal butane and is designated in ASTM Specification D1835 and Gas Processors Association Specifications for commercial butane.

**Isobutane (C<sub>4</sub>H<sub>10</sub>).** A normally gaseous branch-chain hydrocarbon. It is a colorless paraffinic gas that boils at

a temperature of 10.9° F. It is extracted from natural gas or refinery gas streams.

**Normal Butane (C<sub>4</sub>H<sub>10</sub>).** A normally gaseous straight-chain hydrocarbon. It is a colorless paraffinic gas that boils at a temperature of 31.1° F. It is extracted from natural gas or refinery gas streams.

**Butylene (C<sub>4</sub>H<sub>8</sub>).** An olefinic hydrocarbon recovered from refinery processes.

**Captive Refinery Oxygenate Plants.** Oxygenate production facilities located within or adjacent to a refinery complex.

**Catalytic Cracking.** The refining process of breaking down the larger, heavier, and more complex hydrocarbon molecules into simpler and lighter molecules. Catalytic cracking is accomplished by the use of a catalytic agent and is an effective process for increasing the yield of gasoline from crude oil. Catalytic cracking processes fresh feeds and recycled feeds.

**Fresh Feeds.** Crude oil or petroleum distillates which are being fed to processing units for the first time.

**Recycled Feeds.** Feeds that are continuously fed back for additional processing.

**Catalytic Hydrocracking.** A refining process that uses hydrogen and catalysts with relatively low temperatures and high pressures for converting middle boiling or residual material to high-octane gasoline, reformer charge stock, jet fuel, and/or high grade fuel oil. The process uses one or more catalysts, depending upon product output, and can handle high sulfur feedstocks without prior desulfurization.

**Catalytic Hydrotreating.** A refining process for treating petroleum fractions from atmospheric or vacuum distillation units (e.g., naphthas, middle distillates, reformer feeds, residual fuel oil, and heavy gas oil) and other petroleum (e.g., cat cracked naphtha, coker naphtha, gas oil, etc.) in the presence of catalysts and substantial quantities of hydrogen. Hydrotreating includes desulfurization, removal of substances (e.g., nitrogen compounds) that deactivate catalysts, conversion of olefins to paraffins to reduce gum formation in gasoline, and other processes to upgrade the quality of the fractions.

**Catalytic Reforming.** A refining process using controlled heat and pressure with catalysts to rearrange certain hydrocarbon molecules, thereby converting paraffinic and naphthenic type hydrocarbons (e.g., low-octane gasoline boiling range fractions) into petrochemical feedstocks and higher octane stocks suitable for blending into finished

gasoline. Catalytic reforming is reported in two categories. They are:

**Low Pressure.** A processing unit operating at less than 225 pounds per square inch gauge (PSIG) measured at the outlet separator.

**High Pressure.** A processing unit operating at either equal to or greater than 225 pounds per square inch gauge (PSIG) measured at the outlet separator.

**Charge Capacity.** The input (feed) capacity of the refinery processing facilities.

**Coal.** A readily combustible black or brownish-black rock whose composition, including inherent moisture, consists of more than 50 percent by weight and more than 70 percent by volume of carbonaceous material. It is formed from plant remains that have been compacted, hardened, chemically altered, and metamorphosed by heat and pressure over geologic time.

**Commercial Kerosene-Type Jet Fuel.** See **Kerosene-type Jet Fuel.**

**Conventional Gasoline.** See **Other Finished Motor Gasoline.**

**Crude Oil.** A mixture of hydrocarbons that exists in liquid phase in natural underground reservoirs and remains liquid at atmospheric pressure after passing through surface separating facilities. Depending upon the characteristics of the crude stream, it may also include:

Small amounts of hydrocarbons that exist in gaseous phase in natural underground reservoirs but are liquid at atmospheric pressure after being recovered from oil well (casinghead) gas in lease separators and are subsequently commingled with the crude stream without being separately measured. Lease condensate recovered as a liquid from natural gas wells in lease or field separation facilities and later mixed into the crude stream is also included;

Small amounts of nonhydrocarbons produced from oil, such as sulfur and various metals;

Drip gases, and liquid hydrocarbons produced from tar sands, gilsonite, and oil shale.

Liquids produced at natural gas processing plants are excluded. Crude oil is refined to produce a wide array of petroleum products, including heating oils; gasoline, diesel and jet fuels; lubricants; asphalt; ethane, propane, and butane; and many other products used for their energy or chemical content.

Crude oil is considered as either domestic or foreign, according to the following:

**Domestic.** Crude oil produced in the United States or from its "outer continental shelf" as defined in 43 USC 1331.

**Foreign.** Crude oil produced outside the United States. Imported Athabasca hydrocarbons (tar sands from Canada) are included.

**Crude Oil, Refinery Receipts.** Receipts of domestic and foreign crude oil at a refinery. Includes all crude oil in transit except crude oil in transit by pipeline. Foreign crude oil is reported as a receipt only after entry through customs. Crude oil of foreign origin held in bonded storage is excluded.

**Crude Oil Losses.** Represents the volume of crude oil reported by petroleum refineries as being lost in their operations. These losses are due to spills, contamination, fires, etc. as opposed to refinery processing losses.

**Crude Oil Production.** The volume of crude oil produced from oil reservoirs during given periods of time. The amount of such production for a given period is measured as volumes delivered from lease storage tanks (i.e., the point of custody transfer) to pipelines, trucks, or other media for transport to refineries or terminals with adjustments for (1) net differences between opening and closing lease inventories, and (2) basic sediment and water (BS&W).

**Crude Oil Qualities.** Refers to two properties of crude oil, the sulfur content and API gravity, which affect processing complexity and product characteristics.

**Delayed Coking.** A process by which heavier crude oil fractions can be thermally decomposed under conditions of elevated temperatures and pressure to produce a mixture of lighter oils and petroleum coke. The light oils can be processed further in other refinery units to meet product specifications. The coke can be used either as a fuel or in other applications such as the manufacturing of steel or aluminum.

**Disposition.** The components of petroleum disposition are stock change, crude oil losses, refinery inputs, exports, and products supplied for domestic consumption.

**Distillate Fuel Oil.** A general classification for one of the petroleum fractions produced in conventional distillation operations. It includes diesel fuels and fuel oils. Products known as No. 1, No. 2, and No. 4 diesel fuel are used in on-highway diesel engines, such as those in trucks and automobiles, as well as off-highway engines, such as those in railroad locomotives and agricultural machinery.

Products known as No. 1, No. 2, and No. 4 fuel oils are used primarily for space heating and electric power generation.

**No. 1 Distillate.** A light petroleum distillate that can be used as either a diesel fuel (see **No. 1 Diesel Fuel**) or a fuel oil. See **No. 1 Fuel Oil**.

**No. 1 Diesel Fuel.** A light distillate fuel oil that has distillation temperatures of 550 degrees Fahrenheit at the 90-percent point and meets the specifications defined in ASTM Specification D 975. It is used in high-speed diesel engines generally operated under frequent speed and load changes, such as those in city buses and similar vehicles. See **No. 1 Distillate**.

**No. 1 Fuel Oil.** A light distillate fuel oil that has distillation temperatures of 400 degrees Fahrenheit at the 10-percent recovery point and 550 degrees Fahrenheit at the 90-percent point and meets the specifications defined in ASTM Specification D 396. It is used primarily as fuel for portable outdoor stoves and portable outdoor heaters. See **No. 1 Distillate**.

**No. 2 Distillate.** A petroleum distillate that can be used as either a diesel fuel (see **No. 2 Diesel Fuel**) or a fuel oil. See **No. 2 Fuel Oil**.

**No. 2 Diesel Fuel.** A fuel that has distillation temperatures of 500 degrees Fahrenheit at the 10-percent recovery point and 640 degrees Fahrenheit at the 90-percent recovery point and meets the specifications defined in ASTM Specification D 975. It is used in high speed diesel engines that are generally operated under uniform speed and load conditions, such as those in railroad locomotives, trucks, and automobiles. See **No. 2 Distillate**.

**Low Sulfur No. 2 Diesel Fuel.** No. 2 diesel fuel that has a sulfur level no higher than 0.05 percent by weight. It is used primarily in motor vehicle diesel engines for on-highway use.

**High Sulfur No. 2 Diesel Fuel.** No. 2 diesel fuel that has a sulfur level above 0.05 percent by weight.

**No. 2 Fuel Oil (Heating Oil).** A distillate fuel oil that has distillation temperatures of 400 degrees Fahrenheit at the 10-percent recovery point and 640 degrees Fahrenheit at the 90-percent recovery point and meets the specifications defined in ASTM Specification D 396. It is used in atomizing type burners for domestic heating or for moderate capacity commercial/industrial burner units. See **No. 2 Distillate**.

**No. 4 Fuel.** A distillate fuel oil made by blending distillate fuel oil and residual fuel oil stocks. It conforms with ASTM Specification D 396 or Federal Specification VV-F-815C and is used extensively in industrial plants and in commercial burner installations that are not equipped with preheating facilities. It also includes No. 4 diesel fuel used for low- and medium-speed diesel engines and conforms to ASTM Specification D 975.

**No. 4 Diesel Fuel.** See **No. 4 Fuel**.

**No. 4 Fuel Oil.** See **No. 4 Fuel**.

**Electricity (Purchased).** Electricity purchased for refinery operations that is not produced within the refinery complex.

**Ending Stocks.** Primary stocks of crude oil and petroleum products held in storage as of 12 midnight on the last day of the month. Primary stocks include crude oil or petroleum products held in storage at (or in) leases, refineries, natural gas processing plants, pipelines, tank farms, and bulk terminals that can store at least 50,000 barrels of petroleum products or that can receive petroleum products by tanker, barge, or pipeline. Crude oil that is in-transit by water from Alaska, or that is stored on Federal leases or in the Strategic Petroleum Reserve is included. Primary Stocks exclude stocks of foreign origin that are held in bonded warehouse storage.

**ETBE (Ethyl tertiary butyl ether) (CH<sub>3</sub>)<sub>3</sub>CO<sub>2</sub>H<sub>5</sub>.** An oxygenate blend stock formed by the catalytic etherification of isobutylene with ethanol.

**Ethane (C<sub>2</sub>H<sub>6</sub>).** A normally gaseous straight-chain hydrocarbon. It is a colorless paraffinic gas that boils at a temperature of -127.48° F. It is extracted from natural gas and refinery gas streams.

**Ether.** A generic term applied to a group of organic chemical compounds composed of carbon, hydrogen, and oxygen, characterized by an oxygen atom attached to two carbon atoms (e.g., methyl tertiary butyl ether).

**Ethylene (C<sub>2</sub>H<sub>4</sub>).** An olefinic hydrocarbon recovered from refinery processes or petrochemical processes.

**Exports.** Shipments of crude oil and petroleum products from the 50 States and the District of Columbia to foreign countries, Puerto Rico, the Virgin Islands, and other U.S. possessions and territories.

**Field Production.** Represents crude oil production on leases, natural gas liquids production at natural gas processing plants, new supply of other hydrocarbons/

oxygenates and motor gasoline blending components, and fuel ethanol blended into finished motor gasoline.

**Flexicoking.** A thermal cracking process which converts heavy hydrocarbons such as crude oil, tar sands bitumen, and distillation residues into light hydrocarbons. Feedstocks can be any pumpable hydrocarbons including those containing high concentrations of sulfur and metals.

**Fluid Coking.** A thermal cracking process utilizing the fluidized-solids technique to remove carbon (coke) for continuous conversion of heavy, low-grade oils into lighter products.

**Fresh Feed Input.** Represents input of material (crude oil, unfinished oils, natural gas liquids, other hydrocarbons and oxygenates or finished products) to processing units at a refinery that is being processed (input) into a particular unit for the first time.

Examples:

(1) Unfinished oils coming out of a crude oil distillation unit which are input into a catalytic cracking unit are considered fresh feed to the catalytic cracking unit.

(2) Unfinished oils coming out of a catalytic cracking unit being looped back into the same catalytic cracking unit to be reprocessed are not considered fresh feed.

**Fuel Ethanol (C<sub>2</sub>H<sub>5</sub>OH).** An anhydrous denatured aliphatic alcohol intended for gasoline blending as described in Oxygenates definition.

**Fuels Solvent Deasphalting.** A refining process for removing asphalt compounds from petroleum fractions, such as reduced crude oil. The recovered stream from this process is used to produce fuel products.

**Gas Oil.** A liquid petroleum distillate having a viscosity intermediate between that of kerosene and lubricating oil. It derives its name from having originally been used in the manufacture of illuminating gas. It is now used to produce distillate fuel oils and gasoline.

**Gasohol.** A blend of finished motor gasoline containing alcohol (generally ethanol but sometimes methanol) at a concentration of 10 percent or less by volume. Data on gasohol that has at least 2.7 percent oxygen, by weight, and is intended for sale inside carbon monoxide nonattainment areas are included in data on oxygenated gasoline. See **Oxygenates**.

**Gasoline Blending Components.** Naphthas which will be used for blending or compounding into finished aviation

or motor gasoline (e.g., straight-run gasoline, alkylate, reformate, benzene, toluene, and xylene). Excludes oxygenates (alcohols, ethers), butane, and pentanes plus.

**Gross Input to Atmospheric Crude Oil Distillation Units.** Total input to atmospheric crude oil distillation units. Includes all crude oil, lease condensate, natural gas plant liquids, unfinished oils, liquefied refinery gases, slop oils, and other liquid hydrocarbons produced from tar sands, gilsonite, and oil shale.

**Heavy Gas Oil.** Petroleum distillates with an approximate boiling range from 651<sup>o</sup> to 1000<sup>o</sup> F.

**Hydrogen.** The lightest of all gases, occurring chiefly in combination with oxygen in water; exists also in acids, bases, alcohols, petroleum, and other hydrocarbons.

**Idle Capacity.** The component of operable capacity that is not in operation and not under active repair, but capable of being placed in operation within 30 days; and capacity not in operation but under active repair that can be completed within 90 days.

**Imported Crude Oil Burned As Fuel.** The amount of foreign crude oil burned as a fuel oil, usually as residual fuel oil, without being processed as such. Imported crude oil burned as fuel includes lease condensate and liquid hydrocarbons produced from tar sands, gilsonite, and oil shale.

**Imports.** Receipts of crude oil and petroleum products into the 50 States and the District of Columbia from foreign countries, Puerto Rico, the Virgin Islands, and other U.S. possessions and territories.

**Isobutane.** See **Butane**.

**Isobutylene (C<sub>4</sub>H<sub>8</sub>).** An olefinic hydrocarbon recovered from refinery processes or petrochemical processes.

**Isohexane (C<sub>6</sub>H<sub>14</sub>).** A saturated branch-chain hydrocarbon. It is a colorless liquid that boils at a temperature of 156.2<sup>o</sup> F.

**Isomerization.** A refining process which alters the fundamental arrangement of atoms in the molecule without adding or removing anything from the original material. Used to convert normal butane into isobutane (C<sub>4</sub>), an alkylation process feedstock, and normal pentane and hexane into isopentane (C<sub>5</sub>) and isohexane (C<sub>6</sub>), high-octane gasoline components.

**Isopentane.** See **Natural Gasoline and Isopentane**.

**Kerosene.** A light petroleum distillate that is used in space heaters, cook stoves, and water heaters and is suitable for

use as a light source when burned in wick-fed lamps. Kerosene has a maximum distillation temperature of 400 degrees Fahrenheit at the 10-percent recovery point, a final boiling point of 572 degrees Fahrenheit, and a minimum flash point of 100 degrees Fahrenheit. Included are No. 1-K and No. 2-K, the two grades recognized by ASTM Specification D 3699 as well as all other grades of kerosene called range or stove oil, which have properties similar to those of No. 1 fuel oil. **See Kerosene-Type Jet Fuel.**

**Kerosene-Type Jet Fuel.** A kerosene-based product having a maximum distillation temperature of 400 degrees Fahrenheit at the 10-percent recovery point and a final maximum boiling point of 572 degrees Fahrenheit and meeting ASTM Specification D 1655 and Military Specifications MIL-T-5624P and MIL-T-83133D (Grades JP-5 and JP-8). It is used for commercial and military turbojet and turboprop aircraft engines.

**Commercial.** Kerosene-type jet fuel intended for use in commercial aircraft.

**Military.** Kerosene-type jet fuel intended for use in military aircraft.

**Lease Condensate.** A mixture consisting primarily of pentanes and heavier hydrocarbons which is recovered as a liquid from natural gas in lease separation facilities. This category excludes natural gas liquids, such as butane and propane, which are recovered at downstream natural gas processing plants or facilities. **See Natural Gas Liquids.**

**Light Gas Oils.** Liquid petroleum distillates heavier than naphtha, with an approximate boiling range from 401° F to 650° F.

**Liquefied Petroleum Gases (LPG).** A group of hydrocarbon-based gases derived from crude oil refining or natural gas fractionation. They include: ethane, ethylene, propane, propylene, normal butane, butylene, isobutane, and isobutylene. For convenience of transportation, these gases are liquefied through pressurization.

**Liquefied Refinery Gases (LRG).** Liquefied petroleum gases fractionated from refinery or still gases. Through compression and/or refrigeration, they are retained in the liquid state. The reported categories are ethane/ethylene, propane/propylene, normal butane/butylene, and isobutane/isobutylene. Excludes still gas.

**Lubricants.** Substances used to reduce friction between bearing surfaces or as process materials either incorporated into other materials used as processing aids in the manufacture of other products, or used as carriers of other materials. Petroleum lubricants may be produced either from distillates or residues. Lubricants include all grades

of lubricating oils from spindle oil to cylinder oil and those used in greases.

**Merchant Oxygenate Plants.** Oxygenate production facilities that are not associated with a petroleum refinery. Production from these facilities is sold under contract or on the spot market to refiners or other gasoline blenders.

**Methanol (CH<sub>3</sub>OH).** A light, volatile alcohol intended for gasoline blending as described in Oxygenate definition.

**Middle Distillates.** A general classification of refined petroleum products that includes distillate fuel oil and kerosene.

**Military Kerosene-Type Jet Fuel.** See **Kerosene-Type Jet Fuel.**

**Miscellaneous Products.** Includes all finished products not classified elsewhere (e.g., petrolatum, lube refining byproducts (aromatic extracts and tars), absorption oils, ram-jet fuel, petroleum rocket fuels, synthetic natural gas feedstocks, and specialty oils).

**Motor Gasoline (Finished).** A complex mixture of relatively volatile hydrocarbons with or without small quantities of additives, blended to form a fuel suitable for use in spark-ignition engines. Motor gasoline, as defined in ASTM Specification D 4814 or Federal Specification VV-G-1690C, is characterized as having a boiling range of 122 to 158 degrees Fahrenheit at the 10 percent recovery point to 365 to 374 degrees Fahrenheit at the 90 percent recovery point. "Motor Gasoline" includes conventional gasoline; all types of oxygenated gasoline, including gasohol; and reformulated gasoline, but excludes aviation gasoline. *Note:* Volumetric data on blending components, such as oxygenates, are not counted in data on finished motor gasoline until the blending components are blended into the gasoline.

**Reformulated Gasoline.** Finished motor gasoline formulated for use in motor vehicles, the composition and properties of which meet the requirements of the reformulated gasoline regulations promulgated by the U.S. Environmental Protection Agency under Section 211(k) of the Clean Air Act. *Note:* This category includes oxygenated fuels program reformulated gasoline (OPRG) but excludes reformulated gasoline blendstock for oxygenate blending (RBOB).

**Oxygenated Gasoline (Including Gasohol).** Finished motor gasoline, other than reformulated gasoline, having an oxygen content of 2.7 percent or higher by weight. Includes gasohol. *Note:* Oxygenated gasoline excludes oxygenated fuels program reformulated gasoline (OPRG) and reformulated gasoline blendstock for oxygenate blending (RBOB).



**OPRG (Oxygenated Fuels Program Reformulated Gasoline)** . A reformulated gasoline which is intended for use in an oxygenated fuels program control period.

**Other Finished or Conventional Gasoline.** Finished motor gasoline not included in the oxygenated or reformulated gasoline categories. *Note:* This category excludes reformulated gasoline blendstock for oxygenate blending (RBOB) as well as other blendstock.

**Motor Gasoline Blending.** Mechanical mixing of motor gasoline blending components, and oxygenates when required, to produce finished motor gasoline. Finished motor gasoline may be further mixed with other motor gasoline blending components or oxygenates, resulting in increased volumes of finished motor gasoline and/or changes in the formulation of finished motor gasoline (e.g., conventional motor gasoline mixed with MTBE to produce oxygenated motor gasoline).

**Motor Gasoline Blending Components.** Naphthas (e.g., straight-run gasoline, alkylate, reformate, benzene, toluene, xylene) used for blending or compounding into finished motor gasoline. These components include reformulated gasoline blendstock for oxygenate blending (RBOB) but exclude oxygenates (alcohols, ethers), butane, and pentanes plus. *Note:* Oxygenates are reported as individual components and are included in the total for other hydrocarbons, hydrogens, and oxygenates.

**MTBE (Methyl tertiary butyl ether) (CH<sub>3</sub>)<sub>3</sub>COCH<sub>3</sub>.** An ether intended for gasoline blending as described in Oxygenate definition.

**Naphtha.** A generic term applied to a petroleum fraction with an approximate boiling range between 122° and 400° F.

**Naphtha Less Than 401° F.** See **Petrochemical Feedstocks.**

**Naphtha-Type Jet Fuel.** A fuel in the heavy naphtha boiling range having an average gravity of 52.8 degrees API, 20 to 90 percent distillation temperatures of 290 degrees to 470 degrees Fahrenheit, and meeting Military Specification MIL-T-5624L (Grade JP-4). It is used primarily for military turbojet and turboprop aircraft engines because it has a lower freeze point than other aviation fuels and meets engine requirements at high altitudes and speeds.

**Natural Gas.** A gaseous mixture of hydrocarbon compounds, the primary one being **methane**.

**Natural Gas Field Facility.** A field facility designed to process natural gas produced from more than one lease for the purpose of recovering condensate from a stream of natural gas; however, some field facilities are designed to

recover propane, normal butane, pentanes plus, etc., and to control the quality of natural gas to be marketed.

**Natural Gas Liquids.** Those hydrocarbons in natural gas that are separated from the gas as liquids through the process of absorption, condensation, adsorption, or other methods in gas processing or cycling plants. Generally such liquids consist of propane and heavier hydrocarbons and are commonly referred to as lease condensate, natural gasoline, and liquefied petroleum gases. Natural gas liquids include natural gas plant liquids (primarily ethane, propane, butane, and isobutane; see **Natural Gas Plant Liquids**) and lease condensate (primarily pentanes produced from natural gas at lease separators and field facilities; see **Lease Condensate**).

**Natural Gas Plant Liquids.** Those hydrocarbons in natural gas that are separated as liquids at natural gas processing plants, fractionating and cycling plants, and, in some instances, field facilities. Lease condensate is excluded. Products obtained include ethane; liquefied petroleum gases (propane, butanes, propane-butane mixtures, ethane-propane mixtures); isopentane; and other small quantities of finished products, such as motor gasoline, special naphthas, jet fuel, kerosene, and distillate fuel oil.

**Natural Gas Processing Plant.** Facilities designed to recover natural gas liquids from a stream of natural gas that may or may not have passed through lease separators and/or field separation facilities. These facilities control the quality of the natural gas to be marketed. Cycling plants are classified as gas processing plants.

**Natural Gasoline and Isopentane.** A mixture of hydrocarbons, mostly pentanes and heavier, extracted from natural gas, that meets vapor pressure, end-point, and other specifications for natural gasoline set by the Gas Processors Association. Includes isopentane which is a saturated branch-chain hydrocarbon, (C<sub>5</sub>H<sub>12</sub>), obtained by fractionation of natural gasoline or isomerization of normal pentane.

**Net Receipts.** The difference between total movements into and total movements out of each PAD District by pipeline, tanker, and barge.

**Normal Butane.** See **Butane**.

**OPEC.** The acronym for the Organization of Petroleum Exporting Countries, that have organized for the purpose of negotiating with oil companies on matters of oil production, prices and future concession rights. Current members are Algeria, Indonesia, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, United Arab Emirates, and Venezuela. The Neutral Zone between Kuwait and Saudi Arabia is considered part of OPEC.

Prior to January 1, 1993, Ecuador was a member of OPEC. Prior to January 1995, Gabon was a member of OPEC.

**OPRG (Oxygenated Fuels Program Reformulated Gasoline).** A reformulated gasoline which is intended for use in an oxygenated fuels program control area during an oxygenated fuels program control period.

**Operable Capacity.** The amount of capacity that, at the beginning of the period, is in operation; not in operation and not under active repair, but capable of being placed in operation within 30 days; or not in operation but under active repair that can be completed within 90 days. Operable capacity is the sum of the operating and idle capacity and is measured in barrels per calendar day or barrels per stream day.

**Operating Capacity.** The component of operable capacity that is in operation at the beginning of the period.

**Operable Utilization Rate.** Represents the utilization of the atmospheric crude oil distillation units. The rate is calculated by dividing the gross input to these units by the operable refining capacity of the units.

**Operating Utilization Rate.** Represents the utilization of the atmospheric crude oil distillation units. The rate is calculated by dividing the gross input to these units by the operating refining capacity of the units.

**Other Finished.** See **Motor Gasoline (Finished)**.

**Other Hydrocarbons.** Materials received by a refinery and consumed as a raw material. Includes hydrogen, coal tar derivatives, gilsonite, and natural gas received by the refinery for reforming into hydrogen. Natural gas to be used as fuel is excluded.

**Other Oils Equal To or Greater Than 401° F.** See **Petrochemical Feedstocks**.

**Other Oxygenates.** Other aliphatic alcohols and aliphatic ethers intended for motor gasoline blending (e.g., isopropyl ether (IPE) or n-propanol).

**Oxygenated Gasoline.** See **Motor Gasoline (Finished)**.

**Oxygenates.** Substances which, when added to gasoline, increase the amount of oxygen in that gasoline blend. Ethanol, Methyl Tertiary Butyl Ether (MTBE), Ethyl Tertiary Butyl Ether (ETBE), and methanol are common oxygenates.

**Fuel Ethanol.** Blends of up to 10 percent by volume anhydrous ethanol (200 proof) (commonly referred to as the "gasohol waiver").

**Methanol.** Blends of methanol and gasoline-grade tertiary butyl alcohol (GTBA) such that the total oxygen content does not exceed 3.5 percent by weight and the ratio of methanol to GTBA is less than or equal to 1. It is also specified that this blended fuel must meet ASTM volatility specifications (commonly referred to as the "ARCO" waiver).

Blends of up to 5.0 percent by volume methanol with a minimum of 2.5 percent by volume cosolvent alcohols having a carbon number of 4 or less (i.e., ethanol, propanol, butanol, and/or GTBA). The total oxygen must not exceed 3.7 percent by weight, and the blend must meet ASTM volatility specifications as well as phase separation and alcohol purity specifications (commonly referred to as the "DuPont" waiver).

**MTBE (Methyl tertiary butyl ether).** Blends up to 15.0 percent by volume MTBE which must meet the ASTM D4814 specifications. Blenders must take precautions that the blends are not used as base gasolines for other oxygenated blends (commonly referred to as the "Sun" waiver).

**Pentanes Plus.** A mixture of hydrocarbons, mostly pentanes and heavier, extracted from natural gas. Includes isopentane, natural gasoline, and plant condensate.

**Persian Gulf.** The countries that comprise the Persian Gulf are: Bahrain, Iran, Iraq, Kuwait, Qatar, Saudi Arabia, and the United Arab Emirates.

**Petrochemical Feedstocks.** Chemical feedstocks derived from petroleum principally for the manufacture of chemicals, synthetic rubber, and a variety of plastics. The categories reported are "Naphtha Less Than 401° F" and "Other Oils Equal To or Greater Than 401° F."

**Naphtha Less Than 401° F** A naphtha with a boiling range of less than 401° F that is intended for use as a petrochemical feedstock.

**Other Oils Equal To or Greater Than 401° F** Oils with a boiling range equal to or greater than 401° F that are intended for use as a petrochemical feedstock.

**Petroleum Administration for Defense (PAD) Districts.** Geographic aggregations of the 50 States and the District of Columbia into five districts by the Petroleum Administration for Defense in 1950. These districts were originally defined during World War II for purposes of administering oil allocation.

**Petroleum Coke.** A residue high in carbon content and low in hydrogen that is the final product of thermal decomposition in the condensation process in cracking. This product is reported as marketable coke or catalyst

coke. The conversion is 5 barrels (of 42 U.S. gallons each) per short ton. Coke from petroleum has a heating value of 6.024 million Btu per barrel.

**Marketable Coke.** Those grades of coke produced in delayed or fluid cokers which may be recovered as relatively pure carbon. This “green” coke may be sold as is or further purified by calcining.

**Catalyst Coke.** In many catalytic operations (e.g., catalytic cracking) carbon is deposited on the catalyst, thus deactivating the catalyst. The catalyst is reactivated by burning off the carbon, which is used as a fuel in the refining process. This carbon or coke is not recoverable in a concentrated form.

**Petroleum Products.** Petroleum products are obtained from the processing of crude oil (including lease condensate), natural gas, and other hydrocarbon compounds. Petroleum products include unfinished oils, liquefied petroleum gases, pentanes plus, aviation gasoline, motor gasoline, naphtha-type jet fuel, kerosene-type jet fuel, kerosene, distillate fuel oil, residual fuel oil, petrochemical feedstocks, special naphthas, lubricants, waxes, petroleum coke, asphalt, road oil, still gas, and miscellaneous products.

**Pipeline (Petroleum).** Crude oil and product pipelines used to transport crude oil and petroleum products respectively, (including interstate, intrastate, and intracompany pipelines) within the 50 States and the District of Columbia.

**Plant Condensate.** One of the natural gas liquids, mostly pentanes and heavier hydrocarbons, recovered and separated as liquids at gas inlet separators or scrubbers in processing plants.

**Processing Gain.** The volumetric amount by which total output is greater than input for a given period of time. This difference is due to the processing of crude oil into products which, in total, have a lower specific gravity than the crude oil processed.

**Processing Loss.** The volumetric amount by which total refinery output is less than input for a given period of time. This difference is due to the processing of crude oil into products which, in total, have a higher specific gravity than the crude oil processed.

**Product Supplied, Crude Oil.** Crude oil burned on leases and by pipelines as fuel.

**Production Capacity.** The maximum amount of product that can be produced from processing facilities.

**Products Supplied.** Approximately represents consumption of petroleum products because it measures the disappearance of these products from primary sources, i.e., refineries, natural gas processing plants, blending plants, pipelines, and bulk terminals. In general, product supplied of each product in any given period is computed as follows: field production, plus refinery production, plus imports, plus unaccounted for crude oil, (plus net receipts when calculated on a PAD District basis), minus stock change, minus crude oil losses, minus refinery inputs, minus exports.

**Propane (C<sub>3</sub>H<sub>8</sub>).** A normally gaseous straight-chain hydrocarbon. It is a colorless paraffinic gas that boils at a temperature of -43.67° F. It is extracted from natural gas or refinery gas streams. It includes all products designated in ASTM Specification D1835 and Gas Processors Association Specifications for commercial propane and HD-5 propane.

**Propylene (C<sub>3</sub>H<sub>6</sub>).** An olefinic hydrocarbon recovered from refinery processes or petrochemical processes.

**RBOB (Reformulated Gasoline Blendstock for Oxygenate Blending).** A motor gasoline blending component which, when blended with a specified type and percentage of oxygenate, meets the definition of reformulated gasoline.

**Refinery.** An installation that manufactures finished petroleum products from crude oil, unfinished oils, natural gas liquids, other hydrocarbons, and oxygenates.

**Refinery Input, Crude Oil.** Total crude oil (domestic plus foreign) input to crude oil distillation units and other refinery processing units (cokers, etc.).

**Refinery Input, Total.** The raw materials and intermediate materials processed at refineries to produce finished petroleum products. They include crude oil, products of natural gas processing plants, unfinished oils, other hydrocarbons and oxygenates, motor gasoline and aviation gasoline blending components and finished petroleum products.

**Refinery Production.** Petroleum products produced at a refinery or blending plant. Published production of these products equals refinery production minus refinery input. Negative production will occur when the amount of a product produced during the month is less than the amount of that same product that is reprocessed (input) or reclassified to become another product during the same month. Refinery production of unfinished oils, and motor and aviation gasoline blending components appear on a net basis under refinery input.

**Refinery Yield.** Refinery yield (expressed as a percentage) represents the percent of finished product produced from input of crude oil and net input of unfinished oils. It is calculated by dividing the sum of crude oil and net unfinished input into the individual net production of finished products. Before calculating the yield for finished motor gasoline, the input of natural gas liquids, other hydrocarbons and oxygenates, and net input of motor gasoline blending components must be subtracted from the net production of finished motor gasoline. Before calculating the yield for finished aviation gasoline, input of aviation gasoline blending components must be subtracted from the net production of finished aviation gasoline.

**Reformulated Gasoline.** See **Motor Gasoline (Finished).**

**Residual Fuel Oil.** A general classification for the heavier oils, known as No. 5 and No. 6 fuel oils, that remain after the distillate fuel oils and lighter hydrocarbons are distilled away in refinery operations. It conforms to ASTM Specifications D 396 and D 975 and Federal Specification VV-F-815C. No. 5, a residual fuel oil of medium viscosity, is also known as Navy Special and is defined in Military Specification MIL-F-859E, including Amendment 2 (NATO Symbol F-770). It is used in steam-powered vessels in government service and inshore powerplants. No. 6 fuel oil includes Bunker C fuel oil and is used for the production of electric power, space heating, vessel bunkering, and various industrial purposes.

**Residuum.** Residue from crude oil after distilling off all but the heaviest components, with a boiling range greater than 1000° F.

**Road Oil.** Any heavy petroleum oil, including residual asphaltic oil used as a dust palliative and surface treatment on roads and highways. It is generally produced in six grades from 0, the most liquid, to 5, the most viscous.

**Shell Storage Capacity.** The design capacity of a petroleum storage tank which is always greater than or equal to working storage capacity.

**Special Naphthas.** All finished products within the naphtha boiling range that are used as paint thinners, cleaners, or solvents. These products are refined to a specified flash point. Special naphthas include all commercial hexane and cleaning solvents conforming to ASTM Specification D1836 and D484, respectively. Naphthas to be blended or marketed as motor gasoline or aviation gasoline, or that are to be used as petrochemical and synthetic natural gas (SNG) feedstocks are excluded.

**Steam (Purchased).** Steam, purchased for use by a refinery, that was not generated from within the refinery complex.

**Still Gas (Refinery Gas).** Any form or mixture of gases produced in refineries by distillation, cracking, reforming, and other processes. The principal constituents are methane, ethane, ethylene, normal butane, butylene, propane, propylene, etc. Still gas is used as a refinery fuel and a petrochemical feedstock. The conversion factor is 6 million BTU's per fuel oil equivalent barrel.

**Stock Change.** The difference between stocks at the beginning of the reporting period and stocks at the end of the reporting period. *Note:* A negative number indicates a decrease (i.e., a drawdown) in stocks and a positive number indicates an increase (i.e., a buildup) in stocks during the reporting period.

**Strategic Petroleum Reserve (SPR).** Petroleum stocks maintained by the Federal Government for use during periods of major supply interruption.

**Sulfur.** A yellowish nonmetallic element, sometimes known as "brimstone." It is present at various levels of concentration in many fossil fuels whose combustion releases sulfur compounds that are considered harmful to the environment. Some of the most commonly used fossil fuels are categorized according to their sulfur content, with lower sulfur fuels usually selling at a higher price. *Note:* No. 2 Distillate fuel is currently reported as having either a 0.05 percent or lower sulfur level for on-highway vehicle use or a greater than 0.05 percent sulfur level for off-highway use, home heating oil, and commercial and industrial uses. Residual fuel, regardless of use, is classified as having either no more than 1 percent sulfur or greater than 1 percent sulfur. Coal is also classified as being low-sulfur at concentrations of 1 percent or less or high-sulfur at concentrations greater than 1 percent.

**Supply.** The components of petroleum supply are field production, refinery production, imports, and net receipts when calculated on a PAD District basis.

**TAME (Tertiary amyl methyl ether) (CH<sub>3</sub>)<sub>2</sub>(C<sub>2</sub>H<sub>5</sub>)COCH<sub>3</sub>.** An oxygenate blend stock formed by the catalytic etherification of isoamylene with methanol.

**Tank Farm.** An installation used by gathering and trunk pipeline companies, crude oil producers, and terminal operators (except refineries) to store crude oil.

**Tanker and Barge.** Vessels that transport crude oil or petroleum products. Data are reported for movements between PAD Districts; from a PAD District to the Panama Canal; or from the Panama Canal to a PAD District.

**TBA (Tertiary butyl alcohol) (CH<sub>3</sub>)<sub>3</sub>COH.** An alcohol primarily used as a chemical feedstock, a solvent or feedstock for isobutylene production for MTBE; produced as

a co-product of propylene oxide production or by direct hydration of isobutylene.

**Thermal Cracking.** A refining process in which heat and pressure are used to break down, rearrange, or combine hydrocarbon molecules. Thermal cracking includes gas oil, visbreaking, fluid coking, delayed coking, and other thermal cracking processes (e.g., flexicoking). See individual categories for definition.

**Toluene ( $C_6H_5CH_3$ ).** Colorless liquid of the aromatic group of petroleum hydrocarbons, made by the catalytic reforming of petroleum naphthas containing methyl cyclohexane. A high-octane gasoline-blending agent, solvent, and chemical intermediate, base for TNT.

**Unaccounted for Crude Oil.** Represents the arithmetic difference between the calculated supply and the calculated disposition of crude oil. The calculated supply is the sum of crude oil production plus imports minus changes in crude oil stocks. The calculated disposition of crude oil is the sum of crude oil input to refineries, crude oil exports, crude oil burned as fuel, and crude oil losses.

**Unfinished Oils.** All oils requiring further processing, except those requiring only mechanical blending. Unfinished oils are produced by partial refining of crude oil and include naphthas and lighter oils, kerosene and light gas oils, heavy gas oils, and residuum.

**Unfractionated Streams.** Mixtures of unsegregated natural gas liquid components excluding, those in plant condensate. This product is extracted from natural gas.

**United States.** The United States is defined as the 50 States and the District of Columbia.

**Vacuum Distillation.** Distillation under reduced pressure (less the atmospheric) which lowers the boiling temperature of the liquid being distilled. This technique with its relatively low temperatures prevents cracking or decomposition of the charge stock.

**Visbreaking.** A thermal cracking process in which heavy atmospheric or vacuum-still bottoms are cracked at moderate temperatures to increase production of distillate products and reduce viscosity of the distillation residues.

**Wax.** A solid or semi-solid material consisting of a mixture of hydrocarbons obtained or derived from petroleum fractions, or through a Fischer-Tropsch type process, in which the straight chained paraffin series predominates. This includes all marketable wax, whether crude or refined, with a congealing point (ASTM D 938) between 100 and 200° F and a maximum oil content (ASTM D 3235) of 50 weight percent.

**Working Storage Capacity.** The difference in volume between the maximum safe fill capacity and the quantity below which pump suction is ineffective (bottoms).

**Xylene  $C_6H_4(CH_3)_2$ .** Colorless liquid of the aromatic group of hydrocarbons made the catalytic reforming of certain naphthenic petroleum fractions. Used as high-octane motor and aviation gasoline blending agents, solvents, chemical intermediates. Isomers are metaxylene, orthoxylene, paraxylene.



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